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Food Security in the Norwegian Debate on Agriculture

An analysis of global trends and their reflection in the Norwegian media debate.

Master's Thesis - Master of Science in Globalization, Global Politics and Culture

Trondheim, May 2014

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Abstract

The food price crisis in 2007/2008, and the warnings that climate change might have a negative effect on the world's ability to produce enough food in the decades and centuries to come, have placed food security back on the international agenda. Calls for a fundamentally different understanding of food production, and a turn towards more sustainable agricultural production systems have gained momentum, and industrial agricultural production is the subject of much criticism. Simultaneously, Norwegian agricultural development is mirroring that of countries such as the US, the EU, Russia and Australia, where farms are getting fewer and larger, and increasingly dependent on external inputs. Within this framework, food security is being discussed in a highly food secure country such as Norway. In this paper, I use public texts from selected Norwegian newspapers to illuminate the debate on domestic food security. I categorize and analyze the different arguments put forward in the debate, and find that they differ from the arguments posed by the critics of the industrial agricultural production system on several points. My analysis could contribute to a more informed and pointed debate on future Norwegian food security.

Preface

First, I would like to thank my supervisor, professor Haakon Lein, for all his help throughout this process. He has read through several drafts of the thesis, and has been immensely helpful, both in terms of suggesting changes to the structure of the paper, helping out with the language, and pointing out the need for clarifications and elaborations. I also appreciate all his help in the earlier phase of this project, where he helped me gather my thoughts and narrow the focus.

Senior researcher Katrina Rønningen at the Centre for Rural Research, Trondheim, has provided guidance and input for research problems linked to the research project «Frogs, fuel, finance or food? Cultures, values, ethics, arguments and justifications in the management of agricultural land» (financed by the research Council of Norway, proj.no. 220691, 2013-2016). This thesis is thus a contribution to that research project. I would like to extend my gratitude for her help in the earlier phase of this project, for her suggestions for research questions, topics of interest, and valuable input on the topic in general. I also appreciated that she took the time to give some final input at the final stage of finishing up this paper.

Last, but definitely not least, I would like to thank Anders. Had it not been for him, I do not think this project would ever have been finished. His constant encouragement and support means so much to me. I would also like to thank him for reading through my paper at an earlier stage, helping me with the language and the structure, and for his help with the title and abstract.

Contents

Abbreviations	vii
1. Introduction	1
2. Food security in normal times and crisis	5
2.1. Food security – a human right	5
2.2. Food security in times of crisis.....	7
3. Which agricultural model will ensure global food security?.....	11
3.1. The industrial, large-scale agricultural model	11
3.2. An alternative agricultural model.....	12
3.2.1. Agricultural production and climate change.....	13
3.2.2. Industrial agricultural production and sustainability	15
3.2.3. Agricultural production and biodiversity	17
3.2.4. Agricultural production and negative externalities	18
3.3. Concluding remarks.....	20
4. Norwegian agriculture – a hybrid of two systems?	23
4.1. Agriculture: More than food production?.....	23
4.2. Agriculture: Efficient food production.....	24
4.3. Structural rationalization and food security	25
4.4. Climate change and Norwegian food production	26
4.5. Norwegian food security in the future.....	27
4.6. Concluding remarks.....	27
5. Food security in the public debate	29
5.1. Data.....	29
5.2. Frame of analysis	31
5.2.1. Set of arguments	31
5.2.2. Subjects of the articles.....	33
5.3. Norwegian food security in <i>Nationen</i> and <i>Dagens Næringsliv</i>	34
5.3.1. Moral and food security	35
5.3.2. Scarcity and food security.....	38
5.3.3. Cultural heritage and food security.....	39
5.3.4. Sustainability and food security.....	40
5.3.5. Potential crises and food security	42

5.4. Concluding remarks.....	44
6. Discussion.....	47
6.1. Summary.....	47
6.2. Discussion.....	48
6.2.1. “Domestic food production is essential to ensure Norwegian food security in case a crisis of some sort hits.”	48
6.2.2. “Domestic food production is a moral responsibility.”	49
6.2.3. “The world is facing food scarcities. Norwegian food production ensures food security in times of shortages and scarcity.”	51
6.2.4. “Domestic food production ensures Norwegian food security.”	53
7. Conclusion.....	57
8. Bibliography.....	61

APPENDIX A: LIST OF ARTICLES

APPENDIX B: CATEGORIZED QUOTES

Abbreviations

AGRA	Alliance for a Green Revolution in Africa
AR4	Assessment Report 4 from the IPCC (published 2007)
AR5	Assessment Report 5 from the IPCC (published 2014)
CH₄	Methane
CO₂	Carbon dioxide
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GWP	Global Warming Potential
IAASTD	The International Assessment of Agricultural Knowledge, Science and Technology for Development
IPCC	The Intergovernmental Panel on Climate Change
N₂O	Nitrous Oxide
Norad	Norwegian Agency for Development Cooperation
UN	The United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
WTO	World Trade Organization

1. Introduction

Measured against the requirement that they should contribute to the realization of food, the food systems we have inherited from the twentieth century have failed.

United Nations Special Rapporteur on the Right to Food, Olivier De Schutter (2014: 4)

After decades of experimenting with a system that 'mines' the earth, a more sustainable food system is urgently needed.

(Lang, Barling, & Carher, 2009: 1)

During the last decade, food security has reemerged as a hotly debated topic on the international agenda. While the second half of the twentieth century was characterized by a steady growth in global agricultural production, coupled with a steady decline in global food prices, the beginning of the twenty-first century marked a significant shift in this development. During 2007 and 2008, global food prices soared to unprecedented levels. Then two years of falling prices followed, until they reached an all-time high in 2011. Since then, prices have never fallen below the level reached in 2008 (FAO, 2014).

It looks like steadily falling food prices might be a thing of the past. But the global food price crisis is not the only reason why food security has been a much-debated topic the last decade. The increasing focus on climate change has also contributed to putting it high on the agenda. In its most recent Assessment Report, AR5, published in 2014, the Intergovernmental Panel on Climate Change (IPCC) expresses concerns that:

All aspects of food security are potentially affected by climate change, including food access, utilization, and price stability. (...) Without adaption, local temperature increases in excess of about 1°C above pre-industrial is projected to have negative effects on yields for the major crops (wheat, rice and maize) in both tropical and temperate regions, although individual locations may benefit (Porter et al., 2014: 3).

The warning that food security is likely to be threatened by climate change, in a world where food production needs to increase to keep up with population growth and changing demands, is one aspect of the report that has been highlighted by several Norwegian and international newspapers.

Few things are more important than securing our future access to safe food. But how can this be done? By using the methods that have been so successful in increasing global agricultural

production the last century? This implies a further mechanization of agriculture; a continued increase in the use of chemical fertilizers and pesticides, genetically modified and improved breeds; and a continued emphasis on rationalization and efficiency. An alternative path could be to develop new production systems that are less dependent on fossil fuels; need less input of chemical fertilizers and pesticides; are more integrated and in line with the natural resource base upon which they depend; and that are less efficient per unit of labor but more efficient in terms of output per unit of land or energy. Both these alternatives, in different versions, have their supporters and opponents.

Those who support the industrial, large-scale agricultural model often argue that it is the only alternative if we want to feed a growing global population, that suggestions including organic or agroecological farming are romanticizing the past, and that they have the potential to drive millions of people into starvation and malnourishment. Opponents of industrial farming, on the other hand, claim that these systems impose so many negative effects upon farmers, consumers, animals, ecosystems and the climate, that they are unsustainable and thus cannot provide food security in the long run. Additionally, they have failed in providing food security in the past too, as the opening quote from the U.N. Special Rapporteur on the Right to Food, Olivier De Schutter, suggests. During the last decade or so, these critics – supporters of alternative food production systems – have gained momentum, and a large number of scholars, agencies and institutions are now advocating for a fundamental transformation in how we discuss and understand agriculture, farming, food systems and food security. As Sage (2012: 4-5) puts it:

This is not to deny the evident achievement of scientists *and* farmers to increase food output, but to make clear that we need a more holistic framework through which to evaluate the performance of the agri-food system than the adoption of singular “**productivist**” criteria such as output volume or yield. It is in this regard that the notion of sustainability has emerged as a framework capable of conveying important underlying principles across the biological, economic and social realms.

Norway is today a highly food secure country. Even though our geographical location puts certain limits on agricultural production, Norwegians have enough to eat every day of the week, every week of the year. Our strong purchasing power enables us to buy food on the global market even when food prices increase. However, some claim that this might be changing, with climate change, conflicts and scarcities putting constraints on global agricultural production. Potential food insecurity in the future is, in other words, debated even

in Norway, where food security is more or less taken for granted. This debate is what I want to explore in my paper.

I have identified three objectives of this thesis:

1. To present the ongoing discussion of the future of modern agriculture, and its implications for food security, based on the criticism of the industrial agricultural production system. My focus will be on explaining the four pillars upon which this criticism rest, and introduce the alternatives that are being presented.
2. To outline the main features of Norwegian agriculture and agricultural policies, how they are linked to the international debate on agriculture, and their connection to the discussion of domestic food security.
3. To explore and analyze the Norwegian debate on food security, and find out whether the international discussion of the future of modern agriculture is reflected in this debate.

Based upon these objectives, two research questions has been identified:

How is food security discussed in Norway?

To which extent is the international debate about the future resilience of the industrial agricultural production system reflected in this discussion?

I aim to make sense of the discussion by employing a set of arguments. These will serve as a tool to divide the discussion into different parts, depending on which arguments are being presented. The data upon which I will base this analysis, is a sample of articles from two Norwegian newspapers, *Nationen* and *Dagens Næringsliv*.

I believe that the way terms are discussed matter for our general understanding of different topics. By looking at the discussion, and which arguments are being used to support the different views, I want to understand what are perceived as potential threats to Norwegian food security, how these threats are presented, why domestic food production is deemed an important part of ensuring Norwegian food security, and how the debate is affected by international incidents and discussions. My aim is not to reach any conclusion on whether Norwegian food security is threatened or not, which I believe is a much too complicated question to be answered within the scope of this thesis. I do, however, think that clarifying the arguments can contribute to a more informed and pointed debate about food security. Whether one believes that a strong protection of our domestic agricultural sector is crucial in order to enhance and ensure Norwegian food security, or whether one believes that a more open

economy and less protectionist agricultural policies will contribute to this, one should consider which arguments are better suited to clearly communicate one's view.

In the next chapter of this paper, I will introduce, discuss and explain some of the terms that are important for the debate, such as 'food security', 'self-sufficiency' and 'preparedness level'. With these terms as a foundation I will in chapter three move on to the debate about competing food production systems, and elaborate on the critique of the industrial, large-scale agricultural systems, who the critics are, and what alternatives they are suggesting and picturing. With this, I aim to explain how this criticism fits with the international debate about food security. I then shift my focus to Norway in chapter four, and account for some of the trends in Norwegian agriculture that could have an impact on domestic food security, and are thus shaping the debate. In chapter five, I analyze my data material, based on the discussion in chapter two, three and four. This is also where I will account for how I chose my data sample, and explain the set of arguments that I use as a tool for my analysis. Chapter six is a summary and discussion of my findings, while chapter seven offers a conclusion of the thesis.

2. Food security in normal times and crisis

2.1. Food security – a human right

On 10 December 1948, the UN General Assembly adopted the Universal Declaration of Human Rights. Article 25, paragraph 1, reads: “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care (...)” (UN, 2014). This means that for the last 66 years, the right to food has been recognized as a core element of an adequate standard of living. However, the human rights declaration does not make clear what is meant by “food”, in terms of how much, how often or what kind of food. Nor does it define what “health” and “well-being” entails. The human rights are thus rather vague in their dealing with food security. Since 1948, however, the term has evolved. In the 1970s, most definitions and discussions expressed a concern with national food stocks (Smith, Pointing, & Maxwell, 1992). In the 1980s, a preoccupation with individual entitlements emerged, influenced by the work of economist Amartya Sen, who introduced the ‘entitlement approach’ in 1981 (ibid.). According to him, the availability of food in a market does not necessarily entitle a person to buy and consume this food (Sen, 1981). He or she might be too poor to afford it, or access to the market might be restricted due to a number of reasons, such as ethnicity, class, gender, race or religious belonging. Thus, food insecurity can very well exist on the individual or household level, even though food security exists on a national level (ibid.).

Parallel with the focus on individual entitlement, a somewhat different approach to food security emerged, which focused more explicitly on food security at the household level. This approach involved a number of different themes and sub-themes, such as the relationship between food security and nutrition, and wider concerns of livelihood security and long-term sustainability (Smith et al., 1992). However, a pattern has been detected in how different institutions and bodies dealt with households’ food security. For instance, national governments have tended to give high priority to food production, with the overall objective of national self-sufficiency. International agencies and academic literature have, on the other hand, focused more on consumption and nutrition (ibid.). Common for much of the literature on food security at a household level, however, is a particular strong focus on sub-Saharan Africa.

In the course of the 66 years since food security was first recognized as a human right, the different orientations within the food security debate have produced a large number of different definitions. In 1992, 200 separate definitions could be identified (Smith et al., 1992). One of the most frequently cited is that adopted by the World Food Summit in 1996: “[Food security exists] when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life” (WHO, 2014). The notion of *access* can be traced back to the work of Sen and his ‘entitlement approach’. The notion of entitlement is important to keep in mind when trying to assess whether a country provides food security for its citizens – it might look like it does on a national level, even though that is not true for the individual level. A current example of this discrepancy is that even though the world today produces enough calories per head to feed a total global population of 12-14 billion, approximately one billion people are suffering from hunger, with an additional billion suffering from malnourishment (UNCTAD, 2013).

The fact that there exists different numbers for under- and malnourishment, reflects the multifaceted nature of food security. Norad (2013) points out four aspects of food security: food availability, which has domestic food production as its indicator; food accessibility, with the number of meals per person per day as the indicator; food stability, where the number of food secure periods on an annual basis are counted; and food utilization, which evaluates the nutritional status of the population, for example by measuring malnourishment. Although these aspects and their indicators are made to be applied in the work with development assistance, and might not seem too relevant for Norway, I believe that this broader and more specific understanding of food security could be valuable to keep in mind throughout this paper. Remembering that food security is a complex term, with a number of meanings attached to it, could broaden the debate, and allow a number of different opinions on the topic. Additionally, as Maxwell (1996: 155-156) puts it:

(...) The multiple uses of the term “food security” reflect the nature of the food problem as it is experienced by poor people themselves. (...) Understanding food security requires explicit recognition of complexity and diversity, and that it necessarily privileges the subjective perceptions of the food insecure themselves.

According to Flaten (1999: 3), a definition of food security that could also be applied in the Norwegian context is: “[Food security exists when] all the citizens in a nation has access to enough and healthy food in crises, nationally or internationally.” In a Norwegian context, it makes little sense to talk about food security, or food insecurity, in normal times. A large

majority of Norwegians have access to enough and healthy food all year around, and on average they only spend 10-12% of their total income to secure their access to food (SSB, 2013). This means that they are less likely to become food insecure even if food prices increased dramatically.

When discussing Norwegian food security then, one is normally discussing the ability to feed the population in case of a crisis. While ‘crisis’ was previously normally referring to warfare and trade sanctions, a number of new threats have appeared during the last decades, extending the understanding of ‘crisis’ to include ecological disasters and climate change. Both can affect agricultural production on a global scale (Flaten, 1999).

2.2. Food security in times of crisis

The introduction of the crisis aspect of food security takes us to another term that is regularly used in the Norwegian debate. The term ‘food preparedness’¹ refers to the relationship between production, storage and energy need in times of crisis (Flaten, 1999). In other words, it is a more specific measurement of how capable or prepared the government is to ensure its population’s food security if a crisis of some sort hits the nation. The time perspective is traditionally bound – according to an Official Norwegian Report published in 1991, access to sufficient energy to feed the population for a period of three years should be secured in order for the preparedness level to be deemed sufficient (NOU, 1991). However, the threat perspective has changed since 1991, and this has affected the time perspective used when discussing food preparedness. The period of three years is rarely referred to anymore. There seems to be general agreement that in order for the preparedness level to be sufficient, the nation should be prepared to meet crises ranging from embargos, an increasing occurrence of failing supplies from important food exporting countries due to weather events, volcanic eruptions, nuclear accidents and generally less food on the global market due to decreasing yields and an increasing use of export bans (Flaten, 1999). For the purpose of this thesis I will be using it to refer to the government’s ability to ensure the nation’s food security in the long term, and in times of crises of all sorts.

One method often used to measure how well prepared the Norwegian government is to ensure food security in case of a crisis, is by looking at the ‘self-sufficiency rate’². This implies looking at how large a proportion of the total Norwegian food consumption is made up by

¹ ‘Matvareberedskap’

² ‘Selvforsyningsgraden’

food produced in Norway (Flaten, 1999). Even though this might sound relatively straightforward to measure, it is not necessarily so, as there are several ways to measure the self-sufficiency rate. There are significant disagreements between the supporters of the different methods of measurement, and different methods produce significantly different numbers. The method adopted by the government has the energy content of food as its unit of measurement, and is based on the actual consumption of foodstuff (including fish) produced in Norway compared to the consumption of imported foodstuff in a given year (Flaten, 1999). In 2010, the official self-sufficiency rate was 46% (NILF, 2011). This number does not take into calculation the export of foodstuff from Norway, such as fish, or the use of imported grain in the production of grain feed fed to Norwegian livestock.

This has resulted in the development of an alternative method of measurement, which corrects for the import of grain for the production of grain feed (Flaten, 1999). This results in a lower number than the official method of measurement. In 2010, 39% of the food consumed domestically was produced using only Norwegian natural resources. The number has declined steadily during the last decade (NILF, 2011). According to the leader of the Norwegian Farmers' Union, Nils T. Bjørke, this reveals an alarming tendency in Norwegian agriculture, namely the increasing dependency on imported soy from Brazil to maintain the production of Norwegian meat and milk. Bjørke claims that the Norwegian production of chicken would come to an immediate halt if the import of soy for the production of grain feed suddenly stopped. The production of pork could only be maintained for a short period of time (Aftenposten, 2013).

A self-sufficiency rate of 46%, or even 39%, gives the impression of a relatively vulnerable nation. A country able to produce less than half of what it consumes, would soon be struggling if something happened that restricted its ability to import foodstuff. But this might not be entirely true, at least not in the case of Norway. To explain why this is, it is useful to introduce another term, namely the 'self-sufficiency ability'³. It refers to a country's ability to feed its population in times of crisis if both the consumption and production changes, and factor inputs and foodstuff kept in storage are put into use (Flaten, 1999). The calculations made to reach a number or a percentage to express this ability are quite complicated, and it could even be questioned whether it is possible to perform such a calculation. One question that arises is whether it is possible to tell how the population would change its consumption during a potential crisis. But calculations have been made, based on different models and

³ 'Selvforsyningsevne'

methods, and a reoccurring number is that the Norwegian self-sufficiency ability is approximately 75% (NILF, 2011). This means that in case of a crisis, Norway would stop exporting fish and cheese and instead keep it for domestic consumption. Consequently, we would become less dependent on imported foodstuffs. The self-sufficiency ability is often mentioned in debates about the self-sufficiency rate, and the argument goes that Norway is far from as dependent on imports as our self-sufficiency rate might suggest. While this might be true, an important thing to keep in mind is how much fish a person could eat and still fulfill the body's nutritional needs, and also how much fish the population would be willing to consume, even in times of crisis. It is also uncertain how long the production of fish could be maintained if imported grain became less readily available (Flaten, 1999). The answers to these questions are not given, and they are regularly up for discussion. For the purpose of this paper, I have included this discussion and the different understandings and definitions of these terms to show why the food security debate might sometimes be hard to get a hold of, and why the different sides of the debate cannot even seem to always agree on the foundation of the debate.

3. Which agricultural model will ensure global food security?

Food security is a term with different meanings and understandings attached to it, which I explored in the previous chapter. However, an aspect of food security that everyone can agree on, is that it is related to food production. How this food production should take place, is a subject of controversy. While some claim that industrial, large-scale food production is the only system that can ensure food security in a world where the population is growing, calls for a fundamentally different food production system that is supposed to be more sustainable, and thus be able to ensure food security in the centuries to come, have gained momentum. The food price crisis in 2007/2008 provides a background for much of the criticism of the dominant agricultural production system. In this chapter, I will introduce the two competing visions for the future of agriculture, and then further explore the critique of the industrial agricultural model, and what alternatives are being presented.

3.1. The industrial, large-scale agricultural model

The understanding of food production and agricultural systems has changed tremendously in the last 60 years. In the course of the second half of the 20th century, global agricultural production was doubled, compared to the production level right after the Second World War (Smedshaug, 2008: 19). This growth enabled industrialization at an unprecedented scale, as economic resources and labor could be transferred from the agricultural sector to industry. One of the main reasons for the doubling of global agricultural production, and thus for why global food production was able to keep up with, and even exceed, global population growth, is the invention of chemical fertilizer. The Haber-Bosch process, invented in 1909, makes it possible to synthesize ammonia, with the use of hydrogen and nitrogen, and thus produce chemical fertilizer. Had it not been for this, global agriculture would probably not be able to feed more than three billion people (Smedshaug, 2008: 152). Additionally, the mechanization of agriculture, particularly through the use of the tractor, has not only made agriculture much more productive and significantly less labor-intensive than it traditionally was, but it has also freed up large areas for the production of food for humans instead of food for draft animals (ibid.).

The history of modern agriculture looks like a story of success, and this success is often attributed to the industrial agricultural model, where food production is dependent on a large number of input factors, such as fossil fuels, irrigation, chemical fertilizers and pesticides,

genetically improved and modified seeds and breeds. This production model is characterized by an industrial *modus operandi*, where machines replace human labor; the scale of production is large; efficiency is pursued in all stages of production; and monocultures are the norm rather than the exception (Nærstad & Randen, 2012). Initially developed in Western countries, particularly in the US, it later spread to developing countries, for instance through the ‘Green Revolution’ that took place in Southeast Asia in the 1960s and -70s (Smedshaug, 2008). Although the Southeast Asian version of industrial agriculture was significantly different from the US version, for example in that it did not focus on plantations and large-scale production, it adopted some of the features, such as increased use of irrigation, chemical fertilizers and pesticides, more mechanization, and the introduction of high-yielding varieties, which was the main characteristic of the Green Revolution (*ibid.*).

Whether this revolution has been a blessing or a curse for the population in the countries where it was implemented, is a subject of significant controversy. The International Food Policy Research Institute (2002: 4) supports a positive understanding, and concludes that although it had many negative environmental impacts that still have to be adequately addressed, “(...) the Green Revolution was a major achievement for many developing countries and gave them an unprecedented level of national food security.” This view is supported by amongst others the Alliance for a Green Revolution in Africa (AGRA), which was created in 2006 with “(...) one overriding purpose in mind: to catalyze a uniquely African green revolution” (AGRA, 2014). The original Green Revolution had a very modest impact in Africa, and mainly affected Southeast Asia, and also to a certain extent Latin America (International Food Policy Research Institute, 2002), and AGRA argues that time has come for the effects to spread to the African continent.

3.2. An alternative agricultural model

AGRA is one example of an advocate for a continued agricultural development based on the industrial agricultural model, although it strongly emphasizes the importance of pro-poor, environmentally sustainable development (AGRA, 2014). According to an increasing number of institutions and scholars, however, these two – industrial agriculture and environmentally sustainable agriculture – can never be combined. The calls for a fundamental transformation in how agriculture is understood and performed on a global scale, have thus gained momentum during the last decade. Groups of experts appointed by agencies such as the Food and Agricultural Organization of the United Nations (FAO), the World Bank and the United

Nations Conference on Trade and Development (UNCTAD) have published reports where the industrial, large-scale agricultural model is criticized, despite its success in boosting global agricultural production in the last century (IAASTD, 2009; UNCTAD, 2013). In addition to these reports, a large number of articles and books have been published where different aspects and effects of industrial agricultural production are discussed and criticized (examples include Carolan, 2011; D'Silva & Webster, 2010; De Schutter & Vanloqueren, 2011; Lymbery & Oakeshott, 2014; Sage, 2012; Van Der Ploeg, 2008, 2010; Weis, 2007, 2013). I account for some of the main objections of these reports, books and articles, and for some possible alternatives, below.

3.2.1. Agricultural production and climate change

Among the most frequently used arguments against the current, industrial mode of agricultural production, is that it is an important driver of climate change. In terms of how big a proportion of total greenhouse gas (GHG) emissions are made up by agriculture, forestry and other land use, the estimates range from 24,8% in the latest IPCC-report (Edenhofer et al., 2014: 7) to approximately half of all anthropogenic GHG emissions (GRAIN, 2013), depending on whether factors such as emissions from land-use change and deforestation due to agricultural activity, the transportation of food for processing and consumption, food waste and the refrigeration of food are included or not. Between these two estimates lies that used by the IAASTD (2009) and Hoffmann (2013), where land-use changes and deforestation due to agricultural activity are included in the calculation, which results in agriculture being held responsible for approximately a third of all anthropogenic GHG emissions.

Agricultural activity emits different greenhouse gases, with the most important ones being CO₂, CH₄ (methane) and N₂O (nitrous oxide). Deforestation is a major driver of the increasing CO₂-content in the atmosphere, and the expansion of the agricultural frontier is the dominant contributor to deforestation, causing 70-90% of global deforestation (FAO, 2008; Kanninen et al., 2007 in GRAIN, 2013). One important driver of deforestation is the expansion of industrial animal production, dependent on large amounts of soy for the production of grain feed (Idel & Reichert, 2013). In addition to this, CO₂ is released into the atmosphere through soil erosion, when biomass is exposed and oxidized. "One hectare of soil may contain about 100 tons of organic matter or biomass, which, if eroded, would contribute about 45 tons of carbon to the atmosphere" (Pimentel & Burgess, 2013: 81). While 75% of soil erosion worldwide is caused by agriculture, the industrial model is not the only one to blame, since less intensive agricultural models are also important drivers of soil erosion. But

the extensive removal of forests for crops and pasture, which has become a characteristic of the industrial agricultural model, is followed by intensive soil erosion (Pimentel & Burgess, 2013). Agriculture, and then primarily industrial agriculture, is also a significant consumer of fossil fuels, which emit CO₂ when burnt. However, it is the increase in synthetic nitrogen fertilizer use that is responsible for the biggest contribution of agriculture to climate change (Idel & Reichert, 2013). In the past 40 years, the use has increased eightfold, and through the Haber-Bosch process, 5 tons of CO₂ are released per ton of ammonia. Adding to this is that 2-5% of the nitrogen fertilizer applied to the soil is released as N₂O, which has a global warming potential (GWP) 296 times higher than CO₂. Livestock production, especially the ruminant production, causes methane emissions. Methane has a GWP 25 times higher than CO₂ (ibid.).

Whatever estimate for the agricultural sector's contribution to the total GHG emissions one decides to use, it is evident that agriculture is both a key driver and a major victim of global warming caused by the increase of greenhouse gases in the atmosphere (Hoffmann, 2013). The authors of the UNCTAD-report argue that this could be changed through a turn towards climate-friendly agriculture. This includes changing production systems and management practices, through for instance increasing the soil carbon content; introducing closed nutrient cycles, which would allow the optimization of organic and inorganic fertilizer; reducing the direct and indirect GHG emissions from livestock; introducing sustainable peatland, forest and grassland management; reducing waste throughout the food chain; and changing dietary patterns towards climate-friendly food consumption (Hoffmann, 2013: 7).

Whether these changes could be made within the existing industrial agricultural model, or whether a fundamental transformation needs to take place in order for this to happen, is up for discussion. Many people would probably disagree with the conclusion drawn by the UNCTAD-report that a fundamental shift is needed, and argue that measures are now being taken to make industrial agriculture climate-friendly, and thus enable it to meet the challenges and difficult times ahead. In a commentary in *Dagens Næringsliv* 28 April, 2014, it is argued that organic farming is less climate-friendly than intensive agricultural production, because of the need for much larger areas to produce the same amount of food (Alstadheim, 2014). The conclusion drawn is that a climate-friendly farmer is a farmer with intensive agricultural production. In other words, there exist very different versions of what a climate-friendly agricultural system is. I would like to note, however, that the UNCTAD-report does not conclude that a complete turn towards organic agriculture is the answer. Their suggestions

and alternatives are far more numerous and complex, and few of the authors contributing to the report advocate for an agricultural production system solely based upon organic practices.

3.2.2. Industrial agricultural production and sustainability

Globally, approximately 80% of freshwater withdrawals are accounted for by irrigated agriculture (Hanjra & Qureshi, 2010: 366). Since the 1950s, global demand for water has increased threefold, a growth that can be largely explained by the increase in the consumption of animal products. For every kilogram of live weight gain of beef, 12.56 cubic meters (12560 liters) of water are needed (Carolan, 2011). Thus, when the demand for and consumption of beef increases, water use will, as a direct consequence, increase rapidly. It is expected that the global demand for beef and other meat will increase in the years to come, largely as a result of a general improvement in people's purchasing power. This, together with a general increase in the need for food due to population growth, will require large amounts of freshwater. Simultaneously, it is expected that water will become scarcer in regions that are already experiencing water shortages, and also in regions dependent on meltwater from glaciers, due to climate change (Cisneros et al., 2014: 2-3). Additionally, groundwater supplies, on which much agriculture relies, are already declining globally (Konikow & Kendy, 2005).

The combination of these trends had the United Nations Development Programme (UNDP) (2007 in Carolan, 2011) conclude that water scarcity, not a lack of arable land, will be the number one constraint on food security in the next few decades. According to Carolan (2011), one of the reasons for the massive consumption of water, especially in industrial agriculture, is that the price of water is so low. If water were more expensive, farmers would have an incentive for using less of it. The situation today allows water to be used inefficiently, and also does not encourage farmers to maximize crop production per unit of applied water. The results of the overuse of water, in addition to the lowering of groundwater levels, are increasing surface evaporation and runoff, and in some cases even disease and the leaching of nutrients from the soil (English et al., 2002 in Carolan, 2011).

Plants are not only dependent on water to grow. Phosphorus is just as important for agricultural production, and essential for all life. As with water, there is no substitute for phosphorus in crop growth and therefore food production. One thing that separates it from water, however, is that phosphorus has no significant gaseous phase, and thus cannot circulate freely in the atmosphere (Cordell & White, 2011). While it has been an important and significant part of agriculture throughout history, industrial agriculture dramatically altered

the phosphorus cycle. When harvested crops are transported elsewhere for food production and consumption, the natural biochemical cycle, which recycles phosphorus back to the soil via dead plant matter, is broken (ibid.). The result is that a continual application of phosphorus-rich fertilizer is required to replace the soil removed in this harvest. For the manufacturing of this fertilizer, one is dependent upon mined phosphate rock, which is geographically concentrated in a few countries. Only five countries together control approximately 95% of the world's remaining reserves: China, USA, South Africa, Jordan and Morocco. Morocco alone controls 85% of the remaining reserves (ibid.).

One problem is, according to some scholars, that we are fast approaching 'peak phosphorus' – phosphorus is running out (Carolan, 2011). Cordell and White (2011), on the other hand, emphasize that phosphorus can never run out, simply because phosphorus molecules cannot be created or destroyed. Yet, a shortage of accessible phosphorus can still become a problem, since high-concentration rock phosphate is being irreversibly depleted, and there are significant economic and energetic barriers to the mining of reserves with lower concentration of phosphorus. The estimates for how long the currently known rock phosphate reserves will last, range between 61 and 400 years, depending on assumptions for the future use of phosphorus (Cordell & White, 2011: 2032). There are good reasons to believe that there will be a net increase in the future demand for phosphorus, due to factors such as population growth; changing dietary preferences towards higher meat consumption, which requires significantly more phosphorus fertilizer per capita; increasing demand for non-food crops like biofuels; and a need to boost soil fertility in phosphorus-deficient regions (Cordell & White, 2011). Thus, it seems that the lower estimates for how long the phosphate reserves will last, are more realistic than the higher estimates.

A second problem is the concentration of rock phosphate. As already mentioned, five countries control 95% of the known reserves. "Yet there are currently no international policies, guidelines or institutional arrangements in place to effectively govern phosphorus to ensure short and long-term accessibility and availability" (Cordell, 2010 in Cordell & White, 2011: 2039). The US has approximately 25 years left with their known reserves. Moroccan export of phosphorus is geopolitically sensitive, as the rock phosphate reserves are found in Western Sahara, which Morocco occupies contrary to international law. The third problem is the environmental damage and GHG emissions from the mining of rock phosphate. This mining results in the creation of by-products such as phosphogypsum, which cannot be re-used due to a too high level of radiation, air, water and noise pollution and local land

disturbances (Cordell & White, 2011). The fourth problem is that the transportation of phosphorus around the world emits large quantities of CO₂ (ibid.). Together, these four problematic aspects of the mining of phosphate rock, and their implications for the production of chemical fertilizer, make Cordell and White (2011: 2045) conclude that although there might be reasons to be skeptical to the use of the term ‘peak phosphorus’, or similar terms suggesting the end of phosphorus,

(...) there is sufficient consensus between the scientific community, industry and others that the current situation is unsustainable with respect to the environmental impacts associated with the linear use (throughput) of phosphorus for food production (in particular eutrophication), inequitable access and geopolitics surrounding the unequal distribution of phosphate resources, the finite nature of phosphate rock and the inefficiency of phosphorus use throughout the current food production and consumption system.

They suggest that an integrated and globally coordinated approach is developed, to ensure a successful adaption to a world where access to phosphorus for the production of chemical fertilizer is much scarcer. Additionally, regional and context-specific strategies for dealing with this shortage need to be developed (ibid.). Only then can the future sustainability of global agriculture be ensured. This implies that an agricultural sector less dependent on chemical fertilizer is the only option that could last in the long run.

3.2.3. Agricultural production and biodiversity

The industrial agricultural system is characterized by monocultures (IAASTD, 2009: 10). It is both a practically and financially sound practice to plant one crop over large areas, because it makes the planting, maintenance and harvest easier when using large mechanical equipment, such as tractors and harvesters. The consequence of this practice, however, is that biodiversity is lost. In the course of the last century, the loss of biodiversity through habitat destruction has been tremendous, one main cause being the conversion of diverse ecosystems to agriculture (IAASTD, 2009: 329). Agrobiodiversity is declining rapidly due to the destruction and fragmentation of natural ecosystems, overexploitation, introduction of exotic species, human socioeconomic changes, and especially changes in agricultural practices and land use, particularly through the replacement of traditional crop varieties with modern varieties, which are normally more uniform (IAASTD, 2009). Reduction of this decline in and loss of biodiversity is attempted through the establishment and use of gene banks and seed repositories, which have long been considered the central pillars of agrobiodiversity conservation (ibid.). Carolan (2011), however, argues that the biodiversity loss caused by

industrial agricultural practices is inseparable from the loss of cultural knowledge, and thus that ex situ conservation, such as gene banks and seed repositories, are of less worth than we think. He refers to a study performed in the early 1990s, where Virginia Nazaera (1998) studied sweet potato farmers in the Philippines, and discovered that cultural knowledge might actually erode faster than genetic diversity itself⁴. Even though genes of traditional plants are conserved by saving their seeds in seed repositories, the knowledge of their use, their specific qualities and under which conditions their growth is optimized, could potentially be lost forever, making the seeds practically worthless. Thus, cultural knowledge might be lost sooner than biodiversity. In the long run, this could threaten food security, as the number of people with agricultural knowledge, for instance on the use of drought-resistant traditional crops, is reduced. One way to ensure a nation's food security is to make sure that a sufficient number of people possess knowledge about food production (Flaten, 1999). This is a task that industrial agriculture has failed to take on, according to Carolan (2011) and IAASTD (2009).

3.2.4. Agricultural production and negative externalities

As mentioned earlier, the second half of the 20th century was characterized by a global agricultural production that grew faster than the global population, a development largely driven by the expansion of the industrial model of agricultural production. Simultaneously, particularly people in developed countries spent a diminishing proportion of their income on food – food simply became much cheaper. As a consequence, they could spend more on commodity goods, a consumption that boosted the industries and the overall economy. One could perhaps conclude that the current consumption pattern evident in developed countries is a direct result of the advent of 'cheap food'. Many would describe this development as one of the great successes of our times. But is it necessarily so?

According to many of those referred to above, such as Carolan (2011), GRAIN (2013), Hoffmann (2013), IAASTD (2009) and Idel and Reichert (2013), the notion of the successful industrial agricultural production system is false. One argument put forward, is that after half a decade where food production has been growing faster than the population, approximately one billion people are still suffering from hunger, with an additional billion suffering from

⁴ This could partially be explained by the term 'tacit knowledge', which is knowledge that cannot be expressed through the use of symbolic forms of representation, such as documents, manuals, blueprints and drawings. Tacit knowledge is often personalized, and impossible to communicate through formal mechanisms (Dicken, 2011). An example of tacit knowledge is the knowledge of how to ride a bike. In order to learn how to ride a bike, you actually have to do it, normally several times, until you get a hang of it. According to Carolan (2011), the cultural knowledge tied to traditional crops is very much like this.

malnourishment, in a world that produces enough food. In other words, hunger and malnutrition are not phenomena of insufficient global food supply, but the results of prevailing poverty, and, more importantly, inadequate access and unfair distribution (Perez del Castillo, 2013).

Another argument put forward is that the industrial agricultural production system is economically unsustainable, in that it externalizes so many of its costs (Carolan, 2011; IAASTD, 2009; Sage, 2012; UNCTAD, 2013). “A fundamental failure of global markets today is the lack of price signals that incorporate the full array of health, energy and environmental costs associated with agriculture” (Ishii-Eiteman, 2013: 61). The way the industrial agricultural system is organized today, few of the costs described above, such as environmental degradation, water scarcity, GHG emissions, and eroded biodiversity, are incorporated into the price that farmers, retailers and consumers pay. Farmers are often subsidized so that they get access to fossil fuels, chemical fertilizers and pesticides and water for irrigation at a lower cost than the actual worth. This means that farmers have few incentives to apply these inputs with care. But if no parts of the food system are paying for these costs, then who is? According to Carolan (2011): society is. This notion of a privatization of profits and a socializing of costs is quite common within economic theory, although the goal is normally to avoid such a situation. This is why the price of a product should reflect its ‘true costs’. When it does not, society as a whole will pay the remaining costs. These costs may not be immediately evident, such as GHG emissions, which contribute to global warming, a process that takes time. The pollution of groundwater and waterways due to residuals from fertilizers and pesticides applied in the field might also take time, so that when it is recognized as a problem, it might be too late to find a quick fix.

As long as neither the farmer, nor the retailer or the consumer take these costs, they will add up, and eventually be paid by society as a whole. One evident solution to this problem would be to internalize the costs, so that they are actually paid by those profiting. This is not a simple operation, which is part of the reason why “the required transformation is much more profound than simply tweaking the existing industrial agricultural system” (UNCTAD, 2013: i). Food should be made affordable instead of cheap, according to Carolan (2011), which means that environmentally unsound agricultural practices and practices that emit large quantities of greenhouse gases should be made economically unsound, and thus encourage a turn towards sustainable agricultural practices. This will require a different way to price food, and also that a whole range of different solutions, adapted to local realities, are implemented.

The one-size-fits-all solution preached by the industrial agricultural system has failed (Carolan, 2011). A sustainable agricultural model that benefits the environment, the climate, the farmers, the consumers and local cultural knowledge, and that ensures food security for all in the centuries to come, is one that understands and respects the multifunctionality of agriculture, and emphasizes that agricultural production should be based upon local natural resources (Hoffmann, 2013).

3.3. Concluding remarks

The industrial agricultural production system has been the subject of much debate and heavy criticism the last years. As I have shown in this chapter, this criticism has been expressed by both international institutions, such as the IAASTD and UNCTAD, and by a number of individuals, such as Carolan, De Schutter, Vanloqueren and Van Der Ploeg. Their critique of industrial agriculture can be summarized as follows:

1. It is a major driver of climate change.
2. It is unsustainable.
3. It is threatening biodiversity and cultural diversity.
4. It does not pay for its negative effects.

Although the estimates vary with the different calculations, the agricultural sector is globally responsible for approximately one third of all anthropogenic GHG emissions. Those arguing that there is an urgent need to adopt alternative agricultural production systems, believe that a climate-friendly agriculture cannot be built upon an industrial mode of operation, and that closed nutrient cycles should be introduced, together with sustainable peat, forest and grassland management. A climate-friendly food production also includes a significant reduction of waste throughout the food chain and changing dietary patterns towards climate-friendly food consumption, which would have to include a reduction in meat consumption.

In addition to this, water use for irrigation has to be reduced and optimized. As of today, agriculture is the economic sector that consumes the largest amounts of freshwater. In a world facing water shortages in important food-producing regions, water will have to be used much more efficiently than what is currently the case. The consumption of chemical fertilizer will also have to be significantly reduced, considering that the phosphate rock reserves are depleting fast. These are two important aspects of a more sustainable agricultural production system. The most important aspect, however, is that the costs of industrial agriculture that are today externalized, which means that the society as a whole are, eventually, paying for them,

need to be internalized. Practices that are not climate-friendly, or environmentally unsound, need to be more expensive to perform than those who are not. It should be economically attractive to produce food in a way that preserves biodiversity and ecosystems, that does not pollute or emit large quantities of greenhouse gases, and that ensures the future generations' food security. An economically viable agricultural production system should be an ecologically viable agricultural production system.

4. Norwegian agriculture – a hybrid of two systems?

Before I turn to the analysis of the Norwegian debate about food security, and whether the controversies elaborated upon in the previous chapter are reflected in this debate, I believe that it is important to account for some of the major defining features of Norwegian agriculture. The agricultural sector is going through some important changes, and a basic understanding of these is crucial in order to understand the debate about domestic food security, and also why food security is being discussed in a country with such a high level of food security.

4.1. Agriculture: More than food production?

The debate about industrial agricultural production systems may seem irrelevant for the discussion of Norwegian food security. Norwegian farms are still small, at least compared to those in the US, Canada and Australia, and they are also largely family-owned, and thus rarely operated as industrial enterprises (Almås & Brobakk, 2012). Additionally, Norwegian agricultural policies have since the 1970s emphasized the multifunctionality of agriculture, just as the UNCTAD-report (2013) argues that a sustainable agricultural system should. In this lies an acknowledgement that the agricultural sector not only produces commodities such as food and fibers – it also produces certain spin-offs or positive externalities, which are defined as public goods or non-commodities (Rønningen & Burton, 2013). Examples include cultural landscapes, biodiversity, rural settlement and traditional knowledge. Norwegian farmers have since the late 1980s received financial support from the state to maintain cultural landscapes that are deemed valuable, to protect biodiversity and ecosystems and even to maintain buildings and physical structures (ibid.).

Whether this should be the task of farmers or not, is a topic of constant discussion. There is no doubt that this environmental turn in agricultural policies has significantly reduced the environmental problems caused by the agricultural sector (Rønningen & Burton, 2013). It has also been concluded that although there might be cheaper ways to provide some of the services that the agricultural sector is currently providing, the whole “multifunctionality package” is most efficiently provided by the agricultural sector (Vatn, 2000; Romstad et al., 2000 in Rønningen & Burton, 2013). On the other hand, there are complaints from some farmers, who express dissatisfaction with this dual role that they are given. While

environmental services and the maintenance of cultural landscapes are positive spin-offs of agricultural production, a reoccurring argument put forward is that farmers are first and foremost food producers. The financial support for the protection of biodiversity, ecosystems and cultural landscapes does not fit with many farmers' understanding of their role in society, which is to produce sufficient amounts of healthy food. However, not all farmers support the argument that agriculture's only role in society is to produce food, and according to Rønningen and Burton (2013), some farmers appreciate that their important role in environmental protection is acknowledged. These conflicting views show that multifunctionality, which has been an important part of the Norwegian agricultural model since the 1980s, is being challenged. This is further confirmed when looking closer at some of the tendencies that have shaped Norwegian agriculture the last couple of decades.

4.2. Agriculture: Efficient food production

Three out of four Norwegian farms went out of production between 1949 (213,000 farms) and 2010 (46,000). Simultaneously, the average size increased by a factor of four – from 49 decares (4,9 hectares) in 1949, to 213 decares (21,3 hectares) in 2010 (Almås & Muirhead, 2013). In addition to mechanical improvements, access to better-performing varieties and the application of chemical fertilizer and pesticides, this increase in average farm size has prevented domestic food production from falling, even though the number of farms has fallen drastically. For some agricultural goods, the production has even increased significantly in this period. This is especially true for grains and oil seeds, and the production of meat from pork, cattle and chicken (Budsjettnemnda for Jordbruket, 2013: 23-24). This structural rationalization has happened in a period where the focus on the multifunctional role of agriculture has been strong. Whether the two, structural rationalization and multifunctionality, are compatible, is a matter of debate. While large farms could perform many environmental services, it is more uncertain whether they are able to protect and maintain cultural landscapes to the same extent as smaller farms. How important this protection and maintenance is, is also a topic of discussion, as mentioned above.

There are some reasons to believe that productivism today (2014) is making a comeback into Norwegian agriculture, which is in line with the neo-productivist turn in agricultural policies that can be witnessed in many parts of the world (Burton & Wilson, 2012). Even though the average Norwegian farm is still very small compared to those in the US, Australia and Argentina (Nærstad, 2013), and the increase in size has been moderate (Almås & Brobakk,

2012), the development towards fewer and larger farms mirrors that of the rest of the world. The reduction in the number of farms has been significant, and there are few signs that this trend will be reversed. While the average Norwegian dairy farm in 2011 had 21 milking cows (ibid.), the Minister of Agriculture and Food, Sylvi Listhaug, has signaled that she wishes to remove the milk quota. This is part of a strategy to encourage the development of larger dairy farms, which are supposed to contribute to increased production and improved efficiency. These signals have been welcomed by some of the farmers with the largest dairy farms in Norway (NRK, 2014). On 1 May, 2014, Listhaug announced that she will also double the limit for the number of chickens each chicken farmer is allowed to keep, in order to make it easier for them to work full-time at their farms (Dagbladet, 2014). These two announcements signalize that structural rationalization will be further strengthened under the Government currently in power. The offer presented for the Norwegian Farmers' Union and the Norwegian Farmers' and Smallholders' Union through the Agricultural Agreement negotiations, is also a strong signal in this direction.

4.3. Structural rationalization and food security

As long as the same amount of food is produced even though the number of farms decreases, food security is not directly threatened. However, there are some aspects of this development that could affect food security in the long run. One is that the number of people with agricultural knowledge decreases. As discussed in section 3.2.3, a country's food security is dependent on a certain number of people with agricultural knowledge. This is one reason why a continuing food production is one of the most important features in ensuring a country's food security in times of a crisis (Flatén, 1999). A second aspect that could potentially affect Norwegian food security in the future is the reduction of both cultivated and arable land. This reduction is not mainly driven by structural rationalization, but urbanization. Since 2005, an average of 7500 decares (750 hectares) cultivated land has annually been approved to be converted to other purposes, such as housing or business areas. The former Government aimed at reducing this conversion to 6000 decares (600 hectares) annually, a target that was not met most years (Nationen, 2013j). Cities traditionally developed in areas where food production potential was best, something that represents a problem today. Urban growth requires space for work and housing, as well as infrastructure for transportation. Since much of the area surrounding Norwegian cities is some of the best-cultivated and arable land available, conflicts arise. In addition to this, as farms go out of production in rural areas because production is deemed inefficient and not profitable, the pressure on cultivated and

arable land increases in urban areas, as a larger proportion of the food needs to be produced in areas where units can be larger, more profitable and more efficient. These areas are often in the proximity of growing cities. In other words, structural rationalization and urbanization together put some constraints on the domestic production of food, which many believe is crucial for Norwegian food security.

4.4. Climate change and Norwegian food production

As mentioned earlier, the IPCC warns that climate change might have a negative impact on agricultural production. In warmer parts of the world, even small temperature increases could make agricultural production nearly impossible. However, it is possible that some regions of the world will actually benefit from global warming, at least in terms of agricultural production. Norway was among these regions in the Assessment Report 4 (AR4), published by the IPCC in 2007. Higher temperatures on a global scale could make a larger part of the country suited for agriculture, and a higher concentration of CO₂ in the atmosphere could actually enhance water use efficiency and yields, especially for wheat (Porter et al., 2014). This could potentially increase the amount of arable land and make it possible to introduce more productive crops in Northern Norway and Upland areas in Southern/mid-Norway (Rønningen, Renwick, & Burton, 2012). Based on these assumptions, it might be that Norwegian agricultural production could increase somewhat due to the effects of climate change. If this actually happens, domestic food security could be enhanced by climate change, and Norway could even potentially play a more important role in providing other, more food insecure countries, with food. AR5, however, is more pessimistic in terms of yield increases than AR4 was. “(...) Whilst AR4 concluded with *medium confidence* that in mid- to high-latitude regions moderate warming will raise crop yields, new knowledge suggests that temperate wheat yield decreases are *about as likely as not* for moderate warming” (Porter et al., 2014: 13).

Thus, there are reasons to believe that Norwegian agriculture not necessarily will experience the benefits of climate change and global warming previously expected. Adaption measures might be necessary for areas that were previously considered “safe”, or less important to adapt, because the effects were believed to be positive. Altogether, AR5 gives fewer reasons to hope that Norwegian food production might benefit slightly from climate change. Adding to this is that even if it turns out that warmer temperatures allow food production in regions previously too cold, the potential might be less than earlier analyses indicated, due to

increased climate extremes and extreme weather events, water limitations and various institutional barriers (Kovats et al., 2014: 17-18). And should northern regions become better suited for agricultural production, calculations indicate that this could potentially only offset the reductions in food production in warmer regions of the world (Porter et al., 2014: 30).

Although global trends can be estimated, little is known about specific local and regional effects of climate change, and “(...) the regional distribution of climate change impacts on agricultural production is likely to vary widely” (Kovats et al., 2014: 17). It should not be treated as a given that Norwegian food security is directly threatened by climate change. However, the IPCC does warn that extreme weather events might become more frequent in the future, something that is likely to have a great impact on food production (ibid.). Agriculture depends on stable weather conditions, and one flood or drought might damage the crops of an entire year.

4.5. Norwegian food security in the future

In addition to the uncertain impacts of climate change, the potential reduction in access to phosphate rock for the production of chemical fertilizer, discussed in section 3.2.2, might have a great impact on domestic food production and food security. Norwegian agriculture is a large consumer of fertilizers compared to the world average. The consumption has fallen substantially during the last couple of years, but between 2004 and 2008, Norwegian consumption of fertilizers was almost double that of the world as a whole. In 2010, however, the Norwegian agricultural sector's consumption was 170 kilograms plant nutrients per hectare of arable land compared to an average global consumption of 132 kilograms plant nutrients per hectare (The World Bank, 2014a). This might indicate that the Norwegian agricultural sector is preparing for higher fertilizer prices and a reduction in the amount of fertilizer available (or it could be a consequence of the growing import of grains for animal feed, which reduces the need for Norwegian grain, and, hence, fertilizers). If the predictions about phosphate rock shortages in the future turn out correct (Cordell & White, 2011), it is clear that Norwegian agriculture should become less dependent on cheap chemical fertilizer.

4.6. Concluding remarks

Whether the significant reduction in the number of active farmers and people with agricultural knowledge and experience, together with the reduction in the amount of cultivated and arable land available, represent a threat for Norwegian food security in the future, is hard to tell. Just

as there are good arguments that they do, there are good arguments to why this threat might be slightly exaggerated. For now, it suffices to say that there are good reasons to assume that both Norwegian and global agricultural production are facing multiple challenges in the decades to come, with climate change, shortages of water and phosphate rock, the loss of biodiversity and the reduction of arable land. All this will take place at the same time as the global population continues to grow. But will these challenges have an impact on Norwegian food security? After all, Norway is the country in the world with the second highest GDP per capita (The World Bank, 2014b), a factor that would probably help us gain access to food on the global market even in a world facing food shortages. This, however, implies that there are no moral barriers to trade, that food will always be available on the global market, and that this food will be culturally acceptable for Norwegians. These are the matters to which I now turn, and the arguments put forward in the public debate will be further presented and analyzed in the next part of this paper.

5. Food security in the public debate

In this chapter I will first account for the gathering of the data used in the analysis. Following the section on data, I will explain how I developed my set of arguments, which is the tool I used to analyze my sample, and briefly account for the specific cases that provide the background for most of the articles of my sample. I then proceed to the analysis of the Norwegian debate about food security. In my analysis, I aim to let the quotes speak for themselves as much as possible, as I will discuss them further in chapter six.

5.1. Data

As I want to explore the Norwegian debate on food security and food preparedness, and find out whether the calls for a new agricultural production system are affecting the arguments put forward in the debate, I concluded that newspaper articles would be a good source of data upon which to base my analysis. Looking at newspaper articles meant that I could gain access to a large number of data from which I could choose my sample. The electronic database *ATEKST* makes it possible to search through Norwegian, Swedish and Danish media archives. It allows you to perform searches for keywords and topics, choose between different newspapers and set your preferred timeframes, and of course combine all these features. I decided to use the newspaper *Nationen* as my main source of data. *Nationen* could be described as the newspaper of the rural population, in particular farmers. Its main focus areas are trade and industry, agriculture, politics, transport and infrastructure, and the EU, and its largest owners are the dairy association Tine SA, the Norwegian Farmers' Union and the meat association Nortura SA (Nationen, 2014e). It could thus be expected that it contains a large number of articles and editorials touching on subjects such as agriculture, agricultural policies, food security and food preparedness. As a counterpart to *Nationen*, to offer a somewhat different take on agriculture, I chose the financial newspaper *Dagens Næringsliv*. I expected to get a much smaller number of hits on my searches, since agriculture is not among the main topics of this newspaper. I also assumed that the articles that I did find, would express different views from those of *Nationen*. All these assumptions turned out to be more or less true. As a timeframe, I chose to look at the last two years – from January 1, 2012 until the date I ended my sampling, March 24, 2014. The reason why I chose this as my timeframe, is that I wanted to avoid the period of the global food price crisis, simply because that would

add too many aspects that I felt was on the side of what I was interested in researching. Another reason why I chose the last two years, is that this is the period when calls for a new understanding of agricultural production have gained momentum and attention on a global scale. Since one of my objectives is to look at how these calls have affected the Norwegian debate about food security and food preparedness, I consider it an appropriate timeframe.

Using Norwegian newspaper articles, my searches were performed in Norwegian. Table 1 is a list of my keywords and searches, and how many hits I got for each of them. For each search, I got a higher number of hits than those written in the table. This is because even though I included the name of the newspaper I was interested in as part of my search, a number of articles from other newspapers came up as well. I thus subtracted these hits from the total, and ended up with the number of hits specific for the newspaper of interest. The hits were from both the electronic and the physical version of the newspaper, and these often overlapped. The number of hits may thus be somewhat lower than what can be read from the table. As you can see, I added the keyword ‘agriculture’⁵ for my search in *Dagens Næringsliv*. This is due to the low number of hits (1) I got when using the same keywords as I did when searching in *Nationen*. By adding ‘agriculture’, I was able to broaden my sample from *Dagens Næringsliv* somewhat. Still, the number of articles from *Nationen* by far outnumbers those from *Dagens Næringsliv*, a bias that obviously affects my analysis. A more optimal situation would be if the two newspapers were more evenly represented. However, it makes sense that *Nationen* writes far more about these subjects than *Dagens Næringsliv*, which does not have agriculture and food production as one of its focus areas.

Table 1

Search	Timeframe	Number of hits
“Matvaresikkerhet” AND “Nationen”	01.01.2012-24.03.2014	14
“Matvareberedskap” AND “Nationen	01.01.2012-24.03.2014	5
“Jordvern” AND “Nationen	01.01.2012-24.03.2014	209
“Matvaresikkerhet” AND “Dagens Næringsliv”	01.01.2012-24.03.2014	1

⁵ ‘Landbruk’

“Matvareberedskap” AND “Dagens Næringsliv”	01.01.2012-24.03.2014	0
“Jordvern” AND “Dagens Næringsliv”	01.01.2012-24.03.2014	0
“Landbruk” AND “Dagens Næringsliv”	01.01.2012-24.03.2014	44

The next thing I did was to take a quick look at all the articles my searches generated, and assess which ones were the most relevant for my study. I was looking for articles that did not only touch briefly upon these subjects, but were a bit more in-depth, enabling me to isolate arguments, and separate the arguments from each other. The result was a sample of 69 articles – 59 from *Nationen* and 10 from *Dagens Næringsliv*, which I studied in-depth, and drew quotes and statements from that could then be categorized based on the system of categorization that I will describe in the next section. These quotes are originally in Norwegian, but I have translated them, and put the original version in footnotes, as I have done with the Norwegian terms used throughout this paper. All potential errors in the translations are my responsibility alone.

5.2. Frame of analysis

5.2.1. Set of arguments

It is possible, based on the matters discussed in the previous chapters, to divide the debate about Norwegian food security into a set of different arguments. By using these different categories of arguments as a tool to analyze the newspaper articles of my sample, I aim at facilitating a commanding view and a better understanding of the debate. They will, in other words, serve as my frame of analysis. Before I get started on the analysis, I will account for the set of arguments, which I divide into moral arguments, scarcity arguments, cultural heritage arguments, sustainable production arguments and crisis arguments.

Even though Norway, as mentioned earlier, is one of the most affluent countries in the world, which might secure our access to food on the global market in the foreseeable future, this does not mean that it is morally right that we “buy our way out of food shortage”. This is an argument often mentioned in debates about both domestic and global food security. Some people claim that it is the moral obligation of a country to provide food security for its citizens without jeopardizing the food security of people in other parts of the world. These **moral arguments** are often used to justify and defend high levels of domestic food

production and high self-sufficiency rates. They could also be seen in connection to the neo-productivist turn in agriculture, where the focus is on increasing food production, productivity and efficiency. As a nation, we have a moral responsibility to keep our domestic food production as high as possible, so that we do not have to “steal” from poor people’s plates.

The moral arguments could also be seen in connection with the **scarcity arguments**. These focus on the physical basis for agricultural production, which is expected to change due to global warming in the course of the 21st century. As areas will become unsuited for agricultural production, these arguments focus on the importance of maintaining as high an agricultural production as possible in areas still suited for this. The way they could be linked to the moral arguments, is that as long as we can expect, due to climate change, that some parts of Africa, Oceania, North America and Asia will become too dry and hot for food production, it is our moral responsibility as a nation where food production might even benefit from global warming, to protect and increase our domestic food production. These arguments may not necessarily always be linked to each other, and it could also be expected that the scarcity arguments be used without any references to moral obligations. It could also be expected that those who use this line of argumentation, are more likely to support a productivist or neo-productivist approach to agricultural production.

Another group of arguments, the **cultural heritage arguments**, focus on the importance of a continued agricultural production all across the country to protect and maintain features such as the cultural landscape, rural settlements and agricultural and traditional knowledge. Why these features are important, depends on whom one asks. While some people would argue that Norwegian culture is valuable in and of itself, others would argue that the Norwegian cultural landscapes, and the fact that people live in remote areas, are important for tourism. Tourists come to Norway for a range of different reasons, but one regularly mentioned is the combination of natural and cultural landscapes. While Norwegian fjords are beautiful in themselves, an important part of their attraction is the fact that people actually live there and perform agricultural activities (Rønningen et al., 2012). Whether it is important to keep up food production in remote areas because of this, or whether one could simply pay people to maintain the “frame”, i.e. the cultural landscape, and offer activities and services for tourists more specifically, is also a source of debate. The arguments related to cultural heritage could, however, be linked to the side of the debate that argues that multifunctionality is an important feature of agriculture, which should be emphasized and incorporated into agricultural policies.

The fourth category of arguments is the one most directly connected to the debate introduced earlier, where the sustainability of the industrial agricultural production system is questioned. The **sustainable production arguments** refer to the uncertainty related to whether the regions that are currently the world's most important food-producing regions, will be able to play the same role in the future, due to potential water shortages, limited access to chemical fertilizers and pesticides, loss of biodiversity and damage to ecosystems. According to this line of argumentation, it is important that Norwegian food production is maintained, as we do not know how the food supply from the EU or Brazil will look in fifty years. Claims that Norwegian agriculture is respectful of the environment and the climate, and is based upon a sustainable agricultural model, also fit into this category. Water is, at least for now, an abundant natural resource in Norway, and there is an abundance of pasture, if we choose to utilize it to raise cattle, sheep and goats. These are, if well managed, renewable resources, and important features of a sustainable agricultural sector.

The last set of arguments, the **crisis arguments**, is more directly linked to the government's responsibility to prepare for a number of different crises, and thus the term 'food preparedness'. While the sustainable production arguments and the scarcity arguments are also connected, in some way, to crises, more specifically to ecological disasters and crises caused by climate change, the crisis arguments are used in a broader sense. They are often used in relation to calls directed towards the government to focus more on food self-sufficiency, and claims that low self-sufficiency rates make the nation vulnerable to events and crises in other regions of the world, such as conflicts, wars, trade embargos, nuclear accidents, volcanic eruptions and generally failing supplies. While global food trade might be running smoothly for now, this situation is not guaranteed in the foreseeable future, and this set of arguments is largely based on this notion. Also, being so dependent on other countries for food, gives the Norwegian government less room to navigate and choose their own path in international forums and debates. The situation in Ukraine, the world's fifth largest grain exporter (Earth Policy Institute, 2013), which escalated in March 2014, could possibly enhance such a focus.

5.2.2. Subjects of the articles

Although the discussion of terms such as food security, preparedness and self-sufficiency is what I am interested in exploring, they are rarely discussed directly. Instead, specific cases are the subjects of the newspaper articles. One of the most frequently debated cases in my sample is the case where a private cooperative, Felleskjøpet Agri, bought Norway's largest

installation suited for granary in Stavanger in March 2014, when the state did not want to (the Government did, however, encourage Felleskjøpet Agri to buy it). This sparked a debate over the need for such a granary, whether the state should be responsible for it or not, and how prepared the Norwegian state is for potential threats to our food supply. The other issue subject of a great number of the articles in my sample, is the issue of the protection and conservation of cultivated and arable land⁶, most frequently exemplified by the cases from Trondheim, Sør-Trøndelag, and Vestby, Akershus. In Vestby, 135 decares (1,35 hectare) of grain field have been approved dismantled for the building of an IKEA warehouse (Nationen, 2013f). Additionally, 1000 decares (100 hectare) of cultivated land have been approved reemployed in Trondheim, to build houses, business areas and infrastructure (Nykvist, 2013). Together, these two cases are portrayed as a great threat to Norwegian food security, since they decrease the availability of an already scarce Norwegian resource: cultivated and arable land, which today makes up less than 3% of Norway's total surface area (Nationen, 2012b).

5.3. Norwegian food security in *Nationen* and *Dagens Næringsliv*

Having explained how I chose my data sample, and the tool I have chosen to analyze the data, I will now present some of the articles that I think best represents the different sides of the debate, and enable me to present an overview of the Norwegian debate about food security and what affects this debate. Table 2 shows the count of the quotes according to which line of argumentation they belong to. This provides a summary of my sample, and I will return to the implications of my findings in the next chapter. The full overview of all the newspaper articles of my sample, as well as the table with my categorization of them, can be found in Appendix A and B.

⁶ 'Jordvern'

Table 2

Line of argumentation	Number of quotes
Moral arguments	21
Scarcity arguments	25
Cultural heritage arguments	2
Sustainable production arguments	10
Crisis arguments	37

5.3.1. Moral and food security

When discussing food security and domestic food production, 21 quotes point to our moral responsibility of keeping up production in a world where a large number of people suffer from hunger and malnutrition. The following quotes are good examples of argumentation in line with what was presented above as moral arguments:

Considering the world's growing population and harsher climatic conditions, we are of the opinion that a wealthy nation such as Norway is obliged to maintain a high domestic food production.⁷ (Moe & Sundby, 2012)

The import strategy could, in certain situations, conflict with other countries' need to secure a minimum supply of food for their own populations. A wealthy country such as Norway could, with its strong purchasing power, outbid other buyers to secure the limited food supply that we need.⁸ (Statens Landbruksforvaltning, 2013 in Nationen, 2013g)

(...) We should make sure that we make use of our own renewable resources. This is also a part of the joint liability Norway as a wealthy country has to contribute to an increased global food production (...)⁹ – Eirik Nedreliid, Norsk Landbrukssamvirke (Nationen, 2014b)

At the end of the day, Norway also has an obligation to contribute to the global food supply for the growing global population.¹⁰ (Nationen, 2013c)

⁷ "Med en økende befolkning så vel nasjonalt som globalt og et vanskeligere klima mener vi at en rik nasjon som Norge er forpliktet til å opprettholde høy matproduksjon."

⁸ "Strategien med import kan i visse situasjoner komme i konflikt med andre lands behov for å ivareta en minimum tilgang av matvarer til egen befolkning. Et rikt land som Norge vil med sin sterke økonomi kunne overby andre kjøpere for å sikre det relativt beskjedne kvantum vi trenger."

⁹ "Vi bør sørge for å utnytte våre egne fornybare ressursar. Det òg ut frå eit solidarisk ansvar Norge som eit rikt land har for å bidra til auka global matproduksjon."

The first quote is from a comment written by two representatives from the Christian Democratic Party, where they argue that if they were to become a part of a new Government, they would have Norwegian food production as one of their main priorities. Fragile global trade systems, a difficult climate and an increasing global population leave little room for a reduction in domestic food production, according to them (Moe & Sundby, 2012). And, as the quote expresses, they regard it the moral responsibility of a wealthy nation to produce as much of its own food as possible.

The second quote goes further in establishing and consolidating this line, when it claims that a direct competition between Norwegian food demands and those of other countries could come into existence. Thus, enhancing Norwegian food production would decrease the possibility for this happening. The third quote also emphasizes the need for an increased Norwegian food production, due to our moral responsibilities. A couple of additional quotes from the material I have analyzed express similar views (Nationen, 2012d, 2013c). Whether a link actually exists between Norwegian food production and food insecurity in other countries, I will return to in the discussion.

Some competing views to these claims are also allowed in the debate. In a discussion on how valuable and important the protection of cultivated and arable land really is, Nils Vagstad in Bioforsk is quoted saying: “Our protection of cultivated land has got nothing to do with the world’s poor and global food supplies. It has got to do with our own social security and stability”¹¹ (Nationen, 2013d). By this, he says that the importance of Norway’s cultivated and arable areas should not be explained by using moral arguments such as those above. One of *Dagens Næringsliv*’s commentators is of the opinion that our agricultural policies are not just irrelevant for the world’s poor, but that they are even hurting them:

Norway navigated successfully through the financial crisis. Should our contribution to the world be that we were the first country to implement protective measures? The unemployment rate in the homeland of the Manchego cheese is 22%. In the homeland of the feta cheese, it is 18%.¹² (Mathiassen, 2012)

¹⁰ “Til syvende og sist har også Norge en plikt til å bidra i matforsyningen til en voksende verdensbefolkning”

¹¹ “Vårt jordvern har ikke med verdens fattige og global matforsyning å gjøre. Det handler om vår egen samfunnssikkerhet og sosiale stabilitet.”

¹² Norge seiler gjennom finanskrisen på første klasse. Og da skulle vårt bidrag til verden være at vi er blant de første til å ta proteksjonistiske tiltak i bruk? Arbeidsledigheten er på 22 prosent i manchegoens hjemland og 18 prosent i fetaostens rike.

This runs contrary to the views and beliefs expressed above, where a strong Norwegian agricultural sector is believed to be a morally good thing.

Another side of the debate that can also be linked to the moral line of reasoning has to do with the Norwegian state's moral responsibility in ensuring food security for its citizens and future generations. While the discussion above can be described as an external focus on the moral rationale of the food security debate, these arguments have an internal focus. They are somewhat more common throughout the articles I have analyzed, and they could be exemplified by the following quotes:

One of the most important tasks for this country, is to feed its population, and we need all the food we can produce in the future. The protection of cultivated land should be the responsibility of the society as a whole and the politicians (...) ¹³ – Knut Olav Stryken, farmer (Nationen, 2013h)

(...) A society with a sufficient level of preparedness is the responsibility of the state. ¹⁴ – Marit Arnstad, representative for the Centre Party (Nationen, 2014a)

Norsk Landbrukssamvirke is glad Felleskjøpet Agri chose to buy the installation, thus saving the largest Norwegian granary, but believes that the responsibility for a national preparedness rests upon the state. ¹⁵ (Nationen, 2014a)

By allowing cultivated land in Trondheim and Vestby to be dismantled, the Government signalizes that it is willing to sacrifice the food of future generations. ¹⁶ – The Norwegian Farmers' Union (Nationen, 2013a)

These arguments are somewhat easier to track the origin of than those with an external focus. As discussed in the part on food security and its different definitions (chapter two), food security is characterized as a human right, and each nation has the responsibility, according to international law, to provide food security for its citizens. Thus, if one believes that the state does something that could potentially threaten its citizens' food security, it makes sense to claim that the state is failing their most important political and moral duties. Whether their concerns are legitimate, however, is not easy to determine, and it depends greatly on what

¹³ “Noe av det absolutt viktigste for dette landet er å fø befolkningen, og vi trenger all den mat vi kan produsere i framtida. Jordvern bør det være storsamfunnet og politikerne som sørger for (...)”

¹⁴ “Samfunnsberedskap [i form av beredskapslager av korn, anm.] er et statlig ansvar.”

¹⁵ “Norsk Landbrukssamvirke er glade for at Felleskjøpet Agri har reddet Norges største beredskapslager ved å kjøpe anlegget, men mener at ansvaret for et nasjonalt beredskap ligger hos staten.”

¹⁶ “Ved å si ja til å bygge ned matjord i Trondheim og Vestby, viser regjeringen at de er villige til å ofre matfatet til fremtidige generasjoner.”

types of crises one is picturing in the future. I will return to this matter later, when looking at the crisis argumentation.

5.3.2. Scarcity and food security

In the discussion of whether the state should buy the granary in Stavanger, those who argue that it should, regularly mention the potential scarcity of food on a global scale as a reason why. From 2000, the stockpiling of seeds, food grains and feed concentrates was gradually reduced, and in 2003, the state decided to abolish the stockpiles of grain and meal altogether. These decisions were based on risk assessments that concluded that the potential risks and threats to Norwegian food supply in the future were of a different character than when stockpiles were established in the wake of two world wars (Hageberg & Smedshaug, 2013). Several quotes from my sample indicate that the idea of stockpiling and granaries is back on the agenda:

The future won't necessarily look like the past. Climate change will cause great challenges for food production. The population is growing, and the number of people escaping poverty is increasing. This is important to include in the assessment [of whether the state should reestablish the granaries].¹⁷ – Line Henriette Hjemdal, representative for the Christian Democratic Party (Nationen, 2014f)

Norsk Landbrukssamvirke argues that a national granary is important for two reasons. Firstly, to strengthen the national preparedness level. Secondly, the world's ability to feed a growing population is under a lot of pressure.¹⁸ (Nationen, 2014a)

(...) We know that the global population is growing. We have to assume that climate change will decrease food production in some parts of the world, and increase production in other parts. It is very likely that the negative consequences will take place sooner than the positive consequences. Protection of topsoil is a better term than insurance.¹⁹ – Kåre Willoch, former Prime Minister (the Conservatives) (Nationen, 2013i)

¹⁷ “Ein kan gjerne sjå på fortida, men framtida treng ikkje bli som fortida. Klimaendringane vil gi store utfordringar for matproduksjonen. Befolkninga aukar og fleire vil kome ut av fattigdom. Det er det viktig å ha med i vurderinga [av beredskapslager for korn, anm.]”

¹⁸ “Norsk Landbrukssamvirke mener det er viktig med et nasjonalt kornlager av to årsaker. For det første for å styrke nasjonal beredskap. For det andre er verdens evne til å forsyne en stadig økende befolkning under press.”

¹⁹ “(...) Vi veit at befolkninga i verda veks. Vi må rekne med at klimaendringane vil redusere matproduksjon ein del stader og auke produksjonen andre stader. Det er høgst sannsynleg at skadane av klimaendringane kjem før betringa andre stader. Sikring av matjorda er eit betre ord enn forsikring.”

All the quotes focus on global population growth, and whether global agricultural production will be able to keep up with this growth. According to estimates, global food production has to increase by 60% by 2050 in order to keep up with population growth (FAO, WFP, & IFAD, 2012). When the latest IPCC-report warns that climate change might cause a decline in agricultural production in most regions (Porter et al., 2014), that implies that a 60% increase by 2050 would be hard to achieve. This is in line with the logic of the scarcity arguments. Moral arguments could also be linked to this side of the debate, emphasizing Norway's moral responsibility to keep up domestic food production in a world that is potentially facing dramatic food scarcities in the future. Although Norway as a nation could successfully face these scarcities, due to our considerable purchasing power, this might seem as an immoral thing to do in a world struggling with widespread hunger. The arguments such as those quoted above emphasize that Norwegian food production could play a small, but important, role in a world facing food scarcity.

5.3.3. Cultural heritage and food security

As discussed in the section on agriculture's multifunctionality, food security and cultural landscapes are often used as examples of positive externalities produced by agricultural activity. The two could also be linked, by claiming that through the maintenance of our cultural landscapes that agriculture performs, food security is also ensured. The two following quotes are the only examples of my sample using this argumentation:

It is important that we defend our farmers' conditions and protect our valuable food and agricultural heritage.²⁰ – Yvonne H. Antonsen, artist (Nationen, 2014c)

In a time where food security is receiving a lot of attention, a prioritized task should be to ensure a food production based upon Norwegian natural resources.²¹ (Nykqvist, 2012)

I was somewhat surprised that I could only find two examples of this type of argumentation in my sample. Arguing that food production all across Norway is an inseparable part of the Norwegian cultural landscape, and that domestic food production should be kept at current levels, or even increased, in order to maintain this cultural landscape, is relatively straightforward. That is because there is general agreement that agricultural production and activities are inseparable from cultural landscapes in most regions of Norway (Rønningen et

²⁰ "Nå er det viktig at alle gode krefter slår ring både om vilkårene for norske bønder og når det gjelder å ta vare på den verdifulle arven vi har fått når det gjelder mat og landbruk."

²¹ "I en tid der matvaresikkerheten står i høysetet, burde det være en prioritert oppgave å sikre en matproduksjon som er basert på et norsk ressursgrunnlag."

al., 2012). Agriculture creates cultural landscapes. And since these cultural landscapes are valuable to many Norwegians, it would make sense to protect them, which could be done by maintaining agricultural production. As mentioned in chapter four, it has been confirmed that the agricultural sector is able to provide the whole “multifunctionality package” the most efficiently (Vatn, 2000; Romstad et al., 2000 in Rønningen & Burton, 2013).

This line of argumentation might not, at least on the surface, look like it has a lot to do with food security. But if one extended the argumentation, and said that a vivid agricultural sector throughout the country is what will provide us food security in the future, if food scarcity becomes a reality, protecting our cultural heritage through keeping up food production in all regions could be important for food security. It has even been proven that a continuing agricultural production is the best way to ensure food security and preparedness (Flaten, 1999). This implies that our food security is dependent on domestic food production, a matter to which I will return in my discussion.

5.3.4. Sustainability and food security

As discussed in chapter three, a large number of scholars and institutions are questioning the sustainability of the industrial agricultural production model, which today is dominant in many of the world’s largest food producing countries, such as the US, Australia, Brazil, China, Russia and the EU. Although Norwegian agriculture has been, and still is, going through a structural rationalization, which has substantially reduced the number of farms and increased the average size of each farm, it is still not industrial in its mode of operation. In addition, there have not been the same problems with environmental degradation due to intensive agricultural production as in other European countries (Rønningen et al., 2012). Thus, based on sustainability arguments, it could be claimed that Norway should keep up its agricultural production, and contribute to both global and domestic food security now and in the decades and centuries to come.

In the debate about the protection of cultivated and arable land, normally linked to the cases of Vestby and Trondheim, sustainability arguments are often used to justify why the importance of such protection should be both acknowledged and strengthened. As the quotes below show, protection of land suitable for agricultural production is deemed important for the environment, the climate and for biodiversity.

In my opinion, a stronger protection of cultivated and arable land is important for the environment, the climate and for biodiversity.²² – Nils Vagstad, Bioforsk (Nasjonen, 2012a)

Climate change is affecting the capacity for food production, and destabilizes food production. The conflicts over water and soil are getting more intense. The farmers have the solutions to many of our time's biggest challenges.²³ – Eirik Nedrelid, Norsk Landbrukssamvirke (Nasjonen, 2014b)

Europe is outsourcing its problem of lacking soil for agricultural production. A lot of food is produced by occupying soil in other countries. The model of soy imports is bad protection of cultivated and arable land. It is unsustainable.²⁴ (Gåsvatn, 2013)

Building down cultivated land to satisfy the constant drive for better purchasing power, in a situation where most of us have more than enough, is in our opinion hardly sustainable.²⁵ (Harstad & Skjelvåg, 2013)

One reason why protection of topsoil²⁶ is important in terms of climate change, is that it stores large amounts of CO₂, as mentioned in section 3.2.1. In Norway, the amount of CO₂ stored per decare arable land varies from 2 to 5 tons, with the most CO₂ per decare being stored in pasture land (Nasjonen, 2012c). This is also one of Gåsvatn's (2013) key arguments. Gåsvatn is one of the few examples where it is referred to the international debate on the future sustainability of industrial agriculture. This quote exemplifies her point of view: "According to the new understanding, modern agriculture is no longer defined as industrial and efficient agriculture. Agriculture that respects the life inherent in soil is now defined as modern"²⁷ (Gåsvatn, 2013). Overall, however, few references are made to the international debate about the sustainability of the dominating agricultural system. The UNCTAD-report is not mentioned once, while the report of the IAASTD is outside the scope of my timeframe. The shortage of phosphate rock that will probably occur in the not-too-distant future, is also not mentioned.

²² "Frå min ståstad er sterkare jordvern både eit godt tiltak for miljøet, for klimaet og for biologisk mangfald."

²³ "Klimaendringane påverkar kapasiteten til å dyrke mat og gjer rammevilkåra for matproduksjon mindre stabile. Kampen om jorda og vatnet hardnar til. Bøndene stiller med løysingane på mange av vår tids store utfordringar."

²⁴ "Europa flagger ut problemet med mangel på jord. Mye av maten produseres ved å legge beslag på matjord i andre land. Modellen med import av soya er dårlig jordvern. Den er ikke bærekraftig."

²⁵ "Nedbygging av dyrka jord for å tilfredsstille higen etter stadig høgere kjøpekraft i en situasjon hvor de aller fleste av oss lever i overflod, er etter vårt syn neppe bærekraftig."

²⁶ 'Matjord'

²⁷ "I den nye forståelsen settes det ikke lenger likhetstegn mellom moderne jordbruk og industrielt og effektivt jordbruk. Det er jordbruk som tar hensyn til livet i jorda som defineres som moderne."

5.3.5. Potential crises and food security

The arguments that are based upon the notion of an uncertain future, where we might witness different sorts of crises, are definitely the most common throughout my sample. Although the different sets of arguments accounted for so far in this chapter also to some extent have potential crises as their foundation, such as reduction in global agricultural production due to i.e. climate change, environmental degradation or loss of biodiversity, followed by global food scarcity, these arguments are more explicit in their description of and warnings against potential crises and emergency situations. They are often referring to vulnerability towards international incidents caused by a low self-sufficiency level, the lack of national granaries, the dismantling of cultivated and arable land, and the increasing dependency on imports of grains for the production of grain feed to keep up domestic meat production. The following quotes are examples of such crisis arguments:

A granary is absolutely necessary to maintain a sufficient food preparedness level. The unrest in Ukraine, one of the world's largest grain exporters, shows that the world's grain supplies are vulnerable.²⁸ – Ola Hedstein, Norsk Landbrukssamvirke (Nationen, 2014a)

Allowing the granary to be tore down is an example of short-term thinking. The crisis in Ukraine shows how uncertain the food supply is. In recent years, an increasing number of countries have been concerned with preparing for unrest and instability. Food preparedness is immensely important.²⁹ – Trygve Slagsvold Vedum, former Minister of Agriculture and Food (Nationen, 2014d)

In a worst-case scenario, our grain imports might get larger than our domestic production. This makes the country vulnerable to fluctuations in the grain market. A reduction of global grain production could threaten food security, even in a wealthy country such as Norway.³⁰ (Nationen, 2013c)

(...) In case of an emergency in the near or far future, we are dependent upon our own natural resources. That is why we cannot keep building houses and industry on cultivated and arable land. (...) I think most people are unaware of how vulnerable Norway is in terms of food

²⁸ “Skal vi ha god nok nasjonal matvareberedskap trenger vi et kornlager. Uroen i Ukraina, som er en av verdens største korneksportører, viser at verdens kornforsyning er sårbar.”

²⁹ “Det er veldig kortsiktig å la kornlageret bli rive. Ukraina-krisa viser kor usikker matforsyninga er. Dei siste åra har stadig fleire land blitt opptatt av å sikre seg mot uro og ustabilitet. Matberedskap er enormt viktig.”

³⁰ “I verste fall kan importbehovet [for korn, anm.] bli større enn vår egen produksjon. Dette gjør landet sårbart for internasjonale svingninger i kornmarkedet. Svikt i verdens kornproduksjon vil kunne gå på matsikkerheten løs, også i rike Norge.”

supplies. (...) We have plenty of money and oil, but neither of these makes for good food.³¹ – Kathrine Kleveland and Mari Gjengedal, Norges Bygdekvinnelag (Nationen, 2014g)

Lack of food has the potential to destabilize a society. The relatively low Norwegian domestic food production makes us vulnerable in case we were hit by a large nuclear accident, or other serious crises.³² – Harald Sunde, Chief of Defense (Nationen, 2013e)

The unrest in Ukraine and a potential nuclear accident, are two specific examples of crises mentioned to emphasize just how important domestic food production is to ensure food security. The other side of the debate, however, claim that as the world is getting more interconnected, our vulnerability decreases, and so does the need for a granary:

The need for a granary decreases as the world is getting increasingly integrated. Since the Second World War, we have been through both the Korea War and the Cold War without having to use our granaries.³³ – Gunnar Gundersen, representative for the Conservatives (Nationen, 2014f)

The government, consisting of the Conservatives and the Progress Party, decided to eliminate the allocation for the establishment of a granary that the former government put into the budget. Their explanation for this was that “Norway would be able to pay even if prices were to increase considerably, and Norwegian needs are relatively small.”³⁴ (Nationen, 2013g)

These two examples indicate that there exists a fundamental disagreement over the actual understanding of potential crises, and of Norway’s role in a world that is (potentially) changing. This disagreement mirrors ideological and political disparities that have existed for centuries, with some groups and political parties advocating for a more open economy with others stressing the threats that this entails.

The next quote supports the advocates for a more open global economy, and argues that the reason why Norway might become vulnerable to future restrictions and shocks in global food supply, is not because we are too dependent on foreign countries, but because our

³¹ “Dersom krisesituasjoner skulle oppstå i nær eller fjern framtid, er vi avhengig av ressursene som finnes innenfor landets grenser. Derfor kan vi ikke fortsette å bygge ned matjord for industri og boliger. (...) Jeg tror de færreste er klar over hvor sårbare vi er med tanke på matforsyning i Norge. (...) Vi har mye penger og olje, men begge deler er dårlig mat.”

³² ”Mangel på mat kan destabilisere samfunn. Den forholdsvis lave norske egenproduksjonen av mat gjør oss sårbare hvis vi skulle bli rammet av en stor atomulykke eller andre alvorlige kriser.”

³³ “Behovet for egen kornberedskap blir mindre etter kvart som verda blir stadig meir integrert. Sidan andre verdskrig har vi vore igjennom både koreakrigen og den kalde krigen, utan at vi måtte nytte oss av kornberedskapen.”

³⁴ Høyre/Frp-regjeringen strøk de rødgrønnes bevilgning [til kornlager, anm.] fra budsjettet. Begrunnelsen var at “Norge vil være betalingsdyktige selv ved en betydelig prisoppgang på mathvete, og Norge har i tillegg behov for et relativt beskjedent kvantum.”

protectionist agricultural policies serve as a bad example. If other countries decided to follow our example, this could increase global instability. Additionally, the potential uncertainties that we might be facing in the future is not an argument against, but for, more open agricultural and trade policies:

(...) First of all, protectionist agricultural policies drive prices upwards. A significant proportion of the price increase witnessed in 2007/2008, which hit the poorest hard, can be explained by the export bans introduced by several countries, with Russia as an example. The market stopped working. Secondly, our uncertain near future is, in itself, a strong argument to stimulate a freest possible trade of food across national borders. If extreme weather events were to happen more often, we will not know where the next drought, frost or flood might hit.³⁵ (Dagens Næringsliv, 2012)

This view is contested, for instance by most of the people quoted earlier in this chapter. But I would like to end this section on the crisis arguments by a quote that questions the whole foundation of the argument that Norway, as one of the world's wealthiest countries, will always be able to "buy its way out of any problem":

We hear that claim often. But what we witnessed in 2007 and 2008, was that the market stopped working when prices soar. The export is then driven by licenses given by each individual country. Some of the countries most dependent on food imports are wealthy oil nations from the Middle East. They have as many petrodollars to offer as we do.³⁶ – Christian Anton Smedshaug, AgriAnalyse (Nationen, 2013b)

What we can read from this quote and the one above, is that in case that the global food market stopped working during the global food price crisis of 2007/08, the solutions suggested to solve the problem can be completely incompatible with each other.

5.4. Concluding remarks

In this chapter, I have explained how I gathered my data, and the tool I chose to analyze them. By employing a set of arguments, and dividing the quotes found in a number of newspaper articles according to it, I was able to discover what type of argumentation is most regularly

³⁵ "For det første fører en proteksjonistisk landbrukspolitikk i seg selv til høyere priser. En god del av prishoppet, som rammet de fattigste i 2007/2008, skyldtes at flere land, blant annet Russland, innførte eksportforbud. Markedet sluttet å fungere. For det andre er nettopp vår uforutsigbare nære fremtid et sterkt argument for å stimulere til friest mulig flyt av matvarer over landegrensene. Hvis ekstremværet kommer hyppigere, vil vi ikke vite hvor neste tørke, frost eller flodbølge setter inn."

³⁶ "Ja, det høyrer vi ofte, men vi såg i 2007 og 2008 at marknaden sluttar å fungere når prisen skyt i taket. Då blir eksporten styrt av lisensar frå stat til stat. Nokre av dei mest importavhengige statane er dessutan rike oljeland i Midtausten. Dei har like mange petrodollar å tilby som oss."

employed when discussing Norwegian food security. The crisis arguments, pointing to the unrest in Ukraine, potential nuclear crises, volcanic eruptions and a general notion of an uncertain future, were definitely the most common ones throughout my sample, while scarcity and moral arguments were also regularly employed. Most moral arguments were, however, internal in their orientation, meaning that they most often pointed to the moral responsibility of politicians to ensure the population's food security, not our moral obligation to produce as much food as possible domestically to prevent people in other countries from going hungry, although several examples were found for this type of argumentation too. I was only able to draw two cultural heritage arguments from my sample, which was somewhat surprising, considering the important role Norwegian agriculture plays in maintaining the Norwegian cultural landscape, and thus, our cultural heritage.

6. Discussion

In this chapter, I will discuss and conclude on my findings. I would, however, like to start with a short summary of the paper, to provide a background for the discussion and conclusion.

6.1. Summary

The global food price crisis of 2007/08 was a wake-up call for leaders and institutions all over the world, and especially in developed countries, that food insecurity is not a thing of the past. Although the crisis hit the poorest countries, and the poorest citizens of these countries, the hardest, it made people in the developed world realize that cheap food was not a given, and that in times of crisis, important food exporting countries might actually impose export bans in order to guarantee its own citizens' food security. Since 2008, food security has been high on the agenda within institutions such as the UN.

The debate among those who believe that global free trade is the way to go, have emphasized the importance of establishing a good and solid framework within the World Trade Organization (WTO). On the other side are those who argue that one of the things that we should learn from the food price crisis, is that there is a need to strengthen national food production.

The scholars and institutions referred to in chapter three, however, argue that there are no simple measures that could prevent food prices from soaring in the future, and that a fundamental transformation in how we understand food production is crucial to secure a sustainable agricultural model that could get us successfully through the multiple challenges we are potentially facing. The critics of industrial agriculture argue that the dominant industrial agricultural system has failed in providing food security for the world's population, and that it will continue to fail in the future. Their critique of industrial agriculture is, as mentioned in section 3.3, based on four pillars:

1. It is a major driver of climate change.
2. It is unsustainable.
3. It is threatening biodiversity and cultural diversity.
4. It does not pay for its negative effects.

Even though Norwegian agriculture is still quite multifunctional, and to a much smaller extent than agriculture in the US, the EU and Australia driven by an industrial mode of operation, the structural rationalization that the sector has been undergoing, mirrors that of other countries, where the industrialization of the agricultural sector is more or less completed. Three out of four Norwegian farms have gone out of production between 1949 and 2010. The average size of each farm simultaneously increased significantly, which meant that domestic food production in total has been maintained, and even increased for some important agricultural goods, such as grains, oil seeds and meat. Over the last decades, however, the Norwegian agriculture has become increasingly dependent on inputs, especially imported soy from Brazil for the production of grain feed for livestock. The self-sufficiency rate, correcting for the import of grain, has thus decreased steadily during the course of the early 21st century. This, together with a relatively high dependence on chemical fertilizer, which will most likely become less readily available and much more expensive in the future, indicate that Norwegian agricultural production might be facing problems that could have implications for food security. My analysis showed that many are worried about the future of Norwegian food security, and that they employ different arguments to express their concerns. Some arguments are employed much more frequently than others, which can be read from table 2. I will now discuss these findings.

6.2. Discussion

In chapter five I accounted for my most important findings, and gave some examples of quotes from different articles that were in line with my set of arguments. As I let the quotes speak for themselves most of the time, I will now discuss my findings, and elaborate more on their implications and potential meanings.

6.2.1. “Domestic food production is essential to ensure Norwegian food security in case a crisis of some sort hits.”

The crisis arguments are the most common throughout my sample, and the quotes I chose to include in my analysis to exemplify this line of argumentation show that there is a strong belief among the journalists and those interviewed in *Nationen* that domestic food production is pivotal in order to ensure Norwegian food security if or when a crisis strikes. A crisis such as a lack of available phosphate rock for the production of chemical fertilizer, which is predicted to happen in the not-too-distant future, is not mentioned, even though Norwegian consumption of chemical fertilizer is above the world average. Neither is the potential threat

that the loss of biodiversity due to the adoption of monocultures poses to both domestic and global food security. The unrest in Ukraine is mentioned as an example of how fragile the global grain market is to events or conflicts in other countries. However, I would argue that this fragility depends on whether for instance the unrest in Ukraine is actually causing a decrease in available grain on the global market. On 19 March, 2014, the Ukrainian Agriculture Ministry released its monthly export report, which showed no indications that grain shipments had suffered during the last four weeks. Adding to this is the fact that only a very small proportion of total Ukrainian grain exports come from the Crimea regions, where most of the unrest is taking place (U.S. Wheat Associates, 2014). It should be noted, however, that grain prices have risen due to the unrest in Ukraine, indicating that the markets outside of Ukraine are nervous (Harris, 2014). This means that so far, Ukrainian exports have not suffered from the unrest, but the market has still reacted to the unrest because of an expectation that exports will decrease. It could, however, seem as if the situation in Ukraine might be a slightly exaggerated threat to Norwegian food supply, especially considering that Norway would be able to buy food on the global market even if prices increased significantly.

Nationen (2013c) still claims that even a wealthy country such as Norway could suffer if global food supplies became scarce. However, it does not say anything about how high prices would have to be in order for this to become a reality. As one of the countries in the world with the highest purchasing power per capita, it seems a bit like crisis maximization to claim that we would be unable to get access to food on the global market. The claim also runs contrary to that of Statens Landbruksforvaltning, quoted in section 5.3.1, where it is claimed that a wealthy country such as Norway could, with its strong purchasing power, outbid other buyers to secure the limited food supply that we need (Nationen, 2013g).

6.2.2. “Domestic food production is a moral responsibility.”

Even though we *could* buy the food we need on the global market, this does not mean that we *should*. As the quotes in section 5.3.1 exemplify, a common claim in my sample is that it is our moral responsibility, as a wealthy country, to maintain a high domestic food production in order to make sure that we do not prevent poor countries from ensuring food security for their citizens. It would be interesting to know how this conclusion is reached. It makes sense to justify calls for an increased domestic agricultural production by referring to responsibility, morale and global hunger and poverty, in that it has an instant appeal to people’s sense of justice. Additionally, the image of a wealthy Norwegian stealing food from the plate of a

hungry child somewhere in Africa is both easy to understand, and effective in terms of calling forth rage and a demand for change.

Whether this link exists in reality, however, is somewhat more doubtful. It is at least a lot more complicated than the quotes above indicate. In order to truthfully claim that Norwegian imports could threaten other countries' food security, a direct link should exist between Norway's import of foodstuffs, and food insecurity in another country. Considering that the majority of Norway's food imports come from developed countries such as Denmark, Sweden, the Netherlands, Germany, Great Britain, Spain, Italy and France (in short, the EU) (Virke, 2014), where problems of food insecurity are relatively rare, it could be claimed that Norwegian food imports have little to do with food insecurity elsewhere, at least not as of today. This situation could of course change in the future, but it would probably still be hard to establish any direct links. Trade systems are complicated, and if Norway imported less food, this would not necessarily mean that hungry people would get any less hungry. As Flaten (1999: 18) puts it:

In a global context, Norwegian consumption and production of food is insignificant. The Alstadheim Commission believes that it is not relevant to put the Norwegian consumption and production of agricultural goods up against groups that are experiencing an insufficient nutritional situation. The Norwegian consumption of foodstuffs, either cared for by imports or domestic production, affects impoverished people's access to nutrition to a very limited extent. The output of Norwegian agricultural production is of minimal importance for the food supply of vulnerable groups.³⁷

Also, according to a number of economists and institutions, such as the World Bank, a means to abolishing poverty, and thus hunger, is free trade and easy and open access to markets. Importing food from developing countries could, according to this line of reasoning, boost economic growth and hence reduce the number of poor people globally. Whether Norwegian food imports and reduced domestic food production are negative or positive factors for food insecure countries and people, will not be answered here. My point is simply that the matter is not as straightforward as the moral arguments might indicate, and any kind of direct link between low Norwegian self-sufficiency rates, and food security elsewhere, is dubious. It is

³⁷ "I en global sammenheng betyr norsk forbruk og produksjon at matvarer svært lite. Alstadheimutvalget mener det ikke er relevant å sette norsk forbruk og produksjon av jordbruksprodukter opp mot grupper som i dag ikke har en tilfredsstillende ernæringssituasjon (NOU, 1991a: 312). Norsk forbruk av matvarer, enten det dekkes av import eller nasjonal produksjon, berører i liten grad de sultrammas muligheter for ernæring. Størrelsen på norsk jordbruksproduksjon har også minimal betydning for utsatte gruppers forsyning av matvarer."

also interesting to note that no connections are drawn between the Norwegian dependence on soy imports from Brazil and potential moral implications of this dependence. In a chronicle published by *NRK* on 2 May, 2014, a member of one of the Norwegian Solidarity Committee for Latin America's solidarity brigades argues that it is the peasants in Brazil who are paying for Norwegians' cheap food:

Norwegian food prices are decreasing steadily, and never before has the average household spent a smaller proportion of their income on food. Norwegian agriculture is highly dependent on imported soy from Brazil, to breed chickens and other animals at record speed and an all-time-low cost. Time is more than ready to discuss the price of food in Norway: how much food should cost, and who should pay for it. As of today, the peasants in Brazil are paying for the Norwegian feast.³⁸ (Grønlien, 2014)

Only a couple of the quotes in my sample communicate a concern for the trend that Norwegian agriculture is becoming increasingly dependent on imported soy, such as those of Nykvist (2012) and Gåsvatn (2013). However, none of them link this concern to a moral line of argumentation. It is rather based upon a general notion, for instance linked to the cultural heritage arguments, that Norwegian production should be based upon Norwegian resources. One possible reason for this is that *Nationen* has close, historical ties to both the Norwegian Farmers' Union and the Centre Party. These two organizations have played an important role in forming the Norwegian agricultural sector, and have hence contributed to the increasing dependence on soy imports through their influence on the lowering of the price of grain feed (Løkeland-Stai & Lie, 2013). This has been possible due to the import of cheap soy from countries such as Brazil.

6.2.3. "The world is facing food scarcities. Norwegian food production ensures food security in times of shortages and scarcity."

The line of argumentation most often used after the crisis arguments, is based on a notion of a world facing food shortages in the near future. Why this scarcity will occur, is not always elaborated upon, but climate change is often used as an example of something that will have a negative impact on agricultural production. This is supported by the most recent IPCC-report, and there are good reasons to believe that there might be some challenges ahead for global

³⁸ "I Norge blir maten stadig billigere og aldri før har gjennomsnittsfamilien brukt mindre av inntekta si på mat. Norsk landbruk bygger i stor grad på importert soya fra Brasil, slik at vi kan føre opp kyllinger og andre dyr i rekordfart og til rekordlav pris. Det er på høy tid at vi tar en debatt om prisen på mat i Norge, hvor mye den skal koste og hvem som skal ta regninga. For slik situasjonen er i dag er det Brasils millioner av småbønder som betaler det norske etegildet."

food production. What the scarcity arguments identified in my sample fail to mention, however, is the paradox that even in a world producing a sufficient amount of calories to feed a global population of 12-14 billion, one billion people still suffer from hunger, with another billion suffering from malnourishment. This could be explained by returning to the entitlement approach to food security, where food security is dependent not only upon the availability of food in a market, but just as much upon whether people are entitled to this food, and thus are able to gain access to it (Sage, 2012: 3).

How real is this notion, then, of a world on the brink of food scarcity, which is used as a justification to scale up Norwegian food production? If based upon the estimates calculated by FAO, it might be slightly exaggerated. According to De Schutter (2013), the focus on increasing global food production by 60% by 2050 fails to take into consideration that hunger today is not really a consequence of stocks being too low, or global supplies being unable to meet global demands, but a result of poverty and lack of entitlement. The best way to combat hunger is thus by increasing the incomes of the poorest segments of the population. Additionally, the '60%-estimate' takes the current demand curves as given, and does not consider the leakages and waste in the current system (De Schutter, 2013). Many people would argue that in order to successfully address the problems of potential food scarcity in the future, a change of demand, such as a decreasing demand for meat, is crucial, as well as a solution to the problem of food waste (UNCTAD, 2013). Assuming that these issues will remain unchanged, there is little hope for solving the problem of food scarcity, whether countries such as Norway produce food at the maximum of their potential or not. Solving the problems of food waste and the increasing consumption of meat, however, probably has a (much) greater potential for doing something with the problem of hunger than increased Norwegian food production. To explain why this is, the following quote could be illuminating:

(...) Waste amounts to about 40-50 per cent of any food system, and reducing it (or closing the system) will incur a relatively small expenditure on resources, and no depletion of natural resources, whereas achieving the same gains elsewhere – a doubling of productivity per unit of land – is a large challenge indeed, and will require increases in use of water and fertilizer (Pearson, 2012: 28).

In light of this, I will argue that using global scarcity as an argument for increased Norwegian food production and the protection of cultivated and arable land, can be seen as somewhat naïve and simplistic.

However, if it turns out that the effects of climate change do make food production impossible in some regions, while increasing yields in other regions, it makes sense to protect the cultivated and arable land available, just in case these regions are amongst those where continued agricultural production could be maintained even under changing climatic conditions. This is based on a precautionary principle, which is the foundation upon which a lot of the argumentation rests.

6.2.4. “Domestic food production ensures Norwegian food security.”

Even though I have counted the number of quotes in line with the different sets of arguments, and presented some of them above, I would say that my main finding is that most of the statements are based upon a general notion that is simply taken for granted, where Norwegian food production is seen as a prerequisite of domestic food security, without explaining this to any further extent. Even though these are not counted as findings in table 2, because they are impossible to categorize, I believe that they together make an important finding, in that they say something about the Norwegian debate about food security the way it is expressed in *Nationen*. The articles from *Dagens Næringsliv* are more critical towards the notion that domestic food production is important for national food security, and argue that an open global food market is more important to ensure food security, both on a domestic and a global scale.

This leaves me with an overall impression that the debate in *Nationen* is, first and foremost, characterized by a somewhat circular line of argumentation, where one starts with the question “how should we make sure that domestic food production is maintained”, to end up with “Norwegian food security is best ensured if domestic food production is maintained”, by referring vaguely to moral, climate change and potential crises in the global market for food. This makes sense, considering that *Nationen* is the newspaper of those who have a strong interest in a maintained and increased Norwegian food production. It also makes sense that the views expressed in *Dagens Næringsliv* are quite different, and often the complete opposite.

I think that both global and domestic food security might be facing some severe difficulties and challenges in the decades to come, and I believe that the threats presented by the IPCC should be taken seriously, and acted upon, rather sooner than later. But I also think that all discussions are better off if the parts contributing it are more honest about their intentions. If you are a farmer, you obviously want domestic food production to be maintained, or possibly

increase, because your livelihood depends on it. You might also be convinced that domestic food production has a value in and of itself, since food will always be one of our basal needs. I believe that this, together with the argument that we do not know what the future will bring, and that maintaining domestic food production is an insurance towards this uncertainty that we can actually afford, are legitimate arguments in the discussion about Norwegian food security in the future. Being honest about one's intentions could work better than referring to "the hungry children in Africa", who might not even be hungry due to a lack of food globally, but because they lack the entitlement to the food available.

It is also interesting to see that the shortcomings of the industrial agricultural system and the calls for a fundamentally different agricultural system posed by UNCTAD, IAASTD, Carolan and De Schutter, are not reflected in the Norwegian debate about food security. The dependence on fossil fuels and chemical fertilizers, greenhouse gas emissions and the loss of biodiversity due to monocultures are definitely relevant to the Norwegian context, especially if including the soy imports from Brazil. That few of these issues are elaborated upon is somewhat surprising, and it might have something to do with the complexity of these problems, or a general understanding that Norwegian agriculture is so different from that of countries where agriculture has been industrialized, that the potential problems encountered there are seen as irrelevant to the Norwegian context. Although this is partially true, I am curious to why the need for a turn towards an agricultural system less dependent on chemical fertilizers, since phosphate rock is a finite resource, is not a part of the Norwegian debate on food security. The development towards larger and fewer farms, which is very likely to be further reinforced in the next years, implies an increased, not decreased, dependence on chemical fertilizers.

Commercial agriculture is dependent on inputs of feed produced elsewhere, e.g. soy produced in Brazil. This breaks the natural biochemical cycle, which recycles phosphorus back to the soil via dead plant matter, as discussed in section 3.2.2. Such disconnectedness between farming, nature and locality, is one of the main criticisms of the modern agricultural production system. As Van Der Ploeg (2010: 99) argues:

Industrial agriculture involves an, often extreme, disconnectedness between farming and nature and locality: with natural growth factors (such as soil fertility, high-quality manure, carefully selected varieties and locally adapted breeds), increasingly being replaced by artificial growth factors entailed in external inputs and new technological devices. Instead of being built on ecological capital, farming has become dependent upon industrial and financial capital.

Nationen's strong historical ties to important drivers of this development could possibly explain the lack of discussion of this disconnectedness' implications for future Norwegian food security. Criticizing it would imply a quest for a very different agricultural model, which seems to be outside of the scope of what *Nationen* deems as relevant.

I believe that this discussion might make an entry into the Norwegian debate about food security within the next couple of years. Statements such as those of Nils T. Bjørke, the leader of the Norwegian Farmers' Union, where he argues that the dependency on soy imports from Brazil is a problem for Norwegian agriculture, might indicate a turn in this direction. As my analysis has shown, however, this international discussion is still largely non-existent in the Norwegian debate about future food security.

7. Conclusion

In the introduction, I outlined three overarching objectives of this paper. My first objective was to present the ongoing discussion on the future of modern agriculture, and its implications for food security in the future, based on the criticism of the dominant agricultural production system. Special emphasis was put on explaining the four pillars upon which this criticism rest, and introducing the alternatives presented. As I explained in section 6.1, industrial agriculture is accused of being a major driver of climate change, it is regarded unsustainable and a threat to biodiversity and cultural diversity, and it is also criticized for not paying for all its external negative effects. Industrial agriculture has also failed at ensuring global food security, it is argued. Several organizations and individuals (such as UNCTAD, IAASTD, De Schutter, Vanloqueren, Carolan, and Van Der Ploeg) suggest that radically different approaches to agricultural production has to be adopted, and argue that farming systems must become more dependent on the natural resource base of their surroundings. The dependence on external inputs such as fossil fuels, chemical fertilizers and pesticides and irrigation should be reduced, and closed nutrient cycles should be emphasized. An overarching goal is to internalize the costs of industrial, intensive agricultural practices, so that the adoption of climate-friendly and sustainable solutions is promoted.

The second objective of this study was to outline the main features of Norwegian agriculture and agricultural policies, discuss how they are linked to the international debate on agriculture, and analyze the connection to the discussion of domestic food security. Although Norwegian agriculture cannot be characterized as purely industrial in its mode of operation, there has been a strong structural rationalization in Norwegian agriculture. Three out of four Norwegian farms went out of production between 1949 and 2010. Units have become much larger, and more centralized. This development has taken place simultaneously as the focus on the multifunctional role of agriculture has been emphasized. The environmental damage caused by the agricultural sector that have been identified as a problem elsewhere in the EU, have thus been more or less avoided in Norway. Even though Norwegian agricultural production has increased despite the significant reduction in the number of farms, the self-sufficiency rate has fallen, and Norwegian agriculture has become increasingly dependent upon soy imports from Brazil. Additionally, there is a problem of a significant pressure on arable and cultivated land in the proximity of growing cities, which has reduced the amount of

land available for food production on a national scale. Norway is also a significant consumer of chemical fertilizer, at least compared to the world average, which is probable that will become more expensive and also less readily available in the future. Together, these developments in Norwegian agriculture raise concerns about how robust Norwegian food security is.

These concerns, and the debate on them, were the topic of this thesis' third objective. The goal was to explore and analyze the Norwegian debate on food security, and find out whether the international discussion of the future of modern agriculture is reflected in this debate. I did this by analyzing a sample of newspaper articles from *Nationen* and *Dagens Næringsliv* according to a set of arguments, and my findings could be summarized as follows:

1. Domestic food production is perceived as essential to ensure food security in times of crisis in the Norwegian debate about food security as expressed in *Nationen*.
2. There seems to exist a general belief that the world is facing food scarcity, and that Norwegian food production should be maintained in order to ensure food security within this frame. Very few links are, however, drawn to the international debate about the shortcomings of the industrial, large-scale, intensive agricultural model.
3. The common line of argumentation in the newspaper *Nationen* is a mix of more or less vaguely defined arguments, and a general argument that domestic food security depends upon domestic food production. The few examples from *Dagens Næringsliv* express a fundamentally different view, where domestic food security is regarded as dependent on free trade.

Future food security is extensively discussed in Norway, a highly food secure country, in the channels of those with a strong self-interest in a substantial domestic food production, such as the newspaper *Nationen*. One of the reasons why cultivated and arable land is being built down, for example in Vestby and Trondheim, despite multiple warnings that this might threaten Norwegian food security in the long run, could be that those who argue against this dismantling are sometimes perceived as biased. This is due to their personal interest in protecting land areas, and that their references to the unrest in Ukraine or our moral obligation to uphold agricultural production are relatively easy to question. Personally, I think the precautionary principle is very important to keep in mind when discussing Norwegian food security in the future. The warnings posed in AR5 should not be disregarded, and if the predictions for the effects of climate change are correct, and some important food-producing regions become unsuitable for agricultural production, cultivated and arable land could be

immensely valuable. I think these are powerful arguments in and of themselves. It is thus not necessary to draw somewhat dubious links to poor and hungry people in developing countries to justify the importance of domestic agricultural production. Even though we know little, if anything, about what the future will bring, we do know for sure that people will always need food. Thus, food security, food production and agricultural production systems will always be topics of current interest.

On 6 May, 2014, the Government presented their offer to the Norwegian Farmers' Union and the Norwegian Farmers' and Smallholders' Union through the Agricultural Agreement. This offer shows that the structural rationalization that has been such an important feature of Norwegian agriculture for decades, will continue with restored strength. This means fewer farms and larger units. Whether this will, or *could*, be combined with an increased use of Norwegian natural resources, is a matter of controversy. The same goes for the effect on Norwegian food security. According to a number of international institutions and scholars, the development towards fewer and larger farms characterized by intensive production, monocultures and an industrial mode of operation is the wrong way to go to ensure food security in a world facing the uncertain effects of climate change, potential severe water shortages in important food-producing regions, and rapidly decreasing access to phosphate rock for the production of chemical fertilizer. Their worries are not yet well reflected in the debate on Norwegian food security. Whether this will change in the course of the Agricultural Agreement negotiations, remains to be seen.

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APPENDIX A: List of articles

#	Title	Newspaper	Date	Themes/keywords
1	<i>Felleskjøpet ventar staten tek ansvar</i>	Nationen	12.03.14	Kornlagring/beredskap
2	<i>Politisk dragkamp om beredskapslagring av korn</i>	Nationen	12.03.14	Kornlagring/beredskap
3	<i>Arnstad: Beredskap er et statlig ansvar</i>	Nationen	11.03.14	Kornlagring/beredskap
4	<i>Listhaug får refs for utspel om kornlager</i>	Nationen	07.03.14	Kornlagring/beredskap
5	<i>Listhaug ber Felleskjøpet Agri kjøpe Stavanger Havnesilo</i>	Nationen	06.03.14	Kornlagring/beredskap
6	<i>Norge er en del av verden</i>	Nationen	05.03.14	Kornlagring/ internasjonal uro/ leder
7	<i>Krise for norsk korn</i>	Nationen	22.04.13	Kornlagring/beredskap /leder
8	<i>Tar vare på vårt daglige brød</i>	Nationen	13.09.12	Beredskap/ mening
9	<i>Regjeringen høster kritikk for norsk selvforsyning</i>	Nationen	09.10.12	Selvforsyning
10	<i>Kunst om jordvern</i>	Nationen	13.02.14	Jordvern
11	<i>Sender kravbrev</i>	Nationen	03.02.14	Jordvern
12	<i>Lundteigen advarer mot jordvernkatastrofe</i>	Nationen	01.02.14	Jordvern/veibygging
13	<i>Listhaug fekk jordvernkritikk i møte med 700 jærbønder</i>	Nationen	28.01.14	Jordvern
14	<i>Venstre og Krf krev grundig gjennomgang av jord-reglar</i>	Nationen	20.01.14	Jordvern
15	<i>Jubler over frigjort matjord i Trondheim</i>	Nationen	21.12.13	Jordvern
16	<i>Sanner sier ja til Ikea</i>	Nationen	21.12.13	Jordvern/Ikea
17	<i>Bremsen på - hva nå?</i>	Nationen	07.12.13	Jordvern/ leder
18	<i>Ikea lovar full skjerming av matproduksjonen</i>	Nationen	07.12.13	Jordvern/Ikea

19	<i>Willoch ber regjeringa sikre matjord</i>	Nasjonen	11.11.13	Jordvern
20	<i>Slagsvold Vedum varsler mer landbruksbistand</i>	Nasjonen	02.10.12	Landbruksbistand
21	<i>Fem millioner munnar å mette</i>	Nasjonen	20.02.12	Befolkningsøkning/ selvforsyning/ leder
22	<i>Saken burde være biff</i>	Nasjonen	27.01.12	Kjøttproduksjon/selv- forsyning/ leder
23	<i>Men hva vil landbruket?</i>	Nasjonen	09.01.12	Selvforsyning/ny retning i landbruket/ leder
24	<i>Med beredskap i tankane</i>	Nasjonen	14.03.14	Kornlagring/beredskap
25	<i>Mat må vi fortsatt ha</i>	Nasjonen	22.11.13	Klimaendringer/mat- varesikkerhet/ leder
26	<i>Utredning anbefaler beredskapslagre</i>	Nasjonen	20.11.13	Kornlagring
27	<i>Regjeringen prioriterer kornlagre</i>	Nasjonen	14.10.13	Kornlagring
28	<i>Blåblå vil fjerne mer matjord enn rødgrønne</i>	Nasjonen	17.08.13	Jordvern/nedbygging/ omregulering
29	<i>Kornimporten kan bli dobla før 2030</i>	Nasjonen	19.04.13	Kornlagring/korn- import/selvforsyning
30	<i>Bønder klare til å løyse kriser og beredskap</i>	Nasjonen	02.01.14	Landbruk/samfunns- rolle
31	<i>Nilf-direktør avviser at jordvern alltid er mest bærekraftig</i>	Nasjonen	12.12.13	Jordvern/verdi- setting/bærekraft
32	<i>Nils Vagstad i Bioforsk: - Matjord er beredskap</i>	Nasjonen	24.08.12	Jordvern/matvare- beredskap
33	<i>Over 6000 mål dyrka jord blei bygd ned i fjor</i>	Nasjonen	15.03.12	Jordvern/omregulering
34	<i>Bioforsk meiner jordvern blir mykje viktigare i åra framover</i>	Nasjonen	26.01.12	Jordvern
35	<i>Ber regjeringa stoppe matjordnedbygging</i>	Nasjonen	06.12.13	Jordvern/nedbygging av matjord
36	<i>Samlet front mot Listhaugs Ikea-planer</i>	Nasjonen	27.11.13	Jordvern/Ikea
37	<i>Minister raus med matjord</i>	Nasjonen	26.11.13	Jordvern/Ikea/ leder

38	<i>Uten jord blir det ingen mat</i>	Nationen	05.11.13	Jordvern/danning av matjord/ meninger
39	<i>Skjerpa jordvern hausta lite støtte</i>	Nationen	20.06.13	Jordvern
40	<i>Vil ha strengere krav om nydyrking</i>	Nationen	11.06.13	Jordvern/nydyrking
41	<i>Ofrer matjord i miljøets navn</i>	Nationen	29.05.13	Jordvern/miljø/ leder
42	<i>Krass jordvernkritikk</i>	Nationen	28.05.13	Jordvern/Trondheim
43	<i>Opposisjonen splittet om flytting av matjord</i>	Nationen	27.04.13	Jordvern/flytting av matjord
44	<i>Ikea bør få nei</i>	Nationen	12.03.13	Jordvern/Ikea/ leder
45	<i>Ikea må få nei!</i>	Nationen	15.04.13	Jordvern/Ikea/ meninger
46	<i>Omdisponering kan være bærekraftig</i>	Nationen	16.03.13	Jordvern/omdisponering/ meninger
47	<i>Kornlagring kan koste 20 millioner</i>	Nationen	04.03.13	Kornlager/beredskap
48	<i>Arnstad lover bedre jordvern i ny NTP</i>	Nationen	28.02.13	Jordvern/veibygging
49	<i>Bønder ber om vernehjelp for å berge matjorda</i>	Nationen	28.02.13	Jordvern/reduksjon i matjord
50	<i>Nedbygging av jord er ikke bærekraftig</i>	Nationen	14.02.13	Jordvern/reduksjon i matjord/ meninger
51	<i>Foreslår avgift på nedbygging av jord</i>	Nationen	07.02.13	Jordvern/reduksjon i matjord
52	<i>Bruker mest jord i Europa</i>	Nationen	01.12.12	Jordvern/reduksjon i matjord
53	<i>Uten respekt for matjord</i>	Nationen	24.10.12	Jordvern/reduksjon i matjord/ leder
54	<i>Jordvernet er avgjørende</i>	Nationen	30.01.12	Jordvern/ leder
55	<i>Seier jordvern er avgjerande for å nå måla</i>	Nationen	27.01.12	Jordvern/økt jordbruksproduksjon

56	<i>Kan lage meir mat på klimavenleg måte</i>	Nationen	08.02.12	Økt jordbruksproduksjon/klimaendringer/jordbrukets CO ₂ -avtrykk
57	<i>Trondheim er helt på jordet</i>	Nationen	12.06.12	Jordvern/Trondheim/ leder
58	<i>Mer enn takk for maten</i>	Nationen	04.07.12	Jordvern/ leder
59	<i>Hvorfor lærer ikke Erna Solberg?</i>	Nationen	30.08.12	Matvaresikkerhet/beredskap/ leder
60	<i>Heia Listhaug</i>	Dagens Næringsliv	25.10.13	Landbrukssubsidier/toll/Sylvi Listhaug/ kommentar
61	<i>Kutt nå</i>	Dagens Næringsliv	07.10.13	Redusert landbruksstøtte/ leder
62	<i>Flere purker!</i>	Dagens Næringsliv	01.08.13	Strukturrasjonalisering/ leder
63	<i>Vedums verden</i>	Dagens Næringsliv	16.05.13	Landbrukssubsidier/ leder
64	<i>Bondegallup</i>	Dagens Næringsliv	01.03.13	Bondeorganisasjonene/ leder
65	<i>Tid for ekstremisme</i>	Dagens Næringsliv	24.11.12	Matvarepriser/ustabilitet/matvaresikkerhet/matjord/ kommentar
66	<i>Slipp maten fri!</i>	Dagens Næringsliv	08.09.12	Norske matvarepriser/landbrukssubsidier/toll/ kommentar
67	<i>Fisk og potet</i>	Dagens Næringsliv	04.09.12	Fisk/matvaresikkerhet/ leder
68	<i>Verdens mat</i>	Dagens Næringsliv	23.07.12	Matvaresikkerhet/frihandel/befolkningsvekst/ leder
69	<i>Bondeslaget</i>	Dagens Næringsliv	16.05.12	Landbrukssubsidier/ kommentar

APPENDIX B: Categorized quotes

1. Moral arguments

Article #	Title	Quote(s)
3	<i>Arnstad: Beredskap er et statlig ansvar</i>	<ul style="list-style-type: none">• ”Samfunnsberedskap er et statlig ansvar (Arnstad, Sp)• ”Det økonomiske ansvaret for nasjonal beredskap kan ikke pålegges private aktører som konkurrerer i et kommersielt marked.” (Hedstein, Norsk Landbrukssamvirke)• ”Landbruksminister Sylvi Listhaug (Frp) er ikke av den mening at et beredskapslager for korn er et statlig ansvar”
4	<i>Listhaug får refs for utspel om kornlager</i>	<ul style="list-style-type: none">• ”Fleire parti refsar Listhaug for å fråskrive seg ansvar for matberedskapen. Venstre, Ap og Sp kallar det ei viktig statleg oppgåve.”
6	<i>Norge er en del av verden</i>	<ul style="list-style-type: none">• “Tilgang til nok og trygg mat er en viktig del av vår nasjonale beredskap.” (Pernille Huseby, politisk redaktør)
7	<i>Krise for norsk korn</i>	<ul style="list-style-type: none">• “Til syvende og sist har også Norge en plikt til å bidra i matforsyningen til en voksende verdensbefolkning.” (leder)
8	<i>Tar vare på vårt daglige brød</i>	<ul style="list-style-type: none">• ”Med en økende befolkning så vel nasjonalt som globalt og et vanskeligere klima mener vi at en rik nasjon som Norge er forpliktet til å opprettholde høy matproduksjon.” (Olav Moe & Jan-Erik Sundby, Krf)• ”For KrF er matvareproduksjon likevel mer enn kun nærings- og distriktpolitikk. Det handler dypest sett om forvalteransvaret.” (ibid.)
9	<i>Regjeringen høster kritikk for norsk selvforsyning</i>	<ul style="list-style-type: none">• ”Behovet for å øke norsk matvareproduksjon begrunnes med utviklingen i verden som helhet, med sult, befolkningsøkning og klimaendringer.” (Øyvind Aukrust, leder for Alliansen Ny Landbrukspolitikk)
11	<i>Sender kravbrev</i>	<ul style="list-style-type: none">• ”Bygdekvinnelaget mener at sikker tilgang til mat er, og alltid vil være, blant storsamfunnets viktigste behov.”• ”Det [jordvern, anm.] handler om å ta vare på framtidige generasjoners livsgrunnlag.” (Bygdekvinnelaget)
15	<i>Jubler over frigjort matjord i Trondheim</i>	<ul style="list-style-type: none">• ”Regjeringen viser at de er villige til å ofre matfatet til framtidens generasjoner” (Bondelaget)
20	<i>Slagsvold Vedum varsler mer landbruksbistand</i>	<ul style="list-style-type: none">• ”Det er like avgjørende at vi i Norge bidrar til å produsere mat som at vi bidrar til å

		<p>redusere klimagassutslippene. Vi må ta vare på egen matvaresikkerhet.” (Trygve Slagsvold Vedum)</p>
26	<i>Utredning anbefaler beredskapslagre</i>	<ul style="list-style-type: none"> • ”Strategien med import kan i visse situasjoner komme i konflikt med andre lands behov for å ivareta en minimum tilgang av matvarer til egen befolkning. Et rikt land som Norge vil med sin sterke økonomi kunne overby andre kjøpere for å sikre det relativt beskjedne kvantum vi trenger.” (Statens Landbruksforvaltning)
28	<i>Blåblå vil fjerne mer matjord enn rødgrønne</i>	<ul style="list-style-type: none"> • ”Noe av det absolutt viktigste for dette landet er å fø befolkningen, og vi trenger all den mat vi kan produsere i framtida. Jordvern bør det være storsamfunnet og politikerne som sørger for.” (Knut Olav Stryken)
30	<i>Bønder klare til å løysa kriser og beredskap</i>	<ul style="list-style-type: none"> • ”Her i landet blir matjord tatt ut av drift, samtidig som det er veksende behov for mat på kloden. Vi bør sørge for å utnytte våre egne fornybare ressursar. Det òg ut frå eit solidarisk ansvar Norge som eit rikt land har for å bidra til auka global matproduksjon.” (Eirik Nedreliid, Norsk Landbruksassamvirke)
31	<i>Nilf-direktøren avviser at jordvern alltid er mest bærekraftig</i>	<ul style="list-style-type: none"> • ”De [verdens sultende befolkning, anm.] er ikke tjent med at Norge sløser med sine ressurser, for eksempel at jordvern fører til store økonomiske og miljømessige tap på grunn av dårlig infrastruktur. Det er neppe noen som er tjent med at vi reduserer vår samlede verdiskaping og bærekraft. (...) Norge kan derimot øke sine bidrag ved å bruke våre ressurser på en best mulig måte, og bruke så mye vi kan av økt verdiskaping til bistand for andre.” (Ivar Pettersen, Norsk Institutt for Landbruksøkonomisk Forskning/Nilf) • ”Vårt jordvern har ikke med verdens fattige og global matforsyning å gjøre. Det handler om vår egen samfunnssikkerhet og sosiale stabilitet.” (Nils Vagstad, Bioforsk)
46	<i>Omdisponering kan være bærekraftig</i>	<ul style="list-style-type: none"> • ”(...) Engasjement for dem som lider av sult, er langt mer og noe helt annet enn norsk jordvern.” (Ivar Pettersen, Nilf)
66	<i>Slipp maten fri!</i>	<ul style="list-style-type: none"> • ”Norge seiler gjennom finanskrisen på første klasse. Og da skulle vårt bidrag til verden være at vi er blant de første til å ta proteksjonistiske tiltak i bruk? Arbeidsledigheten er på 22 prosent i manchengoens hjemland og 18 prosent i

67	<i>Fisk og potet</i>	fetaostens rike.” (Sofie Mathiassen)
		<ul style="list-style-type: none"> ”Giskes svar var at danskene må finne seg i norsk landbrukspolitik. Samtidig har vi fått vite at regjeringen internt diskuterer å øke flere tollsatser på landbruksvarer. Hvor ble det av internasjonal solidaritet?” (leder)

2. Scarcity arguments

Article #	Title	Quote(s)
2	<i>Politisk dragkamp om beredskapslagring av korn</i>	<ul style="list-style-type: none"> ”Eg opplever ikkje at Høgre tek dei store klimautfordringane inn over seg. Ein kan gjerne sjå på fortida, men framtida treng ikkje bli som fortida. Klimaendringane vil gi store utfordringar for matproduksjon. Befolkninga aukar og fleire vil kome ut av fattigdom.” (Line Henriette Hjemdal, Krf)
3	<i>Arnstad: Beredskap er et statlig ansvar</i>	<ul style="list-style-type: none"> ”Norsk Landbrukssamvirke mener det er viktig med et nasjonalt kornlager av to årsaker. For det første for å styrke nasjonal beredskap. For det andre er verdens evne til å forsyne en stadig økende befolkning under press.”
6	<i>Norge er en del av verden</i>	<ul style="list-style-type: none"> ”En av de alvorligste konsekvensene av klimaendringene vi nå vet er i gang, er at verdens matproduksjon blir hardt rammet. Selv i dagens situasjon, med en global oppvarming på 0,8 grader, ser vi at den internasjonale matforsyningen rystes av ulike værforhold. Ekstrem tørke i store matproduserende regioner har flere ganger de siste årene gitt store utslag på matvareprisene.” (Pernille Huseby)
9	<i>Regjeringen høster kritikk for norsk selvforsyning</i>	<ul style="list-style-type: none"> ”Naturressursene ligger spredt. Derfor er landbruket uegna for omfattende sentralisering. Naturressursene kan ikke flyttes, og landbruket er dermed grunnleggende ulikt industrien.” (Øyvind Aukrust, leder for Alliansen Ny Landbrukspolitik)
15	<i>Jubler over frigjort matjord i Trondheim</i>	<ul style="list-style-type: none"> ”Korn må dyrkes på god matjord. En kan ikke flytte jord på samme måte som ting og tro det er like bra. Varehus kan bygges på områder mat ikke kan dyrkes. Rundt nesten alle byer og tettsteder er det matjord. Det var jo derfor folk slo seg ned der og skal en si ja til alle slike søknader framover, er matjorda borte fort og vi blir helt prisgitt

		andre land for å ha mat på bordet.” (Karin Andersen, SV)
16	<i>Sanner sier ja til Ikea</i>	<ul style="list-style-type: none"> • ”(...) Det er snakk om noe av den beste matjorda i landet, og vi beklager avgjørelsen. Vedtaket vil gjøre det vanskeligere å øke norsk matproduksjon og selvforsyningsgrad.” (Line Henriette Hjemdal, Krf)
19	<i>Willoch ber regjeringa sikre matjord</i>	<ul style="list-style-type: none"> • ”Forsikring er nesten eit for svakt uttrykk. Vi veit at befolkninga i verda veks. Vi må rekne med at klimaendringane vil redusere matproduksjonen ein del stader og auke produksjonen andre stader. Det er høgst sannsynleg at skadane av klimaendringane kjem før betringa andre stader. Sikring av matjorda er eit betre ord enn forsikring.” (Kåre Willoch)
21	<i>Fem millioner munner å mette</i>	<ul style="list-style-type: none"> • ”Det er ingen grunn til å frykte sult med det første. Som verdens rikeste land sitter vi øverst ved bordet og kan forsyne oss av det vi vil. Men det er ikke bare i Norge at befolkningen øker. FNs organisasjon for mat og landbruk (FAO) har anslått at verdensproduksjonen av mat må økes med 70 prosent innen 2050. Samtidig vet vi at klimaendringene vil gjøre det vanskelig å opprettholde matproduksjonen mange steder. Det er vanskelig å spå, men at framtida vil bli preget av knapphet på mat er ingen dristig forutsigelse.” (Kato Nykvist, konstituert politisk redaktør)
22	<i>Saken burde være biff</i>	<ul style="list-style-type: none"> • ”Å sørge for utnyttelse av norske grasressurser er ikke bare et landbrukspolitisk spørsmål. Det er også et verdivalg. Drøvtyggerne sørger for å omsette en fornybar beiteressurs til menneskemat.” (leder)
23	<i>Men hva vil landbruket?</i>	<ul style="list-style-type: none"> • ”Med fortsatt befolkningsvekst, forverrete vilkår for matproduksjon på verdensbasis og utsikter til framtidige forsyningskriser, må det vel finnes grunnlag for et livskraftig landbruk basert på norske ressurser?” (Kato Nykvist)
25	<i>Mat må vi fortsatt ha</i>	<ul style="list-style-type: none"> • ”Heller ikke her hjemme er landbruket upåvirket av klimaendringene. Men i motsetning til verdens tempererte soner, har det vært en vanlig oppfatning at klimaendringene faktisk kan gi bedre vekstvilkår i det kalde Norge. Det er dessverre en misforståelse. Som

		<p>klimatekforfatter Erik Martiniussen påviser i sin ferske bok "Drivhuseffekten", vil ulempene med mer nedbør oppveie de positive effektene av høyere temperaturer, og vel så det." (Kato Nykvist)</p>
27	<i>Regjeringen prioriterer kornlagre</i>	<ul style="list-style-type: none"> • "Det påpekes at et av områdene klimaendringer vil mørkest (<i>sic</i>) best på, er matvareforsyningen." (Trygve Slagsvold Vedum) • "Behovet for kornlagre i Norge er økende fordi selvforsyningen er fallende. Kornproduksjonen framover er høyst uviss." (Christian Anton Smedshaug, AgriAnalyse)
32	<i>Nils Vagstad i Bioforsk: - Matjord er beredskap</i>	<ul style="list-style-type: none"> • "Å skulle øke matproduksjonen i verden så mye som er nødvendig, som også er fundamentet for fred i verden, er så krevende både teknisk og kunnskapsmessig at matsikkerhetssituasjonen kan endre seg raskt i løpet av de neste 20 årene." (Nils Vagstad, Bioforsk)
36	<i>Samlet front mot Listhaugs Ikea-planer</i>	<ul style="list-style-type: none"> • "Det er en uklok avgjørelse, som innebærer at noe av den beste matjorda vår blir bygget ned. Det er stikk i strid med det landbruksministeren har sagt om at hun skal øke selvforsyningsgraden og matproduksjonen." (Line Henriette Hjemdal, Krf)
37	<i>Minister raus med matjord</i>	<ul style="list-style-type: none"> • "Tre prosent av landarealet vårt er dyrka mark, kun én prosent er av matkornkvalitet. Vi vet at verdens befolkning fortsetter å øke, og vi vet at enorme matproduserende arealer internasjonalt er truet av klimaendringer. Ikeas ønske om å bygge ned et av de mest produktive kornåkrene vi har, burde bokstavelig talt falle på steingrunn." (Kato Nykvist) • "Hvis nedbyggingen fortsetter med samme fart som i dag, vil det ikke være matjord igjen i 2080. Erttertidens dom vil bli hard. Det tar 1000 år å danne et matjordlag på 10 cm." (Kato Nykvist)
38	<i>Uten jord blir det ingen mat</i>	<ul style="list-style-type: none"> • "Mens resten av verden oppdager hvor viktig matjorda er, har den nye regjeringen i Norge signalisert at jordvern skal bli mindre viktig. Det er en gammeldags og ansvarsløs holdning. Jorda er grunnlaget for nesten alt vi spiser. Over 90 prosent av maten er basert på jord." (Kari Gåsvatn, kommentator)

44	<i>Ikea bør få nei</i>	<ul style="list-style-type: none"> • ”Matjord er en knapphet i Norge. (...) Skal selvforsyningsevnen opprettholdes i takt med økende folketall, slik politikerne har vedtatt, kan ikke den beste jordbruksjorda bygges ned.” (leder)
46	<i>Omdisponering kan være bærekraftig</i>	<ul style="list-style-type: none"> • ”Vi trenger mat, men dyrket mark er bare én ressurs for matproduksjon. Hav, kyst, utmark, fosfat, nitrogen, kunnskap og internasjonal konkurransevne er andre, viktige ressurser. Vi har lite matjord, men overflod av mat i dette landet.” (Ivar Pettersen, Nilf)
50	<i>Nedbygging av jord er ikke bærekraftig</i>	<ul style="list-style-type: none"> • ”FNs landbruks- og matorganisasjon (FAO) slår fast at behovet for mat fram til år 2050 i folkerike deler av verden kan måtte mangedobles, og det samtidig med at klimatiske vilkår for matproduksjon blir forverret i store deler av verden. I dette perspektivet, og at Norge er et av verdens rikeste land, skal det svært tungtveiende grunner til før nedbygging av dyrka mark, og dermed mindre matproduksjon, kan defineres som bærekraftig.” (Odd Magne Harstad & Arne Oddvar Skjelvåg, Universitetet for Miljø og Biovitenskap – UMB)
53	<i>Uten respekt for matjord</i>	<ul style="list-style-type: none"> • ”Mindre enn tre prosent av Norge er jordbruksareal. Det er forsvinnende lite og gjør oss svært sårbare. Hvor lite det faktisk er, ble synliggjort i Nationen i går. Per innbygger er det mindre enn to mål, innmarksbeite inkludert. Vi kan bare prøve å forestille oss hvordan det er å overleve på et så lite område.” (leder)
55	<i>Seier jordvern er avgjerande for å nå måla</i>	<ul style="list-style-type: none"> • ”Den ubehagelege sanninga er at kornarealet går ned og at totalavlingane ikkje har auka særleg på 30 år. Regjeringa vil behalde sjølvforsyningsgraden og auke matproduksjonen. Skal ein klare å nå måla er det første og mest grunnleggjande punktet at vi må ta vare på matjorda og dei framtidige produksjonsressursane våre.” (Nils Vagstad, Bioforsk) • ”Han [Nils Vagstad, anm.] åtvare mot at kombinasjonen meir regn, dårleg drenering og tunge maskinar kan gi mykje jordpakking, noko han seier kan føre til dramatisk avlingssvikt.”
59	<i>Hvorfor lærer ikke Erna Solberg?</i>	<ul style="list-style-type: none"> • ”I et land der 97 prosent av landarealet ikke er dyrkbart, i en verden der matforsyningen

allerede er ustabil, synes Solberg det er opportunt å forsyne seg av de 3 prosentene som kan produsere mat.” (Kato Nykvist)

3. Cultural heritage arguments

Article #	Title	Quote(s)
10	<i>Kunst om jordvern</i>	<ul style="list-style-type: none">“Nå er det viktig at alle gode krefter slår ring om både vilkårene for norske bønder og når det gjelder å ta vare på den verdifulle arven vi har fått når det gjelder mat og landbruk.” (Yvonne H. Antonsen, kunstner)
22	<i>Saken burde være biff</i>	<ul style="list-style-type: none">”I en tid der matvaresikkerhet står i høysetet, burde det være en prioritert oppgave å sikre en matproduksjon som er basert på et norsk ressursgrunnlag.” (leder)

4. Sustainable production arguments

Article #	Title	Quote(s)
10	<i>Kunst om jordvern</i>	<ul style="list-style-type: none">”I utstillingen vil hun [Yvonne H. Antonsen (kunstner), anm.] legge vekt på å få fram motiver som setter spørsmålstegn ved den kontinuerlige effektiviseringen i landbruket som hun mener i lengden ikke er bærekraftig.”
30	<i>Bønder klare til å løse kriser og beredskap</i>	<ul style="list-style-type: none">”Klimaendringane påverkar kapasiteten til å dyrke mat og gjer rammevilkåra for matproduksjon mindre stabile. Kampen om jorda og vatnet hardnar til. Bøndene stiller med løysingane på mange av vår tids store utfordringar.” (Eirik Nedrelid, Norsk Landbrukssamvirke)
34	<i>Bioforsk meiner jordvern blir mykje viktigare i åra framover</i>	<ul style="list-style-type: none">”Frå min ståstad er sterkare jordvern både eit godt tiltak for miljøet, for klimaet og for biologisk mangfald.” (Nils Vagstad, Bioforsk)
35	<i>Ber regjeringa stoppe matjordnedbygging</i>	<ul style="list-style-type: none">”Ved flytting av matjord er det ikkje truleg at jordas produksjonsevne vert halde oppe. Viktige eigenskapar ved sjølve jorda har utvikla seg gjennom fleire tusen år, og mange av desse vert dårlegare når jorda vert flytta på. Matjorda produserer best når ho får liggje der ho er danna og der det er utvikla eit stabilt økosystem.” (Forslag frå

		Venstre)
38	<i>Uten jord blir det ingen mat</i>	<ul style="list-style-type: none"> ”Den nye jordvernbevissthetten definerer tap av jord som mer enn nedbygging under betong og asfalt. Matjord som blåser eller regner bort, er også tapt. Den nye forståelsen av jordvern omfatter også kvaliteten på jorda. Monokulturer og intensiv drift øker risikoen for erosjon. Gift er ødeleggende for organismene som holder jorda levende og bygger opp humuslaget. I den nye forståelsen settes det ikke lenger likhetstegn mellom moderne jordbruk og industrielt og effektivt jordbruk. Det er jordbruk som tar hensyn til livet i jorda som defineres som moderne. Landbruk er en del av problemet når jord går tapt. Men det er også en del av løsningen dersom driftsmetodene ivaretar jorda som levende organisme og tar hensyn til artsmangfoldet. Hvert år går 24 millioner tonn jord tapt, ifølge FN. Det er ufattelig mye, og tapet er snikende. Et mer forståelig tall er at 30 fotballbaner fruktbar jord går tapt hvert minutt. Hvert minutt. Jord som er borte, er borte for alltid. Kloden er i ferd med å miste huden sin. En hud som gror veldig langsomt sammen igjen. Jord er viktig for reguleringen av klimaet på kloden. Jord lagrer mye mer klimagasser enn trær og planter. Men det må være jord med humus, ifølge ekspertene. Matsikkerhet henger nøye sammen med jordvern.” (Kari Gåsvatn)
46	<i>Omdisponering kan være bærekraftig</i>	<ul style="list-style-type: none"> ”Og miljøvern kan både dreie seg om god infrastruktur, uteområder for barn og vern av dyrket mark.” (Ivar Pettersen, Nilf)
50	<i>Nedbygging av jord er ikke bærekraftig</i>	<ul style="list-style-type: none"> ”Nedbygging av dyrka jord for å tilfredsstille higen etter stadig høyere kjøpekraft i en situasjon hvor de aller fleste av oss lever i overflod, er etter vårt syn neppe bærekraftig.” (Odd Magne Harstad & Arne Oddvar Skjelvåg, UMB)
52	<i>Bruker mest jord i Europa</i>	<ul style="list-style-type: none"> ”Ein rapport utarbeida for EU-kommisjonen viser at ein svært stor del av dei globale karbonførekomstane er lagra i matjorda, i hovudsak i den øvste meteren. Globalt viser anslag at matjorda inneheld 1500 milliardar tonn organisk karbon. Det er meir enn i både atmosfæren (760 mrd. tonn) og vegetasjonen (560 mrd. tonn) på

		kloden samla sett. Ved utbyggingar blir delar av karbonet frigjort når matjorda blir flytta. Spesielt spreining av matjord skal frigjere mykje karbon. Nedbygging med asfalt og betong fører òg til at bindinga av karbon stoppar opp. Trass i den sentrale rolla i karbonkrinsløpet er matjorda ikkje med i klimakvotesystemet.”
56	<i>Kan lage meir mat på klimavenleg måte</i>	<ul style="list-style-type: none"> • ”(...) Eit sterkt jordvern er derfor både eit svært godt klimatiltak og det er eit godt naturverntiltak.” (Arne Grønlund, Bioforsk) • ”Nedbygging av eitt mål matjord gir ifølgje Grønlund, som har doktorgrad i jordressursar, på den måten ein negativ CO2-effekt på opp mot 3000 kilo CO2-ekvivalentar årleg om alternativet er å dyrke opp myrjord med tilsvarende vekstpotensial.”

5. Crisis arguments

Article #	Title	Quote(s)
1	<i>Felleskjøpet ventar staten tek ansvar</i>	<ul style="list-style-type: none"> • “Norge, som eit av dei vestlege landa med lågast sjølvforsyningsgrad, bør ha eit beredskapslager ut frå risiko for uro eller naturkatastrofar.” (Leif Kåre Gjerde, dagleg leiar Fiskå Mølle)
2	<i>Politisk dragkamp om beredskapslagring av korn</i>	<ul style="list-style-type: none"> • ”Behovet for eigen kornberedskap blir mindre etter kvart som verda blir stadig meir integrert. Sidan andre verdskrig har vi vore igjennom både koreakrigen og den kalde krigen, utan at vi måtte nytte oss av kornberedskapen.” (Gunnar Gundersen, Høyre) • ”Eg tykkjer Gundersen viser ei svært naiv haldning til beredskap. Ein må vere føre var og planleggje for det uføresette.” (Marit Arnstad) • ”Eg synest Arnstad snarare er overivrig etter å binde opp statlege budsjetter til unødige utgifter.” (Gundersen)
3	<i>Arnstad: Beredskap er et statlig ansvar</i>	<ul style="list-style-type: none"> • ”Skal vi ha god nok nasjonal matvareberedskap trenger vi et kornlager. Uroen i Ukraina, som er en av verdens største korneksportører, viser at verdens kornforsyning er sårbar.” (Ola Hedstein, Norsk Landbrukssamvirke)

4	<i>Listhaug får refs for utspel om kornlager</i>	<ul style="list-style-type: none"> • ”Det er veldig kortsiktig å la kornlageret bli rive. Ukraina-krisa viser kor usikker matforsyninga er. Dei siste åra har stadig fleire land blitt opptatt av å sikre seg mot uro og ustabilitet. Matberedskap er enormt viktig.” (Trygve Slagsvold Vedum)
6	<i>Norge er en del av verden</i>	<ul style="list-style-type: none"> • ”Tilgang til nok og trygg mat er en viktig del av vår nasjonale beredskap. Men så langt er matsikkerhet langt på vei tatt for gitt, til tross for helt påviselig økt uforutsigbarhet i global matproduksjon. Matvareprisene internasjonalt ligger på et høyere nivå enn før og svinger mer.” (Pernille Huseby) • ”For om noe er sikkert, er det at alt er usikkert. Ukraina er bare et eksempel på hvor raskt en situasjon kan endres. Andre land, som regnes som mer ustabile, som for eksempel Pakistan og Nord-Korea, er atommakter. Aggresjon i slike områder vil gi enda mer alvorlige utslag. Andre årsaker til brå matforsyningsproblemer må vi heller ikke glemme. Bare i løpet av 1800-tallet forårsaket vulkanutbrudd to ganger alvorlig hungersnød og sosiale omveltninger over hele kloden. Det kan skje igjen.” (Pernille Huseby)
7	<i>Krise for norsk korn</i>	<ul style="list-style-type: none"> • ”Hvis kornarealet går ned med dagens tempo, vil behovet for kornimport øke med mellom 43 og 67 prosent til 2030 – avhengig av om produksjonen øker eller er konstant. Hvis arealnedgangen akselererer, vil importbehovet øke med over 100 prosent. Det er en alvorlig situasjon. I verste fall kan importbehovet bli større enn vår egen produksjon. Dette gjør landet sårbart for internasjonale svingninger i kornmarkedet. Svikt i verdens kornproduksjon vil kunne gå på matsikkerheten løs, også i rike Norge.” (leder) • ”(...) I tillegg har verdensmarkedet blitt mer ustabil. På verdensbasis er det bare nok korn på lager til å dekke et par måneders forbruk. Alt dette tilsier at norske kornlagre må bygges opp igjen.” (leder)
11	<i>Sender kravbrev</i>	<ul style="list-style-type: none"> • ”Kun tre prosent av Norges areal egner seg til å dyrke mat på, og dersom krisesituasjoner skulle oppstå i nær eller

		fjern framtid, er vi avhengig av ressursene som finnes innenfor landets grenser.” (Kathrine Kleveland, styreleder Bondekvinnelaget)
24	<i>Med beredskap i tankane</i>	<ul style="list-style-type: none"> • ”Vi tar ikkje beredskap alvorleg nok. Vi har så mykje pengar i dette landet at nokon trur vi får alt for pengar. Også mat. Det kan hende, men det er langt frå sikkert. Den vesle forsikringspremien som ligg i å beredskapslagre matkorn, den har jammen samfunnet råd til å betale.” (Einar Enger, styreleiar Felleskjøpet Agri)
27	<i>Regjeringen prioriterer kornlagre</i>	<ul style="list-style-type: none"> • ”Mangel på mat kan destabilisere samfunn. Den forholdsvis lave norske egenproduksjonen av mat gjør oss sårbare hvis vi skulle bli rammet av en stor atomulykke eller andre alvorlige kriser.” (Harald Sunde, Forsvarssjef) • ”Vedum mener bevisstheten rundt matkornberedskap har vokst både i Norge og globalt.” • ”Siste rest av kornlagre ble fjernet under Bondevik II. På grunn av den internasjonale matvaresituasjonen og ustabilitet i kornmarkedet, var det seinest høsten 2012 diskusjoner om eksportrestriksjoner på korn. Forståelsen for sammenhengen mellom mat og beredskap nasjonalt og globalt har økt. (...) Kornlagre er ikke for landbrukets skyld, men for samfunnets skyld.” (Trygve Slagsvold Vedum)
28	<i>Blåblå vil fjerne mer matjord enn rødgrønne</i>	<ul style="list-style-type: none"> • ”Matjorda er viktig for et lands beredskap og matsikkerhet.” (Trygve Slagsvold Vedum)
29	<i>Kornimporten kan bli dobla før 2030</i>	<ul style="list-style-type: none"> • ”Når det blir dyrka korn for alt reimer og ty kan halde, men ein likevel ikkje klarer byggje opp lager, så viser det risikoen. Tidlegare har prisen på korn auka på fallande produksjon. Nå aukar prisen sjølv på aukande produksjon. Det er dramatisk.” (Christian Anton Smedshaug) • (...) Vi såg i 2007 og 2008 at marknaden sluttar å fungere når prisen skyt i taket. Då blir eksporten styrt av lisensar frå stat til stat. Nokre av dei mest importavhengige statane er dessutan rike oljeland i Midtausten. Dei har like mange petrodollar å tilby som oss.” (Smedshaug)

30	<i>Bønder klare til å løyse kriser og beredskap</i>	<ul style="list-style-type: none"> • ”Det blir også produsert stadig meir rett til forbruk, og mindre for lager. Dermed blir ein meir sårbar.” (Nils T. Bjørke, leiar Bondelaget)
32	<i>Nils Vagstad i Bioforsk: - Matjord er beredskap</i>	<ul style="list-style-type: none"> • ”Å basere norsk politikk på at mat alltid vil være å få fatt i, er farlig naivt.” (Nils Vagstad) • ”Ifølge forskeren [Nils Vagstad, anm.] bør matjord ikke behandles som et bonde- eller næringspolitisk spørsmål, men som et nasjonalt sikkerhetspolitisk spørsmål.” • ”(...) Men oljepenger kan ikke kjøpe oss ut av en matkrise.” (Vagstad) • ”Forskningsdirektøren sier at et worst case-scenario bør legges til grunn for mat- og arealpolitikken, og at matberedskap kan sammenlignes med militær beredskap.” • ”Det er grunn til å stille spørsmålstejn ved hvorfor vi ikke skal legge samme prinsipp til grunn for matberedskap som for militær beredskap. Staten må ta ansvaret for nasjonens matsikkerhet.” (Vagstad) • ”[Worst case-scenario er] et sammenfall av produksjonskrise i de store produksjonslandene Kina, India, Canada, Australia, Brasil og USA. Det som har reddet oss hittil, er at det ikke har vært krise i alle landene samtidig. Andre momenter er muligheten for atomulykke og klimapåvirkninger. Å skulle øke matproduksjonen i verden så mye som er nødvendig, som også er fundamentet for fred i verden, er så krevende både teknisk og kunnskapsmessig at matsikkerhets-situasjonen kan endre seg raskt i løpet av de neste 20 årene.” (Vagstad)
41	<i>Ofrer matjord i miljøets navn</i>	<ul style="list-style-type: none"> • ”Én million dekar er blitt borte som dyrket jordbruksareal de siste 50 år, og om 20 år er vi én million flere innbyggere. Det er kanskje ikke så bekymringsfullt så lenge maten lar seg importere fra utlandet. Men også verdens befolkning øker raskt.” (Kato Nykvist)
45	<i>Ikea må få nei!</i>	<ul style="list-style-type: none"> • ”Det skulle ikke være nødvendig å gjenta all argumentasjon for jordvern. At vår egen matvaresituasjon kan bli kritisk er en ting.” (Arne Ellingsen, Sp)
46	<i>Omdisponering kan være bærekraftig</i>	<ul style="list-style-type: none"> • ”I visse situasjoner kan også vi komme til å ofre all vår verdighet for en ekstra

		matbit. Inntil videre er imidlertid livet mer enn både maten og matjorda.” (Ivar Pettersen, Nilf)
47	<i>Kornlagring kan koste 20 milliarder</i>	<ul style="list-style-type: none"> • ”Landbruksministeren [Trygve Slagsvold Vedum, anm] seier beredskapslagring av matkorn er ei forsikring for samfunnet.” • ”Viss fleire land gjer slik vi vurderer, så kan det vere med på å stabilisere prisane på korn internasjonalt. Etter 2007 har kornprisane gått kraftig opp. Eksportforbodet som enkelte land innførte etter dårlege avlingar i 2010 viser at forsyninga er sårbar. Vulkanutbrot dei siste åra har vist det same. Beredskapslagring kan vere ei god forsikring.” (Trygve Slagsvold Vedum)
53	<i>Uten respekt for matjord</i>	<ul style="list-style-type: none"> • ”Mye av mat- og landbruksdebatten tar for gitt at tilgangen på arealer i andre land for alltid er sikret. Men det kan oppstå en situasjon hvor forsyningen svikter og ikke engang penger hjelper oss. En krigssituasjon kan blokkere all tilførsel av mat og fôr. Drivstoffmangel, klimaendringer og naturkatastrofer kan også stanse forsyningen” (leder)
59	<i>Hvorfor lærer ikke Erna Solberg?</i>	<ul style="list-style-type: none"> • ”Du kan ikke snakke opp samfunnssikkerhet samtidig som du snakker ned samfunnets kapasitet til å produsere mat.” (Kato Nykvist) • ”Her er noen trusler samfunnet står ovenfor: <ul style="list-style-type: none"> ○ Krig. Ingen overhengende fare, men vi husker 9. april 1940. Lærdommen har ført til at vi den dag i dag holder oss med et militært forsvar som skal beskytte oss. ○ Terror. Vi husker 22. juli 2011. Lærdommen vil føre til at vi ruster opp en politistyrke som er i stand til å takle alle eventualiteter. ○ Naturkatastrofer. Faren er overhengende. Klimaendringer gjør været våtere og villere. Politikerne hevder de er på saken. Flomvern, rassikring og klimatilpassing skal bli bedre. Men det går tregt. ○ Matkrise. Faren er reell. FNs organisasjon for mat og landbruk, FAO, frykter at verden kan stå overfor en ny global matkrise på

størrelse med den i 2007 og 2008, da matmangel førte til voldelige opptøyer i en lang rekke land. Her hjemme møter sentrale politikere utfordringen med å love mer nedbygging av dyrkbar jord.”

(Nykvist)

- ”Men det er beredskapsmessig ufornuftig å legge ned landbruket. Da kvitter vi oss med matproduserende kompetanse det vil koste dyrt å gjenopprette. Dessuten er matproduksjon biologiske prosesser man ikke kan skru av og på som en kran.”
(Nykvist)

68 *Verdens mat*

- ”Et ekstra dystert aspekt ved årets krise er at forskerne mener å se en stadig klarere sammenheng mellom ekstremvær, som tørken i USA, og menneskeskapt klimaendringer. Vi må, dessverre, regne med mer av det samme i årene som kommer. For å møte en slik ny og usikker verden, kan man velge ulike strategier. En strategi som blir forsvart av den norske regjeringen, og spesielt av Senterpartiet, er at vi må øke vår egen selvforsyning av matvarer. For å sikre den norske selvforsyningen må norsklandbruk (*sic*) subsidieres tungt og i tillegg beskyttes med høy toll, blir det fremholdt.” (leder)
- ”Denne strategien er gal, på alle måter. For det første fører en proteksjonistisk landbrukspolitikk i seg selv til høyere priser. En god del av prishoppet, som rammet de fattigste i 2007 2008, skyldtes at flere land, blant annet Russland, innførte eksportforbud. Markedet sluttet å fungere. For det andre er nettopp vår uforutsigbare nære fremtid et sterkt argument for å stimulere til friest mulig flyt av matvarer over landegrensene. Hvis ekstremværet kommer hyppigere, vil vi ikke vite hvor neste tørke, frost eller flodbølge setter inn.” (leder)
- ”Skal vi produsere mat nok til verdens milliarder, og de nye milliardene som vil bli født de neste tiårene, må den få flyte fritt over landegrensene.” (leder)

