

# What does it take to make farming sustainable?

Lessons from southern Finnish organic farmers

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## Abstract

The adverse impacts to environmental and human well-being derived from the past achievements in agricultural productivity and modernised food systems now call for building up sustainable farming systems. Increasingly specialised, standardised and concentrated agrifood systems have evoked both academic and practical interest in enhancing more place-based and integrated farming styles with shared beliefs in alternative ways of doing farming. Organic agriculture is one largely recognised attempt to transform food systems towards the better but it has also been questioned for producing lower yields than conventional agriculture, and being subjected to growing market interests. While much research has focused on the potential environmental benefits of organic farming, there is a need to better understand organic farmers themselves, their experiences and meanings of farming.

Since farming is a profoundly human-driven activity and thus farmers have a central role in influencing the development of the food systems, my attempt is to shed light on how to enhance sustainability in farming. With Finnish farming as my case study, I investigate organic farmers' perceptions on the aspects that are important for good farming and the challenges concerning organic farming, and discuss potential ways for improvement. I employed qualitative methods and collected data through six semi-structured interviews with southern Finnish organic farmers. I analyse the data and discuss it against a theoretical framework comprised of three perspectives on sustainable farming: food sufficiency, ecological stewardship and community.

The results suggest a heterogeneous reality in which organic farmers' aspects related to food sufficiency, ecological stewardship and community are diverse and varying. The existing economic, institutional, physical and social barriers give rise to concerns about the logic of the market overriding the alternative meanings of farming, thus further threatening the fate of sustainability in farming: not only in terms of ensuring agricultural productivity and ecosystem well-being in the long run, but also in terms of having socially meaningful farming systems. A suggested way forward is to promote the sort of agrifood governance that takes an integrated and a long-term perspective to sustainability, ensures deliberative and collaborative decision-making processes and facilitates the creation of social networks with a shared endeavour to meet sustainability principles, rather than reduces the versatility of socio-ecological systems. Organic farming can fuel the much-needed change and create opportunities for farmers' empowerment within food systems.

Key words: sustainable farming, organic farming, agrifood systems, farmers, Finland, agrifood governance

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## 1 Introduction

The present-day agrifood systems in affluent economies have become organised according to the increasingly productive and economic needs of the competitive food markets and turned into systems of high throughflow in energy and material (Pretty and Bharucha, 2014). Simultaneously, it has become clear that food and the way it ends up on our plate has not only a major impact on human well-being but also on the well-being of the Planet (Foley et al., 2005; Liverman and Kapadia, 2010; Tilman et al., 2002). Food systems, especially agricultural production systems, are a major source of anthropogenic green house gas emissions (Vermeulen et al., 2012). In Finland, a recent survey regarding the attitudes towards food and agriculture shows public concerns over the agro-induced environmental degradation, genetically modified foods and the safety of food (MTK, 2014).

Increasing academic attention is now paid to the rise of alternative food system activities, which attempt to challenge the existing food system structures. In such initiatives, a shared endeavour to produce, exchange and consume food not only in a more environmentally benign and economically viable but also socially equitable and culturally meaningful way is fostered (Forssell and Lankoski, 2015; Horlings and Marsden, 2012; Wiskerke, 2009). Concurrently, there is a growing research interest on the potential of organic agriculture in enhancing sustainable food systems (Bellon and Penvern, 2014; Halberg et al., 2009). On the one hand, organic agriculture has been associated to alternative farming systems that attract people, places and resources towards engagement with sustainable trajectories (Milestad and Darnhofer, 2003; Pugliese, 2001). On the other hand, concerns are that organic farming becomes subjected to growing market interests, dependent on off-farm inputs while neglecting the holistic principles of organic farming, thus losing its transformative influence (Allen and Kovach, 2000; Darnhofer et al., 2010; Jaffee and Howard, 2010) but also produces lower average yields than conventional agriculture (Seufert et al., 2012).

Despite the controversies related to organic agriculture, the last decades have shown a considerable growth trend in organic land and market shares in Europe and around the world (Willer and Lernoud, 2015). Much research on organic farming has focused on its potential benefits to more sustainable soil management (Abbott and Manning, 2015), biodiversity and more efficient use of resources (Gomiero et al., 2011; Mader, 2002; Smith et al., 2015; Tuck et al., 2014; Winqvist et al., 2012).

However, there is a need to better understand organic farmers' views, the meanings they attach to and the experiences they have in farming. Agriculture is profoundly a human-driven activity, thus farmers and their practices are in a key position to influence the development of food systems and rural spaces and their various related eco-system services (Källström and Ljung, 2005; Soini and Aakkula, 2007). Attempting to understand farmers in their contexts is valuable for providing insights for assisting the dialogue and learning on sustainable farming and creating the conditions for more successful agri-environmental

management (Kaljonen, 2006; Kelemen et al., 2013; Källström and Ljung, 2005). Many have also argued for more democratic and community-based approaches that value the diversity of knowledge and involve stakeholders in environmental decision-making processes (Hassanein, 2003; Reed, 2008).

### **1.1 Aims and research questions**

Based on this background, my thesis seeks to shed light on sustainable farming, its related meanings and challenges, at the level of individual organic farmers. Since there is much variation in space and time between different agricultural contexts, more context-specific analyses can be helpful in guiding change toward sustainability. Finland situates in the northern periphery of agricultural production in Europe and therefore it can provide a fresh perspective to study. Taking Finnish farming as a case study, my overarching goal is to better understand the potential of making farming more sustainable. Thus, the main research question is:

*How can farming become more sustainable in the Finnish region of Uusimaa?*

A qualitative case study is set in Southern Finland, Uusimaa region, where I interview organic farmers about their perspectives on the aspects that are important for farming (1). Secondly, my interest is to better understand farmers' experiences on the challenges they perceive in their work (2). Finally, I propose ways for achieving more sustainable farming in Finland (3), thus the three sub-research questions are:

*(1) What aspects do farmers think are important for farming?*

*(2) What challenges do farmers face in their work?*

*(3) What can be done in order to make farming more sustainable?*

My thesis will now proceed in the following way: Firstly, I provide a brief overview to some criticism regarding organic farming. In section three, I present theoretical concepts on sustainable farming by introducing three perspectives: food sufficiency, ecological stewardship and community. The section four explains my methodological choices and gives an overview to the context in Finnish farming as well as represents the case of Uusimaa and the study participants. In section six, I provide results from my interviews and in section seven, I answer the research questions and analyse the findings against three perspectives of sustainable farming. In the last section, I provide final conclusions.

## 2 History, definition and criticisms to organic farming

Organic farming, as we know it today, developed rather separately from the core actors of mainstream agriculture, mostly in urban cultures (Heckman, 2006; Vogt, 2007). Its roots originate from the initiatives of Rudolf Steiner's biodynamic agriculture in Germany in the 1920s, the organic-biological agriculture in Switzerland and the rise of the organic movement in the UK and in the USA in the 1940s, which also led to the first private production standards and labels (Heckman, 2006; Vogt, 2007).

It was only in the mid-1980's when the organic methods started to gain greater attention in research, policy and consumer circles in European countries, after which it spread and institutionalized rapidly (Padel and Lampkin, 2007). Since then, the EU has also started granting financial support for organic farmers, with organic agriculture becoming part of the governments' inspections and legal standards (Padel and Lampkin, 2007). An important driver for such developments includes an increased societal awareness of overproduction and agro-induced environmental problems (Padel and Lampkin, 2007).

The world's largest non-governmental organisation for organic farming, IFOAM (International Foundation for Organic Agriculture), has since 1979 put forward a definition of organic farming as an attempt to integrate organic farming around the world. In its current form, the definition holds that organic systems sustain the health of soils, ecosystems and people *"relying on ecological processes, biodiversity and cycles adapted to local conditions, rather than use of inputs with adverse effects. Organic Agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and good quality of life for all involved"* (IFOAM, 2005a). The organisation has also formulated four principles on organic farming including *health, ecology, fairness and care*, based on which it promotes its basic values and tries to create change whiting food-systems (see the IFOAM principles in detail from Appendix A).

One central debate on the role of organic farming in enhancing sustainability revolves around the development and use of organic standards. On the one hand, their importance becomes apparent as they can enhance consumer trust, ensure the authenticity in organic products as well as support the national and international trade on organic goods (Aschemann et al., 2007). On the other hand, the current legal standardisation and certification processes are criticised due to their focus on prohibiting and inspecting certain inputs while failing to incorporate more holistic values expressed in the organic principles (Allen and Kovach, 2000; Padel et al., 2009). While organic legislation has played a role in the growth of the European organic sector, it is also seen to influence the convergence of organic and conventional agriculture (Michelsen, 2001). The concern is that current political support and organic legislation narrow the organic movement's capacity to maintain its identity and influence the development of organic farming and ultimately undermine the capacity of organic actors to practice agriculture in a manner that is socially just or ecologically responsible (Kaltoft, 1999; Padel et al., 2009; Rigby and Cáceres, 2001).

While organic food is criticized for its elitist appearance and for being an exclusive niche product due to its higher price, in some cases, such as in the Californian organic food sector, its development has also given rise to mass-produced organics. Here, studies show an example of agribusiness entering to the expanding organic sector influencing more narrowly framed forms of organic agriculture (Buck et al., 1997; Guthman, 2004). This trend is further discussed under the hypothesis of *conventionalisation* of organic agriculture, in which the organic sector assimilates with the practices of the conventional sector and consequently loses its transformative potential toward sustainable farming.

Another major criticism that still holds influence in the sustainability debates concerning organic farming is related to the findings on its lower average yields (De Ponti et al., 2012; Seufert et al., 2012). Organic farming, in its current form, is criticised for its inability to feed the global population, which is expected to reach nine billion by 2050 (Connor, 2013; Trewavas, 2001). It is argued that if globally used, organic farming would fail to provide enough food to satisfy the needs of the mounting and increasingly urbanized population, while simultaneously endangering the remaining wildlife areas due to greater need for land (Connor, 2013; Trewavas, 2001). At the same time, it is known that the solution to current food security challenges not only requires increased production and total calories, but must also address nutritional, dietary, socio-economic and distributional issues (Godfray et al., 2010; Pretty and Bharucha, 2014).

### **3 Theoretical framework on sustainable farming**

Sustainability challenges emerge as a result of complex interaction between natural and social spheres of the coupled socio-ecological systems showing high levels of variability. They they often involve conflicts between economic growth, environmental protection and social equity as well as between levels different time and spatial scales (Jerneck et al., 2011; Kates et al., 2001). Sustainability in this study is understood as a dynamic societal process committed to achieve human well-being while ensuring the continuation of planetary carrying capacity in long-term. While I assume that no exhaustive definition on sustainable farming exists, the following theoretical framework on sustainable farming presents three aspects to sustainable farming – food sufficiency, stewardship and community – originally used in the work of Gordon Douglas (as cited in Alrøe et al., 2006).

#### **3.1 Food sufficiency perspective**

The food sufficiency perspective implies agriculture's role in ensuring that an adequate volumes of food is produced to feed the world's population, thus implying the productivity demands on agriculture. This view holds much influence due to future prospects on increasing food demand based on population growth and rising living standards as well as within the context of the limited amount of productive farmland (Godfray et al., 2010). In this perspective, technological development holds a key role in solving sustainability

problems and it is the economic calculations that guide the adoption of relevant technologies thus reflecting the dominant perspective in the current agro-food governance (Alrøe et al., 2006).

Since the mid 20<sup>th</sup> century, the dominant paradigm for increasing agricultural productivity has been the agro-industrial intensification also known as Green Revolution (Pretty and Bharucha, 2014). Here, growth in agricultural productivity is enabled by land use intensification and with increased use agri-chemical inputs (e.g. fertilizers and pesticides), water, machinery, high-yielding crop varieties and productive animal breeds (Pretty and Bharucha, 2014). It also involves scale-enlargement, in which agricultural production is increasingly concentrated on larger units and high levels of specialization are common (Pretty and Bharucha, 2014).

While such intensification practices have resulted in remarkable increases in global food production, concerns has arisen over their ecological and social impacts as well as the inefficiency in natural resource use (Foley et al., 2011; Godfray et al., 2010; Tilman et al., 2002). Such problems have given rise to alternative perspectives, which demand more eco-efficient, ecology-based and socially acceptable approaches. These perspectives, which are discussed in the paragraphs below, not only penetrate the food sufficiency perspective, but also broaden the discussions on the various roles of farming.

### **3.2 Ecological stewardship perspective**

While recognising the productivity demands on farming, the ecological stewardship perspective calls for the need to take into account the ecological balance and biophysical limits of agricultural production and economic growth, in order to sustain human societies (Alrøe et al., 2006).

Much of the recent discussions on the stewardship perspective are captured under the notion of ecosystem services as well as ecological resilience. The latter implies the ability of ecosystems to change and adapt without going beyond the critical thresholds that sustain basic functions of ecosystems and enable them to thrive in long term (Gunderson, 2000). The concept of ecosystem services underlines the importance of maintaining those functions as they are important sources of goods and services for human life (Kremen and Miles, 2012; Millenium Ecosystem Assessment, 2005). Agro-ecosystems are dependent on various vital, yet mostly undervalued, ecosystem services including pollination, biological pest control and nutrient cycling (Power, 2010; Sandhu et al., 2010). They also provide different services such as food and fibre, regulation of soil and water quality, support for biodiversity as well as cultural and recreational amenities, and can contribute to various disservices depending on the chosen farming practices, for example, the destruction of wild life habitats, nutrient runoff, pesticide poisoning (Power, 2010; Sandhu et al., 2010).

As a solution, the stewardship perspective suggests incorporating resource conservationist and/or eco-efficient aims to agriculture, such as the inclusion of new technology and agronomic techniques (e.g. new breeds and drip irrigation), as well as more ecology-based methods that focus on biological diversification,

integrating agriculture to natural ecosystems and cycles, thus enhancing ecosystem services and regulative capacities, reducing the resource use as well as promoting the use of renewable resources (Foley et al., 2011; Kremen and Miles, 2012; Rosset and Altieri, 1997; Tiftonell, 2014). In particular, the latter calls for a complete re-design of and increased knowledge on agro-ecosystems (Rosset and Altieri, 1997; Tiftonell, 2014). In this case, the community perspective to solving sustainability issues becomes necessary.

### **3.3 Community perspective**

The community perspective to sustainability emphasises the importance of recognising the socio-cultural practices to sustainability and fostering *“the values of stewardship, self-reliance, humility and holism”* (Alrøe et al., 2006, p. 83). While productivity is fundamental part of feeding the world, it argues that technological advances and global trade are unlikely to solve food insecurity or environmental challenges, while there is a need to alter *“the socio-economic determinants that govern what is produced, how it is produced, and for whom it is produced”* (Altieri, 1989, p. 38), thus to address more structural issues, such as, poverty, unsustainable dietary habits, spatial specialisation and disintegration (Allouche, 2011; Altieri, 1989; Parfitt et al., 2010; Stehfest et al., 2009). The quality of life for all actors involved is stressed, not only in terms of access but also in terms of being socially recognized and capable of influencing food systems in a socially and culturally meaningful way (Ahnström et al., 2009; Bacon et al., 2012; Källström and Ljung, 2005).

The process of agro-industrialization is criticized for leaving suboptimal outcomes for the individuals or local communities and cultures. Rosset and Altieri (1997) argue that *“focusing exclusively on ameliorating environmental impacts, for example, without addressing either the grim social reality that farmers face or the economic forces that perpetuate the crisis, is doomed to fail”* (p.287). They describe a challenge in which farmers are subjected to further enlargement and intensification, as the profits gained become ultimately erased due to increasing level of global production and lower prices. Thus small-scale farmers that are not able to compete against lower prices, end up *“squeezed”* between lowering product prices and increasing input prices and ultimately withdraw from farming unless an alternative economic strategy is used. A major concern is also that while rural prosperity is built on areas suitable for rationalised production and global competition, those areas with lower productivity and lack of alternative job-opportunities become marginalized and face emigration (Marsden and Smith, 2005).

Although not necessarily being rigidly anti-global per se, this perspective becomes distinctive *“alternative”* to globalisation tendencies of reduced transparency, placelessness and homogenisation in the agrifood systems (Feenstra, 2002; Sonnino and Marsden, 2006). Furthermore, community development though capacity building and democratic participatory approaches is fostered (Feenstra, 2002). Regional networks and local communities are viewed to have an imperative role in such processes together with other actors

from different levels, governmental bodies, private sector and civil society (Marsden and Smith, 2005; van der Ploeg et al., 2008). At the farm-level, strategies focusing on reducing external input dependency as well as developing value-adding diversification practices, such as introducing new crops or animal breeds, appropriating new pre- or post-food chain activities (e.g. food processing) or entering into new non-agriculture related markets such as energy production, tourism and care farming may provide mechanisms for resisting the economic squeeze in agriculture (van der Ploeg et al., 2000).

To conclude the framework, the *food sufficiency perspective* to sustainability focuses on the productivity challenge of feeding the world and proposes technological solutions to increase productivity. The *stewardship perspective* also acknowledges the challenge of ensuring food sufficiency, but contends that future productivity should be based on sustainable resource management and ensuring the provision of vital life-supporting ecosystem services in order to run in long-term. Finally, the *community perspective* takes up the issue of undermined socio-cultural perspectives in food systems, and stresses the social inequities and the underpinning socio-economic structures that hamper the creation of food systems that ensure good quality of life for all actors involved.

## **4 Methodology and the case**

### **4.1 Qualitative case study**

With my aim of learning from sustainable farming by putting farmers in to centre, I chose to take a qualitative case study design, providing a context-specific perspectives and in-depth understanding of the social phenomenon, rather than generalizable knowledge (Walliman, 2006). Thus ontologically I follow a constructionist view, where “...social reality is seen as a constantly shifting product of perception” and from an epistemological perspective the study “...rejects positivism by relying on individual interpretation of social reality” (Walliman, 2006, p. 3).

#### **4.1.1 Sampling**

I identified the interviewed farmers through the Internet by using the Google-search engine. The search on “organic farming in Uusimaa” provided me webpages with contact lists and farmers’ personal websites. I contacted farmers via telephone and asked about their interest for being interviewed on the topic of sustainable agriculture and organic farming. All contacted farmers except for one agreed to an interview. In the text, I use substitute names to refer to the farmers so that their identified remain anonymous.

Due to the restricted time and budgetary resources, I limited the number of interviews to six. However, I ended up interviewing seven farmers, as one interview included a farmer couple. This amount represents about 2% of the total of 350 organic farmers in the region. However, I believe this sample size is

satisfactory for a qualitative inquiry, which does not offer generalizations but rather attempts to bring out the diversity of perspectives. My intention was to choose different type of farms and farmers, including both sexes and different ages, in order to have a diverse picture. I ended up having two female farmers and five male crop farmers. The interviewees represent quite a versatile range of different types of farming including pig, sheep, vegetable and cereal farming. A summary on the interviewees' backgrounds can be viewed in Table 1 (p. 14).

#### **4.1.2 Semi-structured interviews**

I chose semi-structured interviewing as a method for gaining information on farmers' experiences and perspectives to the issue. This method gives the researcher freedom to generate the initial research ideas during the interviewing process, allowing him or her to focus on the interviewees' points of views, thus giving room for participants to raise issues and express what they want to say, in their own words (Kuada, 2012).

Between the 14<sup>th</sup> and 21<sup>st</sup> of March 2014, I carried out one telephone and five face-to-face interviews, which duration ranged from 90 to 120 minutes. All face-to-face interviews took place at the interviewees' homes. During the interviews, I followed four interest areas: (1) The farmer's background and the farm itself, (2) The farmers' meanings of *good farming*, (3) The meanings and experiences in organic farming and (4) Farmers' perceptions of *sustainable farming* (see the questions in the appendix B). Since talking about sustainable farming is constrained by individuals' internalization of the concept, I choose a more neutral concept, *good farming*, as a tool to approach the aspects that are perceived important in farming. I came across this notion in studies by Silvasti (2003), Burton (2004) and Sutherland & Darnhofer (2012), in which the concept was used to reveal the socio-cultural constructions of a "good farmer". The interviews were carried out in Finnish and recorded into an audio material using a digital recording device. I did not transcribe all the audio material into written form but made a written summary on each interview in Finnish. I translated the parts in the text quotes into English directly from the recorded data.

#### **4.1.3 Data Analysis**

For the analysis, I followed the general data analysis strategy (Creswell, 2007, p. 148). I begin the data analysis by organising the information thematically, that is, I grouped farmers' perspectives under different themes by putting the related ideas and perspectives together while listening and summarising the interview data. Primarily, I used an inductive approach to form my themes, as they emerged from the data. I adopted three main themes: "care", "social interaction" and "forms of control" (which I sub categorised as economic and productive, social, institutional and control of knowledge). However, this process also included constant reading of the literature, which elaborated and refined the content of the themes.

Towards the end of the analysis, where I answered the first two sub-questions, I tried to look the data in the light of the theoretical framework of sustainable farming, which helped to structure the analysis. As explained earlier, the framework includes three perspectives (food sufficiency, ecological stewardship and community). This framework developed during the thesis process through constant literature review and mirroring it against the results. Then, I answered to the third research question concerning the potential points of improvement on sustainable farming in the Finnish context by deducing it from what I learned from the first two sub-questions, theoretical framework and literature review, which finally helped me to answer the main research question.

## **4.2 The context, case and the study participants**

### ***4.2.1 The context of farming in Finland***

#### ***The structural change of agriculture and rural areas in Finland***

Family farming and forestry were the basis on which the Finnish countryside was populated and rural cultures evolved. In 1959, there were more than 300,000 farms employing more than a third of the population (Hassinen, 1980). Since then, agriculture's role as a source of rural employment and economic viability has degraded. The policies shifted away from post-WWII resettlement policies and the introduction of new technologies fostered agricultural intensification, regional and on-farm specialization and farm-size enlargement (Voutilainen et al., 2012a). Similar to many other European countries, agricultural restructuring in Finland is part of the broader urbanization and societal modernisation processes, which have led to a decline in the number of farms with approximately 53,000 farms employing around 3% of the working population today (Niemi and Ahlstedt, 2015)

A major shift occurred in 1995, when Finland joined the European Union (EU) and adopted its agricultural legislation. The EU-influenced policy regime led to significant reductions in producer prices, which are currently compensated with direct income supports. Economic support policies is not a novelty in Finland, since agriculture has long been subsidised for maintaining farmers' income (Niemi, 2010). However, it seems that the partial decoupling of production from income has hit farmer cultures. Before the EU-regime, farmers received the majority of their income through product selling as the price regulation kept the producer prices at a higher level. This encouraged farmers to increase their production, which led to overproduction. Among some farmers, the shift to direct payments and environmental supports created feeling of being paid for pity not for real work, which resulted in farmers' loss of pride (Silvasti, 2003).

In the total income of Finnish farmers, the share of national and EU -supports is among the highest in the EU, thus making farmers highly dependent on agricultural supports (Vihinen, 2006). This is related to the challenge of keeping up with the increasing European price competition. In other words, lower harvest

levels combined with the high production costs due to the harsh northern environment and small farm size compared to the ones in central Europe, makes it difficult to compete on the European markets (Vihinen, 2006)

At the same time, uneven territorial development has taken place as all rural regions in Finland, except those near the cities, have undergone depopulation and demographic changes unfavourable for providing social services (Voutilainen et al., 2012a). Further withdrawal from agriculture in remote areas is expected to lead to the closure of the remaining agrarian ecosystems, which threatens open-habitat biodiversity as well as traditional rural landscapes (Vihinen et al., 2005). While rural marginalization and land abandonment pose a challenge in the Northern and Eastern parts of Finland, concentration, intensification and simplification of production has taken place in the more prosperous and agriculturally favourable Southern and Western regions, which reduce soil quality as well as biological and landscape diversity (Risku-Norja et al., 2010; Vihinen et al., 2005).

A recent report from the Finnish Environmental Institute (Putkuri et al., 2014) shows challenges derived from modernized farming systems in Finland, including the eutrophication and acidification of water bodies, increase of pesticides and loss of biodiversity. In particular, the disappearance of traditionally grazed semi-natural grasslands led by a decline in small dairy farms has been related to adverse changes in landscape structures and species diversity (Luoto et al., 2003). This combined with increased subsurface draining as well as use of heavy machinery has been linked to a decline in farmland bird populations (Putkuri et al., 2014). The study of Heikkinen et al. (2013) also shows a continuous decline in soil organic matter in Finnish croplands since 1974, which may have implications on soil functioning and the global carbon cycle.

### ***Future prospects***

Friedmann (2005) captures a prevailing dual agenda of reducing economic costs and environmental or health related damage of agriculture, as an emerging corporate-environmental food regime with increased regulation and commodification. Agricultural production in Finland is expected to increasingly draw its profits from product selling, thus holds increased risks due to the volatility of the markets and changes in consumer demands (Niemi, 2014). Current farmer subsidies are not able to reverse structural change nor concentration processes in agriculture, where the number of farms continues to decline and the average farm size continues to increase with small and remote farms being the most prone to quit (Niemi and Ahlstedt, 2015).

The Common Agriculture Policy (CAP) of the EU has strengthened its commitments to support more sustainable farming, mostly by including environmental compliances in the direct payments and through the “second pillar” of the CAP, which incorporates voluntary agri-environmental and rural developmental

measures. However, in Finland, where the “second pillar” support is substantially big, criticisms have been raised regarding the resemblance of the “second pillar” support with the “first pillar” income supports, and also because the “second pillar” support is said to lack a real contribution to integrated development of rural areas or environmental goals (Voutilainen et al., 2012b). The newest CAP reform (2015-2020) is expected to bring a rather moderate tightening of the existing environmental measures in Finland (Niemi, 2014).

### ***Organic farming in Finland***

The pioneer phase in Finnish organic farming lasted until the 1990, when the first wave of organic farms occurred due to the first state programme in support of conversion to organic farming (Heinonen, 2012). The second wave occurred parallel to Finland’s the EU membership in 1995 with the number of organic farms increasing to more than 5,200 farms in 2000 (Heinonen, 2012). Currently, about 8% of the total number of Finnish farms are under organic certification (4,200 farms) representing approximately 9% (200,000 hectares) of the total agricultural area, while the market share of organic products is about 2% (Heinonen, 2012; Pro Luomu, 2014). The average size of Finnish organic farms is bigger than conventional farms, 50,9 vs. 40,7 hectares respectively (Niemi and Ahlstedt, 2015; Pro Luomu, 2014), and this is a common feature in many EU-countries (Eurostat, 2015).

The prospects for increasing organic production seem positive both in terms of political will and market conditions (Heinonen, 2012). The Ministry of Agriculture and Forestry has set a target of increasing the area of organic land to 20% by 2020 (Niemi and Ahlstedt, 2015, pp. 75–77). Despite the harsh economic environment, organic sales increased slightly in Finland and the national financial support for organic farming will be slightly elevated for the next CAP period (Niemi and Ahlstedt, 2015; Pro Luomu, 2014). The EU has committed to further support the development of the organic sector. It has suggested new regulation for organic production in order to sustain consumer credibility and to create more unifying standards to support the growing sector (European Commission, 2014). This reform includes for example increased testing of organic produce from contamination, introducing more risk based assessment including a group certification for small farmers, forbidding organic and non-organic production on the same land as well as the use of non-organic seeds and breeding animals.

#### ***4.2.2 Uusimaa region***

Alongside the national context, the boundaries of the case study comprise organic farmers operating under similar conditions in terms of the natural environment and geographical location, in Uusimaa region (see the map below in Figure 1.). Uusimaa is the most populated region in Finland, with approximately 1.6 million inhabitants representing 30% of the total population, and 1.1 million of them live in the Helsinki metropolitan area.



**Figure 1.** Administrative borders of Uusimaa region © Uudenmaan liitto

Despite the high level of urbanisation, 20% of the total land area is under agricultural use and the conditions for agriculture are among the most favourable in the country (Lamminparras, 2013). Uusimaa has relatively good and versatile economic opportunities compared to other regions in Finland and part-time farming is common (Lamminparras, 2013). Approximately 11% of agricultural land in the region is organically grown, which is above the average in Finland (Lamminparras, 2013). Most of the 350 organic farms in the region are focusing on crop production thus following the common character of the region, while only about 30 farms are into animal production (Lamminparras, 2013).

I chose Uusimaa region as my case study for two reasons. First, compared to other regions in Finland, Uusimaa has the largest average farm size (53 hectares), the largest share of the total agricultural land under cereal production (60 %) and a low amount of grasslands due to loss of dairy production (Kyyrä, 2015; Lamminparras, 2013). Such attributes imply agro-ecosystem intensification and simplification, which are generally understood to have degrading effects on the environment and ecosystem services (Stoate et al., 2009, 2001). More sustainable farming practices would thus have a particularly great impact in this region, especially in terms of enhancing soil and water quality as well as species and landscape diversity (Lamminparras, 2013). The second reason for my choice is related to my personal interest in the region, where I have lived for almost 30 years. Coming from the same region also provide practical help to approach local farmers.

#### **4.2.3 The study participants**

**Max** is a crop farmer in his seventies. He started part-time farming on the second-generation family farm in 1982. The farm has grown to comprise 100 hectares of fields and 40 hectares of forests, which presently

provides a living both him and his wife. He converted to organic production in 1996 and his main strategy is farming specialty crops. Currently, he cultivates special crops such as buckwheat, cumin, red clover seeds as well as cereals (rye, oat, mixed cereals). Max is also engaged in Christmas tree selling, tractor contracting, and develops a mushroom cultivation business. He maintains an environmental fallow, which is part of the CAP's voluntary agri-environmental scheme. He has a degree in agronomy.

**Anton** is a male crop farmer in his mid-thirties. The conversion to organic farming occurred in 1998, when Anton also became the owner of the farm. The old family farm comprises 60 hectares of cultivated land, some free-range chickens, pet ducks as well as a few cows for landscape purposes, which take care of the farms' traditional biotopes. The main crops cultivated are different cereals as well as protein and oil crops, but also some vegetables are cultivated. Cultivated crops are processed in the local cooperative into different products, such as eggs, flours and flakes, which are directly sold to consumers through the on-farm shop. The farm is also part of community-supported agriculture, where consumers agree to buy product from the farm on a regular basis. Anton has a vocational degree in agriculture and is a member of the organic and food sovereignty movements.

**Joel** is a male vegetable farmer in his fifties. He owns the second-generation family farm since 1979 and converted to organic farming in 1996. The farm currently comprises two hectares of land and 250m<sup>2</sup> of greenhouse area. It provides a living to the farmer who grows a very diverse selection of crops (e.g. carrots, onions, potatoes, cabbages, herbs, spinach and strawberry, seedlings herbs). In addition to cultivation, he packs and delivers his products directly to food rings, market vendors and small shops around the Helsinki Metropolitan region. The delivery is partially organized cooperatively with other farmers. Joel has a primary education.

**Jacob** is a male biodynamic vegetable farmer in his early sixties. Jacob does not have a family farming background and he was raised in the city. He became interested in biodynamic farming and healthy food in his adulthood. Jacob has cultivated his farm for 30 years, and has owned the farm for 10 years. With 20 hectares of land and a greenhouse, the farm provides a living for him. In addition to growing vegetables, Jacob runs a wholesale and an online shop, which include local, national and international organic food and non-food products. Products are delivered to private homes, food circles, schools, restaurants and market halls. He also maintains grasslands with collaboration from a of local sheep farmer. Jacob has a degree in horticulture.

**Emilia** (telephone interview) is a female organic swine farmer in her late thirties. She has a family farming background and owns the farm since 2005. The farm comprises 400 pigs and 30 hectares of land, which she takes care together with her husband. The farm provides livelihood for both her and her husband. Emilia's parents started the organic production in 1989. In addition to animal husbandry, the meat is sold directly to

consumers. The farm comprises the slaughterhouse, meat cutting and direct selling facilities. Some of the fodder is cultivated on the farm and some is bought from local organic farms. Emilia has a degree in agrology.

**Maria and Erik** are a farming couple, both in their mid thirties. The sheep farm comprises 30 hectares of organic land, 160 non-certified ewes, a few calves (during the grazing season), ducks and some cocks. The farm is specialised in lamb meat, but has veal to a lesser extent in the grazing period. Both farmers have a family farming background, but the couple started their own farm in 2005 and operate in hired lands and buildings. In addition to animal husbandry, the farm directly sells meat by order. Currently the farm provides a living for one person only, due to which Maria has to work outside of the farm and can thus work on the farm in the evenings and weekends. Both farmers have university degrees (plant science and livestock nutrition).

**Table 1.** A summary of the interviewees' backgrounds

Name	Age	Background	When organic?	Key farming strategies
Max	Seventies	Raised in a family farm, inherited the farm in 1982.	Converted in 1996.	Cereals, special crops as well as Christmas tree production and tractor contracting.
Anton	Mid-thirties	Raised in a family farm, inherited the farm in 1998.	Since the generational change in 1998.	Cereals, protein and oil crops as well as on-farm direct selling. Has also small-scale egg production, pet ducks as well as few cows.
Joel	Fifties	Raised in a family farm, inherited the farm in 1979.	Converted in 1996.	Diverse selection of vegetables as well as strawberries and herb seedlings (outdoors and non-warmed greenhouse). Delivers products directly to consumers.
Jacob	Early sixties	Raised in a city. Started to farm on hired lands in mid 80's and bought the farm in 2004.	Biodynamically certified right from the beginning in mid 80'.	Diverse selection of vegetables (outdoors and non-warmed greenhouse) as well as small organic wholesale and an online shop business. Also delivers his and other farmers' products directly to consumers.
Emilia	Late thirties	Raised in a family farm, inherited the farm in 2005.	Parents converted in 1989.	Pig meat production, slaughtering, cutting and direct selling to consumers.
Maria & Eric	Mid-thirties	Raised in a family farm, started their own farm in 2005.	Crop production converted in 2005, sheep non certified.	Sheep meat production (also few calves and ducks) as well as on-farm direct selling. Sell also sheepskins and wool.

## 5 Results

My overarching aim in this study is to provide insights on achieving more sustainable farming by examining the level of individual organic farmers and their perceptions and experiences in the context of Finnish farming. In this section, I investigate the empirical findings from the farmer interviews, focusing on the meanings and challenges they associate of farming. Some initial analysis is also provided along the section.

### 5.1 Good farming or sustainable farming?

A general remark during the interviews was that the question on *good farming* seemed fruitful in opening up the discussion on farmers' perceptions on farming. As the concept of farming is familiar to farmers, it seemed to lower the threshold for having a conversation and thus enabled them to discuss about their viewpoints rather diversely. On the contrary, when discussing about *sustainable farming* with farmers, some interviewees framed it with negative connotations, viewing it as a play by the EU's policymakers, and associating it with increasing bureaucratic demands. One farmer, who did learn about *sustainable farming* in school, started carefully remembering the well-known sustainability model with the three pillars – social, environmental and economic –, but it seemed difficult to link the concept to the farmer's daily life, let alone to the societal level.

### 5.2 Taking care: ethical considerations

Good farming was discussed in terms of farming containing ethical considerations on desirable and undesirable farming practices. The interviews revealed feelings of proudness and pleasure when taking good care of the soil, production animals, environment, or providing residue free produces, thus showing several targets of care. Contrastingly, farmers pointed out various concerns related to modern agriculture, such as the health and environmental impacts of harmful chemicals, pollution of waterways, resource depletion, deprived farming communities and farmworkers in both developed and in developing countries, and poorly treated production animals.

In a similar vein, ethical considerations also played a role in making organic farming desirable, as some farmers expressed:

*“Organic farming is what agriculture should be. Agriculture should ensure good soil condition, ability to increase and not waste the resources”. (Anton)*

*“Organic farming means cultivation without chemicals, avoiding nutrient loadings and species-specific care of the animals”. (Emilia)*

*“It is said that conventional products do not contain residues, although they do when they make tests. Are they harmful or not and do they have impacts or not?... In organic farming one can be sure that there are no residues. (Joel)*

However, each farmer emphasised different elements of care and thus constructed their relationship to ethical considerations in different ways. Both animal farmers had a special interest in discussing animal welfare questions. Emilia could not understand that sows live in small cages or pigs in rooms with grid floors and without any stimulus. Also her trainee experience in a conventional pig farm in another European country seemed to leave a lasting imprint on her negative feelings towards conventional pork production and exported meat. Maria, the sheep farmer, had a disapproving tone toward highly productivist animal farming, but simultaneously discussed farming as a productive activity:

*“After all, it has been realised that the animal is not a production machine and that it still needs the possibility for species-specific behaviour. Now we are going from this strict living in the stall towards more species specific, freer husbandry, which is good”. (Maria)*

*“...even though they are grown to be eaten, the animal has to have, if not a perfectly species-specific life, which is not possible in the production conditions, a good life from beginning to end”. (Maria)*

The interviewees expressed criticism toward intensive agriculture, thus revealing their views on “unethical farming”. However, they seemed to avoid taking a black or white picture in terms of judging something as good or bad.

Emilia felt that consumers are often alienated from agriculture and lack a realistic understanding of primary production in Finland. She referred to one of her customers, who wondered if there were any places in the world where animals are treated worse than in Finland. Jacob pointed out the role of the media in polarising the debate on animal well-being, as they only show brutal pictures of mistreated animals, while providing little information on farmers’ backgrounds and the socio-economic structures they live in.

*“No-one wants to look into these issues and see how these situations evolve, to find that the farmer is so tired both physically and mentally that he fails to take care of the animals.” (Jacob)*

Jacob’s quote implies, that in addition to the need for taking care of the animals, caring about the farmers is equally relevant. While being critical toward the modern way of treating animals, his view reveals that there is a context behind a badly treated animal, and the need to better understand the individuals’ reality in order to get to the root of the problem.

Further recognising the complexity in agriculture, farmers did not view the concepts of organic and conventional agriculture in simplistic terms. Anton pointed out that these two are in constant change and believed that today’s organic is tomorrow’s conventional, as many practices in organic agriculture have already been re-introduced into non-organic farming. Jacob conveyed organic agriculture is not a magic word that makes someone a good farmer, and thought that one should give credit to all farmers that take good care of their soils. Similarly, Anton felt that organic certification is more a tool than a guarantee of sustainability.

*“Organic regulations enable production in a good sustainable manner. Following the rules does not directly mean that the production is sustainable, but it gives a certain frame to it and defines it in a way that a consumer is able to think that it has met certain criteria. In this way it also enables the certification of good farming practices and a better livelihood. (Anton)”*

For Anton, organic certification is thus not equivalent to good farming or sustainability, but it serves as an instrument to strengthen the relationship of trust with consumers, and thus enables a higher price for the product, which in the current system is difficult to achieve in other ways, due to the increased separation of production and consumption spheres.

Some interviewees brought out that the organic sector is currently “testing its limits” as it allows for the implementation of more questionable farming practices, such as the use of permitted organic pesticides (e.g. organic pyrethrum) and conventional crop seeds. Joel had noticed that bigger organic farmers are allowed to use conventional plant varieties since they are more suitable for handling with machines. While these breeds provide better yield security, Elias does not see this as a threat: *“I produce products that taste good and that’s why many say they want to buy from me”*. Joel viewed that providing consumers artisanal food with good taste and texture belong to the main vantage points of organic farming but he recognised differences between different organic products.

Jacob regretted the use of organic pesticides and called it as *“cultivating by destructing”*. However, while judging such practices, Jacob seemed not to want to take credit away from larger-scale organic farmers, who apply them, as they have helped the whole sector to develop. Anton seemed more straightforward in his view on stretching of the limits of organic farming. He had noticed a tendency toward economic rationality taking over in organic farming and regretted the dilution of sustainability ideologies in organic farming. In his opinion, the holistic principles of organic farming should be supported, as well as those of permaculture when there is higher integration to the local level. However, Anton seemed to have a similar stance to Jacob’s that even the “less ideal” organic farming is better than doing nothing.

*“The benefits of organic agriculture become best expressed when the food is locally produced. If organic food is produced far away, it’s still better than conventional products, but then all the principles of organic farming do not occur.” (Anton)*

Such interpretations of “ideal or less ideal” organic farming reveal the existence of different versions of organic farming. Indicative to this was the way some farmers discussed organic farming as being “better” when practiced in certain ways.

### Key lessons:

- Farmers have different meanings and emphases on care and ethical considerations in regards to farming, which are formed based on farmers' unique contexts.
- Organic certification can be viewed as an instrument assisting the way toward sustainability.
- While some discussed the stretching of limits of organic farming as problematic, it was also viewed to provide potential benefits
- In order to avoid simplistic interpretations on farming, there is a need for better communication between different groups and aiming at building a context-sensitive and full picture on farming.

### 5.3 Social relations

According to some testimonies, the social nature of farming had a particular foothold. In Maria's vision of good farming, sustaining family farming and lively communities was conveyed, which was linked to the preservation of small sized family farms.

*"I hope that farming stays at the family farming scale as much as possible, and does not go towards these enormous units". (Maria)*

When I asked why this was the case and if it had anything to do with employment, she explained how losing family farms also means losing the social interactions that evolve around family life and the community. In her own words:

*"If there is one enormous farm, it does employ people, but then the village would miss all other life. If one goes to Norway, and looks at how things are there, where the agricultural policy favours small family farms. There the countryside is full of tiny farms but the countryside is full of houses, life, families, children, and women. But often this type of intensive large-scale farming is men's business. And in this case, the lonely bachelor can own 1000 hectares, but there is no family, life the community around him". (Maria)*

Family has traditionally been a central social unit in Finnish farming cultures and rural areas have long been places with family farming communities. However, such ideals have weakened due to the modernization processes and they are increasingly contested as many small farms are unable to sustain adequate livelihoods for all family members, and very large farms tend to rely on external workers. The trend toward large-scale farming has also impoverished the structure of farming communities, as the number of farms in the countryside has diminished.

Maria's aspiration for family farming is also interesting from a feminist point of view, as it is often the female who works outside the farm and does not participate in farming. Although Maria enjoys being a farmer and working with her husband on the farm, she currently has a full-time job in the town in order to maintain an adequate level of income and is thus able to work in the farm only in the evenings and weekends.

Jacob also regrets the trend in which family units are breaking down, as it makes farming increasingly lonelier and laborious:

*“A farmer working in the farm alone is becoming more and more common. Even the spouse work elsewhere. You are truly alone there. You try to cope with the workload, which used to be shared by the entire the family”. (Jacob)*

However, Jacob seemed rather optimist towards technological development. He viewed the creation of large and technologically advanced farms as an opportunity for two farms to unite and collaborate, providing a way to better ensure the livelihood of family members and keep families together. Max took a suspicious attitude towards the idea of organic farming as a small-scale practice and claimed it as *“old-fashioned”*, because much of the recent growth in the organic sector is derived from its ability to integrate to large-scale production. In addition, by expressing organic farmers as *“tough farmers”* based on their higher average farm size and profitability compared to conventional farmers, Max seems to seek acceptability from the social relations in the mainstream networks.

Another form of social relation that farmers brought up was the one with consumers. Joel discussed his experiences in a farmers' shop trial, which ultimately failed due to not having enough customers for ensuring constant demand. Maria and Erik pointed out the role of consumers both in terms of their purchasing power as well as their dietary choices in leading the way food is produced in Finland:

*“It is not sustainable to put one kilo of steak on to the pan everyday. That's far away from being sustainable. The proportions are upside down. It should be done once a week.” (Erik).*

*“Meat producer's sales pitch: don't eat meat everyday! (laugh)”. (Maria)*

Emilia and Jacob both discussed their need for doing advertising in order to lure new customers. Marketing seemed particularly upsetting for Jacob, as he had previously experienced his earlier time in organic farming as a collaborative exercise, with community members participating and influencing farming, rather than merely having market relations.

For Erik, it was the proximity in the social relationships between different actors of the food system that seemed important: locality brings responsibility as farmers become more interested in how they produce. Anton's ideas on good farming have a common ground with Erik, but take it one step further. For him, social networks seem a way to fulfil the vision of co-operatively managing the socio-ecological system: adjusting production to use the available local resources and in this way nourishing the communities in the long run.

*“It [production and consumption] is built on both ecological controllability... to know how the ecosystem works as part of the network but also on economic controllability, so that people can understand how these two interact and also that the economy is enabled to be sustainable”. (Anton).*

To expand on Anton's understanding of social interactions I asked if this was related to local self-sufficiency. He agreed, and proceeded to explain his ideas in detail:

*"I think it [local self-sufficiency] is the only model that one can start to understand. Because often people don't understand how society works anymore, but everything happens due to external factors. Some people just determine the frameworks that dictate why we should do like this or that. In order to understand what we really have to do, we should think how we could run this [production and consumption] a year in a situation where the frameworks are not set from the outside. So, we should learn to do the things without the rest of the society, [which then] gives the opportunity to understand how the larger society works and how to operate transferability to larger settings. But if we don't have this, we don't have any alternatives to the current system". (Anton).*

Anton talks about locality as a way of dealing with the complexity of socio-ecological systems. His view of food system development attempts to accept rather than reduce such complexity. In order to better manage it, he suggests a bottom-up approach that scales-up organic agriculture starting from small-scale initiatives, and then progresses toward larger settings, where complexity becomes increasingly difficult to manage. In the same breath, Anton expressed that finding this kind of common ground among farmers and among wider networks is extremely challenging due to difficulties in understanding the whole picture and building a shared believe in collaboration as ultimately leading to positive outcomes for all members.

Key lessons:
➤ Preserving and enhancing social ties, e.g. in terms of family, other farmers, community, consumers, seemed a crucial component in some farmers' visions on good farming.
➤ Social bonds seemed important for sustaining liveable communities, preserving sociability and sharing workload in farming, as well as achieving shared responsibilities and managing the complex socio-ecological systems as a whole.
➤ On the one hand small-scale and local farming can be viewed to enhance the achievement of such objectives because they promote social proximity and facilitate management of complexity of in socio-ecological systems
➤ On the other hand large-scale and global farming can be viewed as an opportunity for economic profitability and better livelihoods as well as integration to the social relations in large-scale food operations.

## 5.4 Control and independence

In addition to farmers' ethical considerations and the importance of certain social relationships, farmers discussed various forms of control, which seemed decisive in farmers' ability to influence farming.

### 5.4.1 Economic and productive control

Farming as an economically viable and productive activity came frequently apparent from the interviews. Maria and Erik discussed these two aspects as they were linked to each other, particularly through the idea of efficiency:

*“Agriculture cannot be practiced as charity work or hobby, or if that’s the case, then everyone can grow their own balcony tomatoes and live happily with that. Agriculture is entrepreneurial activity and it must be profitable, it has to provide a living for families.” (Maria)*

*“One personal target that I have in terms of crop cultivation is that we should get our fields truly productive. So it would be organically as productive and profitable as possible.” (Maria)*

*“It is like that efficiency in production kind of turns to economy, of course. So in a way the inputs that we use, will be used for benefit. This is what we think. We don’t think how we could produce as much meat kilos as possible. Rather that the inputs are used.” (Erik)*

Maria and Erik convey a fundamental role of farming and farmers in society as producing food to people, most of them living in urban areas, and thus called for an adequate compensation for farmers. This was something self-evident as farming could not continue without economic returns and thus seemed an incremental element in farmers’ ability to control the farm decision-making. Economic aspects were also present when some interviewees pointed out that farmers should get an adequate economic compensation for the incurred expenses derived from environmentally benign practices.

Max viewed good farming to provide entrepreneurial freedom, in which the farmer is able to take the responsibility of his workload. He reflected his experiences in a regular paid-job and felt that working in a farm was more independent as it was ultimately up to the farmer’s decision to take more work rather than on someone’s order. However, Jacob was concerned, that the current trend in agriculture with farmers having high levels of debts combined with the looming cost-price squeeze compels farmers to take more work in order to survive even if the farmer is incapable of coping with it.

Emilia portrayed a controlling atmosphere towards farmers’ economic environment in the following way: *“it’s a bit like: shut up, you just produce, we pay what we think is suitable”*. She was concerned that also organic farming will be lost to the logic of the market, or in her own words *“cold business”*, similar to conventional agriculture, in which farmers are compelled to give raw materials for food industry for a low price. Emilia explained that the retail sector has smelled the business opportunity in organic agriculture due to raising consumer interest. Max felt that the current retail sector already controls the price of organic produces and have too high profit margins due to which only affluent consumers are able to purchase organic food.

Some farmers discussed organic farming as providing opportunities for better economic viability such as better price premiums, higher state support, external input savings as well as the long-term focus on soil care. Max followed a strategy of economical farming, where the monetary costs from inputs and potential risks of harvest losses are reduced. He emphasised that in organic farming, it is the long-term medium rather than short-term maximised productivity of the fields that ensures the economic viability. However,

such strategies play only a partial role in the larger attempt from these farmers to actively seek economic independence.

Max emphasised the act of innovating in farming. Farm was seen to provide abundant possibilities to actively develop and harness its internal resources. Here, developing new skills, solving puzzles and actively seeking new opportunities seemed important.

As shown in the Table 1, farmers followed various strategies that added value to the product due to using the farm in alternative ways. In organic farms with small and diverse batches, the engagement in alternative food provision platforms, such as farmers' shops and food circuits, may assist product selling and negotiating the price. Joel diversified his vegetable production and started to market vegetables directly to smaller buyers such as consumer co-operatives. Maria, Anton, Jacob, and Emilia diversified their farm also vertically, that is, in addition to primary production they also appropriated other food chain activities to the farm. While, Maria and Anton were engaged in direct selling, Jacob operated an online and wholesaling activity including local, national and international organic products. Emilia's diversification activities went even further as all the activities from production to direct selling including slaughtering and meat cutting activities occurred on-farm. Her experiences point out that this kind of economic independence enabled to support the livelihood of the family and to control the scale of the farm operations.

*"In modern times, no one could make a living with such a small farm and such a small number of pigs, but because we have this on-farm slaughterhouse, it raises the farm gate price of the product so that we [both spouses] can make a living with this volume." (Emilia)*

Key lessons:
➤ The farm economy plays a key role in enabling independence in regards to farm decision-making.
➤ Farmers discussed the tightening economic context within agriculture. Some farmers also conveyed a fear of increasing economic control within the organic supply chain.
➤ Farmers sought economic independence in many ways. In addition to farm enlargement, the organic price premiums and economical farming styles, income was sought through diversification activities.

#### **5.4.2 Social control**

Max pointed out that it is not only economic constraints that control farmers' work, but also farmer communities have a role to play:

*"There are lot of farmers who do not dare to get involved with organic agriculture, due to neighbours' judgments. You are not allowed to be different from the community." (Max)*

This aspect indicates social control, where negative attitudes toward organic farming among farmer communities influence the social acceptance of organic farming. Emilia regretted that organic farming is still thought as “hippie farming” in many places. Also Maria remembered her parents taking a suspicious stance toward their decision to start farming organically:

*“We used to have a conventional farm [=Maria’s family farm] and of course it can be seen in my parents’ attitudes that we are seen as hippies because we became organic farmers. And many times we receive a bit sceptical comments on organic farming.” (Maria)*

In its early phase, organic farming was mostly practiced by farmers like Jacob who came from urban cultures. While these pioneers possessed strong willpower to promote alternative ways of doing farming and were free from community pressures, their radicalness and position outside from the rural community made such farmers easily neglected or even stigmatised.

*“In the beginning, 30 years ago, I was ridiculed. I don’t think I took it very personally, I considered it normal that this happens. When I went to the agricultural market in the spring, they asked me if I had harvested already. It was a local joke. Probably it was partly related to the fact that I was a townie and didn’t master all the things.” (Jacob)*

While social pressures still seem to exist, organic farming is no longer practiced by ‘outsiders’ only. The entrance of new actors into organic farming with higher integration to rural communities thus possessing higher level of social esteem, indicate new agent power for restructuring the social norm of good farming, which encourages new farmers to join-in.

Key lessons:
➤ The risk of losing social support and acceptance may still control farmers’ conversion to organic farming, particularly in more remote farmer communities.
➤ However, such social pressures have weakened as more powerful actors from the mainstream have joined in organic farming or changed their attitude towards it thus making organic farming more socially acceptable.

### **5.4.3 Institutional control**

Institutional rigidities came apparent in terms of current agri-governance hampering the adoption of more ecology-based farming styles. Anton regretted that current policies are in favour of time-minimising practices and part-time farming, which encourage farmers’ reliance on simplified monocultures, chemical controls and machinery as well as discourage those who would harness the resources in an integrated and synergetic manner, thus requiring constant care and labour-intensive work. Maria seems annoyed due to the instability of current agri-governance disallowing more long-term approaches to farming:

*“In organic farming the processes are slow, it’s not like I throw some nitrogen here, a little bit phosphorus there and some trace elements. One must be able to think in the long-term. When the*

*support policies are changing and the compliances as well, it does not serve it [organic farming].”*  
(Maria)

The conversion to organic farming seems to require the making of long-term commitments. It may take several years to integrate the farm back to the natural processes and cycles and thus provide decent amount of harvest and economic returns. Thus, the conversion decision to organic farming may be too risky to take if the environment for organic policies is viewed unstable.

Jacob experienced that the current organic regulations have taken some of the joy and enthusiasm away from farming and entrepreneurial spirit in general.

*“We do the same job as before, but now as if it would be someone’s order and we are scared to get sanctions. Before we did it voluntarily with joy and it was fun to do it!”* (Jacob)

Jacob sees the current institutional control in organic farming as punitive. He seems to be bothered by the lack of societal trust on farmers’ work. Jacob was the only interviewee who experienced the pioneer phase of organic agriculture in Finland in the 1980’s before the institutional changes. It was around the EU accession years in the early 1990’s, when the sector started to receive state support and moved to the national certification system with state driven inspections and monitoring. While institutionalization has provided more supportive environment for the newcomers, for old-timers like Jacob, it seems a change toward increased control over farming.

It seems paradoxical for Jacob and Anton that farmers, who practice diverse farming styles and “*work for nature, human health and cleaner environment*”, are simultaneously receiving higher control and monitoring.

*“Diverse production is constantly under the eye of all kind of inspection because of course, they are very suitable targets for inspections, since it’s possible to control ten different support schemes at one diverse farm, which is cost-effective. But in this risk-based inspection, a farm with just crop production is not seen it should be controlled. These farms can have one inspection in ten years. In farms like this, with diverse production, one can have close to 10 inspections in one year. This makes it extremely stressful.”* (Anton)

High regulative control seemed to create feelings of unjustness derived from the idea of organic farmers facing more bureaucratic environment than conventional farmers due to the need of proving their compliance with higher standards. Jacob felt so frustrated that he was ready to give up all the financial supports in organic farming, if farmers were given more freedom to operate. While organic farmers have at least one inspection per year, for Jacob, it was especially the arbitrariness of the organic inspections processes that was problematic:

*“No one is protesting inspections as such but it is the unfairness related to these interpretations. One can have an inspector who is polite and accepts the realities and suggests improvements for the next year. But then you can have an inspector who punishes based on a small thing.” (Jacob)*

In the time of Jacob’s initiation in farming, organic inspections were run privately by the Finnish Organic Association (Luomuliitto). At the time, inspections and advice were carried out together. Since the state took the responsibility of the inspections, advising is no longer a requirement but more dependent on the personal preferences of the inspector. The feelings of arbitrariness may be related to the fact that some inspectors take a more formal relationship to the farmer, while some may take a more collaborative and advisory stance.

Farmers also discussed various practical challenges they encountered due to current regulatory environment. Marias’ husband, Erik, encapsulated this:

*“It is so easy to say that let’s promote organic agriculture and that organic agriculture is good, but then the actual implementation is sometimes completely impossible.” (Erik)*

Despite the good intentions, sometimes it is the practical settings that hamper the implementation of regulations or the principles of organic farming due to, for example, the spatial separation of crop and animal farming as a result of long-term rationalization of agriculture or other contextual barriers. In addition to organic farming, Anton and Jacob regretted the complexity of current regulations for establishing small-scale entrepreneurial initiatives such as co-operative agriculture, selling or food processing.

Key lessons:
➤ The control of external institutions on organic farmers came apparent in terms of prevalent agri-governance, regulative environment and surveillance of farming.
➤ For some organic farmers, increased institutional control may weaken the feelings of being socially entrusted and undermine their position due to having more complex regulative environment than conventional farmers.
➤ While formal institutions provide support for organic farming, several incompatibilities in promoting more diverse and integrated farming styles came apparent. Increased institutional flexibility could help farmers to better implement the requirements into the real life contexts.

#### **5.4.4 The control of knowledge**

Max disregarded the conventional system, where the agribusiness has taken the task of teaching farmers to farm, mainly by advertising latest cost-cutting technologies or inputs for maximising yields. He thought farmers are missing the point that they provide little help for keeping the farm viable. Here independence means critical thinking, in which farmer takes a reflective role rather than being a passive recipient of knowledge. Jacob also pointed towards the lack of reflectivity in the Finnish society as a whole, as the real

impacts of modern food systems are partially hidden from the public, as they are not seriously taken into account thus indicating the lack of transparency.

Anton emphasised the importance of reflexivity for the very sake of making farming meaningful:

*“The meaningfulness in the work is that you can have an influence on the results based on your own thinking. If it is just about doing whatever and giving certain amount of nutrients based on what other people say, your own influence is very small” (Anton)*

Anton explained many of his colleagues had rediscovered the essence of farming after converting to organic farming due to mind-puzzles and new challenges it offered. The diversification activities seemed to require farmers to develop various new skills in regard to advertisement, legal procedures of food processing and actual food processing skills. Emilia felt pride of becoming more skilled in meat cutting as well as generally managing the farm assets. For Max, it was only after an intensive learning process with various consultations of other organic farmers and on-farm trials, which ultimately led to the satisfactory results. Such experiences show that farmers not only process knowledge, but also *produce* it actively. Max perceived that due to this need of trial and error method, only “*better*” farmers are able to practice organic farming. Such learning processes seemed opportunities for farmers to become more empowered.

#### Key lessons:

➤ Being able to actively influence farming and food systems in regards to the knowledge used, generating the knowledge and putting it into the practice seems an important elements in and better control farming and making it meaningful for farmers. Thus, knowledge-intensive and farmer-led processes could provide sources of empowerment for farmers.

## 6 Discussion

In this section, I first shortly summarise my key findings, after which I discuss and analyse sub-research question 1 and 2 from the perspective of the theoretical framework. Then, I proceed towards answering the third sub-question and the main research question. Finally, I provide some ideas for further research and provide my reflections on the research process.

Despite living in the northern fringes of the European Union, the farmers in the Uusimaa region provided a many-sided picture on farming. Farmers’ interpretations of good farming show a spectrum of different elements of care including the environment and production animals but also the well-being of farmers and agrarian cultures. To promote such elements, farmers pointed out the importance of preserving and enhancing social relationships around farming, fostering farmers’ economic independence and their ability to influence on farming and food systems decision-making. Furthermore, farmers brought out economic, institutional, physical and social barriers that hamper the implementation of more diverse forms of farming

and independent decision-making, which may in turn deteriorate their identity as societally entrusted and independent.

### **6.1 Aspects viewed important for farming**

When it comes to the aspects that farmers' think are crucial in farming, *food sufficiency* appeared as important element, with the productive nature of farming and its role of ensuring food supply within human societies, as a clear understanding of interviewees. However, guaranteeing productivity in the long-term seemed to be perceived by farmers as a goal that requires more than merely maximizing productivity. Thus, the presence in farmers' testimonies of the ideals of taking care (e.g. ensuring diversification, cycling of nutrients, regenerating of resources, and enhanced soil vitality), indicate they combine the aspects of food sufficiency perspective, with those of the *ecological stewardship* perspective, where there is a need to take the Planet's limits and the ecological balance into account.

Aspects of the *community perspective* can also be identified in farmers' accounts, expressed as the needs to maintain lively farming communities and family farming cultures, economic equity in the food systems and provide healthy food for all and a "good life" for production animals, and the possibility to influence food system decision-making. Faithful to the community perspective, these ideas indicate the importance of ensuring equitable and socially meaningful food systems. From a social perspective, farmers showed several aspects that increase or weaken their quality of life, such as, the importance of family and community interactions or enjoyment derived from taking a reflective and puzzle-solving role in farming in contrast with experiences of loneliness, being societally untrusted or misunderstood, or feelings of being a mere recipient of orders and lack of control over decisions.

This said, the findings also suggest a heterogeneous reality, in which organic farmers form a diverse group of individuals with different backgrounds and worldviews, each farmer having a unique position and emphasis in regards to the meanings and challenges in farming. I was surprised that despite the interviewees live in a rather similar physical, social and historical context, each farmer brought their own personalised touch to the interviews. While there were reoccurring themes in farmers' talks, such as the discussions on off-farm control and care, the types of control and targets of care varied among farmers thus showing different perceptions to reality. When some interviewees talked about the same good practices in organic farming such as soil care, different kinds of meanings were related to such practices varying from aims to achieve holistic permacultural principles, healthy food or simple living to simply following a tradition or ensuring a livelihood, or a combination of these. This was also apparent in farmers' talks on different versions of organic farming as well as the avoidance of taking a black and white picture between organic or non-organic farming being inherently good and bad, respectively.

## 6.2 Perceived challenges related to organic farming

Findings for the second sub-question, concerning the challenges farmers face in their work, indicate that farmers' preferences on farming do not always become realized. A gap persists between farmers' desires and real-life farming. While there were personal challenges such as developing the farm production and entrepreneurial skills, challenges related to external economic and institutional structures were apparent too.

The findings imply a difficulty in incorporating the ecological stewardship and community perspectives into organic farming. The regulatory environment and agri-governance continues to favour agricultural simplification and disintegration and lacks transparency in terms of the impacts of modern food systems. Due to the long history of such policies, the physical environment in farming has also created specialised and separated spheres of production and consumption creating barriers for adopting alternative systems. This has further influenced the weakening of social relationships in the farm, between farmers, farmers and consumers, and within wider networks, which also hamper the development of organic farming. Finally, the room for influencing farming is also restricted because of gradually tightening economic environment and farmers' reliance on external expertise.

In addition to the problem of current organic scheme allowing 'lighter' forms of organic farming that lean on input substitution rather than more holistic principles (Darnhofer et al., 2010; Seppänen and Helenius, 2004), the results show a perceived rigidity of regulations and inspections at the local level. Similar struggles have been noted in studies on conventional farmers (Kaljonen, 2006). If organic farming becomes associated with more bureaucracy and paperwork than conventional farming, this can discourage further adoption of organic agriculture. However, these protests against the regulatory environment were not simply "regular" protests against bureaucracy, but also protests against being unfairly treated compared to non-organic farmers and the difficulties in developing more diversity-based and integrative farming styles. When it comes to the latter, it seems that the regulatory environment creates feelings of living in a "surveillance society", particularly among those farmers willing to experiment with the method, or among small-scale farmers who have fewer resources to comply with complex regulations and inspections.

Finally, the results suggest that farmers view current policy-making as favouring top-down approaches and short-termism, thus making it unpredictable for farmers and weakening their influence on farming. Finnish agriculture becoming part of the EU CAP governance structures may have further strengthened such feelings, as the control on agriculture has sifted further away from local-level actors to the upper-level international institutions. This may be a reason for some farmers' hesitation or discouragement for adopting organic farming practices. However, as results suggest, once the diversification activities have been adopted, farmers may also become more independent and resilient to the unpredictability and instability than they were beforehand (van der Ploeg et al., 2000).

It should be mentioned that the institutional structures cut both ways in organic farming, thus also implying advantages such as monetary supports as well as having a unified certification environment, which can enhance trust creation between producers and consumers and enhance the integration of organic sector into the markets and the mainstream agro-food systems. Potential synergies can also be expected with higher integration of the organic sector to the existing market structures, for example, increased organic food consumption and the adoption of organic farming as well as potential increases in research funds for organic agriculture. There may also be environmental benefits when up-scaling organic farming even under the current regulations, since it can have a substantial aggregate eco-efficiency implication as its influence reaches more actors.

### **6.3 Towards more sustainable farming**

As an answer to the third sub-question, on the possible ways of promoting sustainable farming in Finland, an integrated and a long-term perspective for the agrifood decision-making seems necessary. Farmers' accounts suggest a complex reality of diverse meanings and challenges related to farming that incorporate the perspectives of food sufficiency, ecological stewardship and community at the same time. A long-term approach is needed in order to ensure food sufficiency through more ecology-based practices and integrated farming styles. The existing institutional, physical, economic and social barriers give rise of concerns about the logic of the market overriding the alternative meanings of farming, thus further threatening the fate of sustainability in farming.

The challenges related to current governance structures seem to derive from a situation in which farmers are the ones, who ultimately implement the management practices in interaction with the complex and changing local realities at the farm, but are incapable or reluctant to do so, since local realities are much controlled though external institutions incapable of recognizing the varying contexts of farmers. Furthermore, farmers lack real influence over policy-decisions at a supra-local level. This suggest the need for more deliberative and participatory models for decision-making (Padel et al., 2009). In the design of formal institutions, it should be recognized that achieving more sustainable farming trajectories requires knowledge beyond that of academics and experts. It also needs to provide farmers the ability to have real influence in the decision-making. Such knowledge-intensive and farmer-led processes could provide sources of empowerment for farmers. A possible step towards this could be Burton and Schwarz's (2013) suggestion on more result-oriented agri-environmental schemes, which provide farmers more freedom to choose the practices most suited for achieving sustainability goals.

However, while the concept of good farming seems a promising approach to investigate farmers' meanings of farming, these should not be viewed as definitive answers for sustainability. As an example, interviewees did not address the issue of gender roles in farming. While each farmer has valuable knowledge concerning

his or her land and conditions, the reality is highly versatile and varying and becomes increasingly complex when different actors and places are involved. Thus, due to the constructive nature of farming, critical thinking and social learning are crucial tools for creating shared sustainability endeavours and social trust among actors (Källström and Ljung, 2005; Wals et al., 2009). As sustainability transitions involve society as a whole, there is a need to popularise the constantly evolving sustainability discourse in order to develop a shared way of communicating and putting sustainability into practice. This further suggests the need for context sensitive communication in order to avoid simplistic understandings of farming.

The interviewed farmers' engagement with ecology-based and integrative uses of the resources as well as more cooperative and diversified forms of activities, indicate that organic farming in the Uusimaa region does not stand hopeless in face of the dominant agro-food regime. The challenge is that the diversity of spatially rooted visions and possibilities are currently underutilized. Thus, agrifood governance in Finland should support the alternative bottom-up derived food system initiatives that hold innovative capacity in farming and food systems. While standardization may help human kind to survive under relatively stable conditions, the increased turbulence created by unpredictable sustainability challenges requires alternative ways of looking at such conditions (Folke et al., 2005; Seyfang and Smith, 2007). In line with this, the idea of organic farming, as a niche for adopting sustainability objectives rather than an equivalent to sustainability, should be followed. Bellon and Pervern (2014) frame organic farming as a prototype of sustainable farming, indicating its unfinished and imperfect nature. The importance of organic farming in promoting sustainability is based on its evolving nature alongside the evolving nature of sustainability.

A possible way forward is to enhance the building of social networks, since the power to act and change lies in social collectives that involve collaboration between farmers, farmers and consumers but also within wider networks. Lamine et al. (2012) suggest an integrated, territorial mode of agrifood governance, where food policies are enhanced through integration of diverse policy agendas (e.g. health, environment, quality and safety) thus involving a wide range of public institutions and civil society organizations. This as opposed to having pure agricultural or rural policies. They further discuss that transition to sustainable food systems can be enhanced by looking beyond the dichotomies, such as short vs. long supply chains, quality production vs. mass production or conventional vs. organic, and rely more *"...on the existence of a diversity of initiatives and actors, and therefore on the structuration of networks of relations between them, but also on appropriate governance mechanisms"* (p.232). The territorial-level could be a suitable level to operationalize transitions in Finnish food systems, as it could enable broader participation of different groups, thus providing diverse perspectives, while simultaneously recognizing the spatial variation in terms of social and natural capacities and needs, thus facilitating the design of context-specific policies.

Regarding the main research question, it seems that farming can become more sustainable in Uusimaa region when the sort of governance that takes an integrated perspective on sustainability, ensures

deliberative agrifood decision-making and facilitates the creation of social networks with shared endeavour to meet sustainability criteria, rather than reduces the versatility of socio-ecological systems is promoted. This requires increased institutional flexibility and supporting the innovative capacity in farming rooted in the alternative visions on farming and food systems with ecology-based strategies involving care and a long-term commitment. Sustainability cannot bloom nor been scaled-up without support from society. Otherwise, there is a risk that the society lulls into the easiness of individualism, leaving the solution of sustainability challenges to conscientious consumers and producers.

#### **6.4 Further studies**

Some interviewed farmers' accounts on some organic farmers appropriating "less ideal" farming practices indicate deviations in the socially accepted methods of organic agriculture. This may imply some level of differentiation among organic farmers: some following the legal standards and some implementing more holistic sustainability principles as against the complete conventionalization of the sector. However, in order to get more elaborated understanding on such deviations, research should include analyses that are sensitive to the diverse values among farmers and their contexts (Darnhofer et al., 2010).

For further research, it would also be interesting for comparative reasons to conduct similar case studies with farmers from different regions in Finland and from other countries. Moreover, the thesis focused on organic farmers. Including also non-organic farmers could have helped to better understanding the prospects of promoting sustainable more farming. Furthermore, as farmers do not represent all the stakeholders in the food systems, it would be interesting to expand the Uusimaa case to a multi-stakeholder study that focusing on social learning and integrating the perspectives of the wider actor-networks including, for example, regional consumer groups, municipality officials, local institutions and enterprises. This could facilitate achievement of shared visions and activities for sustainable food systems.

#### **6.5 Reflections on the research process**

This research process made my biases and knowledge gaps very evident. In turn, these circumstances limited my ability to gather reliable data and limited the validity of my interpretations. A major pitfall during the process was also to find the appropriate theoretical background for my thesis. I ultimately dedicated plenty of energy and time in trying several theories, including the diffusion of innovation, transition theory and Bourdieu's theory on various types of capital. It was challenging to transform the large amount of detailed empirical data into a condensed discussion, as I wasn't fully aware of the direction of my work until the very end. Many times the process left me on my own fate, where my intuition helped me to find the way out from the dark alleys, of course without forgetting the help I got from those who commented on my paper.

This has been a long, dedicated and challenging learning process. I believe, however, that if I did this kind of a work a second time, it would be much easier to deal with such difficulties. Firstly, as data analysis cannot be learned in any other ways than doing it, I believe my skills developed greatly towards the end of the process. Next time, I would also let my interviewees to validate the data after the interviews in order to improve credibility. The challenge of condensing the data without losing valuable insights would have been better controlled, if I had my data entirely transcribed, as this would have made me more familiar with the data. I am also now more aware of the role of the theory as a provider of pre-understanding and its procedural development in more inductive/iterative studies.

While having these “growing pains”, I learned that doing research is rarely as straightforward as it may look based on the published paper. On the contrary, the process involved a roller coaster of feelings varying from complete despair due to loss of direction to total euphoria when finally finding a right place for a long-missing piece in the enormous puzzle of the thesis.

## **7 Conclusion**

With an on-going restructuring process characterised by increasingly specialized, concentrated and separated food system operations, time-minimising approaches in agriculture and rather ineffective environmental regulations, there is a challenging context for enhancing sustainable farming. Organic agriculture is one largely recognised attempt to transform food systems towards the better. While much research has focused on the potential environmental benefits of organic farming, there is a need to better understand organic farmers’ perceptions of the meaning of farming, the challenges they face when practicing farming and possible ways to move sustainable farming forward. My thesis has addressed these issues, based on the perceptions of Finnish organic farmers.

Farmers’ views of the meaning of farming are heterogeneous, and they combine aspects from the food sufficiency, ecological stewardship and community perspectives on sustainable farming. In this context the productivist logic should not be viewed as the single strategy in farming, because overriding the diverse meanings of farming can hinder agricultural productivity and ecosystem well-being in the long run, as well as farmers’ ability to consolidate socially meaningful farming.

The challenges to organic farming identified by farmers reflect the difficulty to put the ecological stewardship and community perspectives into practice. Some challenges were personal while others related to the standing institutional structures. They included development of entrepreneurial skills, a complicated regulatory environment and unsupportive agri-governance that favours agricultural simplification and disintegration, the lack of farmers’ influence over farming because of dependence on external experts, top-down policy-making and tightening economic environment, and the weakening of

social relations surrounding the farm (e.g. between farmers, farmers and consumers, and within communities and wider networks).

In order to make farming more sustainable in Finland, there seems to be a need for an integrated and a long-term perspective on agrifood decision-making, that successfully incorporates the aspects of organic farmers that are relevant for food sufficiency, environmental stewardship and community development. Due to the disconnection between local farm contexts and national and international regulatory institutions, sustainable farming also requires more deliberative and participatory decision-making processes that recognize the value of context-sensitive knowledge, beyond that of academics and experts and provide farmers the ability to have real influence in the decision-making in regards to farming and food systems. Such knowledge-intensive farmer-led processes could help organic farmers to become more self-determined actors in food systems.

However, sustainable farming needs also more deliberative forms of agrifood governance, which facilitates and strengthens social relationships based on meeting diverse and locally rooted visions of farming recognising the variations in place and time. This requires increased institutional flexibility and support for innovative capacity in farming rooted in the alternative visions of ecology-based strategies involving socio-ecological care and a long-term commitment. Similarly, the heterogeneity of farmers' perceptions reflects the constructive nature of farming, suggesting a crucial role for critical thinking and social learning in enhancing sustainable farming, and the need to enhance trust and develop shared meanings and communication around this topic.

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## **Appendices**

### **Appendix A: The four principles of organic agriculture**

#### ***The principle of health***

Directly quoted from IFOAM's Principles of organic agriculture (2005).

*Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.*

This principle points out that the health of individuals and communities cannot be separated from the health of ecosystems - healthy soils produce healthy crops that foster the health of animals and people. Health is the wholeness and integrity of living systems. It is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being. Immunity, resilience and regeneration are key characteristics of health. The role of Organic Agriculture, whether in farming, processing, distribution, or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings. In particular, organic agriculture is intended to produce high quality, nutritious food that contributes to preventive health care and well-being. In view of this it should avoid the use of fertilizers, pesticides, animal drugs and food additives that may have adverse health effects.

#### ***The principle of ecology***

*Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them*

This principle roots Organic Agriculture within living ecological systems. It states that production is to be based on ecological processes, and recycling. Nourishment and well-being are achieved through the ecology of the specific production environment. For example, in the case of crops this is the living soil; for animals it is the farm ecosystem; for fish and marine organisms, the aquatic environment. Organic farming, pastoral and wild harvest systems should fit the cycles and ecological balances in nature. These cycles are universal but their operation is site-specific. Organic management must be adapted to local conditions, ecology, culture and scale. Inputs should be reduced by reuse, recycling and efficient management of materials and energy in order to maintain and improve environmental quality and conserve resources. Organic Agriculture should attain ecological balance through the design of farming systems, establishment of habitats and maintenance of genetic and agricultural diversity. Those who produce, process, trade, or consume organic products should protect and benefit the common environment including landscapes, climate, habitats, biodiversity, air and water.

### ***The principle of fairness***

*Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.*

Fairness is characterized by equity, respect, justice and stewardship of the shared world, both among people and in their relations to other living beings. This principle emphasizes that those involved in Organic Agriculture should conduct human relationships in a manner that ensures fairness at all levels and to all parties - farmers, workers, processors, distributors, traders and consumers. Organic Agriculture should provide everyone involved with a good quality of life, and contribute to food sovereignty and reduction of poverty. It aims to produce a sufficient supply of good quality food and other products. This principle insists that animals should be provided with the conditions and opportunities of life that accord with their physiology, natural behavior and well-being. Natural and environmental resources that are used for production and consumption should be managed in a way that is socially and ecologically just and should be held in trust for future generations. Fairness requires systems of production, distribution and trade that are open and equitable and account for real environmental and social costs.

### ***The principle of care***

*Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.*

Organic Agriculture is a living and dynamic system that responds to internal and external demands and conditions. Practitioners of Organic Agriculture can enhance efficiency and increase productivity, but this should not be at the risk of jeopardizing health and well-being. Consequently, new technologies need to be assessed and existing methods reviewed. Given the incomplete understanding of ecosystems and agriculture, care must be taken. This principle states that precaution and responsibility are the key concerns in management, development and technology choices in Organic Agriculture. Science is necessary to ensure that Organic Agriculture is healthy, safe and ecologically sound. However, scientific knowledge alone is not sufficient. Practical experience, accumulated wisdom and traditional and indigenous knowledge offer valid solutions, tested by time. Organic Agriculture should prevent significant risks by adopting appropriate technologies and rejecting unpredictable ones, such as genetic engineering. Decisions should reflect the values and needs of all who might be affected, through transparent and participatory processes.

## **Appendix B: Outline of the semi-structured interviews**

Introductory questions:

- How did you become a farmer?

- Would you tell about your farm? (History, size, mode of production)

#### Theme 1: Good farming

- I'm interested to learn about what *good farming* means to you? What is good farming? How do you recognise it? (This is a topic that we can return during the entire interview)
- Did the parents, neighbours or decision-makers have similar ideas of good farming?

#### Theme 2: Experiences in organic farming

- Definition of organic farming? How did you become an organic farmer?
- Discussing farmers' experiences in organic farming in the beginning and present day (challenges and successes)
- Perceptions on the future of organic farming: future visions and challenges, possible improvements for the future and personal goals

#### Theme 3: The concept of sustainable farming

- Are you familiar with the concept of sustainable development in farming? What do you think about it? What should be prioritised in sustainability of farming?