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# Realising a Just Transition in the Dutch Crop Farming Sector and the Role of Organic Agriculture within this Transition

Final Thesis



Author: Stan Rouhof (5972116)

Supervisor: Sanne Akerboom  
Second reader: Gert Jan Kramer

## **Abstract**

### **Introduction**

The Dutch crop farming sector and its widely utilised conventional agricultural practices contribute to global issues such as soil depletion, income inequality and poor working conditions, which clearly marks the need for a transition. Economic and environmental problems are frequently discussed but the notion of social justice within farming is often overlooked. Just Transition (JT) theory has extensively covered social justice topics within the energy sector but has not been applied to agriculture, a knowledge gap that this thesis addresses. (In)justices within the sector were identified and thereafter it was investigated how the injustices could potentially be overcome. Furthermore, organic agriculture (OA) is often praised for its performance on environmental and social indicators over conventional agriculture (CA). This thesis investigates what the role of organic agriculture is within the agricultural transition towards socially just practices.

### **Theory**

Elkington's (1997) Triple-Bottom Line was utilised to investigate the performance of OA compared to CA on environmental, economic, and social indicators. To identify (in)justices, the five most prevalent tenets of justice within JT theory, namely procedural, distributive, recognition, restorative, and cosmopolitanism justice, as well as eight justice principles created by Sovacool & Dworkin (2015) were utilised.

### **Methods**

A case study of the Dutch crop farming sector was utilised, whereby semi-structured interviews supported by additional desk research formed the data collection methods. Results were analysed using NVivo.

### **Results**

The numerous identified injustices ranged from unequal financial and procedural power distributions negatively directed to farmers, to recognition issues and worldwide out-competing of local producers. Furthermore, OA has undeniable social and environmental benefits such as biodiversity- and soil preservation and strengthening the financial positions of farmers, alongside social projects like care farms. It also has some downsides such as the fact it requires higher land use, which is detrimental in the Netherlands where land is scarce.

### **Discussion**

The so-called Just Farming principles were created that guide with achieving socially just farming in countries with similar agricultural systems to the Netherlands. Limitations are answer biases, novelty issues and divergence of research questions. Future research possibilities include the application of JT in different sectors and bridging agricultural financial gaps.

### **Conclusion**

Identified (in)justices were summed up in a table and recommendations on how to overcome the injustices were given. Furthermore, OA should be practised more in the Netherlands and contributes to social justice in agriculture, but broader action is needed to meaningfully improve social justice within the sector.

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# 1. Introduction

## 1.1. Problem statement and the need for a just agricultural transition

Conventional agricultural practices used today contribute to detrimental environmental, economic, and social problems. Environmental issues include massive deforestation, soil depletion, water scarcity, antimicrobial resistance of pests and diseases, biodiversity loss, and high levels of greenhouse gas emissions (Prastiyo & Hardyastuti, 2020; Pujitani et al., 2018; Dudley & Alexander, 2017; FAO, 2018). Economic problems are present as well, such as the fact that the EU is forced to spend over 40 billion euros per year solely on income support for farmers throughout its borders (Anania & d'Andrea, 2015). Some economic issues for individual farmers include high input costs and seasonal demand problems relating to food and labour (Jouzi et al., 2017; Górný & Kaczmarczyk, 2018). Social issues occur on numerous occasions in agriculture, but they are often forgotten in the discussion due to being overshadowed by the environmental and economic problems. Examples include unfair wages and poor working conditions that go as far as exploitation of workers, discrimination, family disruption, and income inequality, especially between large and small-scale farms (Rye & Andrzejewska, 2010; Patil & Katti, 2012; Guth et al., 2020).

Unfortunately, the agricultural system in the Netherlands is no exception when it comes to causing detrimental environmental, economic and social issues. The total farming sector accounts for 1.4% of the GDP of the country (Afrian et al., 2020), but is responsible for a significantly larger share of various forms of emissions (RIVM, 2021). Example problems that are generated by the sector include: increased levels of nitrogen in both the air and soil that put at risk both human health and biodiversity loss, increased phosphate levels, and an overall large and increasing share of GHG emissions (Afrian et al., 2020). In the case of nitrogen emissions, the agricultural sector accounts for more than 55% of all nitrogen emitted in the country (RIVM, 2021).

Dutch crop farming in particular contributes to environmental problems significantly. Around 20% of GHG emissions from Dutch agricultural practices stem from crop farming, including grasslands that are used for animal grazing (RVO, 2016; PBL, 2010). The production and application of artificial fertiliser used in Dutch crop farming specifically contributes heavily towards N<sub>2</sub>O emissions and the sector is also a large contributor towards eutrophication of Dutch waters (CBS, 2022; RIVM, 2020). Alongside environmental issues, problems relating to the notion of social justice are present in the sector as well. Examples include income inequalities, working conditions, and financial struggles of small-scale farmers (van Asseldonk et al., 2020; Struik et al., 1991). An example of this is the 'asparagus-slavery' case in 2009, where 36 migrant seasonal workers were 'locked up in a flammable building, underpaid and physically abused' while working in a processing facility in Noord-Brabant (van Baars, 2009). Such problems are serious and arguably similarly important as environmental issues, but little literature on social justice issues has been published compared to environmental problems within the Dutch crop farming sector.

The issues listed above show the conventional agricultural system that sees wide application in the Dutch crop farming sector is not capable of providing food without severely negatively impacting the planet and its people and therefore a transition towards more sustainable practices within the sector is needed. Transitions are long-term (at least fifty years) shifts from one socio-technical system to another (Grin et al., 2010). A transition in the agricultural sector encompasses a shift in which food is produced, processed, transported, and consumed, meaning a systemic change throughout the entire supply chain of food products (Kaljonen et al., 2021).



## **1.2. The importance of justice in transitions: The Just Transition**

Although a shift in the practice of agriculture is needed and organic farming could serve as a solution for problems discussed earlier, transitioning to a new agricultural system brings along difficulties and creates new problems that must be dealt with. A globally increasingly important aspect regarding transitions is the notion of justice as written about in Just Transition (JT) literature. JT literature dictates that a transition within a sector should respect and include justice-aspects and therefore not create new (in)justices and vulnerabilities for certain stakeholders along the way (Wang & Lo, 2021).

A transition is generally put in place mainly to solve environmental problems but could lead to newly created social or economic issues that typically revolve around the notion of justice (Heffron & McCauley, 2018). An example of this in the energy sector is the move away from fossil fuels to renewable energy sources. In this sector, labour class people that work in coal mines will run out of work because of the energy transition and their newly created problems need to be addressed (Jenkins et al., 2016). Such justice-related problems related to the energy transition have been discussed in academic literature in the context of Just Transition literature for several decades (Wang & Lo, 2021). Similar justice problems that are discussed in JT literature could arise in the agricultural transition away from current conventional farming systems. This case study tries to unveil what a just transition in agriculture could entail and what the role of organic agriculture is within this transition in the Dutch crop farming sector.

## **1.3. Enabling a just agricultural transition? Introducing Organic Agriculture (OA)**

### **1.3.1. Different solutions for replacing conventional agriculture**

The needed transition away from conventional agriculture and towards more sustainable farming practices goes via multiple ways, as there is not a single solution on how to achieve farming that is not only better for the planet and the economy, but also more socially just. Presently, numerous novel farming techniques exist alongside, and sometimes even out-compete, conventional farming practices. Example techniques include nature-inclusive agriculture, agroforestry, and permaculture. (Runhaar, 2017; Aznar-Sanchez et al., 2019; Bucci et al., 2018).

One often talked about substitute for conventional farming that has been applied on a global scale and could be utilised to accelerate this transition is organic agriculture (OA) (Seufert & Ramankutty, 2017). OA distinguishes itself from these earlier mentioned techniques as it equates to a completely different way of practising agriculture, since it phases out the use of artificial inputs altogether (Namboothiripad et al., 2021). Furthermore, techniques like agroforestry often incorporate OA into their core practices (Rosati et al., 2021). Thus, OA often acts as a base for sustainable farming and is therefore considered further, whereas the other techniques are not.

### **1.3.2. Organic agriculture and its (dis-)advantages**

There are many forms of OA, but the encompassing idea behind the concept is the absence of synthetic inputs, such as synthetic fertilisers, pesticides, veterinary drugs, genetically modified seeds and breeds, preservatives, additives and irradiation (Bhardwaj & Dhiman, 2019). The inputs are replaced by site-specific management practices that maintain and increase long-term soil fertility and prevent pests and diseases (Lotter, 2003). It also emphasises rotating crops, diversifying crops and improving the soil with compost additions and animal and green manure (Reganold & Wachter, 2016). OA has seen increased uptake in the Netherlands in recent years as data suggest that even though the total area of land used for agriculture decreased from 2015 to 2021, the share of land reserved for OA increased from 2.1% to 3.6% in this period (CBS, 2021).

Proponents of OA argue that it contributes towards a sustainable transition in farming because of notable benefits such as: improved soil quality, waste recycling, increased pollination, higher profitability, enhanced social capacity and employment opportunities (Sandhu et al., 2010; Náglová & Vlasticova, 2018; Jouzi et al., 2017). OA has undeniably acted as a solution to some issues within the Dutch crop farming sector such as biodiversity decline and economic competitiveness (Graaf, 2020; Koopmans et al., 2021). A vast number of academic sources can be found on the role of OA in contributing to solving environmental and economic problems, but articles on social justice-issues are nearly never written about with regards to organic agriculture and Dutch crop farming. Moreover, numerous critical sounds against OA have been voiced over the past few years and the question remains whether it is suitable to effectively replace conventional agriculture (CA), if this were to happen at all (Reganold & Wachter, 2016). I try to find out about the role of OA in the agricultural transition and if it is a suitable replacement for CA. The focus lies on social-justice aspects of OA and Dutch crop farming because of the importance of justice in transitions, about which essentially no literature has been written yet.

#### **1.4. Applying the Just Transition in sectors unrelated to energy; A literature gap**

The Just Transition concept has gained some traction over the years and the literature strands of Energy Justice, Environmental Justice, and Climate Justice, which are referred to as ‘CEE literature’ in this study, have been well laid-out in the current scientific discourse. However, a knowledge gap exists in the fact that only a few articles have been written on the implementation of JT in specific sub-sectors unrelated to energy, such as the agricultural sector. Effectively, identifying the potential problems related to a transition in a sector such as the agricultural one has not been done before (Kaljonen et al., 2021). However, information about this could have serious implications for policymakers, as well as it being able to ‘guide the search’ towards a transition that does not merely guarantee an environmental shift but also keeps in mind important social aspects related to farming.

This study is one of the first to attempt to apply JT literature in another sector than energy by trying to uncover (in)justices in the agricultural sector. To do this, a framework of relevant theory is constructed using justice concepts often discussed in JT literature. Five frequently used tenets of justice are included in combination with eight justice principles constructed by Energy justice scholars Sovacool & Dworkin (2015). Similar to Sovacool & Dworkin (2015), I attempt to add to the theory by re-theorising the existing justice principles for specifically the agricultural sector, thereby creating a newly derived framework that can be used to assess justness of food by introducing the so-called ‘Just Farming Principles’.

#### **1.5. Research Questions**

Just transitions are needed everywhere in various sectors stretching all over the world, the Dutch crop farming industry being no exception. A successful transition to less environmentally harmful practices is of great importance but needs to be paired with social justice and equitable outcomes for all stakeholders. JT literature has stressed the importance of such needed social issues and has been discussed extensively when applied to the energy sector but not to agriculture. This study tries to bridge this literature gap by trying to uncover the main justice-related issues paired with the transition that the agricultural sector is undergoing and seeks to find out what role OA plays within this transition towards more sustainable practices.

The first step of the research deals with the question of how OA contributes to a more sustainable Dutch crop farming sector. To do this, the advantages and disadvantages of OA are

considered relating to environmental, economic, and social sustainability. The second step zooms in on the social aspects, as it deals with identifying (in)justices within the Dutch crop farming sector. These (in)justices relate to justice topics that are often discussed in JT literature. The third and final step of the study then tries to investigate how identified injustices can be overcome and adds to existing literature by shaping the earlier mentioned 'Just Farming Principles'. Within the thesis, '(in)justices' are referred to as situations that can be either just or unjust, while 'injustices' are always unjust outcomes for certain actors within the agricultural system. Once relevant knowledge has been acquired and the principles have been constructed, the realisation of a just transition in the Dutch crop farming sector is hopefully a step closer than it was before. The research questions that facilitate the structure of the study are listed below.

The **main research question** is:

*What constitutes a just transition in Dutch crop farming and what is the contributing role of OA in achieving socially just agriculture?*

To answer the main research question, several sub-questions have been constructed. When these sub-questions are answered in chronological order, relevant findings should be generated that guide with answering the main research question. The sub-questions are:

*SQ1: How does OA contribute to a transition towards environmental, social, and economic sustainability in the Dutch crop farming sector?*

*SQ2: Which (in)justices are already present and could potentially come up related to the agricultural transition in the Dutch crop farming sector?*

*SQ3: How can the identified injustices potentially be overcome and in what way does OA contribute to this process?*

The study is structured as follows: First, the theoretical background is given that deals with the Triple Bottom Line, CEE justice, five important tenets of justice and eight justice principles. This section also presents the conceptual framework. Thereafter, the Case Study section discusses the origins, main practices, advantages and disadvantages, and implementation of OA in the Dutch crop farming sector. After this, the Methods section gives an overview of how relevant data was collected and analysed. The Results present the performance of OA over CA on economic, environmental, and social sustainability and lists (in)justices, both of which are summarised in tables. It also gives possible solutions for overcoming injustices that are listed per actor of the agricultural system. The Discussion presents the Just Farming Principles which are backed by pragmatic recommendations, after which limitations and possibilities for future research are discussed. Lastly, the conclusion provides answers to the research questions.

## **2. Theory**

The theoretical background relevant for this study mostly deals with justice concepts often referred to in JT literature. However, before diving into justice topics, a short explanation of the Triple Bottom Line as described by Elkington (1997) is given that helps to structure further parts of the research relating to the performance of OA over CA. After this, CEE literature and the merging of these three literature strands into the JT concept are discussed to give some theoretical background information on the notion of JT. Thereafter, the concept of justice and five of its most prominently present tenets

in CEE literature are mentioned which consist of distributive, recognition, procedural, restorative and cosmopolitanism justice. Finally, the eight justice principles as derived from Sovacool & Dworkin (2015) are touched upon and the conceptual framework of the thesis is presented.

## **2.1. The Triple Bottom Line**

Numerous attempts have been made to define ‘sustainability’, the most famous one being mentioned in the ‘Our Common Future’ report that states: ‘Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs’ (Brundtland, 1987). The concept has since become increasingly important in all kinds of literature and the notion was built upon further by Elkington (1997) in what he calls the Triple Bottom Line. He argues that sustainability consists of three pillars: (1) environmental, (2) economic and (3) social sustainability. All three pillars are of equal importance for sustainable outcomes (Henriques & Richardson, 2013). These three main pillars are now universally adopted in sustainability studies worldwide. To structure the results of the first research question, the Triple Bottom Line is used to group sustainability issues that revolve around organic agriculture and the Dutch crop farming sector.

## **2.2. CEE literature and Just Transition**

### **2.2.1. CEE literature**

#### *2.2.1.1. Environmental justice*

Environmental justice sees its scientific origins as early as the 1980s. It began as a social movement that was created to address the unfair distribution of benefits and burdens of environmental policies for African-American people in the United States, which at the time was known as ‘Environmental Racism’ (Pulido, 1996). As the years progressed various other ethnic minority groups and gender issues were included over an increasingly global scope and the term ‘Environmental Inequality’ entered the discourse (Brulle & Pellow, 2006).

The ‘Environmental Justice’ movement was the response to both Environmental Racism and Inequality, and it is still relevant today. Five important topics that Environmental Justice scholars occupy themselves with are: Toxic / chemical pollution (such as oil refineries in Deep South), military pollution and toxic dumping on native lands, environmental health among farm workers, health effects of poor housing (such as lead poisoning), and lastly consumption of fish by poor and immigrant communities (Sze & London, 2008). As the movement became increasingly globalised over time, implications of climate change policies and their distributive justice implications started to be included as well (Sze & London, 2008).

#### *2.2.1.2. Climate justice*

Climate justice came up a bit later than environmental justice around the early 2000s, the first notable event being the ‘Climate Justice Summit’ at COP6 in the Hague (Schlosberg & Collins, 2014). Climate justice is in a way a continuation of Environmental Justice, while mainly being concerned with the distributional justice problems that stem from the consequences of global climate change. That is why Schlosberg & Collins (2014) argued that Environmental Justice should be changed into Climate Justice in the scientific discourse.

Climate justice argues for the need to develop studies, policies, and interventions that address the ethical and human rights dimensions of global warming, the disproportionate burden of legacy pollution, the unsustainable rise in energy costs for low income families, and the impacts of energy

extraction, refining, and manufacturing on vulnerable communities (Shepard & Corbin-Mark, 2009). Next to this, climate justice states that vulnerable, lower-income communities will inherently be hit disproportionately hard compared to persons that enjoy higher incomes, even in wealthier countries like the United States (Shepard & Corbin-Mark, 2009).

### *2.2.1.3. Energy Justice*

Energy Justice is the most recent of the three CEE literature strands. Energy justice is concerned with the distributional, procedural and recognition justice issues relating to the entire energy system, so across the entire supply chain of energy. It tries to apply justice principles to energy policy, energy production and systems, energy consumption, energy activism, energy security, the energy trilemma, political economy of energy and climate change (Jenkins et al., 2016).

Energy justice tries to evaluate where injustices emerge, which affected sections of society are ignored, and which processes exist for their remediation to reveal and reduce such injustices (Jenkins, 2016). Example questions that are on the mind of energy justice scholars are how costs and benefits of energy production and consumption should be distributed, and about whether we are being fair to future generations in leaving a legacy of nuclear waste. Other relevant topics include the depletion of fossil fuels and its pollution of the atmosphere and climate (Jenkins et al., 2016).

### **2.2.2. Just Transition: an overarching framework**

The descriptions of the CEE literature strands showcase an overlap in concepts and research areas between all of them. The main notion of all three is obviously justice, but individual concepts that were originally attributed to one strand have crept up in all of them. A perfect example is climate change as its consequences have been studied in all three literature strands. Therefore, scholars found that there was a need to combine them into one framework, and hence the JT was created (Heffron & McCauley, 2018; McCauley & Heffron, 2018). Heffron & McCauley seem to be the two most prominent authors within the field of JT literature to this day.

Today's articles about JT are focused mostly on the energy sector. The agricultural transition must be regarded as a complex, multi-sector project, operating at multiple temporal and spatial scales and involving diverse constituencies (Ferguson & Lovell, 2014), and is therefore more than a mere shift away from polluting energy sources. Because of this, uncertainty exists about whether applying the JT concept in the agricultural sector, the literature gap of this study, can be done in a manner that is similarly adequate compared to existing studies on energy.

### **2.3. 'Just Transition' in different contexts and other literature on transitions**

The JT concept has been increasingly adopted across the globe by policy makers in recent years. JT in these contexts does not refer to the literature strand that was explained earlier. To illustrate the newfound popularity that could lead to future ambiguity or even mis-use of the concept, some noteworthy inclusion of 'Just Transition' concepts into policies are given here. They are not discussed further in the report. Furthermore, other literature strands on transitions are also mentioned, that are also excluded thereafter.

An early inclusion of the concept was at COP24 in Katowice, where 56 governments signed the 'Solidarity and JT Silesia Declaration' that ensures climate mitigation actions do not disproportionately affect poor and vulnerable communities and countries (Schröder, 2020). At the most recent COP26 in Glasgow, just transitions were mentioned again, this time in a similar context of dedicating support towards workers that currently operate in fossil-fuel sectors and will lose their livelihoods, as well as some notes about transforming the shipping sector (Makower, 2021). Makower

(2021) has suggested that the JT concept is the ‘new net zero’, meaning that the term is likely to gain popularity in the next few years and will be applied to a broad range of concepts. Consequently, in the future it might be abused for greenwashing purposes like the term ‘net zero’ in recent years (Makower, 2021).

A plethora of other literature on transitions already exists and many of these articles also address the agricultural sector. Examples of such transition theories can be found in the multi-level perspective, strategic niche management and social practice approach (El Bilali, 2020). Theories like the multi-level perspective generally describe adequately how transitions come about but are often criticised for the lack of detail when it comes to social implications of transitions (Sovacool, 2021), which is exactly what is sought after in this study. As transitions are desperately needed in many sectors in all parts of the world, JT literature can be of significant value by denoting how transitions can act as modern solutions to social, economic, and environmental problems, instead of solving only the latter of the three.

## **2.4. The five tenets of justice**

It is first important to delineate the concept of justice before diving into discussions of what is (un-)just (Lucas, 1972). Raphael (2001, p.5) describes the idea of justice as ‘a way to match merit, as it claims that people should be given what they deserve’. This general description is too broad to apply to everything that is (un-)just, which is why multiple tenets of justice have emerged over the years that are now widely recognised in academic literature.

Firstly, five important tenets of justice in CEE literature - distributive, recognition, procedural, restorative, and cosmopolitanism justice - are discussed (McCauley et al., 2019; McCauley et al., 2013). The word ‘tenet’ refers to a pillar or form of justice that is abundantly present within CEE and JT studies (McCauley et al., 2013). After discussing the five tenets, some other forms of justice that are not included further are briefly mentioned.

### **2.4.1. Distributive justice**

Distributive justice is described by Cohen (1987) as ‘the notion of comparative allotment of something to persons - duties, goods, opportunities and so on’ (p.20). This notion has evolved to a point where in many recent studies, distributive justice often refers to the distribution of benefits and burdens (Hsu et al., 2008; Heffron & McCauley, 2014). Environmental policies often give rise to distributive justice problems which lead to discussions, an example being the question of access and rights to resources for different stakeholders (Schröder, 2020). In the specific context of food and agriculture, distributive justice often relates to who benefits and who suffers from a transition and in what ways, as well as the need for clarifying which disparities matter for justice (Newell & Mulvaney, 2013).

### **2.4.2. Recognition justice**

Recognition justice dictates that individuals must be fully free of physical threats, offered complete and equal political rights, and have their distinguishing cultural traditions free from various forms of disparagement (Schlosberg, 2003). It is therefore much broader than a simple tolerance, as groups or persons need to be recognised in full and have their rights respected at all times (Schlosberg, 2003). A lack of recognition can manifest itself as various forms of political and cultural domination, degradation, insults, and devaluation (Heffron & McCauley, 2014). Recognition justice also dictates that historical injustices have an influence on the situation regarding vulnerable groups and minorities,

which signifies that different actors have different starting positions when adapting to newly implemented transitions (Kaljonen et al., 2021).

### **2.4.3. Procedural justice**

Procedural justice is concerned with the adjudicative methods by which social benefits and burdens are divided (Solum, 2004). Therefore, it concerns decision-making processes that govern the distributions outlined in distributional justice (Jenkins et al., 2016). Procedural justice practically entails who is at the decision-making table, and once at the table, whether everyone's voice is heard (Baker et al., 2019). Recognition and procedural justice are quite similar. The main difference lies in the fact that recognition justice ensures that the views of certain stakeholders are seriously being considered, while procedural justice dictates that these same actors should have a say in decision-making processes (Schlosberg, 2007). In that sense, procedural justice combines the notion of recognition justice and distributive justice through a combined demand for both formal and informal involvement in decision-making (McCauley et al., 2019).

### **2.4.4. Restorative justice**

Restorative justice can be described as 'a process whereby parties with a stake in a specific offence collectively resolve how to deal with the aftermath of the offence and its implications for the future' (Marshall, 1999, p.5). The origins of restorative justice can be found in criminal justice systems, where it is used to achieve a situation that is just for both the offender and victim of a certain crime (Marshall, 1999). Restorative justice has become an important component in CEE literature, an example situation that is often sketched being disproportionately affected communities that need to be compensated for the consequences of climate change (McCauley & Heffron, 2018; Robinson & Carlson, 2021).

### **2.4.5. Cosmopolitanism justice**

Cosmopolitanism justice originates from a view that every person is a citizen living on the same earth and therefore the cross-border effects from activities need to be considered (Heffron, 2022). This tenet of justice is often cited in Energy Justice literature because cross-border effects from energy activities, like the consequences of climate change, are important there. Slocum et al. (2016) mention some food-related examples of this by stating that 'current food system functions through social hierarchies are built on racial dispossession, the feminisation of poverty and class poverty (p.3)'. Such examples undoubtedly apply to the agricultural step of food systems, and it will be seen in this thesis to what extent such example accusations apply to the Dutch crop farming sector.

### **2.4.6. Other forms of justice**

Although there are many other forms of justice, such as interactional justice (Slepchuk et al., 2021), interpersonal justice (Holtz & Harold, 2013) and informational justice (Mathiesen, 2015), it was decided that these kinds of justice will not be further discussed. This is because of their absence in CEE and JT studies, the main foci of justice literature that support this thesis. Therefore, only the five tenets of justice that were discussed earlier are included, consisting of: (1) distributive justice, (2) procedural justice, (3) recognition justice, (4) restorative justice, and (5) cosmopolitanism justice.

## 2.5. The eight principles of energy justice

### 2.5.1. Origins of the eight principles of energy justice

The five tenets of justice form a knowledge base that broadly cover practically all justice related issues. However, finding out about more specific justice-issues is interesting as well. Sovacool & Dworkin (2015), two Energy Justice scholars, have produced an article that includes findings covering a broader range of justice topics. They constructed eight justice principles for energy justice with the aim of providing a decision making tool for policy makers. At the same time, this tool is the closest attempt at an operationalizable framework within all of CEE literature (Sovacool & Dworkin, 2015). The eight principles cover the entire supply-chain of energy production and consumption (Sovacool & Dworkin, 2015). They consist of: (1) availability, (2) affordability, (3) due process, (4) good governance, (5) sustainability, (6) intragenerational equity, (7) intergenerational equity, (8) responsibility. Table 1 gives a one-sentence explanation of the principles.

**Table 1.** *One-sentence explanations of eight principles of Energy justice. Derived from Sovacool & Dworkin (2015).*

Energy justice decision-making tool.

Principle	Explanation
Availability	People deserve sufficient energy resources of high quality
Affordability	All people, including the poor, should pay no more than 10 percent of their income for energy services
Due process	Countries should respect due process and human rights in their production and use of energy
Good governance	All people should have access to high quality information about energy and the environment and fair, transparent, and accountable forms of energy decision-making
Sustainability	Energy resources should not be depleted too quickly
Intragenerational equity	All people have a right to fairly access energy services
Intergenerational equity	Future generations have a right to enjoy a good life undisturbed by the damage our energy systems inflict on the world today
Responsibility	All nations have a responsibility to protect the natural environment and minimize energy-related environmental threats

### 2.5.2. Linking the eight principles to the five tenets of justice

This study attempts to contribute to existing literature by formulating similar principles for the transition of food systems, called the ‘Just Farming Principles’. Within this process, the five tenets of justice act as a general base for any justice issue that is uncovered during the research, while the eight principles by Sovacool & Dworkin (2015) operate as more specific justice principles that open up a broader selection of justice topics. The five tenets of justice and the eight justice principles were linked together with the aim of providing more directionality for interview questions later in the study, which was done by assessing the extent of their resemblance with each other. The linking of the tenets of justice and the justice principles can be observed in Appendix 1.

### 2.5.3. The limited applicability of the eight energy justice principles in agriculture

The eight principles of energy justice are geared heavily towards policy makers within the energy sector. It covers topics often mentioned within the energy debate such as depletion of energy resources, energy pricing, and energy related threats. Therefore, the question remains whether these eight principles are adequately applicable to transitions in other sectors such as agriculture. The agricultural debate is partly characterised by discussions about similar topics such as pricing and environmental threats (Meenar & Hoover, 2012; Kang & Banga, 2013).

Nevertheless, some of the eight principles of energy justice are not ‘one-on-one’ applicable to agriculture and are therefore excluded while creating the Just Farming Principles later in the study. These principles consist of ‘Due Process’, ‘Responsibility’ and ‘Sustainability’. In short, these three



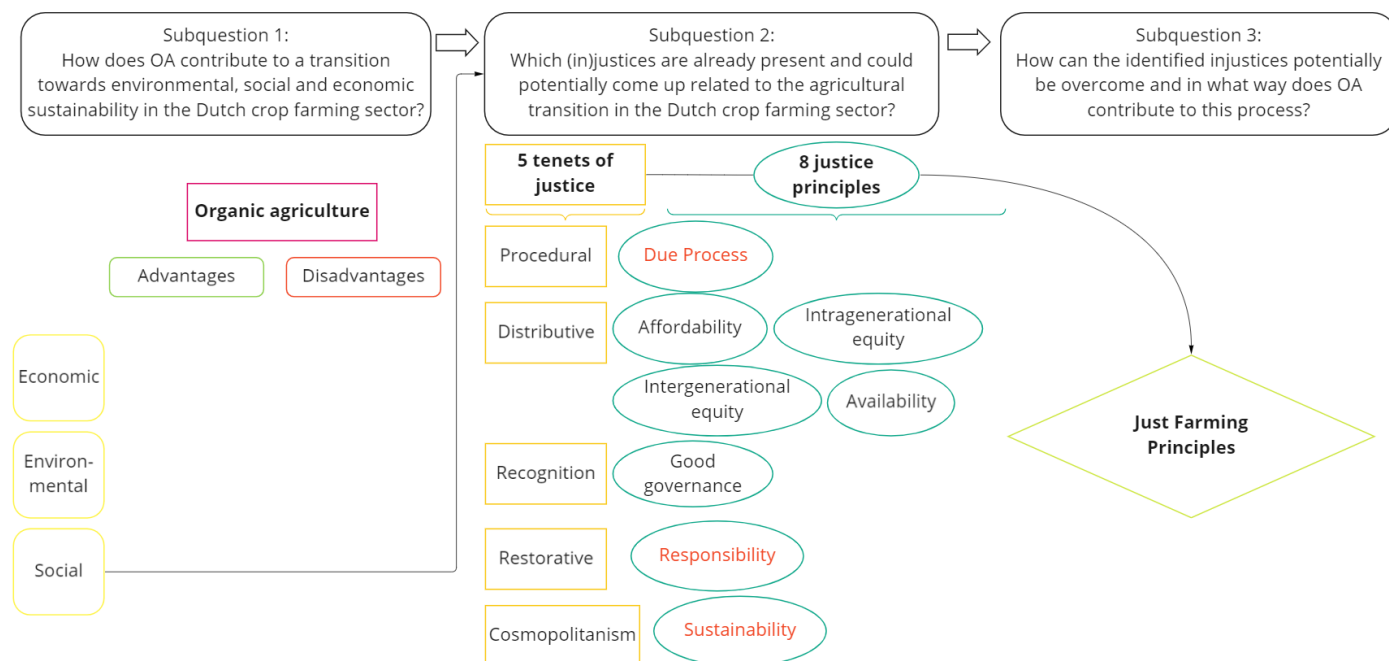
principles were excluded because they were estimated to yield insufficiently significant interview results that would not contribute to existing literature in a meaningful manner. The Methods section explains in more detail why they were excluded, as this is because of a combination of theoretical and methodological reasons. It must however be repeated that the main point of including the eight principles is not to test their applicability to the agricultural transition, but to ensure the inclusion of a wider range of justice topics relevant in JT literature that enables a broader view on identifying (in)justices within the Dutch crop farming sector.

## 2.6. Conceptual framework

The first sub-question of this study tries to answer how organic agriculture contributes to all three pillars of sustainability as described in the Triple Bottom Line (Elkington, 1997). It is therefore needed to assess in which areas relating to environmental, economic, and social sustainability OA contributes positively towards a transition towards sustainability, and where it contributes negatively. This process is illustrated on the left side of Figure 1.

The importance of justice issues as discussed in JT literature relate specifically to social sustainability, mainly through the notion of justice. That is why in this study, findings that relate to these issues are of highest significance. Because of this, the first research question of this study deals with all three pillars of sustainability but the second and third research question zoom in specifically on the social sustainability aspects that relate to justice, as the arrow on the left of Figure 1 indicates.

The middle of Figure 1 gives a visual illustration of the linking of the five tenets of justice and the eight justice principles that can be observed in Appendix 1. The three principles of ‘Due Process’, ‘Responsibility’ and ‘Sustainability’ are illustrated using red text to showcase that they are excluded further. Lastly, the right side of Figure 1 shows how the linked tenets of justice with justice principles eventually act as a knowledge base to construct the ‘Just Farming Principles’. Since Figure 1 shows the necessary theoretical concepts related to this study, it acts as its conceptual framework.



**Figure 1.** Conceptual Framework.

### **3. Case Study: Organic agriculture and Dutch crop farming**

This thesis makes use of a case study of the Dutch crop farming sector to find out about identifying and overcoming (in)justices and the role of OA within this process. This section outlines the case study by explaining into more detail what OA constitutes and how it is used today. The structure is as follows: Firstly, the origins and most important practices related to OA as they are known worldwide are introduced. After this, the main advantages and disadvantages of OA on a global scale are discussed. Lastly, some statistics on OA in the Dutch crop farming sector are given and both the advantages and disadvantages of OA in Dutch crop farming are discussed.

#### **3.1. Origins of organic agriculture**

Technically, OA has been practised for thousands of years, as ancient societies used farming methods that are in technical conformity with modern OA principles (McConnell et al., 2017). In more recent history, ideas about implementing OA started around the 1920s, but the first serious steps towards its implementation came about together with environmental movements around the 60s and 70s (Barton, 2018). Since then, the idea has globally gained significant traction, but data suggests that to this day OA only accounts for 3.6% of total Dutch utilised agricultural area (CBS, 2021).

#### **3.2. Main practices of organic agriculture**

##### **3.2.1. Rotating crops**

Crop rotation simply means that different types of crops are grown on particular pieces of land from one year to another (Bolluyt et al., 2011). It incorporates the rotational planting of ‘cash crops’ and ‘cover crops’, the former meaning highly profitable crop types that the farmer uses for income and the latter standing for crops that improve soil-quality (Bolluyt et al., 2011). A cyclical rotation plan is made, in which specific crops are planned to be planted next to each other (Wijnands, 1999). Bolluyt et al. (2011) state that in practice this is often decided on a ‘trial-by-error’ basis, meaning that several crops are planted and the most successful ones are adopted in the eventual rotation plan.

##### **3.2.2. Crop diversification / polycultures**

According to Liebman (2018, p.205), ‘polycultures may involve mixtures of annual crops with other annuals, annuals with perennials, or perennials with perennials. Cereals may be grown in association with legumes, or root crops may be grown in association with fruit trees’. They can be planted in spatial patterns that range from simple mixtures of only two different crops in alternate rows to more complex assemblies of more than ten intermingled species (Liebman, 2018). Polycultures always ensure a mixture of at least two different species on the field and therefore increase crop diversification.

##### **3.2.3. Natural pesticides**

The usage of natural pesticides (or biopesticides) refers to agricultural systems where no, or as little as possible, artificial fertilisers are used on the land. Biopesticides include many aspects of pest control like microbial organisms, secondary metabolites from microorganisms, insects, plant-derived

pesticides, and even genetic modification of crops (Cavoski et al., 2011). Common active components in natural pesticides are neem oil, cottonseed oil, lemon, and tomato leaves (Mfarrej & Rara, 2019).

#### **3.2.4. Weed management**

In organic farming, chemical weed management is replaced by other methods that include both mechanical and thermal weeding practices, as well as the introduction of mulches (Bond & Grundy, 2001). Mechanical weeding is most effective when weeds are either buried or cut at the soil surface, which is often done with traditional cultivation tools such as hoes, harrows, and brush weeders (Jones et al., 1996). Thermal weeding, which was implemented in the Netherlands at some point, sees farmers burning off weeds with flaming equipment (Netland et al., 1993). Next to cutting or burning, mulching can be an effective measure against upcoming weeds. Mulches are covers on the soil surface that inhibit weed growth and can take many forms ranging from living plants to loose particles of either organic or inorganic matter such as plastics (Bond & Grundy, 2001).

### **3.3. Advantages and disadvantages of organic agriculture related to the Triple-Bottom Line**

OA is often argued to be ‘more sustainable’ than conventional forms of agriculture (Kilcher, 2007; Aher et al., 2012; Sanders, 2006). When assessing sustainability, one needs to keep in mind all three of its pillars as described by Elkington (1997) as the ‘Triple bottom line’. This is important as sustainability on all three levels is needed to achieve a ‘just transition’ within a sector (Heffron & McCauley, 2018). Previous research has focused quite extensively on the benefits of OA over CA relative to the three pillars of sustainability, but numerous studies have also argued the opposite in some instances. The following paragraphs give some insights on both the advantages and disadvantages of OA compared to CA on environmental, social, and economic sustainability.

#### **3.3.1. Environmental sustainability**

OA is often praised when it comes to environmental sustainability (Lynch, 2009; Meng et al., 2017; Gomiero et al., 2011). For example, Sandhu et al. (2010) argue that OA both utilises and maintains key ecosystem services, while CA only uses them. On top of this, Eyhorn et al. (2019) state that the implementation of OA has proven environmental benefits such as improved soil quality, enhanced biodiversity, and reduced pollution, which is extended upon by Ramesh et al. (2005) with soil forming and conditioning, soil stabilisation, waste recycling, nutrient recycling, predation, pollination and natural habitats. Moreover, Graaf (2020) found that OA practices positively influence the insect position within the Dutch crop farming sector, which means that the number of species and animals per species benefit from OA. Contrastingly, some negative sides to OA exist. Conacher & Conacher (1998) claim that some of the detrimental effects related to OA include soil fertility, increased soil acidity, and contamination due to soil amendments. Next to this, Muller et al. (2017) state that OA requires higher land use than CA, although it reduces nitrogen and pesticide use.

#### **3.3.2. Economic sustainability**

Economic benefits of OA are discussed next. Crowder and Reganold (2015) state that OA is competitively viable due to its high profit margins compared to CA, which is supported by findings by Sarker and Itohara (2008) who looked at poverty eradication by introducing OA in Bangladesh. Next to this, Green and Maynard (2006) found that OA provides 32% more jobs per individual farm and

thereby could amount to 93000 additional on-farm jobs in the UK. Next to this, a regression model by Náglová and Vlasticova (2018) found that organic farms are generally more profitable than conventional ones due to low investment costs that relate to the absence of artificial inputs. Disadvantages are also present, such as varying annual crop yields that weaken economic security for farmers (Smith et al., 2019; Eyhorn et al., 2019). Next to this, Cacek and Langner (1986) found that organic farmers traditionally had more difficulty in taking advantage of tax reductions.

### **3.3.3. Social sustainability**

Lastly, social aspects regarding OA are looked at. Jouzi et al. (2017) state that OA's main social advantages are enhancing social capacity and increasing employment opportunities. Seufert (2012) brings up the interesting fact that OA benefits the position of farmers by guaranteeing price premiums for organic products. The price guarantee acts as a 'buffer against low prices and price volatility of conventional markets' (Seufert, 2012, p. 1). Criticism towards OA when it comes to social sustainability is voiced by Shreck et al. (2006), who question that OA necessarily fosters social or even economic sustainability for the farmers and farm workers involved. Although, the authors interviewed farmers and some of these individuals believed and simultaneously demonstrated that OA sometimes does contribute to social, economic, and environmental sustainability (Shreck et al., 2006)

## **3.4. Organic agriculture in Dutch crop farming**

### **3.4.1. Total share of land used for organic agriculture within the Netherlands**

As stated before, 3.6% of total agricultural area is reserved for OA in the Netherlands, which is significantly below the average within EU countries of 7% in 2017 (van den Bergh, 2019). Dutch organic production of vegetables and potatoes (13% and 2.9% of total organic crop production, respectively) is significantly above the EU average, while wheat and permanent cultivation (6.1% and 1.1%) is below (van den Bergh, 2019). Permanent grassland sees the largest share of organic production in both the Netherlands and the EU with respective percentages of 56% and 45% (van den Bergh, 2019).

### **3.4.2. Advantages**

Similar to the rest of the world, there are both people in favour and against OA in the Dutch farming sector. Proponents generally come forth with earlier mentioned environmental benefits such as biodiversity preservation, lower GHG emissions and soil preservation (Graaf, 2020; Bos et al. 2007). Next to this, Noorduyn (2005) states the health benefit of the fact that organically produced products have higher levels of vitamins if they are produced in the right way. Hassink (2002) points out that OA in the Netherlands contributes to social sustainability as two thirds of 'care farms' in the Netherlands are organic, although it is not OA itself that facilitates this but the farmers that practise it. Care farms are farms that combine crop production with social caretaking and housing of several target groups of people in need of help (Hassink, 2002). Next to this, organic farms in the Netherlands are more likely to have a successor if the head-farmer is 51 years or older (van der Meulen, 2022).

### **3.4.3. Disadvantages**

Arguments against OA have also come up. Doorn (2019) has stated that products of around 200 farmers that have been sold while labelled as organic in supermarkets did technically not perform

sufficiently in terms of animal health, medicine usage and environmental standards, thus ensuring organic products is difficult to realise. Vrolijk (2013) follows up on Muller et al. (2017) by pointing out that a significant weakness of OA in the Netherlands is the fact that it takes up more space than CA, which is difficult in a country with little space to spare. Dutch academic sources have not written about the social justice implications of OA in the Dutch crop farming sector.

#### **3.4.4. Uncertainty regarding a contribution to socially just agriculture**

Arguments both in favour and against OA are valid and often made in Dutch literature, but how OA contributes to a just transition remains unclear. Prové and Crivits (2019, p. 290) state that when it comes to agriculture, ‘social justice in the current status quo is often an abstract given instead of a concrete objective’. Reganold and Wachter (2016, p. 4) state that it is ‘hard to measure how well organic, conventional and other farming systems are performing in areas such as social equity, and quality of life for farm families and communities remains unclear due to limited research’. This complexity dictates that to gain an insight of the importance of social sustainability and justice in the Dutch crop farming sector, interviews need to be carried out to find out more specific knowledge about the sector.

## **4. Methods**

The section starts off by providing the data collection methods that consists of both interviews and desk research. It elaborates on the interviewees, consisting of both experts and farmers, and gives some additional information on the structure of the interviews and later added questions, as well as the desk research. Thereafter, data analysis methods are discussed.

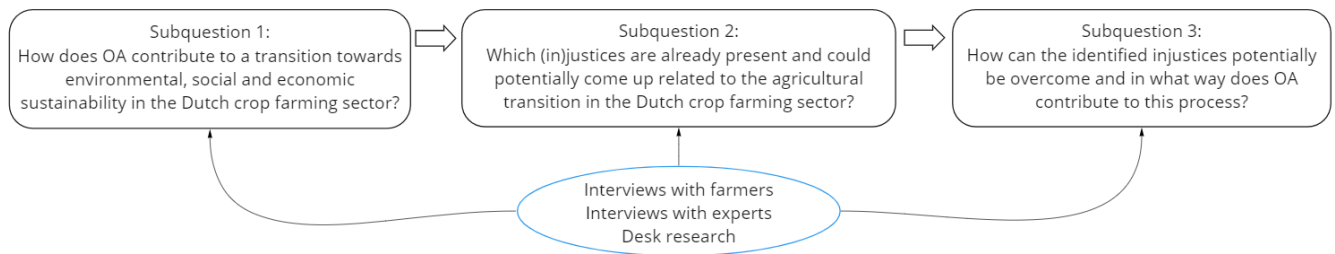
### **4.1. Data collection**

#### **4.1.1. Used forms of data collection and why they are utilised**

Figure 2 gives an overview of the utilised forms of data collection corresponding to the research questions of the study. Interviews are the main form of data collection for this thesis, whereby desk research fulfils a supportive function. Data relating to social justice within the Dutch crop farming sector is scarce to non-existent on the internet. Therefore, desk research alone would grant too little data that is of high enough quality.

Moreover, interviews with both experts and farmers grant better insight into social (in)justice within the Dutch crop farming sector, as experts are knowledgeable about the dynamics between different stakeholders within the agricultural system, and farmers are in the middle of it themselves. In total, six experts and eleven farmers were interviewed for a total of seventeen interviewees. More on the reasoning behind why experts and farmers were chosen as interviewees can be read later.

The additional desk research serves two main purposes. Firstly, data acquired through interviews is verified online if there is doubt whether interesting statements by interviewees are factually correct. Secondly, desk research is used to try to expand on interview data by looking up whether topics discussed with interviewees are worked out in more detail online.



**Figure 2.** Data collection methods linked to steps of the research.

#### 4.1.2. Typical case study

A typical case study is carried out on the Dutch crop farming sector. Bryman (2016, p.70) states that a typical case study is ‘often chosen not because they are extreme or unusual in some way but because either they epitomise a broader category of cases or they will provide a suitable context for certain research questions to be answered’, which fits well with the objective of mapping out (in)justices within the agricultural transition. The content and boundaries of the case study were delineated in the previous section.

##### 4.1.2.1. Semi-structured interviews

Semi-structured interview guides were constructed to ensure reliability and replicability of the data gathering process (Bryman, 2016). Semi-structured interviews were chosen over other forms of interviewing, such as structured interviews or surveys, as ‘the flexibility of semi-structured interviews is great for finding out the ‘why’ of a question’ (Fylan, 2005, p. 66). Moreover, semi-structured interviews provide the ability to prompt and probe when interviewees have difficulty answering questions and allow the researcher to jump from one question to the next without being mandated to follow a strict order, which is not possible in surveys or structured interviews (Bryman, 2016, p.234).

#### 4.1.3. Interviews

##### 4.1.3.1. Selected interviewees

###### 4.1.3.1.1. Interviewed experts

Experts were asked for an interview as they foster relevant knowledge about the Dutch crop farming sector and their expertise leads to relevant findings for answering the research questions. Experts hold knowledge about environmental, social, and economic aspects of farming and their experience with stakeholders in the sector which means that they can observe justice-related issues within the sector with a sharp eye. The experts were contacted through several institutions that were identified through both online searching and via the help of some researchers within Utrecht University. The complete list of interviewees is shown in Table 2. The list shows the names, organisations, places of the organisations, and date of the interview.

Experts that were interviewed have a range of different backgrounds which include: soil-experts, people working for unions, university researchers and advisors. In the end, six interviews with experts were carried out. The institutes that delivered a spokesperson were the NFO (Nederlandse Fruitteelt Organisatie) and Countus, an accounting organisation specifically tailored towards farmers. Next to this, organisations with specific knowledge on OA were reached out to. The ‘Louis Bolk Instituut’ delivered an interviewee. Additionally, two researchers from Wageningen University of Research, a crop farming expert and food governance specialist, and an expert on social justice and agriculture from Ghent University were interviewed.

**Table 2.** *Interviewed experts.*

Name	Organisation	Location Organisation	Date interview	Code
Bert Smit	Wageningen University & Research	Wageningen, Gelderland	25/03	I1
Jeroen Candel	Wageningen University & Research	Wageningen, Gelderland	06/04	I2
Jaco van Buchem	Nederlandse Fruittelers Organisatie	Zoetermeer, Zuid-Holland	07/04	I3
Dennis Heupink	Louis Bolk Instituut	Bunnik, Utrecht	06/04	I4
Maarten Crivits	Universiteit Gent	Ghent, Belgium	22/04	I5
Rutgher Steenbeek	Countus	Biddinghuizen, Flevoland	07/04	I6

#### 4.1.3.1.2. Interviewed farmers

The main goal of interviewing farmers was to find out their stance towards OA and why they have chosen (not) to adopt it, as well as finding out how they perceive (in)justices. They are the main actors in the agricultural system since they are the ones that actually practise agriculture, which is why it is important to observe how they perceive justice-related topics regarding a just agricultural transition. In total, 11 farmers were interviewed. Purposive sampling was utilised to ensure the right group of respondents as the main goal of this sampling strategy is to ‘sample cases/participants in a strategic way, so that those sampled are relevant to the research questions that are being posed’ (Bryman, 2016, p.418). Farmers were contacted via email. Google was used to look up the personal contacts of the farmers, usually acquired via their own websites. Six farmers that were interviewed have been found using this method. Some farmers were contacted using a snowball technique, meaning that earlier interviewees were asked if they knew relevant contacts that could be interviewed as well. Lastly, two farmers were contacted through personal phone calls, as these people were already acquainted with the writer of the thesis. Table 3 showcases relevant information about the farmers. All information that was given for experts is present for the farmers as well. Additionally, the list for farmers shows whether the interviewees make use of OA on their farm.

**Table 3.** *Interviewed farmers.*

Name	Organisation	Location Organisation	Date interview	OA?	Code
Leendert Jan Onnes	Own farm & NAJK	Finsterwolde, Groningen	12/04	N	I7
Rik Binnendijk	de Tuinders	Utrecht, Utrecht	04/05	Y	I8
Rick van Rijn	Geertje's Hoeve	Haarzuilens, Utrecht	08/04	Y	I9
Ina van der Meulen	FoodForGood	Utrecht, Utrecht	20/04	Y	I10
Huub van der Maat	Nieuw Slagmaat	Bunnik, Utrecht	12/04	N	I11
Michel Smits	Amelishof	Utrecht, Utrecht	14/04	Y	I12

Vincent Oberdorf	Kansrijk	Utrecht, Utrecht	20/04	Y	I13
Henk Smith	Own farm	Beerta, Groningen	15/04	Y	I14
Arjan Stokkers	T Pompoenhöfke & De Twentse Zoete Aardappel	Enschede, Overijssel	23/04	N	I15
Roy Michielsen	ERF BV	Lelystad, Flevoland	13/05	Y	I16
Anonymous Farmer	Own farm	Enschede, Overijssel	-	N	I17

#### 4.1.3.1.3. Exclusion of other stakeholders

Actors within the agricultural system other than experts or farmers could have been included in the interviews as well, but it was decided not to do so. This was mainly done because the scope of the study is ‘Dutch crop farming’. Agriculture is the first practice required in the value chain of food, and supermarkets and consumers come into the equation later in this chain. Therefore, including these stakeholders seems to be of lesser relevance. On top of this, the study deals with topics that require relevant background knowledge such as OA. Many consumers do not know what OA actually constitutes and see it in an overly positive daylight without being aware of its downsides. as Crandall et al. (2009) illustrate in their research on consumer perception of organic poultry. Because of this knowledge gap, it was decided that consumers are not included in the interviews.

#### *4.1.3.2. Structure of the interview questions*

All interviewed experts and farmers were presented the same interview guide that can be observed in Appendix 2. The interview questions are structured according to the conceptual framework with the aim of leading to results that answer the research questions with most directionality. Therefore, the interview guide starts with questions about OA, after which it deals with questions relating to identifying and overcoming (in)justices. The main interview question relating to OA and the Triple-Bottom Line framework asked to interviewees is about the performance of OA over CA on the three pillars of sustainability. The interview questions relating to identifying and overcoming (in)justices are structured using the five tenets of justice and the linked eight justice principles.

To ensure that the interviews have a natural flow, several questions that relate to overcoming injustices are asked right after the question on the identification of the injustice. This means that interview questions relating to identifying and overcoming (in)justices are asked interchangeably. To maintain a clear structure, questions written in an orange font relate to identifying (in)justices whereas green text refers to overcoming them, as can be seen in Appendix 2. The final part of the interview contains some concluding questions that relate solely to overcoming injustices.

#### 4.1.3.2.1. The interview questions and the exclusion of ‘Due Process’, ‘Responsibility’ and ‘Sustainability’

The Theory section briefly mentioned that some of the eight justice principles are not fully applicable to the agricultural transition. This, in combination with the limited length of the interviews, has resulted in the exclusion of ‘Due Process’, ‘Responsibility’ and ‘Sustainability’ within the interview guides. As they are not included in the interview questions, they therefore do not contribute to creating the Just Farming Principles. The reasoning behind the exclusion of the three principles is given below.



Sovacool & Dworkin (2015) refer to the importance of ‘Due Process’ in the energy production. Although this is similarly important for agriculture, I argue that the combination of procedural and distributive justice topics already should include due process and human rights issues sufficiently. ‘Responsibility’ refers to the responsibility of nations to minimise environmental threats. This is also important in agriculture, but the responsibility of ensuring this lies with governments that make policies for other agricultural actors such as farmers. This makes the principle mundane and difficult to ask an interesting interview question about when directed to farmers or experts that are not part of the government. Lastly, ‘Sustainability’ dictates that energy resources should not be depleted too quickly. Even though food security problems might touch on this topic, food resources essentially cannot be depleted as crops can be regrown, so it is not one-on-one applicable. On top of this, asking an interview question about ‘food depletion’ is confusing and does not yield interesting results for identifying (in)justices.

#### *4.1.3.3. Later added questions, interview transcriptions and approval forms*

Throughout the data collection phase some questions were introduced over time, which happened twice. These slight alterations to the interview guides can be observed in the interview guide in Appendix 2. Some questions have either one asterisk (\*) or two asterisks (\*\*), which means these questions were added later. Some other questions were removed and reformulated throughout the data collection phase. The initial questions have been formatted with a dashed line through the letters to showcase which questions have been removed. The legend below the interview guides explains this as well. The interviews were transcribed by the researcher, which was done for all interviews except one with an expert that is listed as I2. This is because the interview failed to be recorded at the time. Next to this, the interviewees were all given an approval form in which they agreed to certain regulations regarding the usage and storage of data generated within the interviews. The transcribed interviews and filled in approval forms can be found in the data set in Appendix 3.

#### **4.1.4. Desk research**

Desk research makes use of both academic and non-academic sources. To acquire relevant references when carrying out the desk research, search engines like Google Scholar and ScienceDirect were used as well as regular Google searches to find grey literature. Used sources include scientific literature, University publications, newspaper articles, web pages, and statistical reports that were most notably published by the CBS (Centraal Bureau voor de Statistiek).

Once data is obtained through interviews, search terms with relevant data were entered into search engines and information is obtained on the topics. Desk research relating to OA and the Triple-Bottom Line framework made use of search terms such as ‘organic farming’, ‘organic agriculture’ and ‘biologische landbouw’ in combination with ‘advantages’, ‘impacts’, ‘voordelen en nadelen’. For identifying and overcoming (in)justices, search terms were used such as ‘procedural justice’, ‘just transition’ or ‘onrechtvaardigheid’.

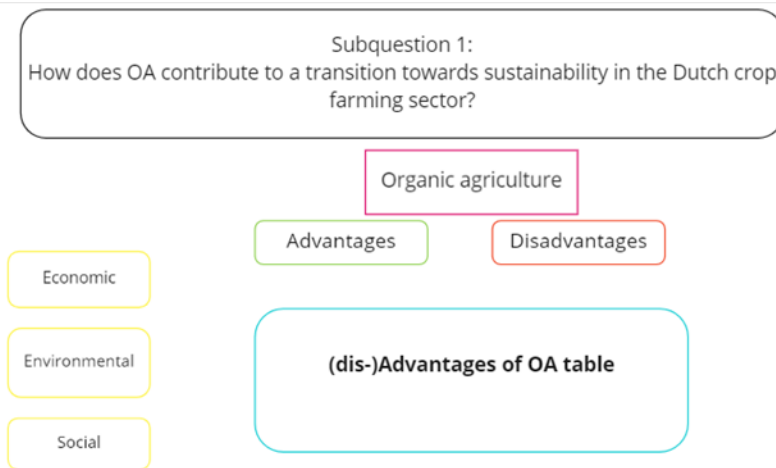
## **4.2. Data analysis**

All obtained data from the interview was analysed using NVivo, a software program that can help with processing and analysing large chunks of qualitative data (Zamawe, 2015). The nodes in NVivo followed the same structure as the conceptual framework and thereby the interview guides. This means that questions relating to OA and the Triple-Bottom Line framework were analysed in created nodes called ‘Environmental Sustainability’, ‘Economic Sustainability’ and ‘Social Sustainability’,

while NVivo nodes relating identifying and overcoming (in)justices were structured using the five tenets of justice and eight justice principles.

#### 4.2.1. Organic agriculture and the Triple-Bottom Line

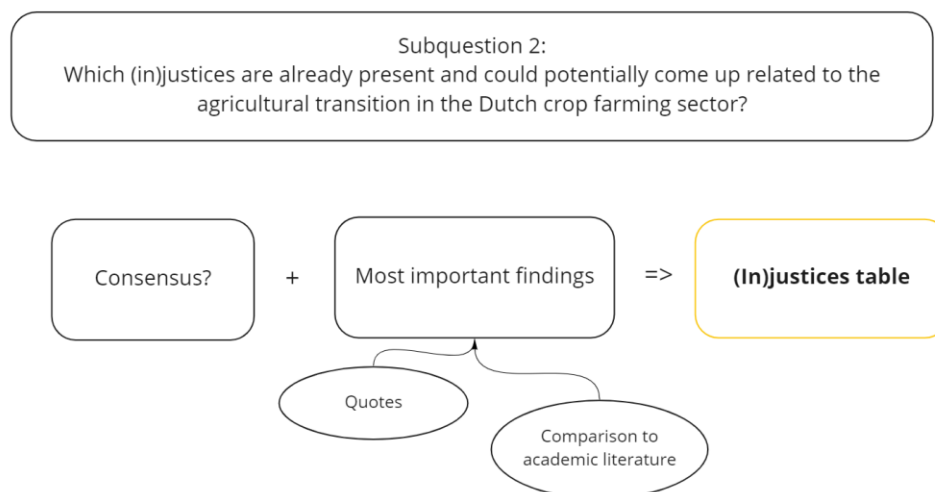
All questions asked in the interview relating to OA and the Triple-Bottom Line are put in the so-called ‘(dis-)advantages table’. The table is put in the Results section and depicts what experts and farmers believed were both the advantages and disadvantages of OA over CA on all three pillars of the Triple-Bottom Line. The table functions as an overview of the most important results and is further elaborated on in-text. Figure 3 gives an illustration of how the (dis-)advantages table was constructed.



**Figure 3.** Constructing the (dis-)Advantages table.

#### 4.2.2. Identifying (in)justices

Data relating to identifying (in)justices was summarised in the ‘(in)justices table’, which serves two purposes. Firstly, it gives information on whether there was a (partial) consensus on the topic among the 17 respondents. The second purpose is to present the most important data acquired from the interviews. Figure 4 shows how the (in)justices table was created. Quotations were used within specific sections of the results to back up the most interesting findings. In some cases, the most important findings were consecutively compared to academically published articles, and it is seen whether the results of this study resemble those of other justice-related studies.



**Figure 4.** Constructing the (in)justices table.

#### 4.2.2.1. Guidelines on reaching a consensus

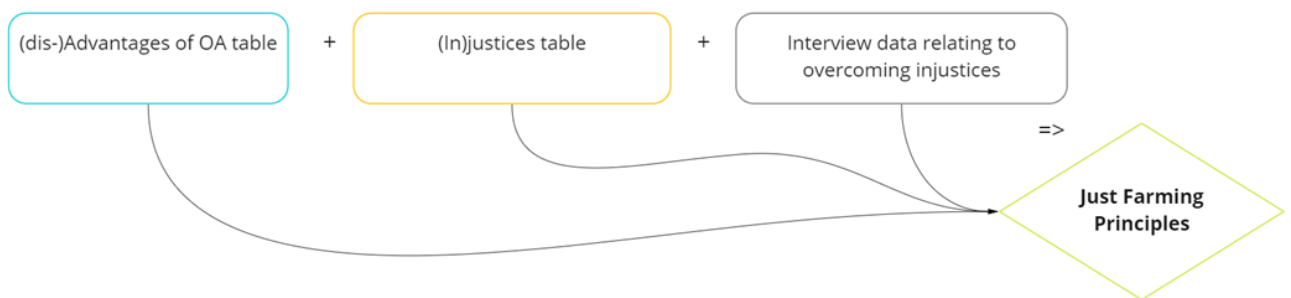
The interview guide proposes open questions that leave room for interpretation and imagination. Therefore, the percentage thresholds for reaching a consensus are not very strict and delineated as follows: When different respondents indicate similar responses, such as making the same point but with different wording, it counts towards a consensus. If less than 50% of the respondents agreed on the same topic, no consensus was reached. If 50% to 80% agree, there is a partial consensus. A partial consensus can also refer to respondents agreeing on different statements. For example, there is a partial consensus if 30% of respondents agree on statement A and 40% agree on statement B, which can be different or even contrasting statements. Both statements are presented in the table if this is the case. A full consensus is reached if more than 80% agree on the same topic.

#### 4.2.3. Overcoming injustices

Interviewees' thoughts on overcoming injustices were not summarised in a table or figure because there were many different suggestions, but the results are important for laying the foundation of the Just Farming Principles. The recommendations given by respondents on overcoming injustices are structured per actor within the food value chain because changes are needed from all stakeholders to steer the Dutch crop farming sector towards improved social justice. The discussed actors are farmers, governments, universities, consumers, and intermediaries.

#### 4.2.4. The foundation of the Just Farming Principles

Figure 5 gives an overview of how the two tables, the (dis-)Advantages table and the (in)justices table. The data from these tables is then combined with the obtained interview answers and desk research regarding overcoming injustices to eventually act as the base for creating the Just Farming Principles in the Discussion.



**Figure 5.** Overview of how the Just Farming Principles were constructed.

## 5. Results

The Results section is once again structured according to the conceptual framework. Interview answers that are recurrently supported by desk research are discussed per sub-question of the study. Firstly, the performance of OA on economic, environmental, and social sustainability is showcased and summed up in Table 4. Thereafter, (in)justices are identified and summarised in Table 5. Lastly, recommendations on how to overcome the identified (in)justices presented by interviewees and additional research are given. All the obtained results then guide to later construct the Just Farming Principles in the Discussion.

## 5.1. Sub-question 1: Organic Agriculture and the Triple Bottom Line

**Table 4; (dis-)Advantages table.** *The economic, environmental, and social (dis-)advantages of OA compared to CA.*

<b>Economic</b>	
<i>Advantages</i>	Advantages for farmers: <ul style="list-style-type: none"> <li>- Organic products can be sold for a higher price</li> <li>- Lower dependence on worldwide market</li> <li>- Higher likeliness of selling directly to customers or short supply chains</li> </ul>
<i>Disadvantages</i>	<ul style="list-style-type: none"> <li>- Higher price means that not all consumers are able to purchase organic, which also means less products sold by the farmer</li> <li>- High investment costs for getting certification and new machinery, as well as higher labour costs because more people are needed on the land</li> <li>- Not feasible to apply everywhere in the Netherlands due to soil structure</li> </ul>
<b>Environmental</b>	
<i>Advantages</i>	Improved <ul style="list-style-type: none"> <li>- Biodiversity</li> <li>- Soil quality, soil contents</li> <li>- Nitrogen emission rate</li> <li>- Overall decreased use of natural resources</li> </ul>
<i>Disadvantages</i>	<ul style="list-style-type: none"> <li>- Not possible to apply on (very) large scale</li> <li>- Less efficient in terms of land use and land is scarce in the Netherlands</li> <li>- Debatable whether organic agricultural inputs are better than artificial ones</li> </ul>
<b>Social</b>	
<i>Advantages</i>	<ul style="list-style-type: none"> <li>- Better public image than conventional farms; more recognition / appreciation from society</li> <li>- More often affiliated with social initiatives such as care farms</li> <li>- Intergenerationally social improvement since the soil and biodiversity are preserved, thereby ensuring food security of next generations</li> </ul>
<i>Disadvantages</i>	<ul style="list-style-type: none"> <li>- Higher need for seasonal migrant workers or volunteers, of which working conditions can be questionable</li> </ul>

### 5.1.1. Economic sustainability

#### 5.1.1.1. Advantages

The main economic advantage that was nearly always mentioned is the fact that organic products are sold for a higher price than conventional ones and therefore create more financial benefits for the farmer (I1; I4; I6; I7; I9; I11; I12; I13; I14; I16). This advantage is mainly beneficial for the farmer and not necessarily for other actors within the agricultural system as it means a higher price for consumers. This given, namely that farmers obtain more per unit of food, is needed when practising OA as there tends to be significantly increased yield variability and consequently lower output (I1; I8; I11; I14; I16). Another similar benefit is that OA farmers are not as dependent on the worldwide

market as conventional farmers (I15).

Another indirect economic advantage for OA farmers is the fact that they are more likely to be able to sell to customers directly, as well as to be able to keep their supply chain short (I2; I9; I12; I15). Consumers that are willing to buy products directly from farmers are generally living a healthy lifestyle and the image of OA makes for an increased willingness to obtain products directly from the farm. A similar advantage that was mentioned by an interviewed OA farmer that sold directly to customers is the fact that he can raise his prices more easily (I12). This might well be the result of being able to sell directly to customers as selling organic products, but since the chances of selling directly to customers increase with selling organic products this is a notable economic advantage.

Milestad and Darnhofer (2003) agree in their article that selling directly to customers is a valid strategy for organic farmers. These farmers ‘make their living through niche markets, selling directly to customers and relying on personal reputation to ensure product integrity’ (Milestad & Darnhofer, 2003, p.88). This statement resembles the results of my thesis, as all three of these selling tactics were used by organic product producers that I have interviewed (I11; I12; I15). Yacamán Ochoa et al. (2020) agree with the notion that farmers can maintain a better financial position when selling products without the need for intermediaries within the chain. The authors state that within short food supply chains, “local producers can retain a larger amount of the profit that would otherwise be absorbed by intermediaries” (Yacamán Ochoa et al., 2020, p.3).

#### *5.1.1.2. Disadvantages*

Because of the higher price of organic products, consumers are not willing to pay for them and less products are sold (I1; I4; I8). Another economic risk for farmers lies in the fact that short-term risks are harder to avoid since plagues and diseases cannot be combatted using pesticides and crops cannot be stimulated to grow using chemical fertiliser (I8; I16). However, as this preserves the soil it turns into a benefit over the long-term.

Another disadvantage for farmers can be found in the high initial investment costs of getting certificates and obtaining new machinery equipped for OA (I14; I16). Next to this, although many inputs are often left out, input costs for OA are generally higher because of significantly larger labour costs associated with on-farm practices (I1; I3; I15). Lastly, OA is not a suitable option for every farm in the Netherlands as soil types differ significantly between regions. In many places like the north, east and south of the country, either sandy soils or clay soils are present on which it is high impossible to grow crops without using any fertiliser, and implementation of organic fertiliser is more difficult than the widely used artificial alternative (I7; I15).

### **5.1.2. Environmental sustainability**

#### *5.1.2.1. Advantages*

Interviewees stated that the main advantages of OA compared to CA can be found in better overall performance on environmental indicators. These indicators include soil preservation and overall soil quality, biodiversity, nitrogen toxicity and eutrophication, and usage of natural resources (I1; I2; I4; I5; I6; I8; I9; I10; I12; I13; I14; I16). Soil quality includes the preservation of organic matter in the soil, as well as robustness in terms of decreased disease formation. Next to this, the absence of nitrogen inputs such as artificial fertiliser ensures that significantly less nitrogen leaches into nearby water systems (I16). Furthermore, the banned usage of natural inputs means less materials need to be extracted and used to produce food (I4). Lastly, OA is often linked to short food supply chains which ensures overall decreases in transport emissions as food products need to travel a shorter distance to actors throughout the different stages within the supply chain (I5; I13).

### 5.1.2.2. Disadvantages

OA is less efficient in terms of land use and consequently not capable of fully replacing CA (I1; I4; I7; I9; I11; I14; I15). The spatial problem is especially relevant in the Netherlands as the country produces vast amounts of food with only little land available compared to other countries. On top of this, when looking only at CO2 emissions, OA generally emits slightly more than CA because the use of tractors for tillage is needed more often (I1; I3). However, tillage seems to have decreased as the so-called ‘no-till’ farming are being increasingly implemented (Soane et al., 2012). The trade-off lies in the fact that OA is less polluting per hectare, but more hectares are needed to produce the same amount of food. I4 stated his view in the following quotation:

*“Ecologically, the biggest advantage is the fact that less negative environmental externalities are created per hectare, and the biggest disadvantage is the fact that it might be less effective per kilogram when looking at for example CO2 pollution. My opinion is that per hectare is more important than per kilogram, because hectares are what need to be separated and kilogram product depends on the number of people that we need to feed in the world” - I4.*

### 5.1.3. Social sustainability

#### 5.1.3.1. Advantages

There was a consensus among interviewees regarding the overall societal image of farms that practise OA. Organic farms are generally praised as organisations that divide comparatively more attention towards social issues as there appears to be a stronger sense of community thinking, thus obtaining a comparatively better public image (I8; I10; I12; I13). This view is supported by the fact that organic farms generally make use of more social initiatives such as the inclusion of people with mental disabilities or people that need therapy as volunteer workers (I8; I12). Earlier mentioned ‘care farms’ are a good example of how this is often done, although including these volunteers can be done without the farm officially being labelled as care farms. At the same time, the fact that OA enjoys an improved public image over CA enables organic farms to attract volunteers more easily as they are more motivated to work at such farms due to feelings of pride and fulfilment (I9). Next to this, it can be argued that OA is intergenerationally more socially sustainable as it ensures improved soil quality and biodiversity which results in higher food security for future generations.

#### 5.1.3.2. Disadvantages

Organic farms have a higher need for manual labour and therefore need to acquire more workers, which can cost the farmer significant amounts of money as labour costs are often high (I3; I7; I16). Some inexpensive workers can be found in the likes of volunteers, for example the ones in care farms. However, not all organic farmers can make use of volunteers and therefore need to resort to paid workers which are often seasonal migrant workers. Both the working conditions and the financial compensation for these workers are questionable and should be improved (I3; I14; I15).

## 5.2. Sub-question 2: Identifying (in)justices

**Table 5; (In)justices table.** Short summary of most important findings and indication on whether a consensus among respondents was reached on justice-related topic.

Justice form / principle	Consensus?	Summary of most important, often discussed findings
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<i>Procedural justice</i>	Partial	There was full consensus on the fact that when looking at the Dutch crop farming sector, farmers have the ‘softest voice’ when it comes to influencing policy decisions. Some farmers argued NGOs have high influence on policy, but experts say that their say is significantly less powerful than those of interest groups representing intermediary firms such as retailers and agricultural input firms, who hold significant procedural power in general.
<i>Distributive justice</i>	-	
Affordability	Full	Food was said to be cheaply available for all people in the Netherlands with only two respondents indicating that it would be too expensive for the poorest segment of consumers. The fact that the relative cost of food has declined significantly over the last decades backs up this statement.
Availability	Partial	A share of respondents argued that everyone in the Netherlands should be able to obtain high-quality food. Whether someone can do so depends on individual decisions. On the other hand, multiple interviewees stated that affordable, high-quality food is not readily available for lowest-income consumers.
Intragenerational equity	Full	It was agreed upon by respondents that farmers obtain the lowest share of financial gains while they carry many of the financial burdens. Next to farmers, the soil and the environment, as well as the general civilian are thought to be the losers as current agricultural practices negatively impact them. The profiting actors within the value chain are retailers and agricultural input producers (combined to ‘intermediaries’), as well as consumers that can buy products cheaply.
Intergenerational equity	Partial	Some farmers indicated that intergenerationally no problems will arise. Others however argued that agricultural practices today might compromise long-term food security, which harms future generations.
<i>Recognition justice</i>	Partial	Farmers often get a sense like they are not recognised by societal actors, especially intermediary firms and governments. Moreover, they feel that they are being blamed for large-scale societal problems like climate change, which require more than just changes in farming to be fixed. Some farmers indicated that consumers also do not value them enough, while others felt much more appreciated by consumers.
Good governance	Partial	Many farmers indicate that they can keep up with new legislation and communication is sufficiently clear. However, experts mention that it is difficult for farmers to keep up with all new pieces of legislation and that some important policies fail to be communicated to farmers at all.
<i>Restorative justice</i>	Partial	Multiple suggestions were given as to how to restore social justice within the sector and who should bear (most)

		responsibility for this. These suggestions are further worked out in the third sub-question.
<i>Cosmopolitanism justice</i>	Partial	Some farmers stated other parts of the world do not experience problems because of the Dutch agricultural system, but others argued differently. Firstly, subsidised foods produced in western-European countries are shipped to other parts of the world and then out-compete products by local producers. Additionally, land in other parts of the world is needed to cultivate food consumed in the Netherlands, which could have been used to produce local food for the own population.

### 5.2.1. Procedural justice

Within the value chain of food, farmers are the actors that have the ‘softest voice’ when policy measures are being drawn up, meaning that they have the least amount of influence on the process (I1; I4; I6; I8; I9; I11; I14; I16; I17). Interest groups have a much larger say in decision-making compared to farmers or consumers, especially if these interest groups represent large commercial parties such as retail stores and agricultural input firms. The combination of input firms and retailers are called ‘intermediary firms / intermediaries’ in the rest of the report. Input firms are companies that produce and sell products for farmers that they use to stimulate crop growth, for example artificial fertiliser and pesticides. Environmental organisations such as NGOs are generally less able to influence policy decisions compared to the aforementioned commercial interest groups (I2).

An important point of discussion that came up often was the discrepancy between policies installed by the EU or national government based on theoretical improvement of (a part of) the agricultural sector, and the practical feasibility of these policies. Farmers indicated that these policies are often created without them being asked in any way to deliver input (I7; I9; I11; I14; I15; I17). This generally results in policy restrictions that many farmers cannot adhere to, leaving them with increased financial difficulties as they are not able to fulfil subsidy criteria. Next to lack of practical feasibility, policies were often negatively discussed in terms of coherence. Farmers feel like policies can be somewhat ‘random’ and without clear goals. This randomness can sometimes result in financial insecurity for the farmer, as the following quote illustrates.

*“... To give an example. I have a sprinkler which has spray nozzles. All nozzles have been officially approved until 2023, and then in that year a new list will be created with newly approved nozzles. It could very well be that some nozzles I bought will not be allowed anymore. So when I need new nozzles right now, it costs me about 2000 euros, but then I run the risk of having to throw them in the bin in a year. What I am saying is, there is no guarantee to know what will be allowed by then and what won't.” - I7.*

Next to national governmental decisions, locally installed policies see power discrepancies as well. Farmers often complained when they were using land that was leased by organisations. In the Netherlands, these organisations are often environmental institutions that are looking to preserve natural habitats, examples being Natuurmonumenten or protectors of Natura2000 areas. Since these organisations are the official owners of the land, they hold significant decision-making power over the allowed practices on the land, which farmers often disagree with. However, since farmers have often invested up to millions of euros in their agricultural firms and consequently are in serious debt, they have no choice but to accept they have no say and obey. Organisations like Natuurmonumenten know this, and some farmers indicated that they abuse this power over them (I9, I17).



“... You can see it with an organisation like Natuurmonumenten. They are being run like they are a commercial firm and they refuse to cooperate with their environment. Natuurmonumenten knows that when you have installed in this area you cannot leave since you have your business and house here. They use that against you.” - I9.

## 5.2.2. Distributive justice

### 5.2.2.1. Affordability

Only two interviewees stated they believed food is too expensive in the Netherlands if the poorest segment of society is included (I10; I13). The rest indicated that food is sold very cheaply in the country, and a large number stated it was too cheap. Reasons as to why food was not too expensive were based on politics and individual decisions (I12; I14; I15). An example lies in the statement that if food would be too expensive for some, it would be because the all-encompassing political system was to blame for people not being able to buy products. Therefore, it is not the fault of the agricultural system or any of its actors, but of policies that have been standing for long periods of time (I3; I11; I14). Next to this, concepts such as negative externalities and True Pricing were mentioned to argue for the case that food is too cheap, especially when talking about food cultivated using CA (I1; I4; I16). If negative externalities would be accounted for in the price of various foods, that price would be significantly higher than it is right now.

The average percentage of total income spent on food was often referred to as to illustrate why respondents thought food is not too expensive in the Netherlands. Funnily enough, the percentages that various interviewees presented differed quite heavily with each other, but a consensus within answers was found in the statement that the percentage has decreased significantly over the decades and that consumers have never spent such a small part of their total budget on nourishment. Statistics published by the CBS confirm the truthfulness of this statement as in 1960, an average household would spend just over 30% of its income on food while this same number has decreased to only 8% in 2018 (Webbink & Jonkers, 2019). It is important that nobody should spend an overly large portion of their income on food and therefore it is necessary to ensure this percentage does not rise in the future, a threshold of a maximum of 10% seems adequate.

### 5.2.2.2. Availability

For availability, the question was asked whether respondents thought everyone in the Netherlands, including the poorest segment, is able to buy high-quality food. Similar answers were given as in the previous question on affordability, namely that food in the Netherlands is of comparatively high quality and that being able to obtain it comes down to individual choices. If high-quality food would be too difficult to obtain for some, it would be the fault of the overarching political system and therefore not that of the agricultural sector (I12; I14; I15).

Others indicated that high-quality food might not always be readily available for everyone. Healthy food is too expensive to easily obtain for everyone (I4; I10; I13). Unhealthy nutritional products such as beer and high-sugar products are sold cheaply compared to healthier food such as fruits and vegetables as supermarkets tend to place their highest profit margins on the latter (I16). On top of this, VAT on high-sugar products such as sodas and ice cream is the same percentage as for vegetables, both of them being 9% (I8; Belastingdienst, 2022). Organic food is more expensive than conventionally produced products, which also illustrates how healthier food is more expensive than unhealthy nutrition (I2). However, it is debatable whether organic food and its absence of pesticides is actually healthier, as implications of this remain unclear and improved health of organic food

consumers could likely be attributed to their healthier lifestyles overall (Brantsæter et al., 2017; Mie et al., 2017).

### 5.2.2.3. Intragenerational equity

#### 5.2.2.3.1. Most important findings

Within the agricultural system, farmers are the ones losing out the most in terms of financial benefits and burdens (I1; I5; I7; I9; I11; I14; I15; I16; I17). Farmers carry the heaviest economic risks while being far from reaping the largest share of the rewards (I1). The main given reasons this are perhaps best summarised as the idea that the farmer has gradually lost what can be called an ‘own revenue model’ (I11; I13). Another way of describing this might be to say that farmers are ‘stuck in the current system’, which also means that if farmers would want to adopt more innovative, sustainable farming practices they would face great difficulties in doing so (I2). Another economic reason that leads to farmers being left behind financially is the intense competition which results in them not being able to raise prices (I1; I15).

Other actors within the agricultural system that are losing out are intangible actors, such as the soil, the environment, and society as a whole (or ‘the civilian’) (I2; I5; I13). Although the question related to financial benefits and burdens which does not strictly apply to the soil and the environment, their importance for the agricultural system is high. Problems that were mentioned regarding the natural environment are: soil degradation, climate change, biodiversity loss, nitrogen emissions, eutrophication, and political conflicts (I1; I2; I5; I13).

Similar to when it comes to decision-making power, actors that reap the largest financial benefits are intermediary firms, so retailers and agricultural input firms (I1; I2; I3; I4; I5; I6; I7; I8; I9; I11; I13; I14; I15; I17). These companies hold significant financial power over farmers, on top of the decision-making power that was established earlier. The fragile competitive position of farmers is amplified by a certain phenomenon called the price-cost squeeze. I5 explained what this constitutes in the following quotation:

*“Another example is the price-cost squeeze where the agricultural input supplier is simultaneously the buyer for an agricultural entrepreneur. It can then ensure that the costs for inputs can go up, and at the same time know how far he can go down in the buying of the (end-)product of the farmer, to kind of push the price on both sides.” - I5.*

Other interesting players to mention within these agricultural input firms and retailers are the so-called ABCD-commodity traders which were also mentioned by I5. These four companies are multinational businesses that can effectively influence world-market prices due to their size and global operations. ABCD is an abbreviation that makes use of the first letter of each firm, the businesses in question being Archer Daniels Midland, Bunge, Cargill and Louis Dreyfus. Van de Klundert & Mulder (2017) state that ‘these companies present themselves as indispensable partners in the banning out of hunger and saving the environment’. The authors rather argue that these companies’ strive for economic growth, worldwide transport of food, and preferred system of highly industrialised forms of agriculture with the need for many capital inputs, is actually damaging the environment.

Lastly, consumers were mentioned as ‘winners’ (I4; I7; I9; I11; I14). The current agricultural system introduced after WW2, combined with overall wealth increase, has made high-quality and cheaply priced food readily available for consumers, even if these products cannot be produced in the Netherlands itself. Dutch people have become used to high-quality, low-priced food and have money to spare on other goods and services, which they seem to often prioritise over food (I14; I15). The fact

that the total share of income spent on food decreased to only 8% in 2018 illustrates how this statement holds truthfulness.

Although consumers are ‘winners’, they are at the same time civilians within society that will have to live with the negative consequences of current agricultural practices such as soil degradation and climate change (I1; I4; I8). Individual choices that consumers make have an impact on how the extent of which these negative consequences will play out in the future. An example of this can be illustrated with OA. OA is better than CA at preserving soils and maintaining biodiversity, so it would be desirable for soil quality, and therefore long-term food security, if more consumers would opt for products that have been produced organically. Consumers often say they are willing to pay for this, but when it comes down to actual purchasing behaviour they generally opt for the cheaper conventionally produced options after all. This phenomenon was described by I5 as the consumer-civilian paradox.

#### 5.2.2.3.2. Comparison to literature

The statement that farmers are the ones losing out the most in terms of financial benefits and burdens has scientific backing. Xhoxi et al. (2014) point out that they often get the lowest profit margins within the food supply chains and that generally retail stores and other intermediaries have the most market power because of their size, especially within developing countries. Xhoxi et al. (2018) follow up on how intermediaries’ power over farmers can be damaging not only to the farmers personal income, but also to the relationship between these actors. In their paper, Xhoxi et al. (2018, p.49) suggest that intermediaries “should avoid the use of ‘power over the margin’ of farmers, but on exercising both power over activities that contribute to losses at an early stage and their power over the input selection of the farmer. That should lead to more efficient forms of relationships between the two.”

The existence of a price-cost squeeze is confirmed by Czyżewski et al. (2019) who state that there is a consensus that farmers are subject to farm price-cost squeeze in the long-term and that it is a principle economic problem in agriculture happening all over the world. De Buck et al. (2008) confirm that the price-cost squeeze is present in the Netherlands as they try to find reasons for farmers to change to more sustainable farming practices in their research.

Within the interviews carried out by de Buck et al. (2008), farmers indicated they strongly value sustainability that is not only ecological, but that sustainable income is of greatest importance and that it needs to go hand in hand. This understandable point of view comes back strongly in the interviews with farmers within the thesis as well, as is illustrated by the following quotation.

*“[...] But at the end of the month we need to have some money in our pockets. Farming remains a commercial affair, not a charity foundation.” - I15.*

#### 5.2.2.4. Intergenerational equity

Respondents presented a mixed set of answers when asked about how they thought the agricultural system could negatively impact future generations. Some interviewees directed to the aforementioned consequences of biodiversity loss, soil degradation and climate change. Others went a step further and indicated that next to these problems, serious long-term health implications that we are not able to see as of yet could result from heavy use of pesticides (I1; I4). A result of these environmental implications is the availability of food in the long-term, which will become under pressure if business goes on as usual (I3; I8). I5 argued that it might not be that the availability of food in general will be under pressure, but the disparity between the persons that can obtain high-quality food and those who cannot will keep increasing. However, this is not limited to agriculture itself as it relates to social

justice in general. Lastly, the esthetical quality of the landscape was once mentioned as another discussion point by I4 as ‘the quality of natural areas will likely decrease’.

### **5.2.3. Recognition justice**

#### 5.2.3.1. Most important findings

Recognition justice in the interviews was once more heavily geared towards the topic of farmers, specifically how they perceived the obtaining of recognition from other parties. Farmers do not always obtain the recognition that they deserve from other actors within the system, especially when talking about parties that hold financial or procedural power over them such as governments, retailers, or input firms (I5; I7; I9; I14; I15; I17). The government in particular does not recognise their activities to ensure food security as something valuable. Schlosberg (2003) states that a lack of recognition can possibly manifest itself as political devaluation, which is in line with the sentiment that farmers have given off during the interviews.

Farmers’ views differed on how they perceived recognition from consumers. Some indicated that they think consumers do not recognise the importance of farmers and their practises to a complete enough extent, while others indicated that consumers were the one actor that recognised their importance well. Quotes by I14 and I15 respectively illustrate both sentiments:

*“I don’t think farmers are recognised enough. Food supply is much more than just an economic activity and I think that it should be recognised more than it is right now. Two years ago there were protests in the Hague, I was there, and that was the first time during my lifetime where society expressed recognition towards farmers.”* - I14.

*“Consumers tell us to keep doing what we are doing, and they do not understand certain things that politicians can worry about very much.” [...] Politicians can be very negative about farmers while consumers are overall very happy.”* - I15.

There was a distinctive difference between conventional farmers that sell to intermediaries and (possibly) organic farmers that sell directly to customers in terms of recognition. A large share of farmers that were interviewed sold (a share of) their products directly to local consumers, and the vast majority of these respondents also sold exclusively organic food. All these farmers indicated that consumers appreciated their products to a large extent and stated that they felt like they got more appreciation from consumers because they had a more intimate connection with their customer base (I8; I9; I10; I15; I16). Next to this, these farmers felt that they were better able to charge slightly higher prices than others do not sell organic products directly to customers (I9; I10; I12; I15). It is difficult to establish whether this is because these farmers sell organic products, or that it is because they sell directly to consumers, or perhaps a combination of the two.

Lastly, farmers are often the ones ‘being blamed’ for large-scale societal problems like climate change (I3; I4; I7; I11; I17). They are positioned as the ones that created such problems and are continuing the damage, but they argue they are only a part of the problem and that action is needed from everyone in society to fix such issues. They feel this position of blame is therefore unfair towards them (I13; I7; I14; I15).

#### 5.2.3.2. Comparison to literature

Fortunately, ill matters relating to recognition justice literature were not identified during the interviews. The results showed no indication that farmers were discriminated against or disparaged,

under pressure of physical threats, or to have less than equal political rights compared to other members in society. All these indicators are important aspects of recognition justice according to Schlosberg (2003). Political representation for farmers is substantial. The Dutch political system houses multiple political parties that aim to serve the interests of farmers, two notable ones being the Christen-Democratisch Appel (CDA) and the Boer Burger Beweging (BBB). On their website, the CDA states they are ‘proud of farmers’ (CDA, 2022). The BBB states it wants to strengthen the agrarian sector and strives for sustainable solutions for agriculture (BBB, 2020).

However, farmers remain with sentiment of underappreciation and misrecognition, combined with a feeling of helplessness. This has the potential to manifest itself in damaging ways, as is illustrated by the numerous protest that farmers have participated in. Some of the protest were grim and resulted in arrests for serious offences such as police brutality, destruction of public property, and threatening of politicians (Luiten, 2020, p.3). Four days before the deadline of this thesis, large-scale protests once again headlined the news as farmers rallied massively and used their tractors to get to the destination, thereby blocking traffic on Dutch highways, resulting in numerous fines for traffic obstruction (NOS, 2022).

#### 5.2.3.3. Good governance

Some farmers stated that once policy decisions are made, they are communicated clearly and on-time without major issues (I14; I15; I16; I17). Many would follow up this statement by saying the problem does not lie in communication of already established policies but rather the creation of policies in the first place (I7; I9; I14). Policy updates are communicated well via letters and websites (I7; I15; I16; I17). However, not everyone agreed on this statement, as certain experts stated that clear communication of all newly installed policies is difficult because large numbers of new regulations are introduced regularly (I3; I5). The following quotation illustrates this.

*“I am an expert on crop protection, so I know all the new developments in this area. However, an agrarian entrepreneur without additional working staff must know about these same regulations of crop protection, but also of labour rights, minerals, and spatial planning with the municipality. So, an entrepreneur cannot know all the ins and outs of all policy dossiers and simultaneously work on the land for forty to sixty hours per week.” - I3.*

I5 follows up on this by stating that some important policies that have been installed are not communicated clearly, or sometimes not even communicated at all. To back up this claim he used the example of new legislation that was officially introduced by the European Union in 2019 called the Directive of Unfair Trading Practices (DUTPs) (in Dutch: Wet Oneerlijke Handelspraktijken, or ‘Wet OPH’). This directive tries to “improve the protection of farmers, as well as small and medium sized suppliers, and provide mandatory rules that outlaw certain unfair trading practices” (EU, 2019). I5 states how the directive is not communicated clearly in the following quotation.

*“[...] For example, these unfair trading practices I just mentioned. The remarkable thing is that this directive is about problems that keep farmers up at night, for example a fair price. Farmers also worry about issues with retailers and other relations within their chain which really keep them up at night. There is an entire policy process that has been established to react to this (the Directive), which is talked and written about often. But if would you ask entrepreneurs if they have ever heard about this directive of unfair trading practices, I think only a very small number of them will have.” - I5.*

#### **5.2.4. Restorative justice**

It was difficult to establish how disadvantaged parties within the agricultural system could be compensated. Respondents came up with solutions for compensation that will be touched upon later in the Results that relate to overcoming injustices. Usually, the disadvantaged party that was referred to were farmers. As the agricultural system is complex, it is difficult to come up with a single solution in the form of compensation that would enhance the position of farmers within the value chain.

One notable suggestion that some farmers introduced was a return of a minimum price which has been present within European agriculture in the past (I11; I14; I17). This solution will not be included further. Although a minimum price on a product would ensure decent returns for the farmer, it has been known to stimulate overproduction and therefore significant increases of waste. A past example of this in the Netherlands is the literally translated ‘milk puddle’. Minimum prices supported by EU subsidies caused a heavy increase in supply but without a meeting demand, resulting in significant quantities of wasted milk (Nigten, 1987). Not opting for a minimum price seems to be the correct choice to avoid repeating history.

#### **5.2.5. Cosmopolitanism justice**

Respondents were asked how they thought people living in other countries could be negatively impacted by the Dutch agricultural system. Some farmers indicated they did not feel like other countries are negatively affected at all and that the innovativeness and reliable production leading to high supply of food quantities of the Dutch system merely benefits other countries and their inhabitants (I3; I9; I11). These respondents argued that food produced in the Netherlands feeds many mouths that depend on it, both in neighbouring countries and in other parts of the world (I6; I11).

On the other hand, examples were given of how the Dutch system could indeed harm people based in other parts of the world. The most often recited reason was the fact that subsidised production of food enables European countries like the Netherlands to sell excess products for a significantly lower price than producers elsewhere in the world. This results in European food chains outcompeting local farmers in other continents, most notably Africa (I1; I3; I5; I8; I13).

Another point that builds on this notion is the fact that food consumed in the Netherlands requires heavy land use in other countries, especially if the food cannot be cultivated on Dutch soils. This same problem is likewise visible in soy production for livestock, as about half of the space needed to produce both feed and raise cattle lies outside of the Netherlands and thereby takes up space in other countries. This equates to the fact that these other countries maintain less space to cultivate food for themselves. Not only does this hurt local economies and food security, these long-stretched supply chains also cause environmental damage due to increased transport emissions (I13).

One final notable example mentioned by I1 are potentially precarious working conditions related to farming technologies. The innovativeness of the agricultural sector has resulted in numerous technologies that aid in cultivating the land, sometimes even effectively enough to phase out artificial inputs like fertiliser. Examples of these so-called ‘precision agriculture’ technologies are sensors and other enhanced machinery (Gebbers & Adamchuk, 2010). I1 pointed out that he questions if the extraction of raw material and production of such technologies is done without the likes of slave- or child labour. Although there could be truthfulness for this reason to doubt, no studies have so far been carried out on working conditions during the process of extracting and manufacturing raw materials for precision agriculture technologies, which is why it will not be included further.

### 5.3. Sub-question 3: Overcoming injustices

Before constructing the ‘Just Farming Principles’, a short recap on the justice related topics that can be observed in Table 5 is given. In terms of both procedural and distributive, farmers tend to hold the least power out of all involved parties included in the agricultural process. Although consumers effectively also lack procedural power, they are not involved in the process of food production and are able to obtain food of satisfactory quality for an affordable price. For these reasons, they are not discussed in as much detail as farmers in the rest of this section.

Retail and other intermediaries within the food supply chain seem to disproportionately benefit from the system, and actors like the ecosystem and society lose out, leaving future generations with food insecurity due to issues like soil degradation and climate change. The consumer has benefitted as it has been able to buy cheap, high-quality nutritional products for decades, but as these consumers are at the same time civilians within society that see their world change before them (I4; I6).

Action from all actors is needed to steer the Dutch crop farming sector towards increased social justice, which holds true for the entire agricultural sector as well. The actions that all actors could take as discussed in the interviews are listed per actor in this section. Discussed actors are farmers, governments, universities, consumers, and retail and intermediaries.

#### 5.3.1. Farmers

##### 5.3.1.1. Shorten their own supply chain

The first action that farmers can undertake themselves is to try to strengthen their own position by becoming less dependent on intermediate parties because a lower share of the margins can be taken up by these intermediaries when there are fewer of them in the chain. This can for example be done by selling directly to customers, which can be combined with creating niche markets, both of which are already valid strategies for farmers that sell organic products (Milestad & Darnhofer, 2003; I4; I12; I14; I15; I16). This idea is supported by literature, as Newsome (2020) found that the production of niche products in a short supply chain can function as a fruitful strategy for farmers to avoid a price-cost squeeze, as this was successfully done by a group of female farmers in Australia. I15 indicated that for him and some of his colleagues, selling niche products directly to customers has worked well for their businesses. He stated that the success of these strategies is largely determined by strong branding of the product and overall good marketing of the firm, as can be observed from the following quotation.

*“ [...] But if you market the brand then people have a larger bond with you. If they are prepared to pay a bit more then they will choose you. They will say: ‘I want the pumpkins from your firm, because you gave us good advice and your products are tasty and well storable, so I will take them again next year.’ In that way you can break through the cycle. [...] Here in Enschede there is ‘de Nieuwe Melkboer’, they sell soy milk in the local area and they sell it under their own name, not Alpro or something like that. These are the kind of niches you have to profile yourself with, but that also requires skills in marketing and similar affairs.” - I15.*

##### 5.3.1.2. Initiate dialogue with other parties

Although selling directly to customers and thereby removing intermediaries from the chain is a great alternative, not all farmers can just decide to remove intermediaries altogether, they often simply do not have that luxury. For these farmers, an alternative solution can be sought after in communication with the intermediary firms. It has been established that intermediaries hold significant power over

farmers, for example by forcing them into a price-cost squeeze (Czyżewski et al., 2019; I5). In their paper, Prové and Crivits (2019) state that so-called ‘emancipatory communication’ needs to be organised to guide a just transition in agriculture. A central point in emancipatory communication is the idea that a dialogue between various social groups that are involved in the agri-food system is an important step to get to work with a given complex reality, instead of ignoring the complex reality that so often happens in polarising debates. In his interview, I5 follows up on this by stating:

*“[...] Another method, which we also highlight in our paper, is to stimulate actors to partake in dialogue with each other. Then there is hope that when actors get to know and understand each other better, they will understand that their actions have a negative impact on others and they will hopefully change their behaviour because of it. [...] They will understand that they are working with concrete people and that their business can also have a positive impact on them. So that is not via legislation, but to bring actors in the market together and to make them listen to each other's interests. This method assumes a more positive human image.”*

I5 states that by enabling this dialogue, intermediaries will see that their business model is negatively impacting the survivability of the producer firms and that they will consequently be charged a slightly higher price for agricultural products offered by the farmer. The question then remains who is responsible for organising the dialogue between the actors. Farmers could opt to try it with the help of interest groups or labour organisations, an example of which being LTO. Alternatively, local governments could decide to implement dialogue between local actors, for example institutions such as Natuurmonumenten or municipalities.

### **5.3.2. Governments**

#### *5.3.2.1. Enhanced stakeholder participation and ‘steering on goals’*

The first activity that governments could implement is to ensure increased participation of other stakeholders in the decision-making process. Governments can opt to involve farmers in the process and to ask them whether legislation that is being created would be practically feasible, as this is something that farmers often have trouble with (I7; I11; I14; I15; I17).

Next to improving decision-making power relations, governments on (inter-)national levels could give earlier insights into legislation that is being created so that farmers know what they can expect. I7 gave a concrete example of how this could be done, which he called ‘steering on goals instead of regulations’. One example he mentioned was to extend the length of certain agricultural policies so farmers have certainty that when they commit to investments, they will be able to use that investment for a longer period. The quotation about the spray nozzles written down before is an example of such an investment.

#### *5.3.2.2. Introduce policies*

##### 5.3.2.2.1. Improve the structure of the Directive of Unfair Trading Practices

Another option that governments could investigate is to better enforce the Directive of Unfair Trading Practices (DUTPs) and simultaneously raise awareness about their existence among farmers. This piece of legal legislation in the form of a directive has potential to significantly improve the financial situation of farmers as it permits companies to adhere to certain rules regarding payment deadlines, cancellations, and contracts (ACM, 2022). A concrete example of this is the fact that intermediary firms are permitted to pay the producer after a maximum of 30 to 60 days, which depends on the



product (ACM, 2022). In his interview, I14 indicated that payment could take up to half a year after delivery for him and that he could do nothing about that. This indicates that farmers are not actively aware of the directive since they do not make use of it.

As of right now, the DUTPs are regulated through the Autoriteit Consument & Markt (ACM). The current structure works in such a way that farmers can reach out to the ACM when they think the intermediary firm is operating illegally. However, as stated before, farmers are often unaware of the existence of the DUTPs, which greatly decreases its effectiveness if used in the current structure. Therefore, either changing the structure of the DUTPs in the country or raising awareness about the directive could decrease the financial power gap between farmers and intermediary firms. What is meant by changing the structure is a model like the one in the United Kingdom, where certain persons officially titled as ‘chain adjudicators’ are occupied with tracing unfair trading practices and acting up against the people that operate in an unfair manner (I5; Red Tractor Assurance, 2021).

#### 5.3.2.2.2. True pricing

Other policies that governments could utilise are price regulations relating to externalities, which can be either subsidies or taxes. An example brought up by two experts can be found in True Pricing, which could be utilised to ensure a price that better reflects the societal impact that a product carries with it (I1; I2). True Pricing structures include negative externalities within the price. If this were to be done with food products, conventional agricultural products would become comparatively more expensive as more pressure is being put on environmental aspects such as land use and biodiversity. Although True Pricing structures would indeed better reflect the societal costs of producing food products, price increases would lead to less affordable food for everyone, which is a separate justice concern on its own (Michalke et al., 2022).

#### 5.3.2.2.3. Decreased VAT on healthy food

Another price regulation that the Dutch national government could implement is the reduction of VAT on healthy foods. Within the Netherlands, products are charged with either 21%, 9%, or 0% VAT. As I16 and I8 pointed out, the distribution of VAT among products is questionable as ice cream has the same percentage as vegetables at 9% (Belastingdienst, 2022). The national government could opt to increase the VAT on comparatively unhealthy products such as ice cream to 21%, decrease the VAT on healthy nutrition such as fruits and vegetables to 0%, or to adopt a strategy that combines these two propositions.

### **5.3.3. Universities**

Generally, farmers are being educated like businessmen, and it seems to be that obtaining the highest yields possible is put before other skills such as critical thinking and long-term business security (I8). Therefore, in terms of education, steps could be made to ensure farmers are being taught not only on how to obtain maximum profits, but also to implement more (environmentally) sustainable practices. An earlier example of where education in farming was helpful is its supporting role in informing farmers on the use and benefit of integrated pest management in India (Mancini et al., 2008). OA could be a facet in this transition education programme as it preserves soil quality and biodiversity. Next to this, I1, a researcher at Wageningen University and Research, indicated that he feels like OA has received too little attention compared to CA in terms of research focus and budget. Increasing the inclusion of OA in both research and education could have beneficial implications for the power-position of farmers.

### **5.3.4. Consumers**

There was no real consensus on what consumers can do to support an increasingly just agricultural system. Consumers can choose to buy locally sourced, seasonal, possibly organic products, preferably bought from local farmers themselves (I2; I4; I8; I12; I13). However, as mentioned earlier, these products are generally more expensive and not all consumers have the financial means to realise this, which is why this recommendation is only for comparatively wealthy consumers.

Next to this, it would be beneficial if consumers would be increasingly appreciative of the process of food production and the person involved with it. Kneafsey et al., (2008) state an important reason for low appreciation of food is because consumers are not involved in the food production process and are therefore disconnected from it. Therefore, reconnecting consumers with the food they produce would be beneficial. This can for example be realised through short-supply chains or community-supported agriculture (Augère-Granier, 2016; Wang et al., 2021).

Additionally, as Brenton (2013) discusses in his paper, consumers that support 'ethical trade' often opt to buy products with labels such as Fairtrade or Forest Stewardship Council. Consumers could opt to increasingly do this to ensure fairer food production, although the effectiveness and legitimacy of such labels are often questioned (Brenton, 2013; Kalfagianni & Pattberg, 2013).

### **5.3.5. Intermediaries**

Actions for intermediaries are similar to ones discussed earlier. Firstly, supermarkets and agricultural input firms should try to be open-minded to partake in dialogue with the farmers about pricing and contract deals and should be looking to respect the DUTPs. Large, incumbent intermediary firms might opt to appoint their own 'chain adjudicator' for the entire business. Next to this, supermarkets could opt to remove the largest profit margins on healthy products like vegetables and move them to unhealthier products so that consumers are increasingly incentivised to eat healthier products because they are cheaper (I16).

## **6. Discussion**

The Discussion starts with an explanation on how the Just Farming Principles were constructed and where in the world they can be best applied. Thereafter, they are presented and backed up by pragmatic recommendations governments can take to achieve increasingly socially just farming practices. After this, some limitations of the study are mentioned and numerous recommendations for future research are discussed.

### **6.1. The Just Farming Principles**

#### **6.1.1. Constructing the Just Farming Principles**

The Just Farming Principles were constructed using relevant theory, namely the five tenets of justice and the justice principles, about which questions were asked during the interviews. The five tenets of justice and justice principles also act as the structure of the Just Farming Principles, ensuring that the table presenting them is structured almost identically to Table 5 that shows the (in)justices.

There were two main ways in which the principles were constructed. Firstly, the Just Farming Principles contain content that closely relate to the five tenets of justice. This content is derived from the most important findings obtained from the interviews and desk research. Therefore, the principle linked to Procedural justice is about the skewed decision-making power balance of farmers and other

actors within the agricultural system. By doing this, the most often cited issues that are of highest importance both from interviews and in literature were discussed.

Secondly, some of the Just Farming Principles were constructed by copying their counterpart from the Energy Justice principles by Sovacool & Dworkin (2015). For example, ‘Affordability’ and ‘Availability’ utilise the concept of the importance of readily available, high-quality energy resources found in the Energy Justice Principles. These statements are then literally copied and applied to food. It was established that right now around 10% of income is spent on food, which seems to be adequate. This is integrated into the Just Farming Principles, where it is also stated that this percentage should not be increased to ensure decent prices for everyone, including the poorest segment of society. The same method applied for the ‘Good Governance’ principle. For ‘Intragenerational equity’ and ‘Intergenerational equity’, a combination of the two ways of constructing the Just Farming Principles was used as it focuses on both the tenet of distributive justice and their respective Energy Justice statements given by Sovacool and Dworkin (2015) in Table 1.

#### 6.1.1.1. Where the Just Farming Principles can be best applied

The recommendations given in the Results section are rather tailored towards the Netherlands specifically, as they were identified mostly by Dutch people and can also best be solved by actors operating within the country. Now, a theoretical contribution is also made in the form of the Just Farming Principles. It was attempted to make these principles as applicable as possible in as all parts of the world, so they have become rather general. Nonetheless, due to the scope of the study, the principles will be best applicable in countries similar to the Netherlands. This equates to other high income countries that generate agricultural production numbers with a value above twenty billion US dollars per year such as France, Germany, or the United States of America (Dillinger, 2017).

#### 6.1.2. Presenting the Just Farming principles and pragmatic recommendations to achieve them

The Just Farming Principles are presented in Table 6. The principles are generally applicable and therefore lack concreteness. To back up the principles, pragmatic recommendations on overcoming injustices that are based on the results and structured similarly to the principles themselves are given in Figure 6.

**Table 6.** *The Just Farming Principles.*

<b>5 tenets of justice and 8 justice principles</b>	<b>Just Farming Principles</b>
<b>Procedural justice</b>	Decision-making power should be equally balanced within the agricultural system. Farmers and institutions that serve to protect the natural environment should never be ignored.
<b>Distributive justice</b>	
<i>Affordability and availability</i>	Healthy, nutritious food should be sufficiently available for everyone and should not take up more than 10% of the budget of all people, including the poor.
<i>Intragenerational equity and intergenerational</i>	The currently skewed distribution of benefits and burdens needs to be fixed as it leans heavily towards intermediaries and away from farmers and the natural environment.

<i>equity</i>	An increased uptake of environmentally friendly practices needs to be realised to increase the chance of food security for future generations by preserving the soil and biodiversity.
<b>Recognition justice</b>	All people involved in the agricultural process, including seasonal migrant workers, should have decent working conditions and be free of physical threats. All actors within the agricultural system should respect and appreciate the process of food production.
<i>Good governance</i>	Everyone should be able to obtain relevant information related to agricultural policies and governments should put in maximum effort to make decision-making processes as transparent and easy to understand as possible.
<b>Restorative justice</b>	Both national and local governments should look to install policies that strengthen the environment, as well as the financial position of farmers.
<b>Cosmopolitanism justice</b>	Food should only be used for socially just purposes and should be produced and consumed as locally as possible.

#### **Procedural justice**

Decision-making bodies such as national / local governments should strive to:

- Increase the involvement of farmers and /or consumers in decision-making processes
- Strengthen the position of NGOs that preserve the natural environment

#### **Distributive justice**

##### *Affordability and availability*

National governments should increasingly install policies such as:

- Lower VAT on fruit and vegetables
- True Pricing, so that the prices of organic and organic products are more closely resembled to their emissions

##### *Intragenerational equity and intergenerational equity*

- OA should be practised more by farmers as it:
  - Increases the likeliness of being able to sell directly to customers, which is what farmers should do to strengthen their financial position
  - Protects the natural environment by preserving the soil and biodiversity
- Consumers should try to 'reconnect with food' and buy directly from farmers
- Farmers and intermediaries should start a dialogue on contract agreements such as prices

#### **Recognition justice**

- Decent on-farm working conditions need to be ensured and enforced by law
- The process of food production should be appreciated by everyone. Society should stop 'putting the blame' on farmers when it comes to wicked problems like climate change.

##### *Good governance*

- New policies should be communicated well in advance
- Awareness of existing policies needs to present at all times

#### **Restorative justice**

- Governments should strive to install and enforce policies like the Directive of Unfair Trading Practices

#### **Cosmopolitanism justice**

- Western-European countries should only supply food to other continents if it is needed, not with the goal to out-compete local producers.
- Shorter food supply chains need to be realised as much as possible.

**Figure 6.** Recommendations on how governments could achieve increasingly socially just farming by adhering to the Just Farming Principles.

## **6.2. Limitations**

### **6.2.1. Bias towards farmers and globality of interview questions**

The first major limitation of the study is related to the considerably narrow scope of the research, as well as the nature of the interviewee questions, and lastly the selection of interviewees. The combination of these three have led to a situation in which the results of the study have become largely focused on farmers and their (financial) position within the agricultural system. Additionally, eleven out of the seventeen interviewees were farmers, while there were no other stakeholders such as consumers or representatives from intermediary firms. This has likely created a bias towards the farmer's views, as intermediary firm representatives or consumers would have likely given different answers to interview questions than the farmers did. For example, consumers would perhaps not appoint themselves to be winning out in the current agricultural system like some farmers and experts stated they were. However, the aforementioned bias led to interesting insights relating to justice-issues such as power struggles and a deeper insight into how farmers perceive justice-related issues within their sector. Next to this, when it comes to intermediaries, all six interviewed experts agreed to some extent on that these firms do indeed hold both financial and decision-making power over farmers, which they saw as a threat to social justice within the sector.

Moreover, the interview questions were kept rather global and therefore unspecific, which could make it difficult for some interviewees to answer all interview questions. Even though the vast majority of interviewees knew in which direction the questions were going, there were a few respondents that struggled to answer some of them. However, there was a reason for this globality of the questions, as interviews can take up only a limited amount of time and the researcher did not want to steer the interviewees into a specific direction to ensure answer variety, which was achieved satisfactorily.

### **6.2.2. Novelty of the study**

A second limitation is the fact that since the start of the study in November 2021, several papers have been published on Just Transitions literature in the food sector. Notable examples are Kaljonen et al., (2021) and Tribaldos & Kortetmäki (2022). Both these articles try to give a generic overview of justice issues related to food systems, through the lens of JT literature. The publishing of these articles perhaps means that the results which have come forth in this thesis are not as novel and original as it was thought at the start of the research, but it does indicate the relevance of JT and its application into different sectors than energy. Moreover, this thesis is slightly more zoomed in on a specific scope and most notably includes the notion of farming, which these other articles have not done. Therefore, a significant part of the findings acquired in the thesis is essentially novel.

### **6.2.3. Divergence of research questions**

The third and final limitation that is mentioned is the fact that the sub-questions of the study differed quite substantially from each other. This resulted in difficulties with providing clear, coherent final answers to the research questions. In the end, it was difficult to combine the two topics into a final, all-encompassing research question that could present a conclusion that is both novel and robust. However, useful contributions of knowledge relating to both OA and social justice issues have been brought to light and some concrete actions that implement the use of OA to improve social justice have been presented successfully.

### **6.3. Possibilities for future research**

#### **6.3.1. Just Transitions in different contexts**

There are numerous possibilities for future research that follow up on the findings of this thesis. Firstly, as the concept of JT literature is still novel, it could be applied in different sectors excluding the energy sector. As every sector is undergoing a transition, ensuring one that is socially just is needed everywhere. Example sectors could be health care, mobility, and textile. The textile and mobility sector have seen a small number of published articles relating to JT in the sector (Sharpe et al., 2022, Brydges et al., 2020; Schwanen, 2021; Escosteguy, et al., 2021). Studies on JT in health care have not been published yet. Additional research on these topics would help to mature the field.

Alternatively, the focus could stay on food topics, but then the inclusion of the entire food system would be an interesting area. What is meant by this is that the entire supply chain of food is researched, meaning the inclusion of consumption and waste, similar to the study by Tribaldos & Kortetmäki (2022). Policies on consumption and waste are different from agricultural policies and therefore their inclusion could give more insights on (in)justices within the entire food sector.

#### **6.3.2. Bridging the financial gap in the agricultural system and the Directive of Unfair Trading Practices**

Secondly, researchers in countries with similar agricultural systems as the Netherlands could try to improve distributive justice aspects of the system by researching the bridging of the financial gap between farmers and intermediaries. An example of how this could be researched is when studies would investigate the effectiveness of the Directive of Unfair Trading Practices within EU member countries. It would be interesting to see how many times the directive is used by farmers within countries and thereby measure how effective it is at combating financial inequality within the value chain. Alternatively, spreading awareness of the existence of laws or directives that improve social justice within sectors, such as the DUTPs in agriculture, might be a possible responsibility that researchers could take up (15).

#### **6.3.3. Additional roles of organic agriculture and enabling roles of other forms of sustainable agriculture**

A third option for future research could look into the additional roles of OA. In this thesis, the beneficial role of OA within this process was established as farmers that sell organic products (1) are better able to shorten their supply chain and (2) do not have to rely on agricultural input firms. Future studies that both confirm these beneficial roles of OA and uncover new roles could be carried out to gain a better understanding of OA can help to enable a transition towards more sustainable and socially just agriculture.

Additionally, future studies could investigate the enabling roles of different sustainable forms of agriculture that have been globally implemented. Non-exhaustive examples of such forms of agriculture are agroforestry, permaculture, and precision agriculture (Aznar-Sanchez et al., 2019; Bucci et al., 2018). Alternatively, research with a similar spatial scope to this thesis could focus on the role of nature-inclusive agriculture. Nature-inclusive agriculture has been written about and discussed increasingly in the agricultural debate within the Netherlands, although similarly to OA, its uptake within farming practices is rather low as of yet (Vermunt et al., 2022).

#### **6.3.4. Unexplored justice topics and a different spatial scope**

Lastly, topics relating to social justice and agriculture that were left underexplored could be investigated more closely. The reason for the relative absence of these topics is either the fact that they were (1) out of the scope of the research or (2) not mentioned in the interviews. Examples of such topics include animal welfare, gender equality, and indigenous rights (Coulson & Milbourne, 2021; Tribaldos & Kortetmäki, 2022; Slocum & Cadieux, 2015, Kaljonen et al., 2021). Including these topics to a larger extent in future studies relating to Just Transitions and agriculture would give a more complete picture of justice-related issues,

Alternatively, research with similar research questions and methods as this one could be done with a different spatial scope. Repeating the study in a different country that has different rules farmers and other actors within the system must abide by could lead to interesting new results that have not been uncovered yet. Examples of such countries can be found in Africa or Asia.

## **7. Conclusion**

The section presents answers to both the three sub-questions and the main research question of the study. The three sub-questions are firstly discussed and then followed by the main research question. The three main topics of the study, namely OA, identifying (in)justices, and overcoming injustices are all discussed per sub-question. Lastly, the main research question is answered and some general concluding remarks are given.

### **7.1. How does OA contribute to a transition towards environmental, social, and economic sustainability in the Dutch crop farming sector?**

OA has an enabling role in transitioning towards more environmentally, economic, and socially sustainable agriculture. OA contributes in meaningful ways on all three aspects, as can be observed in Table 4. OA is economically favourable for farmers in the long-term as it ensures that key environmental factors needed for food security stay better preserved, such as soil quality and biodiversity. This means that, intergenerationally, it contributes to social sustainability because it preserves food security for future generations. Next to this, OA contributes to social sustainability in other ways as it is often linked with social initiatives such as care farms.

However, there are also some downsides to OA that prohibit it from scaling up significantly. Economically, OA carries larger short-term risks for farmers due to risk of yield losses that result from the absence of pesticide and/or fertiliser use. More agricultural land is required to obtain the same yield numbers whereas land is terribly scarce in the Netherlands. Next to this, a limited number of soil types within the country can feasibly grow organic crops.

These downsides are valid and inhibit OA from ever fully replacing CA. However, its environmental benefits are undeniably important. As of right now, only 3.6% of agricultural area in the Netherlands is used to grow organic crops (CBS, 2021). There is room to increase this percentage, which would be an important step in practising more environmentally, economically, and socially sustainable agriculture. Furthermore, even if OA is not taken up more in the future, its importance in innovativeness for agriculture has been present for decades and still is to this day, as CA learns from organic farming techniques and implements them into conventional practices as well (I1; I6).

## **7.2. Which (in)justices are already present and could potentially come up related to the agricultural transition in the Dutch crop farming sector?**

Numerous (in)justices were identified, as all five tenets of justice that were linked to the eight principles yielded results that indicated justice related issues often discussed in JT literature are present when looking at the Dutch crop farming sector. Injustices range from unequal financial and procedural power distributions to recognition issues and worldwide out-competing of local producers. Additionally, restorative justice aspects were touched upon, and it was found out that the process of informing farmers on new policies could be improved.

Often, the farmer was the main point of discussion and most (in)justices that were identified were leaning towards them. Farmers were identified as unable to exercise meaningful power over important decisions within the system compared to other actors such as governments and intermediary firms, and their financial position is also weaker. Consumers also do not have much of a say, but they are at least able to purchase high-quality food for around 10% of the total average income. Justice topics that were underexplored due to the scope of the study were included in the Discussion, which include animal welfare, gender equality, indigenous people rights and racism.

## **7.3. How can the identified injustices potentially be overcome and in what way does OA contribute to this process?**

The most important recommendations for overcoming injustices were written down that eventually helped to construct the Just Farming Principles, which were backed up by concrete ways in which governments can hope to implement them and thereby achieve increased socially just farming. Both the principles and recommendations in Table 6 and Figure 6 are mostly applicable to countries with a similar agricultural system to Netherlands, such as other European countries.

The second half of the sub-questions asks in what way OA contributes to the process of overcoming injustices. As can be seen in Figure 6, OA is mentioned once or twice in recommendations grouped under 'Distributive Justice'. It becomes clear from Figure 6 that although OA marginally helps to achieve increasingly socially just agriculture, it is not the only action that needs to be implemented to contribute to a meaningfully just transition in Dutch crop farming.

## **7.4. What constitutes a just transition in Dutch crop farming and what is the contributing role of OA in achieving socially just agriculture?**

Originally, the concept of Just Transition was created to merge the three strands of CEE literature (Heffron & McCauley, 2018). In this study, the JT concept was borrowed, and its most prevalent tenets of justice together with 8 energy justice principles by Sovacool & Dworkin (2015) were utilised to find out how socially just the Dutch crop farming sector is and could be. It was found out that although certain aspects of the agricultural system are performing adequately, injustices within the sector occur throughout the country.

OA is a facet in this transition towards more socially just farming and it is difficult to state what its exact role is. Although OA undeniably contributes to social justice in agriculture, significantly more actions than merely growing an increased number of organic crops need to be taken to meaningfully combat injustices. Table 6 shows a list of Just Farming Principles that countries like the Netherlands should adhere to, and Figure 6 showcases concrete ways for actors of the agricultural system to be able to do this. Just Transitions are needed everywhere and concrete actions from governments and other stakeholders should ensure that ongoing transitions will increasingly include the importance of social justice in the years to come.



## 8. References

- ACM. (2022). Verbod oneerlijke handelspraktijken in de landbouwketen. Retrieved from: <https://www.acm.nl/nl/onderwerpen/concurrentie-en-marktwerking/concurrentie-en-afspraken-tussen-bedrijven/concurrentie-de-landbouw-en-voedselketen/verbod-oneerlijke-handelspraktijken-de-landbouwketen> [Accessed on 02-06-2022]
- Afrian, K., van der Wal, R., & Hoeksma, L. (2020). De landbouw in de Nederlandse economie. Retrieved from: <https://www.cbs.nl/nl-nl/longread/de-nederlandse-economie/2020/de-landbouw-in-de-nederlandse-economie?onepage=true> [Accessed on 13-01-2022]
- Aher, S. B., Bhaveshananda, S., & Sengupta, B. (2012). Organic agriculture: Way towards sustainable development. *International Journal of Environmental Sciences*, 3(1), 209-216.
- Anania, G., & d'Andrea, M. R. P. (2015). The 2013 Reform of the Common Agricultural Policy. *The Political Economy of the 2014-2020 Common Agricultural Policy: An Imperfect Storm*, 33-86.
- Augère-Granier, M. L. (2016). Short food supply chains and local food systems in the EU. Retrieved from: <https://policycommons.net/artifacts/1340881/short-food-supply-chains-and-local-food-systems-in-the-eu/1951844/> [Accessed on 13-06-2022]
- Aznar-Sanchez, J. A., Piquer-Rodriguez, M., Velasco-Munoz, J. F., & Manzano-Agugliaro, F. (2019). Worldwide research trends on sustainable land use in agriculture. *Land use policy*, 87, 104069. <https://doi.org/10.1016/j.landusepol.2019.104069>
- Baker, S., DeVar, S., Prakash, S. (2019). The Energy Justice Workbook. Initiative for energy justice. Retrieved from <https://www.cebrightfutures.org/sites/default/files/resource-files/The-Energy-Justice-Workbook-2019-web.pdf> [Accessed on 20-02-2022].
- Barton, G. A. (2018). *The global history of organic farming*. Oxford University Press.
- BBB. (2020). BoerBurgerBeweging. De stem van en voor het platteland. Retrieved from: <https://boerburgerbeweging.nl/partij/missie/> [Accessed on 01-06-2022]
- Belastingdienst. (2022). BTW-tarief dranken. Retrieved from: [https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/btw/tarieven\\_en\\_vrijstellingen/goederen\\_9\\_btw/voedingsmiddelen/dranken](https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/btw/tarieven_en_vrijstellingen/goederen_9_btw/voedingsmiddelen/dranken) [Accessed on 29-05-2022]
- Bhardwaj, M., & Dhiman, M. (2019). Growth and performance of organic farming in India: what could be the future prospects?. *Journal of Current Science*, 20.
- Bolluyt, J., Johnson, S. E., Lowy, P., McGrath, M. T., Mohler, C. L., Rangarajan, A., ... & van Es, H. (2011). Crop rotation on organic farms: A planning manual (nraes-177).
- Bond, W., & Grundy, A. C. (2001). Non-chemical weed management in organic farming systems. *Weed research*, 41(5), 383-405.

- Bos, J. F. F. P., De Haan, J. J., & Sukkel, W. (2007). Energieverbruik, broeikasgasemissies en koolstofopslag: de biologische en gangbare landbouw vergeleken. Volledig rapport (No. 140). Plant Research International.
- Brantsæter, A. L., Ydersbond, T. A., Hoppin, J. A., Haugen, M., & Meltzer, H. M. (2017). Organic food in the diet: exposure and health implications. *Annual review of public health*, 38, 295-313.
- Brenton, S. (2013). The political motivations of ethical consumers. *International Journal of Consumer Studies*, 37(5), 490-497. <https://doi.org/10.1111/ijcs.12024>
- Brulle, R. J., & Pellow, D. N. (2006). Environmental justice: human health and environmental inequalities. *Annu. Rev. Public Health*, 27, 103–124. <https://doi.org/10.1146/annurev.publhealth.27.021405.102124>
- Brundtland, G. H. (1987). Our common future—Call for action. *Environmental Conservation*, 14(4), 291-294.
- Brydges, T., Retamal, M., & Hanlon, M. (2020). Will COVID-19 support the transition to a more sustainable fashion industry?. *Sustainability: Science, Practice and Policy*, 16(1), 298-308. <https://doi.org/10.1080/15487733.2020.1829848>
- Bryman, A. (2016). *Social research methods*. Oxford university press.
- Bucci, G., Bentivoglio, D., & Finco, A. (2018). Precision agriculture as a driver for sustainable farming systems: state of art in literature and research. *Calitatea*, 19(S1), 114-121.
- Cacek, T., & Langner, L. L. (1986). The economic implications of organic farming. *American Journal of Alternative Agriculture*, 1(1), 25-29. <https://doi.org/10.1017/S0889189300000758>
- Cavoski, I., Caboni, P., & Miano, T. (2011). Natural pesticides and future perspectives. *Pesticides in the modern world-pesticides use and management*, 169-190.
- CBS. (2021). StatLine: Activiteiten van biologische landbouwbedrijven; regio. Retrieved from: <https://opendata.cbs.nl/#/CBS/nl/dataset/83922NED/table?ts=1626271082204> [Accessed on 14-02-2022]
- CBS. (2022). Welke sectoren stoten broeikasgassen uit? Retrieved from: <https://www.cbs.nl/nl-nl/dossier/dossier-broeikasgassen/hoofdcategorieen/welke-sectoren-stoten-broeikasgassen-uit> [Accessed on 02-03-2022]
- CDA. (2022). Boeren zorgen dat we iedere dag te eten hebben. Retrieved from: <https://www.cda.nl/landbouw> [Accessed on 01-06-2022]
- Cohen, R. L. (1987). Distributive justice: Theory and research. *Social Justice Research*, 1(1), 19–40. <https://doi.org/10.1007/BF01049382>

- Conacher, J., & Conacher, A. (1998). Organic farming and the environment, with particular reference to Australia: a review. *Biological Agriculture & Horticulture*, 16(2), 145-171. <https://doi.org/10.1080/01448765.1998.9755229>
- Coulson, H., & Milbourne, P. (2021). Food justice for all?: searching for the ‘justice multiple’ in UK food movements. *Agriculture and human values*, 38(1), 43-58. <https://doi.org/10.1007/s10460-020-10142-5>
- Crandall, P. G., Seideman, S., Ricke, S. C., O’Bryan, C. A., Fanatico, A. F., & Rainey, R. (2009). Organic poultry: Consumer perceptions, opportunities, and regulatory issues. *Journal of Applied Poultry Research*, 18(4), 795–802. <https://doi.org/https://doi.org/10.3382/japr.2009-00025>
- Crowder, D. W., & Reganold, J. P. (2015). Financial competitiveness of organic agriculture on a global scale. *Proceedings of the National Academy of Sciences*, 112(24), 7611-7616. <https://doi.org/10.1073/pnas.1423674112>
- Czyżewski, B., Matuszczak, A., & Miśkiewicz, R. (2019). Public goods versus the farm price-cost squeeze: shaping the sustainability of the EU’s common agricultural policy. *Technological and Economic Development of Economy*, 25(1), 82-102. <https://doi.org/10.3846/tede.2019.7449>
- De Buck, A. J., Van Rijn, I., Roling, N. G., & Wossink, G. A. A. (2008). Farmers’ reasons for changing or not changing to more sustainable practices: an exploratory study of arable farming in the Netherlands. *The Journal of Agricultural Education and Extension*, 7(3), 153-166. <https://doi.org/10.1080/13892240108438817>
- Dillinger, J. (2017). Which Countries Export The Most Food? Retrieved from: <https://www.worldatlas.com/articles/the-american-food-giant-the-largest-exporter-of-food-in-the-world.html> [Accessed on 20-06-2022]
- Doorn, A. J. (2019). Kritiek op controle in biologische sector. Retrieved from: <https://www.boerenbusiness.nl/agribusiness/artikel/10882373/kritiek-op-controle-in-biologische-sector> [Accessed on 16-03-2022]
- Dudley, N., & Alexander, S. (2017). Agriculture and biodiversity: a review. *Biodiversity*, 18(2-3), 45-49.
- El Bilali, H. (2020). Transition heuristic frameworks in research on agro-food sustainability transitions. *Environment, Development and Sustainability*, 22(3), 1693–1728. <https://doi.org/10.1007/s10668-018-0290-0>
- Elkington, J. (1997). The triple bottom line. *Environmental management: Readings and cases*, 2, 49-66.
- Escosteguy, M., Díaz Paz, W. F., Iribarnegaray, M. A., & Clavijo, A. (2021). *Will electro-mobility encourage injustices? The case of lithium production in the Argentine Puna*. En: Democratizing energy: imaginaries, transitions, risks, ed por Majia Nadesan, Martin J. Pasqualetti y Jennifer Keahey (en prensa), Elsevier.
- EU. (2019). Unfair trading practices in the food chain. Retrieved from: [https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/market-measures/agri-food-supply-chain/unfair-trading-practices\\_en#:~:text=The EU Directive 2019%2F633,apply it six months later.](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/market-measures/agri-food-supply-chain/unfair-trading-practices_en#:~:text=The EU Directive 2019%2F633,apply it six months later.) [Accessed on 29-05-2022]

- Eyhorn, F., Muller, A., Reganold, J. P., Frison, E., Herren, H. R., Luttikholt, L., ... & Smith, P. (2019). Sustainability in global agriculture driven by organic farming. *Nature Sustainability*, 2(4), 253-255. <https://doi.org/10.1038/s41893-019-0266-6>
- FAO. (2018). *The future of food and agriculture—Alternative pathways to 2050*. Food and Agriculture Organization of the United Nations, Rome, Italy. Food and Agriculture Organization.
- Ferguson, R. S., & Lovell, S. T. (2014). Permaculture for agroecology: design, movement, practice, and worldview. A review. *Agronomy for sustainable development*, 34(2), 251-274. <https://doi.org/10.1007/s13593-013-0181-6>
- Fylan, F. (2005). Semi-structured interviewing. *A handbook of research methods for clinical and health psychology*, 5(2), 65-78.
- Gebbers, R., & Adamchuk, V. I. (2010). Precision agriculture and food security. *Science*, 327(5967), 828-831.
- Gomiero, T., Pimentel, D., & Paoletti, M. G. (2011). Environmental impact of different agricultural management practices: conventional vs. organic agriculture. *Critical reviews in plant sciences*, 30(1-2), 95-124. <https://doi.org/10.1080/07352689.2011.554355>
- Górny, A., & Kaczmarczyk, P. (2018). A known but uncertain path: The role of foreign labour in Polish agriculture. *Journal of Rural Studies*, 64, 177-188.
- Graaf, M. D. (2020). *De bijdrage van de biologische akkerbouw aan de insectenstand in Nederland* (Doctoral dissertation, Aeres Hogeschool).
- Green, M., & Maynard, R. (2006). The employment benefits of organic farming. *Aspects of Applied Biology* 79, What will organic farming deliver? COR 2006, 51-55.
- Grin, J., Rotmans, J., & Schot, J. (2010). *Transitions to sustainable development: new directions in the study of long term transformative change*. Routledge. <https://doi.org/10.4324/9780203856598>
- Guth, M., Smędzik-Ambroży, K., Czyżewski, B., & Stępień, S. (2020). The economic sustainability of farms under common agricultural policy in the european union countries. *Agriculture*, 10(2), 34.
- Hassink, J. (2002). Landbouw en zorg. *Ekoland*, 22(7-8), 18-19.
- Heffron, R. J. (2022). Applying energy justice into the energy transition. *Renewable and Sustainable Energy Reviews*, 156, 111936. <https://doi.org/10.1016/j.rser.2021.111936>
- Heffron, R. J., & McCauley, D. (2014). Achieving sustainable supply chains through energy justice. *Applied Energy*, 123, 435–437. <https://doi.org/10.1016/j.apenergy.2013.12.034>
- Heffron, R. J., & McCauley, D. (2018). What is the ‘just transition’? *Geoforum*, 88, 74–77.
- Henriques, A., & Richardson, J. (2013). *Triple Bottom Line*. Routledge.

- Holtz, B. C., & Harold, C. M. (2013). Interpersonal justice and deviance: The moderating effects of interpersonal justice values and justice orientation. *Journal of Management*, 39(2), 339–365. <https://doi.org/10.1177/0149206310390049>
- Hsu, M., Anen, C., & Quartz, S. R. (2008). The right and the good: distributive justice and neural encoding of equity and efficiency. *Science*, 320(5879), 1092–1095. <https://doi.org/10.1126/science.1153651>
- Jenkins, K., McCauley, D., Heffron, R., Stephan, H., & Rehner, R. (2016). Energy justice: A conceptual review. *Energy Research & Social Science*, 11, 174–182. <https://doi.org/10.1016/j.erss.2015.10.004>
- Jones, P. A., Blair, A. M., & Orson, J. H. (1996). Mechanical damage to kill weeds. In 2. International Weed Control Congress, Copenhagen (Denmark), 25-28 Jun 1996. SP.
- Jouzi, Z., Azadi, H., Taheri, F., Zarafshani, K., Gebrehiwot, K., Van Passel, S., & Lebailly, P. (2017). Organic farming and small-scale farmers: Main opportunities and challenges. *Ecological Economics*, 132, 144-154.
- Kalfagianni, A., & Pattberg, P. (2013). Fishing in muddy waters: Exploring the conditions for effective governance of fisheries and aquaculture. *Marine Policy*, 38, 124-132. <https://doi.org/10.1016/j.marpol.2012.05.028>
- Kaljonen, M., Kortetmäki, T., Tribaldos, T., Huttunen, S., Karttunen, K., Maluf, R. S., ... Vaalavuo, M. (2021). Justice in transitions: Widening considerations of justice in dietary transition. *Environmental Innovation and Societal Transitions*, 40, 474–485. <https://doi.org/10.1016/j.eist.2021.10.007>
- Kang, M. S., & Banga, S. S. (2013). Global agriculture and climate change. *Journal of Crop Improvement*, 27(6), 667-692. <https://doi.org/10.1080/15427528.2013.845051>
- Kilcher, L. (2007). How organic agriculture contributes to sustainable development. *Journal of Agricultural Research in the Tropics and Subtropics*, Supplement, 89(1), 31–49.
- Kneafsey, M., Cox, R., Holloway, L., Dowler, E., Venn, L., & Tuomainen, H. (2008). *Reconnecting consumers, producers and food: exploring alternatives*. Bloomsbury Publishing.
- Koopmans, C., Geijzendorffer, I., Janmaat, L., Schurer, B., Sleiderink, J., & en Jan-Paul, J. D. W. (2021). SWOT-analyse van de biologische landbouw met kansen voor stimulering.
- Liebman, M. (2018). Polyculture cropping systems. In *Agroecology* (pp. 205-218). CRC Press.
- Lotter, D. W. (2003). Organic agriculture. *Journal of sustainable agriculture*, 21(4), 59-128. [https://doi.org/10.1300/J064v21n04\\_06](https://doi.org/10.1300/J064v21n04_06)
- Lucas, J. R. (1972). Justice. *Philosophy*, 47(181), 229–248. <https://doi.org/10.1017/S0031819100041048>
- Luiten, S. (2020). *Trekkerrevoluties: boerenprotesten in het naoorlogse Nederland* (Bachelor's thesis).
- Lynch, D. (2009). Environmental impacts of organic agriculture: A Canadian perspective. *Canadian Journal of Plant Science*, 89(4), 621-628.

- Makower, J. (2021). Just transition' is the new 'net zero. Retrieved from:  
<https://www.greenbiz.com/article/just-transition-new-net-zero> [Accessed on 14-12-2021]
- Mancini, F., Termorshuizen, A. J., Jiggins, J. L., & van Bruggen, A. H. (2008). Increasing the environmental and social sustainability of cotton farming through farmer education in Andhra Pradesh, India. *Agricultural Systems*, 96(1-3), 16-25. <https://doi.org/10.1016/j.agsy.2007.05.001>
- Marshall, T. F. (1999). *Restorative justice: An overview*. Home Office London.
- Mathiesen, K. (2015). Informational justice: A conceptual framework for social justice in library and information services. *Library Trends*, 64(2), 198–225. [doi:10.1353/lib.2015.0044](https://doi.org/10.1353/lib.2015.0044)
- McCauley, D. A., Heffron, R. J., Stephan, H., & Jenkins, K. (2013). Advancing energy justice: the triumvirate of tenets. *International Energy Law Review*, 32(3), 107-110.
- McCauley, D., & Heffron, R. (2018). Just transition: Integrating climate, energy and environmental justice. *Energy Policy*, 119, 1–7. <https://doi.org/10.1016/j.enpol.2018.04.014>
- McCauley, D., Ramasar, V., Heffron, R. J., Sovacool, B. K., Mebratu, D., & Mundaca, L. (2019). Energy justice in the transition to low carbon energy systems: Exploring key themes in interdisciplinary research. *Applied Energy*, 233–234, 916–921. <https://doi.org/10.1016/j.apenergy.2018.10.005>
- McConnell, D. J., Dharmapala, K. A. E., & Attanayake, S. R. (2017). *The Forest Farms of Kandy: and other gardens of complete design*. Routledge. <https://doi.org/10.4324/9781315239637>
- Meenar, M., & Hoover, B. (2012). Community food security via urban agriculture: Understanding people, place, economy, and accessibility from a food justice perspective. <http://dx.doi.org/10.5304/jafscd.2012.031.013>
- Meng, F., Qiao, Y., Wu, W., Smith, P., & Scott, S. (2017). Environmental impacts and production performances of organic agriculture in China: A monetary valuation. *Journal of environmental management*, 188, 49-57.
- Mfarrej, M. F. B., & Rara, F. M. (2019). Competitive, sustainable natural pesticides. *Acta Ecologica Sinica*, 39(2), 145-151.
- Michalke, A., Stein, L., Fichtner, R., Gaugler, T., & Stoll-Kleemann, S. (2022). True cost accounting in agri-food networks: a German case study on informational campaigning and responsible implementation. *Sustainability Science*, 1-17. <https://doi.org/10.1007/s11625-022-01105-2>
- Mie, A., Andersen, H. R., Gunnarsson, S., Kahl, J., Kesse-Guyot, E., Rembiałkowska, E., ... & Grandjean, P. (2017). Human health implications of organic food and organic agriculture: a comprehensive review. *Environmental Health*, 16(1), 1-22.
- Milestad, R., & Darnhofer, I. (2003). Building Farm Resilience: The Prospects and Challenges of Organic Farming. *Journal of Sustainable Agriculture*, 22, 81–97. [https://doi.org/10.1300/J064v22n03\\_09](https://doi.org/10.1300/J064v22n03_09)



- Muller, A., Schader, C., El-Hage Scialabba, N., Brüggemann, J., Isensee, A., Erb, K. H., ... & Niggli, U. (2017). Strategies for feeding the world more sustainably with organic agriculture. *Nature communications*, 8(1), 1-13. <https://doi.org/10.1038/s41467-017-01410-w>
- Náglová, Z., & Vlasicova, V. (2018). Economic performance of conventional, organic, and biodynamic farms.
- Namboothiripad, P., Pushpa, J., Mahandrakumar, K., Amarnath, J. S., & Prabakaran, K. (2021). An Impact Study on Organic Agriculture-SWOC Analysis. *Indian Journal of Pure & Applied Biosciences*, 9, 92-98. doi: <http://dx.doi.org/10.18782/2582-2845.8533>
- Netland, J., Balvoll, G., & Holmøy, R. (1993). Band spraying, selective flame weeding and hoeing in late white cabbage PART II. In Symposium on Engineering as a Tool to reduce Pesticide Consumption and Operator Hazards in Horticulture 372. 235-244.
- Newell, P., & Mulvaney, D. (2013). The political economy of the 'just transition'. *The Geographical Journal*, 179(2), 132-140.
- Newsome, L. (2020). Beyond 'get big or get out': Female farmers' responses to the cost-price squeeze of Australian agriculture. *Journal of Rural Studies*, 79, 57-64. <https://doi.org/10.1016/j.jrurstud.2020.08.040>
- Nigten, A. (1987). *Nederlandse Rundvee Syndikaat en de melkplas: effecten van automatisering, fusie en schaalvergroting in NRS-verband en van de superheffing op de omvang van de werkgelegenheid bij het NRS*. Wetenschapswinkel.
- Noorduyn, L. (2005). 'Volg de kwaliteitsbewuste biologische consument'. *Syscope Magazine*, 2005(5), 6-7.
- NOS (2022). Waarom laat politie de meeste snelwegtrekkers rijden? Retrieved from: <https://nos.nl/artikel/2433651-waarom-laat-politie-meeste-snelwegtrekkers-rijden> [Accessed on 23-06-2022]
- Patil, D. A., & Katti, R. J. (2012). Modern agriculture, pesticides and human health: a case of agricultural labourers in western Maharashtra. *Journal of Rural Development*, 31(3), 305–318.
- PBL. (2010). Voedsel, biodiversiteit en klimaatverandering. Retrieved from: [https://www.pbl.nl/sites/default/files/downloads/Voedsel-biodiversiteit-klimaatverandering\\_500414004.pdf](https://www.pbl.nl/sites/default/files/downloads/Voedsel-biodiversiteit-klimaatverandering_500414004.pdf) [Accessed on 13-01-2022]
- Prastiyo, S. E., & Hardyastuti, S. (2020). How agriculture, manufacture, and urbanization induced carbon emission? The case of Indonesia. *Environmental Science and Pollution Research*, 27(33), 42092-42103.
- Prové, C., & Crivits, M. (2019). Een rechtvaardige landbouw-en voedseltransitie: over polarisatie en emancipatorische communicatie. In *Klimaat en sociale rechtvaardigheid* (pp. 277-300). Gompel & Svacina.
- Pujianti, N., Munandar, A., & Surakusumah, W. (2018). Environmental literacy in agriculture and coastal areas. In *Journal of Physics: Conference Series* IOP Publishing. Vol. 1013-1. P,012007.

- Pulido, L. (1996). A critical review of the methodology of environmental racism research. *Antipode*, 28(2), 142–159. <https://doi.org/10.1111/j.1467-8330.1996.tb00519.x>
- Ramesh, P., Singh, M., & Rao, A. S. (2005). Organic farming: Its relevance to the Indian context. *Current science*, 88(4), 561-568.
- Raphael, D. D. (2001). *Concepts of justice*. Clarendon Press.
- Red Tractor Assurance. (2021). The UK's first groceries code adjudicator is appointed chair of red tractor assurance. Retrieved from <https://redtractorassurance.org.uk/news/the-uks-first-groceries-code-adjudicator-is-appointed-chair-of-red-tractor-assurance/#> [Accessed on 02-06-2022]
- Reganold, J. P., & Wachter, J. M. (2016). Organic agriculture in the twenty-first century. *Nature plants*, 2(2), 1-8. <https://doi.org/10.1038/nplants.2015.221>
- RIVM. (2020). Landbouwpraktijk en waterkwaliteit in Nederland; toestand (2016-2019) en trend (1992-2019). Retrieved from: <https://www.rivm.nl/bibliotheek/rapporten/2020-0121.pdf> [Accessed on 12-01-2021]
- RIVM. (2021). Stikstof. Retrieved from: <https://www.rivm.nl/stikstof>. [Accessed on 06-01-2022]
- Robinson, S., & Carlson, D. (2021). A just alternative to litigation: applying restorative justice to climate-related loss and damage. *Third World Quarterly*, 1–12. <https://doi.org/10.1080/01436597.2021.1877128>
- Rosati, A., Borek, R., & Canali, S. (2021). Agroforestry and organic agriculture. *Agroforestry Systems*, 95(5), 805-821. [https://doi.org/10.1007/s10457-020-00559-6\(0123456789\(..-volV\)\(01234567](https://doi.org/10.1007/s10457-020-00559-6(0123456789(..-volV)(01234567)
- Runhaar, H. (2017). Governing the transformation towards 'nature-inclusive' agriculture: insights from the Netherlands. *International Journal of Agricultural Sustainability*, 15(4), 340-349. <https://doi.org/10.1080/14735903.2017.1312096>
- RVO. (2016). De Nederlandse landbouw en het klimaat. Retrieved from: [https://www.rvo.nl/sites/default/files/2016/12/RVO\\_De\\_Nederlandse\\_landbouw\\_en\\_het\\_klimaat\\_Broch\\_def.pdf](https://www.rvo.nl/sites/default/files/2016/12/RVO_De_Nederlandse_landbouw_en_het_klimaat_Broch_def.pdf) [Accessed on 11-01-2022]
- Rye, J. F., & Andrzejewska, J. (2010). The structural disempowerment of Eastern European migrant farm workers in Norwegian agriculture. *Journal of Rural Studies*, 26(1), 41–51. <https://doi.org/10.1016/j.jrurstud.2009.06.003>
- Sanders, R. (2006). A market road to sustainable agriculture? Ecological agriculture, green food and organic agriculture in China. *Development and Change*, 37(1), 201-226. <https://doi.org/10.1016/j.envsci.2009.11.002>
- Sandhu, H. S., Wratten, S. D., & Cullen, R. (2010). Organic agriculture and ecosystem services. *Environmental science & policy*, 13(1), 1-7.



- Sarker, M. A., & Itohara, Y. (2008). Organic farming and poverty elimination: A suggested model for Bangladesh. *Journal of Organic Systems*, 3(1), 68-79.
- Schlosberg, D. (2003). The justice of environmental justice: reconciling equity, recognition, and participation in a political movement. *Moral and Political Reasoning in Environmental Practice*, 77, 106.
- Schlosberg, D. (2007). *Defining environmental justice: Theories, movements, and nature*. OUP Oxford.
- Schlosberg, D., & Collins, L. B. (2014). From environmental to climate justice: climate change and the discourse of environmental justice. *Wiley Interdisciplinary Reviews: Climate Change*, 5(3), 359–374. <https://doi.org/10.1002/wcc.275>
- Schröder, P. (2020). Promoting a just transition to an inclusive circular economy. Royal Institute of International Affairs.
- Schwanen, T. (2021). Achieving just transitions to low-carbon urban mobility. *Nature Energy*, 6(7), 685-687. <https://doi.org/10.1038/s41560-021-00856-z>
- Seufert, V. (2012). Organic Agriculture as an Opportunity for Sustainable Agricultural Development Verena - Policy Brief No. 13. *Research to Practice Policy Briefs*, (13), 1–26.
- Seufert, V., & Ramankutty, N. (2017). Many shades of gray—The context-dependent performance of organic agriculture. *Science advances*, 3(3), e1602638. [doi: 10.1126/sciadv.1602638](https://doi.org/10.1126/sciadv.1602638)
- Sharpe, S., Veem, K., Kallio, K., & Martinez Fernandez, M. C. (2022). Opportunities for a Just Transition to environmental sustainability and COVID-19 recovery in the textile and garment sector in Asia (No. 995169793402676). International Labour Organization.
- Shepard, P. M., & Corbin-Mark, C. (2009). Climate justice. *Environmental Justice*, 2(4), 163–166. <https://doi.org/10.1089/env.2009.2402>
- Shreck, A., Getz, C., & Feenstra, G. (2006). Social sustainability, farm labor, and organic agriculture: Findings from an exploratory analysis. *Agriculture and Human Values*, 23(4), 439-449. <https://doi.org/10.1007/s10460-006-9016-2>
- Slepchuk, A. N., Milne, G. R., & Swani, K. (2021). Overcoming privacy concerns in consumers' use of health information technologies: A justice framework. *Journal of Business Research*. <https://doi.org/10.1016/j.jbusres.2021.11.073>
- Slocum, R., & Cadieux, K. V. (2015). Notes on the practice of food justice in the US: understanding and confronting trauma and inequity. *Journal of Political Ecology*, 22, 27.
- Slocum, R., Cadieux, K., & Blumberg, R. (2016). Solidarity, space, and race: toward geographies of agrifood justice. *Justice Spatiale-Spatial Justice*, 9.
- Smith, O. M., Cohen, A. L., Rieser, C. J., Davis, A. G., Taylor, J. M., Adesanya, A. W., ... & Crowder, D. W. (2019). Organic farming provides reliable environmental benefits but increases variability in crop

yields: a global meta-analysis. *Frontiers in Sustainable Food Systems*, 3, 82.

<https://doi.org/10.3389/fsufs.2019.00082>

Soane, B. D., Ball, B. C., Arvidsson, J., Basch, G., Moreno, F., & Roger-Estrade, J. (2012). No-till in northern, western and south-western Europe: A review of problems and opportunities for crop production and the environment. *Soil and Tillage Research*, 118, 66–87.

Solum, L. B. (2004). Procedural justice. *S. Cal. L. Rev.*, 78, 181.

Sovacool, B. K. (2021). Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation. *Energy Research & Social Science*, 73, 101916.

<https://doi.org/10.1016/j.erss.2021.101916>

Sovacool, B. K., & Dworkin, M. H. (2015). Energy justice: Conceptual insights and practical applications. *Applied Energy*, 142, 435–444. <https://doi.org/10.1016/j.apenergy.2015.01.002>

Struik, P. C., van Niejenhuis, J. H., de Hoogh, J., Veerman, C. P., Schouls, J., van Arkel, H., & Renkema, J. A. (1991). Problematiek en vooruitzichten van de Nederlandse akkerbouw. Landbouwniversiteit (etc.). <https://edepot.wur.nl/391089>

Sze, J., & London, J. K. (2008). Environmental justice at the crossroads. *Sociology Compass*, 2(4), 1331–1354. <https://doi.org/10.1016/j.apenergy.2015.01.002>

Tribaldos, T., & Kortetmäki, T. (2022). Just transition principles and criteria for food systems and beyond. *Environmental Innovation and Societal Transitions*, 43, 244–256.

<https://doi.org/10.1016/j.eist.2022.04.005>

Van Asseldonk, M., Stokkers, R., Jager, J., & van der Meer, R. (2020). Economische effecten van droogte in 2018 en 2019: een regionale analyse akkerbouw en melkveehouderij. Wageningen Economic Research.

van Baars, L. (2009). 'Slavernij' in aspergestekkerij. Retrieved from: <https://www.trouw.nl/nieuws/slavernij-in-aspergestekkerij~b76390da/> [Accessed on 21-04-2022]

van de Klundert, M., & Mulder, F. (2017). *Onzichtbare voedselreuzen*. De Groene Amsterdammer. Retrieved from: <https://www.groene.nl/artikel/onzichtbare-voedselreuzen> [Accessed on 28-05-2022]

Van den Bergh, M. (2019). Nederland langs de Europese Meetlat 2019. Retrieved from: <https://longreads.cbs.nl/europese-meetlat-2019/> [Accessed on 04-03-2022]

Van der Meulen, H. (2022). Verdere groei biologisch areaal, stagnatie in aantal bedrijven. Retrieved from: <https://www.agrimatie.nl/ThemaResultaat.aspx?subpubID=2232&themaID=2286&indicatorID=3586> [Accessed on 12-03-2022]

Vrolijk, H. (2013). Critici zijn bang dat bio-landbouw zijn opmars nog verder zal voortzetten. Retrieved from: <https://www.biojournaal.nl/article/7013882/critici-zijn-bang-dat-bio-landbouw-zijn-opmars-nog-verder-zal-voortzetten/> [Accessed on 12-03-2022]

- Wang, M., Kumar, V., Ruan, X., Saad, M., Garza-Reyes, J. A., & Kumar, A. (2021). Sustainability concerns on consumers' attitude towards short food supply chains: an empirical investigation. *Operations Management Research*, 1-17. <https://doi.org/10.1007/s12063-021-00188-x>
- Wang, X., & Lo, K. (2021). Just transition: A conceptual review. *Energy Research & Social Science*, 82, 102291. <https://doi.org/10.1016/j.erss.2021.102291>
- Webbink, E., & Jonkers, W. (2019). De Nederlandse economie. Huisvesting en voeding groter deel consumptie. Retrieved from: <https://www.cbs.nl/nl-nl/achtergrond/2019/17/huisvesting-en-voeding-groter-deel-consumptie> [Accessed on 30-05-2022]
- Wijnands, F. W. T. (1999). Crop rotation in organic farming: theory and practice. In *Designing and testing crop rotations for organic farming. Proceedings from an international workshop*. Danish Research Centre for Organic Farming (pp. 21-35).
- Xhoxhi, O., Pedersen, S. M., Lind, K. M., & Yazar, A. (2014). The Determinants of Intermediaries' Power over Farmers' Margin-Related Activities: Evidence from Adana, Turkey. *World Development*, 64, 815–827. <https://doi.org/https://doi.org/10.1016/j.worlddev.2014.07.012>
- Xhoxhi, O., Pedersen, S. M., & Lind, K. M. (2018). How does the intermediaries' power affect farmers-intermediaries' trading relationship performance? *World Development Perspectives*, 10–12, 44–50. <https://doi.org/https://doi.org/10.1016/j.wdp.2018.09.004>
- Yacamán Ochoa, C., Matarán Ruiz, A., Mata Olmo, R., Macías Figueroa, Á., & Torres Rodríguez, A. (2020). Peri-Urban Organic Agriculture and Short Food Supply Chains as Drivers for Strengthening City/Region Food Systems—Two Case Studies in Andalucía, Spain. *Land*, Vol. 9. <https://doi.org/10.3390/land9060177>
- Zamawe, F. C. (2015). The implication of using NVivo software in qualitative data analysis: Evidence-based reflections. *Malawi Medical Journal*, 27(1), 13–15. <https://doi.org/10.4314/mmj.v27i1.4>

## 9. Appendices

### Appendix 1. Linking of the five most important tenets of justice in CEE literature to the eight principles of justice.

5 tenets of justice	8 justice principles (Sovacool & Dworkin, 2015)	Linking of 5 tenets of justice with 8 justice principles
Procedural	Due Process	'Due process seeks to ensure the potential for stakeholder participation' (Sovacool & Dworkin, 2015, p. 439), and procedural justice entails who is at the decision-making table (Baker et al., 2019).
Distributive	Affordability	If one person needs to spend a relatively large share of their income on energy while the other does not, there is an unequal share of benefits and burdens.
Distributive	Intragenerational equity	'Philosophers call intragenerational equity "distributive" justice because it deals intently with three aspects of distribution: 1. What goods, such as wealth, power, respect, food, or clothing, are to be distributed? 2. Between what entities are they to be distributed? 3. What is the proper mode of distribution?' (Sovacool & Dworkin, 2015, p. 439-440).
Distributive	Availability	If one person cannot enjoy sufficient energy resources while another can, there is an unequal share of benefits and burdens.
Distributive	Intergenerational equity	'Intergenerational equity is about distributive justice between present and future generations. It holds that future people have a right to enjoy a right to enjoy a good life just like us contemporaries, yet one undisturbed by the temporal damage our energy systems will inflict over time' (Sovacool & Dworkin, 2015, p. 440).
Recognition	Good governance	Good governance seeks to 'improve accountability' and 'enhancing social stability' (Sovacool & Dworkin, 2015, p. 439). This relates to recognition justice in the sense that individuals are offered more complete and equal political rights and are free of disparagement.
Restorative	Responsibility	Restorative justice in CEE literature often refers to disproportionately affected actors that need to be compensated for the consequences of climate change (Robinson & Carlson, 2021). 'Responsibility, as quoted by Sovacool & Dworkin (2015, p. 440) entails 'a responsibility ... to pay to fix the climate change problem (the so-called polluter pays principle)' (Sovacool & Dworkin, 2015, p.440).
Cosmopolitanism	Sustainability	Cosmopolitanism justice relates to cross-border effects from activities (Heffron, 2022), while 'Sustainability' (Sovacool & Dworkin, 2015, p. 439) includes 'that they do not cause undue damage to their environment or that of other states beyond

		their jurisdiction’.
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## Appendix 2. Interview guide.

### Sub-question 1: Organic Agriculture and the Triple Bottom Line

- Bent u bekend met biologische landbouw?
  - Wat zijn volgens u de belangrijkste aspecten van biologische landbouw?
  - Indien boer: Maakt u zelf gebruik van biologische landbouw?
    - Indien nee: Heeft u er ooit over nagedacht om dit wel te doen?
    - Waarom heeft u ervoor gekozen om dit wel / niet te doen?
- Vind u dat biologische landbouw (op een positieve manier) bijdraagt aan een transitie naar een duurzamer landbouwsysteem en waarom?

#### *Economic sustainability*

- Wat zijn de grootste economische voordelen van biologische landbouw?
- Wat zijn de grootste economische nadelen aan de biologische landbouw?

#### *Environmental sustainability*

- Wat zijn de grootste ecologische voordelen van biologische landbouw?
- Wat zijn de grootste ecologische nadelen aan de biologische landbouw?

#### *Social sustainability*

- Wat zijn de grootste sociale voordelen van biologische landbouw?
- Wat zijn de grootste sociale nadelen aan de biologische landbouw?

### Sub-question 2: Identifying (in)justices<sup>1</sup>

#### Procedural justice

- Vindt u dat de stem van alle betrokken partijen even zwaar wordt gewogen tijdens het nemen van beleidsbeslissingen over de akkerbouwsector?
  - Zo nee, van wie niet en waarom?
- Wat moet er volgens u gebeuren om dit te veranderen?

#### Distributive justice

##### *Intragenerational equity*

- Vindt u dat er een eerlijke verdeling van lasten en lusten wordt gecreëerd in de huidige akkerbouwsector?<sup>2</sup>
- Wie zijn volgens u, kijkend naar financiële lasten en lusten, de winnaars en verliezers binnen de akkerbouwsector?\*

  - Zo ja / nee, waarom?
  - Zo nee: Welke partij(en) vindt u dat er worden achtergesteld en waarom?
  - Hoe denkt u dat deze achtergestelde groep het best gecompenseerd kan worden?

- Do you feel like you are handing in too much of your income to other parties in your value chain such as agricultural input firms or retail businesses?\*\*\*

##### *Affordability*

- Vindt u dat eten te duur is in Nederland?

### *Availability*

- Vindt u dat iedereen in Nederland een goede kans heeft op hoge kwaliteit voedsel?

### *Intergenerational equity*

- Hoe denkt u dat volgende generaties last kunnen hebben van de manier waarop ons voedselsysteem in elkaar zit?
  - Hoe moeten deze mensen worden gecompenseerd volgens u?

### Recognition justice

- ~~Vindt u dat alle betrokken partijen in het agriculturele systeem genoeg erkent worden? (vindt u dat bepaalde groepen minder goed erkent worden dan anderen?)<sup>2</sup>~~
  - ~~Zo ja / nee, waarom?<sup>2</sup>~~
    - Vindt u dat boeren de erkenning krijgen die ze verdienen?\*
  - Heeft u het gevoel dat u meer erkenning krijgt van de consument omdat je direct aan hen levert? / Heeft u het gevoel dat u meer erkenning zou krijgen van de consument als u direct aan het zou leveren?\*\*\*
  - Heeft u het gevoel dat u meer erkenning krijgt van de consument omdat u direct u biologisch verbouwd? / Heeft u het gevoel dat u meer erkenning zou krijgen van de consument als u biologisch zou verbouwen?\*\*\*

### *Good governance*

- Vindt u dat alle betrokken partijen goed genoeg worden ingelicht over beleidsbeslissingen binnen de boerensector?
  - Zo ja / nee, waarom?
    - ~~Zo nee: Welke partij(en) vindt u dat er worden niet goed genoeg ingelicht en waarom?<sup>2</sup>~~
    - Zo nee: Hoe denkt u dat dit verbeterd kan worden?

### Restorative justice

- Vindt u dat achtergestelde betrokken partijen (refereer naar wat besproken is in Distributive Justice) genoeg gecompenseerd worden in het huidige systeem?
  - Hoe kunnen deze partijen worden gecompenseerd?

### Cosmopolitanism justice

- Hoe denkt u dat mensen buiten Nederland last kunnen hebben van de manier waarop ons voedselsysteem in elkaar zit (bijvoorbeeld mensen die in het buitenland ons voedsel verwerken of juist consumeren)?
  - Hoe zouden deze mensen kunnen worden gecompenseerd?

### **Sub-question 3: Overcoming injustices**

- ~~Welk van de besproken rechtvaardigheid-gerelateerde onderwerpen die we hebben besproken is volgens u het belangrijkste en waarom?<sup>2</sup>~~
  - Vindt u, over het algemeen, dat het huidige agriculturele systeem rechtvaardig is?
  - Wat is er nodig om het huidige agriculturele systeem rechtvaardiger te maken?
    - Wat is hierbij het belangrijkste instrument?
  - Denkt u dat biologische landbouw kan bijdragen aan een rechtvaardigere landbouwsector en op welke manier ziet u dit voor zich?

1. Questions in **orange** relate to identifying (in)justices, while questions in **green** deal with overcoming injustices.
2. Questions that were striked through (~~like this~~) were removed throughout the data collection phase of the thesis.

\* = Questions that were added the first time after changing the interview guide (after the first interview).

\*\* = Questions that were added the second time after changing the interview guide (after the first 14 interviews).

### **Appendix 3. Data set including both transcribed interviews and approval forms**

This data is included in the separate data set delivered alongside the thesis.