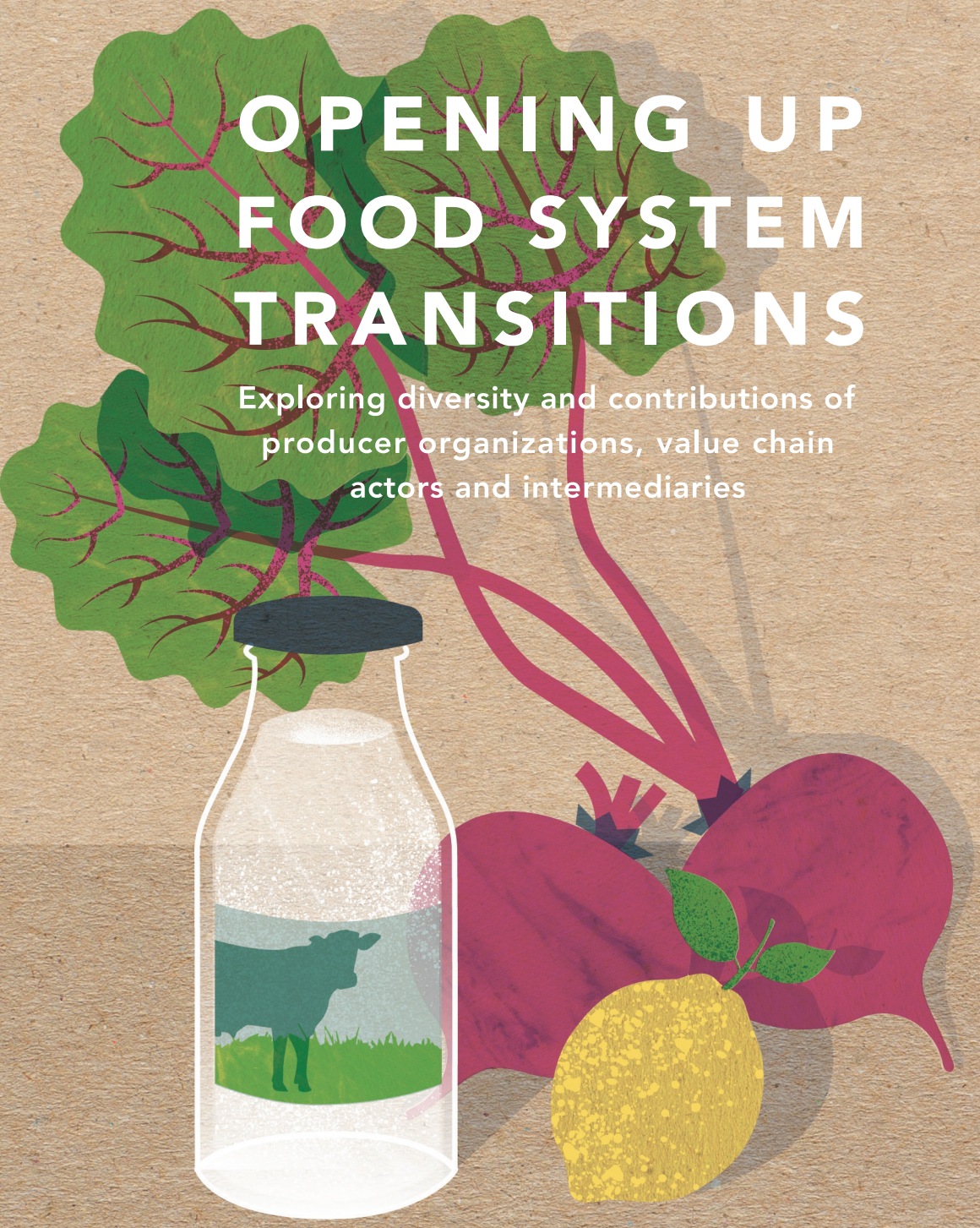
OPENING UP FOOD SYSTEM TRANSITIONS

Exploring diversity and contributions of producer organizations, value chain actors and intermediaries



ANNEMARIE GROOT KORMELINCK

Propositions

1. Transition frameworks based on abstract constructs fail to capture the complexity of real-life transitions.
   (this thesis)

2. When niche actors fear rather than cheer the uptake of their practices by regime actors, transitions will never be successful.
   (this thesis)

3. Instead of criticizing dominant theories, alternative theories should focus on demonstrating their own contribution.

4. The more integrated multiple food system outcomes are required to be, the less likely they are achieved in practice.

5. If a self-proclaimed feminist fails to formulate a feminist proposition, gender equality must be near.

6. Scientists will achieve higher sustainability impact by quitting air travel to conferences than by publishing their sustainability research.

7. Personal lessons learnt during the PhD trajectory are more valuable than the PhD diploma itself.

Propositions belonging to the thesis, entitled

Opening up food system transitions: Exploring diversity and contributions of producer organizations, value chain actors and intermediaries

Annemarie Groot Kormelinck
Wageningen, 15 – 06 - 2022

Opening up food system transitions

Exploring diversity and contributions of producer organizations, value chain actors and intermediaries

Annemarie Groot Kormelinck

Thesis committee

Promotors

Dr W.J.J. Bijman

Associate professor, Business Management & Organisation Group

Wageningen University & Research

Prof. Dr J.H. Trienekens

Personal chair, Business Management & Organisation Group

Wageningen University & Research

Other members

Prof. Dr P.J.M. Oosterveer, Wageningen University & Research

Dr J.A.B. Duncan, Wageningen University & Research

Prof. Dr M. Hanisch, Humboldt-Universität zu Berlin, Germany

Dr V. Bitzer, Royal Tropical Institute, Amsterdam

This research was conducted under the auspices of the Wageningen School of Social Sciences (WASS)

Opening up food system transitions

Exploring diversity and contributions of producer organizations, value chain actors and intermediaries

Annemarie Groot Kormelinck

Thesis

submitted in fulfilment of the requirements for the degree of doctor
at Wageningen University
by the authority of the Rector Magnificus,
Prof. Dr A.P.J. Mol,
in the presence of the
Thesis Committee appointed by the Academic Board
to be defended in public on
Wednesday 15 June 2022
at 1.30 p.m. in the Omnia Auditorium.

Annemarie Groot Kormelinck

Opening up food system transitions: Exploring diversity and contributions of producer organizations, value chain actors and intermediaries

193 pages

PhD thesis, Wageningen University, Wageningen, the Netherlands (2022)

With references, with summaries in English, Dutch, and Spanish

ISBN: 978-94-6447-138-0

DOI: https://doi.org/10.18174/566237

TABLE OF CONTENTS

Chapter 1. General introduction **11**

1.1 Opening up food system transitions 11

1.2 Theoretical framework 13

1.3 Problem statement 20

1.4 Aim and research questions 22

1.5 Horteco project 25

1.6 Research context 26

1.7 Methods 29

1.8 Outline of this thesis 31

Chapter 2. Characterizing producer organizations. The case of organic versus conventional vegetables in Uruguay **33**

2.1 Introduction 34

2.2 Literature review on producer organizations 35

2.3 Methods 37

2.4 Results 41

2.5 Conclusion and discussion 50

Chapter 3. Coordinating food quality. How do quality standards influence contract arrangements? A study on Uruguayan food supply chains **55**

3.1 Introduction 56

3.2 Literature review 58

3.3 Methods 60

3.4 Results 63

3.5 Analysis and discussion 74

3.6 Conclusions and implications 79

Chapter 4. Producer organizations as transition intermediaries? Insights from organic and conventional vegetable systems in Uruguay **83**
4.1 Introduction 84
4.2 Theoretical framework 86
4.3 Methods 94
4.4 Findings 98
4.5 Discussion 105
4.6 Conclusion and implications 112

Chapter 5. Discussion and conclusions **117**
5.1 Recap: opening up food system transitions 117
5.2 Summary of findings 118
5.3 Main conclusion 121
5.4 Theoretical implications 122
5.5 Policy and practical implications 127
5.6 Limitations and directions for future research 128
5.7 Concluding remarks 129

References **130**
Appendices **154**
English summary **164**
Nederlandse samenvatting **170**
Resumen en español **178**
Acknowledgements **186**
About the author **190**
Approved training and supervision plan **192**

LIST OF TABLES

Table 1. Overview theoretical perspectives in this thesis 14
Table 2. Overview of chapters 24
Table 3. Population and sampling method 39
Table 4. Types of producer organizations in the conventional chain 43
Table 5. Types of producer organizations in the organic chain 46
Table 6. Data collection per topic 62
Table 7. Quality standards in the dairy sector 64
Table 8. Contract arrangements in the dairy sector 67
Table 9. Quality standards in the citrus sector 69
Table 10. Contract arrangements in the citrus sector 72
Table 11. Interviews with producer organizations and food system actors 96
Table 12. Classic intermediary roles of POs in vegetable systems in Uruguay 98
Table 13. Roles of POs to support sustainability in vegetable systems in Uruguay 101
Table 14. Exploring how POs address transition needs of producers 106
Table 15. POs as transition intermediaries in vegetable systems in Uruguay 109

LIST OF FIGURES

Figure 1. Theoretical framework 15
Figure 2. Overview of study foci in this thesis 25
Figure 3. Location Uruguay 26
Figure 4. Types of producer organizations in the conventional chain 43
Figure 5. Types of producer organizations in the organic chain 46
Figure 6. Distribution of producer organizations on three dimensions 50
Figure 7. Conceptual framework 59
Figure 8. Three supply chains 61
Figure 9. How transactions make use of quality standards and contract arrangements 74
Figure 10. Combinations of quality standards and contract arrangements for quality 75
Figure 11. Three steps in data analysis and conceptualization 97

LIST OF ABBREVIATIONS

BRC	British Retail Consortium
CA	Contract Arrangements
FSSC	Food Safety System Certification
GMO	Genetically Modified Organism
GRASP	GlobalGap Risk Assessment on Social Practices
HACCP	Hazard Analysis and Critical Control Points
HLPE	High Level Panel of Experts
ISO	International Organization for Standardization
MGAP	Ministry of Agriculture, Livestock and Fisheries
MRL	Maximum Residue Levels
NGO	Non-Governmental Organization
OHSAS	Occupational Health and Safety Assessment Series
PO	Producer Organization
QS	Quality Standards
SMETA	Sedex Members Ethical Trade Audit
VC	Value Chain
VI	Vertical Integration

1

Chapter 1. General introduction

1.1 OPENING UP FOOD SYSTEM TRANSITIONS

Global agri-food systems are under unprecedented pressures. Various socio-economic and environmental challenges are complex and interlinked, such as population growth, food and nutrition insecurity, social inequalities and poverty, climate change, resource scarcity, and biodiversity loss (Godfray et al., 2010; Ingram, 2011; Vermeulen et al., 2012; Willett et al., 2019). The Covid 19 pandemic has even more strongly shown vulnerabilities of current global agri-food systems (Bellamy et al., 2021; Rivera-Ferre et al., 2021). Food systems are at the core of several of the sustainable development goals, and were focal points in the United Nation's food systems summit in 2021. Both academia and leading global food and agriculture organizations urgently call for food systems to produce more healthy and nutritious food, and become more environmentally sustainable, inclusive and resilient (Barrett et al., 2020; FAO, 2020; IFAD, 2021; IFPRI, 2021; OECD, 2021; Webb et al., 2020; WEF, 2020).

Food systems consist of actors and activities related to the production, processing, distribution, preparation and consumption of food, including markets and institutional networks, and the socio-economic and environmental outcomes of these activities (HLPE, 2017). Food system frameworks have become popular among academics, policymakers and practitioners for their systemic approach on the relations between external food system drivers, internal food system components, and their desired outcomes (Hospes and Brons, 2016; Ruben et al., 2019). Such systemic approach to food systems is expected to generate better scientific insights into underlying interactions and dynamics of food system change and generate opportunities for policy and practitioners to address food system challenges (Brouwer et al., 2020).

Research on system transitions, through the lens of the multi-level perspective, conceptualizes transitions to occur through radical changes in emerging niches (e.g. sustainable alternatives, such as organic), or through more incremental changes in existing systems, so-called regimes (e.g. gradual improvements in food quality, safety or sustainability) – impacted by external drivers from the landscape (Geels, 2002). Although transition research has long overlooked agri-food systems (Markard et al., 2012), recent years witnessed an increase in studies on food system transitions (El Bilali, 2020; Melchior and Newig, 2021). Studies on food system transitions outline different research perspectives (e.g. Hebinck et al., 2021; Weber et al., 2020), develop typologies of food systems and their transition pathways (e.g. Gaitán-Cremaschi et al., 2019; Ollivier et al., 2018), and describe the emergence of niches and their interactions with regimes (e.g. Bui et al., 2016; Ingram, 2015).

Food system transitions are multi-actor processes in which diverse types of actors need to collaborate and coordinate across various parts of the food system in order

to achieve desirable outcomes (Brouwer et al., 2020). Nonetheless, transition research, particularly the multi-level perspective, has been widely criticized for its poor conceptualization and representation of actors (e.g. de Haan and Rotmans, 2018; Fuenfschilling and Truffer, 2014; Genus and Coles, 2008; Shove and Walker, 2010; Smith et al., 2005). As a result, a growing number of studies analyse the contributions of different actor groups to food system and other transitions, for instance by studying actors from a business (Farla et al., 2012; Hörisch, 2018), grassroots (Kump and Fikar, 2021; Seyfang and Smith, 2007) or transition intermediary perspective (e.g. Kivimaa et al., 2019; van Lente et al., 2003).

However, different scholars indicate the need to improve the conceptualization of actors and to better understand their interactions and interdependencies (Fischer and Newig, 2016; Lamine et al., 2019; Wittmayer et al., 2017). Key literature reviews on the state of the art in transition research (Köhler et al., 2019; Markard et al., 2012) advocate that this research can benefit from intersecting with organizational theories to better understand how transitions are shaped by the interplay among different actors.

The aim of this thesis is therefore to open up food system transitions by applying an organizational perspective to study the organization, activities and relations of actors in transitions. The underlying rationale is that an organizational perspective allows to go beyond more narrow views on actors and improve understandings on their diversity and complexity in transitions. Such understandings are important for research, and for policy and practice on how these actors in food system transitions may best be supported. The main research question is: *How do actors (re)arrange their organization, activities and relations in food systems that undergo transitions?*

To answer the research question, qualitative empirical data has been collected from three commodity food systems in Uruguay that are experiencing different transitions. Two groups of actors have been studied: Producer organizations and value chain actors. Value chain actors, such as producers, processors, wholesalers, retailers and consumers are considered important actors in food systems (Hospes and Brons, 2016). Food system transitions will affect coordination among value chain actors, particularly when the transition involves changes in quality, safety and sustainability of food products (Spaargaren et al., 2011; Swinnen, 2007). Producer organizations are horizontal organizations that consist of farmers. Producer organizations have received high academic and policy interest for the potential roles they play in food systems, such as providing production support, lobbying, and contributing to rural development (Emery et al., 2017; World Bank, 2007). Although producer organizations also operate as value chain actors – for instance by commercializing agricultural products in value chains (Markelova et al., 2009) – in this thesis they are studied as a separate actor group.

The thesis starts with a study on the organizational diversity of producer organizations within a vegetable system consisting of a conventional regime and an

organic niche (Chapter 2). The chapter shows commonalities and differences in organizational characteristics among producer organizations in niche and regime. The thesis continues with a study on how incremental transitions in dairy and citrus regimes are coordinated through organizational arrangements among multiple value chain actors (Chapter 3). The chapter demonstrates how the adoption of food quality, safety and sustainability standards affects organizational arrangements among value chain actors (producers, processors, and retailers) in different ways. The thesis ends with an exploration of the potential of producer organizations as so-called transition intermediaries (Chapter 4). The chapter investigates to what extent producer organizations, through their characteristics and activities, may fulfil transition intermediary roles to facilitate sustainability transitions within and across a conventional regime and an organic niche.

The remainder of this introduction chapter is structured as follows. The next section provides the theoretical framework, which elaborates on transition research, organizational theories, and actors in transitions. This is followed by the problem statement in section 1.3, and the aim and research questions in section 1.4. Subsequently, the alignment of this thesis to the Horteco project is described in section 1.5, followed by the research context in section 1.6, and the methods in section 1.7. The introduction ends with an outline of the thesis.

1.2 THEORETICAL FRAMEWORK

This thesis combines transition research with organizational theories to study organizational characteristics, activities and relations of different actors in food systems. From transition research, the multi-level perspective is used. With its conceptualization of transitions to occur through regimes, niches, and their interactions, the multi-level perspective is suitable for combining with organizational theories to study different actors in transitions (Avelino and Wittmayer, 2016; Hörisch, 2018).

Organizational theories focus on studying structures, functions and behaviour of actors internally or in relationship with other actors. Organizational theories allow to explore organizational diversity by studying activities, governance, objectives, strategies, values, resources, and internal and external relations (Fiss, 2011; Grandori and Furnari, 2008). In this thesis, economic and sociological organizational theories are applied. As economic theory, transaction cost economics is used, which allows to study dimensions of economic organization within and among actors (Ménard, 2017). As sociological theory, alternative food networks is used, which allows to study social, cultural, political, and normative dimensions of organization within and among actors, which is relevant particularly in a transition context (Goodman et al., 2011).

The organizational theories are applied to study two groups of actors: Producer organizations and value chain actors. Actor studies in transition literature predominantly focus on businesses (e.g. Hörisch, 2018), grassroots initiatives (e.g. Seyfang and Smith, 2007) and transition intermediaries (e.g. Kivimaa et al., 2019). In this thesis, value chain actors are studied from a business perspective, whereas producer organizations are studied from a business, a grassroots, and a transition intermediary perspective.

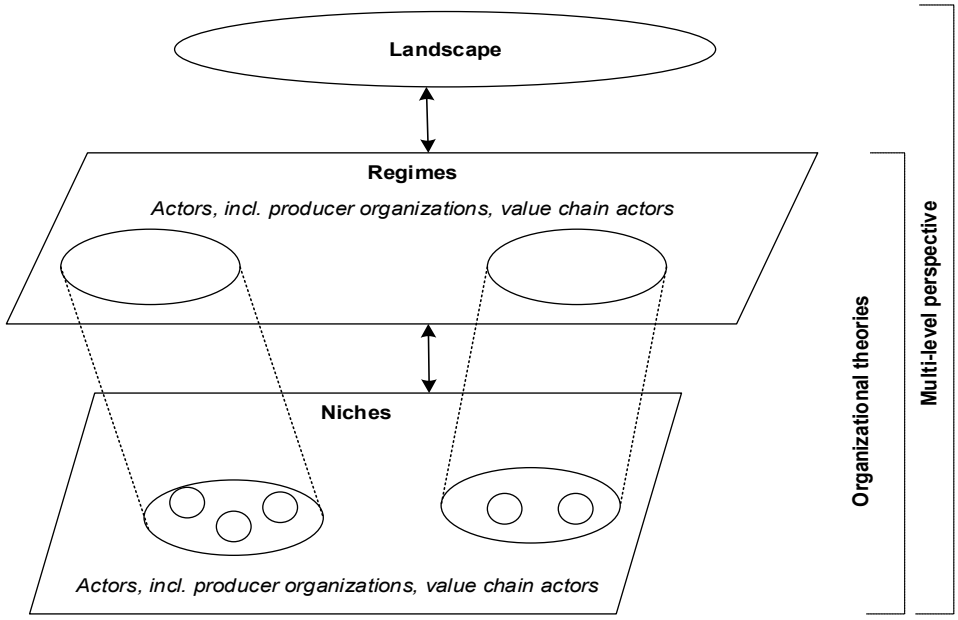
Table 1 shows the use of theories in this thesis. Following the table from top to bottom, the level of abstraction decreases. Transition research, through the multi-level perspective, is applied to form the context of food system transitions and to study actors in regimes, niches or their interactions. Organizational theories are used to study the organizational diversity and complexity of producer organizations and value chain actors in transitions, by applying business, grassroots, and transition intermediary actor perspectives.

Table 1. Overview theoretical perspectives in this thesis

Transition research	Regime	Niche
Organizational theories	Transaction cost economics	Alternative food networks
Actors studied in the thesis	Value chain actors	Producer organizations
Actor perspective applied	Business	Business, grassroots, transition intermediary

Figure 1 provides a visual representation of the theoretical framework. The figure shows the conceptualization of transitions to occur in regimes and niches, impacted by the landscape. Taking an organizational perspective allows to zoom in on different actors that have interactions within and across regimes and niches.

Figure 1. Theoretical framework



Source: Adapted from Geels (2002).

Transition research

Food system transitions are studied in the field of transition research. Transition research is a rapidly developing interdisciplinary research field that combines perspectives from innovation science and technology, political sciences, organizational and business studies, and development studies. For recent reviews on the state of the art of transition research, see Köhler et al. (2019), and Zolfagharian et al. (2019).

Transitions are conceptualized as complex and interlinked processes of nonlinear disruptive change in a system from one system state to another (Loorbach et al., 2017). Such systemic change implies coupled technological, social, economic, cultural, political, organizational and institutional changes that result from the interplay of multiple actors across different system levels. Transitions take place over many years, and may change over time (Grin et al., 2010). Transition research has four dominant conceptual frameworks: Multi-level perspective, strategic niche management, transition management, and technological innovation systems. For reviews on differences and commonalities of these frameworks, see Lachman (2013) and Markard et al. (2012).

Multi-level perspective

The multi-level perspective is the dominant framework in food system transition studies (El Bilali, 2020). The multi-level perspective conceptualizes system transitions to occur through changes in regimes, niches, and landscapes. Landscapes present the exogenous environment (e.g. agricultural regulations, climate change), which put continuing pressures on regimes. Tensions within regimes and ongoing landscape pressures may destabilize regimes and create opportunities for innovations in niches (Rip and Kemp, 1998). Regimes are generally characterized by path dependencies and lock-in, in which transitions consist of incremental changes that maintain the status quo and lead to small adjustments rather than systemic change. Niches are considered spaces where radical innovations emerge alongside the dominant regime (Geels, 2002). Whereas early studies focused on studying radical changes in niches, which regimes were considered to resist, more recent studies show that regimes may also reorient towards niche changes (de Haan and Rotmans, 2018; Runhaar et al., 2020). In addition, niches and regimes are found to interact on multiple dimensions (Elzen et al., 2012) – leading to a variety of transition pathways (Geels and Schot, 2007).

Multi-level perspective applied to food systems

In conventional or mainstream food systems, referred to as regimes, the academic study usually focuses on incremental changes. Increasing consumer concerns about socio-economic and environmental challenges of regimes have led to more stringent quality, safety, and sustainability requirements for food products and the conditions under which they are produced, manufactured and traded (Spaargaren et al., 2011). Such changes in requirements are found to affect the coordination among value chain actors, for instance leading to the optimization of products and production processes, the adoption of a wide range of quality, safety and sustainability standards, and the tailoring of organizational arrangements among value chain actors (Boström et al., 2015; Hörisch, 2018). Coupled with other drivers, such as neo-liberal policies, rising foreign investment, increased power of retailers, and advances in technology, regime food systems have become more integrated, competitive, consumer-driven, and globalized (Gereffi, 2019; Swinnen, 2007).

Alternative food systems, referred to as niches, are studied for their emergence based on fundamental dissatisfaction about socio-economic and environmental effects in regimes (Hinrichs, 2014). Niches are studied for their establishment and evolution as radical alternative to regimes, often in the context of sustainability transitions, such as niches focusing on organic (e.g. Smith, 2007), permaculture (e.g. Ingram, 2018), or agroecology (e.g. Levidow et al., 2014). Niches are mostly studied as local, territorially embedded food systems, and are considered to be built on different principles as compared to regimes, for instance implying different production techniques, market relations, policies and regulations, knowledge

systems, and user relations (Ingram, 2015; Marsden, 2013). Despite their emergence in strong opposition to regimes, studies also analyse how niches transform regimes. For instance, studies explore how niches influence regimes through sharing knowledge, creating visions and strategies, developing product standards, and stimulating policies and regulations – as well as leading to new networks and collaborations among niche and regime actors (Bui, 2021; Bui et al., 2016; Diaz et al., 2013; Dumont et al., 2020; Hörisch, 2018; Smith, 2006).

Organizational theories

Economic organization

Applying an economic organization theory to study actors in food system transitions is important, given that food systems include actors that coordinate their economic activities from production to consumption (Brouwer et al., 2020). This thesis uses transaction costs economics, a theory that is rooted in new institutional economics – an important stream in economics that consists of various theories, such as agency theory, contracting theory, and property rights theory (Brousseau and Glachant, 2008). Although its application in a food system transition context is rare, transaction cost economics is the most used theory to explain the large diversity of organizations in the agri-food sector (Ménard, 2017).

Transaction cost economics focuses on finding the most efficient organizational arrangement for a specific transaction. Any transaction between two actors implies transaction costs, including costs for finding an exchange partner, negotiating and signing an agreement, and monitoring compliance. Transaction costs are affected by characteristics of the transaction, particularly uncertainty and asset specifity (Williamson, 1979). Uncertainty refers to the inability of actors to measure the outcomes of a transaction, such as uncertainty arising from unobservable behaviour of the transaction partner. Asset specificity refers to the investments an actor makes exclusively for a transaction, and thus increases dependency on the transaction partner (Rindfleisch and Heide, 1997). Following the assumptions that actors are boundedly rational (they have imperfect information and are unable to process all available information), and may behave opportunistically, the transaction partner will try to find the most efficient organizational arrangement that gives the desired level of coordination and control at the lowest possible transaction cost. Organizational arrangements, studied as contract arrangements in Chapter 3, are placed on a continuum ranging from markets (e.g. spot markets or verbal agreements) to hierarchy (vertical integration). In between these extremes are hybrid arrangements, such as equity-based cooperatives or strategic alliances (Ménard, 2004; Williamson, 1985).

The increase in quality, safety and sustainability requirements in food systems is considered to affect economic coordination among value chain actors. The quality, safety and sustainability of the final food product is the result of decisions and behaviours of all value chain actors, which makes multiple transactions interdependent (Raynaud et al., 2009; Trienekens et al., 2012). In addition, requirements are increasingly multidimensional and relate to different product attributes. There has been a shift from observable attributes (e.g. taste, appearance) towards non-observable attributes, such as food safety (e.g. absence of pesticide residues) and the sustainability of production, processing and transport (e.g. sustainable agricultural practices, good animal welfare, fair employment conditions) (Darby and Karni, 1973; Luning and Marcelis, 2009). Using transaction cost economics, the interdependent behaviour of value chain actors to achieve desired outcomes and the unobservability of product and process attributes lead to information asymmetry and uncertainty. Actors make additional, asset specific, investments to comply with requirements, which generates the risk of hold-up. As a result, actors seek more coordination, motivation and control mechanisms to guarantee compliance whilst minimizing transaction costs – thus shifts in coordination can be expected from markets to hybrid or hierarchy organizational arrangements (Ménard and Valceschini, 2005; Williamson, 2002).

Sociological organization

Taking a sociological organizational theory to study actors in food system transitions is imperative, given that interdependent behaviour of actors not only include economic, but also social, cultural, political, and normative dimensions (Hinrichs, 2014). This thesis uses alternative food networks as sociological theory, which combines insights from political economy, rural sociology, and governance and network fields to study multi-dimensional coordination of actors and activities in alternative food systems (Goodman et al., 2011; Tregear, 2011). From a transition research perspective, alternative food systems can be classified as niches (Bui et al., 2016; Maye and Duncan, 2017). Three commonalities can be found in alternative food networks studies.

First, is the underlying core and starting point in alternative food networks studies is that alternatives emerge because of fundamental dissatisfaction with regimes (McMichael, 2005). Alternative food networks theory is used to study food systems as opposite to global, neo-liberal, industrialized systems that focus on efficiency and competitiveness that are dominated by large retailers sourcing from large producers in long value chains, and that exacerbate socio-economic and environmental problems (Goodman, 2004). Transitions in regimes are often perceived negatively, for instance considering incremental changes as ‘just another type of process-product innovation, rather than a platform for wider changes in systems and structures’ (Marsden, 2013: 125), or warning against the appropriation or

'conventionalization' of niche practices by regimes (Ajates Gonzalez, 2017b; Kirwan, 2004).

Second, alternative food networks studies investigate how actors establish new forms of coordination in alternative food systems. Alternative food networks studies show new ways to directly link producers and consumers (Papaoikonomou and Ginieis, 2017) through the commercialization in different short value chains, for instance by establishing boxing schemes, street markets, or specialized shops (Chiffoleau et al., 2019; Renting et al., 2003). In addition, alternative food networks studies explore how actors establish new relations with niche institutional actors, such as social and sustainability movements (Duncan and Pascucci, 2017; Kump and Fikar, 2021).

Third, alternative food networks studies investigate how actors build alternative food systems based on different values and aim to achieve different food system outcomes (Forssell and Lankoski, 2015). Studies focus on values such as trust, fairness, and equity, and on particular food system outcomes, such as local embeddedness, economic viability, inclusiveness, social justice, and environmental sustainability (Allen et al., 2003). For instance, alternative food systems are considered to include small family farmers, entail commercialization in value chains with fair distribution of benefits, contribute to wider rural development, and improve socio-economic and environmental outcomes (Goodman et al., 2011; Van Der Ploeg, 2008).

Alternative food networks theory has received criticism from their own study field, for instance on the lack of clear boundaries on what alternative food systems entail (Ilbery and Maye, 2005), on studying these systems in isolation from conventional systems (Sonnino and Marsden, 2006), and on the romanticization of intended positive outcomes (DuPuis and Goodman, 2005; Forssell and Lankoski, 2015; Tregear, 2011). Nonetheless, applications of alternative food networks theory contribute to understanding the multi-dimensional coordination of actors and activities in food system transitions.

Actors in transitions

Food systems are characterized by a large diversity of actors, such as producers, processors, retailers, consumers, policymakers, governments, research institutes, financial institutions, certification bodies, or social and sustainability-oriented NGOs and movements (Gaitán-Cremaschi et al., 2019; Ruben et al., 2019). Studies that review the transition research field show that empirical research on actors in transitions mainly use three actor perspectives (Geels, 2019; Köhler et al., 2019; Loorbach et al., 2017). First, actors in transitions are studied from a business perspective, for instance in research on pioneers, start-ups, and spin-offs in niches, or in research on large incumbent corporations in regimes (Hörisch, 2018; Loorbach

and Wijsman, 2013). Studies often focus on how single firms develop new products, services, innovations and business models in transitions, or how they deliver wider institutional, political or societal contributions to transitions, for instance through lobbying for policies, developing standards, legitimating new technologies, or shaping societal discourses (Farla et al., 2012; Musiolik et al., 2012).

Second, actors in transitions are studied from a grassroots perspective. Research explores how grassroots initiatives – which are networks of individuals or organizations, such as informal community groups, producer-consumer cooperatives, or sustainability movements – aim to create bottom-up, contextualized solutions in transitions (Gernert et al., 2018; Kump and Fikar, 2021). Grassroots initiatives are often positioned opposite to businesses, with different organizational structures, income streams, and values, and embedded in systems that rely on different logics (Seyfang and Smith, 2007).

Third, actors in transitions are studied from a transition intermediary perspective. Transition intermediaries can be single organizations, groups or networks of organizations, with different types of ownership, funding, and governance structures (Mignon and Kanda, 2018). Transition intermediaries have gained great scientific and policy relevance in recent years (Kivimaa et al., 2019), particularly for their potential to facilitate transitions, such as through the articulation of expectations and visions, the establishment of social networks, and the participation in learning and knowledge generation (Kivimaa, 2014).

1.3 PROBLEM STATEMENT

The overarching gap underlying this thesis is that transition research pays insufficient attention to the organizational complexity and diversity of different actors in transitions. Transition research, particularly the multi-level perspective, has been widely criticized for its systemic approach to study transitions to occur through niches and regimes, whilst actors remain poorly conceptualized (Genus and Coles, 2008; Smith et al., 2005). As a result, a vastly expanding field has emerged that focus on actors in transitions. Studies use the concept of agency, which is the capacity of an actor to act (Giddens and Sutton, 2021), to study the democratic legitimacy, power relations, meanings, institutions, routines, capabilities, knowledge, strategies, roles and interpretations of actors in transitions (e.g. Avelino and Wittmayer, 2016; Jørgensen, 2012; Pesch, 2015; Spaargaren et al., 2011).

Nonetheless, most studies focus on empirical contributions of specific actors in transitions, while work on conceptualizing actors and their interactions in system transitions has only recently begun (Wittmayer et al., 2017). Studies are criticized for ambiguous conceptualizations of actors in transitions, such as unclarity whether actors refer to individuals, organizations, or groups of organizations (de Haan and Rotmans, 2018). Transition researchers call for intersecting transition research with

organizational theories to better understand the position of actors and their contributions to transitions (Köhler et al., 2019; Markard et al., 2012). This thesis intends to respond to this overarching gap, by aiming to address four specific gaps. The first two gaps relate to the conceptualization of actors in transitions, the last two gaps relate to the food system transition contexts in which actors are studied.

The first gap is that most transition studies apply a singular actor perspective. Studies focus on businesses (e.g. Hörisch, 2018), grassroots initiatives (e.g. Kump and Fikar, 2021), or transition intermediaries (e.g. Kivimaa et al., 2019). However, actors in transitions may be more complex and diverse in their structures, functions, daily activities and relations with others (Fischer and Newig, 2016; Wittmayer et al., 2017) – implying that their contributions to transitions cannot be captured by applying a singular business, grassroots or intermediary perspective. This thesis aims to address this gap by exploring whether producer organizations combine characteristics of businesses and grassroots initiatives in their daily activities in food systems (Chapter 2), as well as have potential to operate as transition intermediaries (Chapter 4).

The second gap is that most transition studies do not address interactions among multiple actors in transitions. Research often focuses on single actors, which is useful for gaining insights into specific actor contributions to transitions. However, such studies isolate actors from a complex transition context (Köhler et al., 2019). As transitions require multiple actors to collaborate and coordinate across various parts of the system, research should include interactions and interdependencies among different actors (Lamine et al., 2019). This thesis will address this gap by studying the coordination of multiple value chain actors through their organizational arrangements (Chapter 3), as well as the coordination of producer organizations with value chain and institutional actors (Chapter 2, 4).

The third gap is that actors in transitions are mostly studied within niche transitions. For instance, research focuses on how actors adopt radical changes in organic or agroecology niches (e.g. Levidow et al., 2014; Smith, 2007), and how such niches influence regimes (e.g. Bui et al., 2016; Dumont et al., 2020). What is less studied is the adoption of incremental changes by regime actors, and how regime actors may influence niches (Diaz et al., 2013; Runhaar et al., 2020). To fully understand transitions and the diversity of transition pathways that food system actors may follow, attention is needed for actors in both niches and regimes, and their mutual linkages (Elzen et al., 2012; Ingram, 2015). This gap is addressed in this thesis by studying incremental changes adopted by regime actors (Chapter 3), as well as by studying mutual linkages between regime and niche actors (Chapter 2, 4).

The fourth and final gap is that actors are mostly studied in transitions that focus on environmental sustainability. The environmental sustainability focus is shown in typologies of food systems (Gaitán-Cremaschi et al., 2019; Therond et al., 2017) and their transition pathways (Plumecocq et al., 2018), and are indicative of the wider

food system transitions field (Bilali and Strassner, 2021; Ruben et al., 2021). However, transitions should also address other food system outcomes, such as healthy diets, and food and nutrition security (Barrett et al., 2020; IFAD, 2021). This thesis aims to address this gap by not only studying incremental and radical environmental sustainability changes in regimes and niches (Chapter 2, 4), but also by exploring incremental changes in safety, quality and sustainability requirements in regimes (Chapter 3).

1.4 AIM AND RESEARCH QUESTIONS

Based on the gaps identified above, the aim of this thesis is to open up food system transitions by generating insights on actors from an organizational perspective. By combining transition research (notably the multi-level perspective) with economic and sociological organizational theories, this thesis aims to make theoretical contributions by improving conceptualizations on the positions and contributions of different actors in transitions. In addition, this thesis aims to generate recommendations for policymakers and practitioners on how these actors in transitions can best be supported. The contributions are based on empirical research on producer organizations and value chain actors in three commodity food systems in Uruguay that are experiencing different transitions.

The main research question of this thesis is:

How do actors (re)arrange their organization, activities and relations in food systems that undergo transitions?

The main research question is answered by the following three research questions:

Research question 1: To what extent do producer organizations have different organizational characteristics across niche and regime food systems?

This research question is the focus of Chapter 2. The actors under study are producer organizations. Despite being considered key actors in food systems, most studies treat producer organizations as a black box by assuming all organizations are equal. Such neglect of organizational diversity is problematic for conceptualizing how and under what conditions producer organizations may provide benefits for members and other food system actors, and hampers the making of effective policies.

The aim of Chapter 2 is therefore to investigate the organizational diversity of producer organizations in food systems. This chapter analyses to what extent producer organizations differ in organizational characteristics in a vegetable food system consisting of a conventional regime and an organic niche. Ten cases of producer organizations are studied, which are classified into five types. Each type is compared on eight organizational characteristics, and results show commonalties and differences in producer organizations within and across niche and regime. Transaction cost economics and alternative food networks are used to explain findings. The chapter provides propositions about differences and commonalities in organizational characteristics, in activities and in relations with value chain actors, as well as the wider food system environment in which they are embedded. Given the diversity of producer organizations and their embeddedness in specific food system contexts, policy and practice recommendations are given on how producer organizations can best be supported.

Research question 2: How are transitions in regime food systems coordinated among multiple value chain actors?

This research question is answered in Chapter 3. Opposite to most research on food system transitions, which study a single actor and focus on radical sustainability transitions in niches, the aim of this chapter is to gain insights into how multiple value chain actors coordinate incremental improvements in safety, quality and sustainability in regimes. In this chapter, three groups of value chain actors are studied (producers, processors, and retailers), which operate in three different value chains (domestic traditional, domestic modern, and export). The study is conducted in two regime food systems: dairy and citrus.

The chapter shows that value chain actors implement incremental safety, quality and sustainability improvements by adopting multiple quality standards, and by adjusting their coordination in organizational arrangements (also called contract arrangements). Transaction cost economics is used to explain findings and formulate propositions. Findings show that the coordination through organizational arrangements among value chain actors differs for the type of value chain (domestic traditional, domestic modern, or export) and the position in the value chain (upstream or downstream) – thus showing diversity in coordination among value chain actors. Findings lead to recommendations for managers and policymakers. The chapter contributes insights to understanding how food system transitions in regimes involve combinations of coordination through quality standards and tailored organizational arrangements among actors in value chains.

Research question 3: To what extent can producer organizations operate as transition intermediary in niche and regime food systems?

This research question is dealt with in Chapter 4. Transition intermediaries are acknowledged as important actors to contribute to and facilitate transitions; however, little is known about producer organizations as specific transition intermediaries.

The aim of this chapter is to explore the potential of producer organizations to function as transition intermediaries. By bridging across transition research and organizational theories of transaction cost economics and alternative food networks, ten cases of producer organizations are studied in a vegetable system consisting of a conventional regime and organic niche. The chapter shows how classic roles of producer organizations in food systems may also function as transition intermediary roles by supporting incremental and radical sustainable practices of members and non-members within and across niche and regime. The chapter also shows how organizational characteristics of producer organizations provide opportunities and limitations to function as transition intermediary. Finally, recommendations are given on how the transition intermediary potential of producer organizations can be optimized.

Overview of the chapters

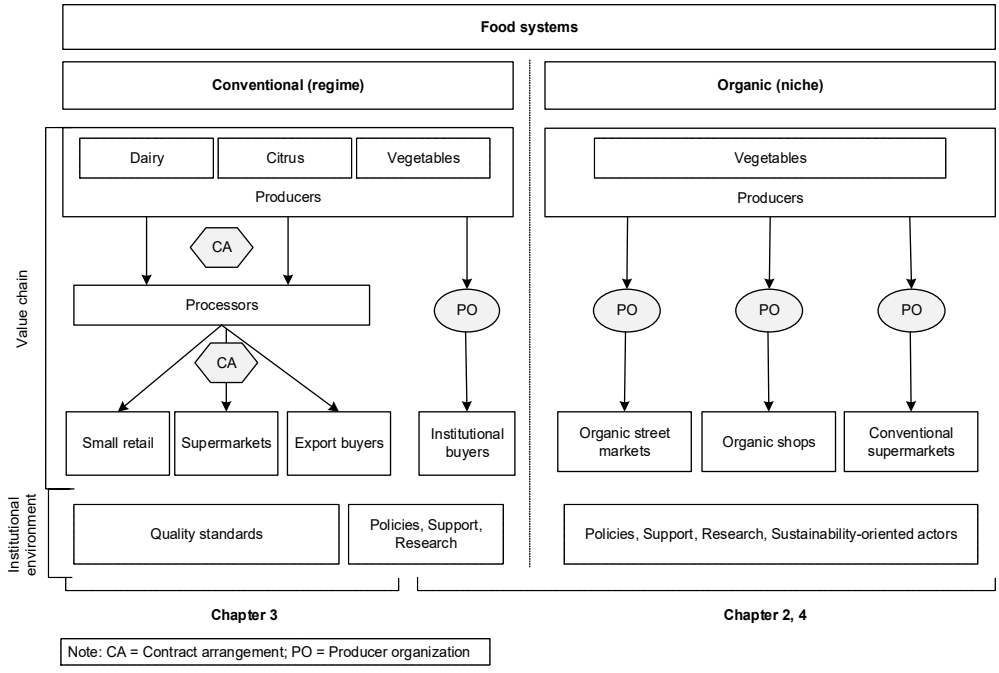
Table 2 shows, for each chapter, the actors under study, the use of theories, and the type of transitions.

Table 2. Overview of chapters

	Chapter 2	**Chapter 3**	**Chapter 4**
Actors under study	Producer organizations	Value chain actors	Producer organizations
Actor perspective	Business, grassroots	Business	Transition intermediary
Theories	Transaction cost economics Alternative food networks	Transaction cost economics	Multi-level perspective Transaction cost economics Alternative food networks
Commodity	Vegetables	Citrus, dairy	Vegetables
Food system levels	Regime, niche	Regime	Regime, niche, interactions
Type of transition	Sustainability	Safety, quality, sustainability	Sustainability
Type of change	Radical	Incremental	Radical, incremental

Figure 2 visualizes the foci of the different chapters. The figure shows that Chapter 3 studies the coordination of three groups of value chain actors – producers, processors, and retailers (small retail, supermarkets, and export buyers) – in dairy and citrus regime systems through their organizational arrangements (CA), whilst also adopting quality standards. The figure also shows that Chapters 2 and 4 study producer organizations (PO) in a vegetable food system with a conventional regime and an organic niche.

Figure 2. Overview of study foci in this thesis



1.5 HORTECO PROJECT

This thesis is conducted in alignment with the HortEco project. HortEco is a four-year (2016-2020) multidisciplinary international research and capacity development project. The project aimed to enhance the sustainability of vegetable food systems in Chile and Uruguay by promoting ecologically intensive production, and socio-economically sustainable value chains in Chile and Uruguay. To support a transition to low-or-no pesticide vegetable systems in both countries, HortEco has adopted a food system approach that combined the production system, value chain, and the innovation system. The project was executed through collaborations among academic, policy, market and knowledge partners. The collaborations helped to share findings from the research, and to promote dissemination of policy- and

practice-oriented measures, for instance through field visits, workshops, videos, and policy briefs.

Aligning this thesis with the HortEco project has led to several synergies. Chapters 2 and 4 of this thesis directly link to core topics of HortEco, and add insights about the coordination of multiple actors across various food system levels in a conventional and an organic vegetable food system in Uruguay. Collaborating with HortEco partners, particularly in Uruguay, has helped tremendously to get the research design implemented, for instance by getting access to key informants and secondary data. The collaboration also allowed to share findings, for instance by presenting results in HortEco's annual workshop, attended by relevant food system actors, such as producers, policymakers, and members of sustainability movements. The collaboration also led to jointly developed outputs, such as an academic publication on transitions of agroecological niche food systems (Rossing, Groot-Kormelinck et al., 2020), and a publication in Spanish for a practitioner and policy-oriented audience (Groot-Kormelinck and Pizzolon, 2020).

1.6 RESEARCH CONTEXT

Figure 3. Location Uruguay

Uruguay as middle-income country

Uruguay lies in the southeast of South America and has 3.4 million inhabitants. The country is highly urbanized, with 95 percent of the population living in urban areas, especially in the capital Montevideo. Uruguay has the oldest population of Latin America, with a particularly high average age among the farmer population (MGAP, 2021). The country has the lowest income inequality in Latin America, and since the early 2000s, economic growth was coupled with significant advances in poverty reduction (UN, 2021). Nonetheless, poverty reduction has decreased since 2017,

and inclusive growth has stagnated. While extreme poverty is almost absent, 11.6 percent of the population currently lives in poverty, and 23.5 percent of Uruguay's' population is moderate to severely food insecure (World Bank, 2021). Besides, Uruguay faces the double burden of both stunting and obesity among children under five years, and obesity among children and adults is on the rise (FAO, 2021). Malnutrition of these groups is linked to the increased consumption of low-nutritional foods, and low consumption of high-nutritional foods such as vegetables and fruits (Bove et al., 2012). Uruguay's agricultural sector plays an important role in domestic food provision, as well as in generating export earnings (MGAP, 2021).

Uruguay's agricultural sector

Agriculture contributes 8.4 percent of Uruguay's GDP (MGAP, 2021). The large majority of agricultural land is used for livestock to produce meat and dairy products (78 percent), mostly through the extensive management of natural pastures. After livestock, commodity crops are important (e.g. soybeans, maize, grains, rice), followed by reforestation, fruits and vegetables. Due to the small size of its domestic market, Uruguay has historically prioritized agricultural exports. Currently, 77 percent of all export earnings are agricultural. Of particular export importance are meat, commodity crops, forestry products, dairy, and citrus fruits, whereas vegetables almost exclusively supply domestic markets (INE, 2020).

Latest census data (2011) showed that Uruguay had 44,781 agricultural farms and an agricultural population of 106,961 persons. This is a 22 percent reduction in numbers of farms, and 43 percent reduction in agricultural population compared to 2000. Because the total farmland in Uruguay has stayed the same, the sizes of remaining farms have increased and contributed to a process of concentration (DIEA-MGAP, 2011).[1] Processes of farm concentration are coupled with agricultural intensification (e.g. high use of external inputs, such as agrochemicals and fertilizers, and increased mechanization), and led to environmental problems, such as erosion and soil degradation, loss of biodiversity, and contamination of drinking water (Colnago et al., 2021).

Considered as a more sustainable alternative to conventional farming systems, organic production exists mainly in two agricultural sectors. First, around 500 farms produce certified organic beef for export markets on 2.1 million hectares of land. Due to the extensive management of natural pastures that traditionally exists in Uruguay, fifteen percent of the total agricultural land is organic – making Uruguay the eight country in the world in percentage of organic surface (Willer et al., 2021). Second, around 120 family farmers produce organic vegetables that are destined for

[1] More than 55 percent of the farms are run by small-scale family farms (between 1 and 99 ha), who account for only 4.6 percent of the agricultural land area. At same time, 95 percent of the land is owned by large farms (99 to 10.000 ha), among which the 9 percent largest farms own more than 60 percent of the land (DIEA-MGAP, 2011).

domestic markets. Although small in absolute terms, the organic vegetable sector is growing, particularly resulting from high domestic consumer demand. In addition to organic beef and vegetables production, there is an increase in sustainability practices in conventional farming systems in other agricultural sectors (Gazzano and Gómez Perazzoli, 2017).

Policy support for food system transitions

The Uruguayan government, with support from the FAO (2019), established four agricultural policy priorities, which are also relevant to the topic of this thesis. While one of these policy priorities – to promote regional cooperation – is a cross-cutting theme, the other three priorities are outlined below. Per policy priority, some examples of support instruments are given.

The first policy priority is the promotion of *safe and healthy food in efficient agri-food systems*. Whereas assuring quality and safety of food is generally a core task of governments, it is prioritized due to the importance of agricultural export for Uruguay's economy. Export markets set more stringent food quality and safety requirements than Uruguay's domestic market. To support Uruguay's companies to comply with export market criteria, the government aligns domestic safety, quality and sustainability regulations with requirements of the most demanding export markets. In addition, different government bodies are involved with control of compliance and accreditation of export markets, and also offer capacity development and technical support (MGAP-Opypa, 2020).

The second policy priority is the promotion of *rural development and family farm integration in value chains*. More than sixty percent of the farm population consists of small-scale family farms, of which the majority sells in domestic markets – making them important for domestic food provision. Nonetheless, the decrease in farms is particularly high among family farms. To preserve family farming as a viable economic opportunity, the government promotes their insertion in domestic value chains. Two key policy instruments are the collective commercialization of organized farmers to i) the processing industry, or to ii) institutional buyers through public procurement – both enacted through contractual arrangements between producer organizations, buyers, and the government (MGAP-Opypa, 2018). Besides, to preserve the socio-cultural and territorial contributions of family farmers to rural development, a variety of activities are organized, such as social events for rural women and youth (Ackermann, 2014).

The third policy priority is the promotion of *environmentally sustainable agricultural production and more resilient production systems.* An increasingly wide range of support instruments exists, such as financial instruments to make on-farm sustainability investments, or capacity development support projects. Support is often provided in collaboration with universities, research centres, or extension

agents, for instance to test and implement more sustainable practices (MGAP-Opypa, 2020). At regional and zonal level, specific support instruments are created in response to local sustainability problems. Dedicated support, particularly for family farms in the vegetable sector, comes from sustainability-oriented NGOs, consumer associations and social movements. Under coordination of the agroecology network, a national agroecology law is implemented, and a participatory organic certification system is established (Gazzano and Gómez Perazzoli, 2017).

1.7 METHODS

Selecting food systems

Three commodity food systems are studied in this thesis: vegetables, dairy, and citrus. These systems have been selected based on the following criteria: 1) Perishability of produce; 2) Diversity in farm size; 3) Domestic and global value chains; 4) Type of transition; and 5) Representation in policy priorities.

First, all three food systems have perishable products, which makes coordinated actions of actors in food systems more relevant than products with no or low perishability, such as grains or forestry products. Second, the three systems differ in farm size, with predominantly small-scale farms in vegetables, small-scale and large farms in dairy, and predominantly large-scale farms in citrus. Third, food systems have been selected that supply domestic value chains (vegetables), or both domestic and global value chains (dairy, citrus). Fourth, there is variation in types of transition, with more incremental safety, quality and sustainability changes in dairy and citrus systems, and more radical sustainability changes in vegetable systems due to the presence of an organic niche. Finally, the three systems are well represented in the main pillars of agricultural policies. All three systems receive government support for making production systems more sustainable. Besides, dairy and citrus systems receive support to promote safe and healthy food in agri-food systems, particularly to meet foreign market requirements, whereas vegetable systems receive support for family farm integration and the promotion of rural development (Aldabe and Dogliotti, 2014; MGAP-Opypa, 2020).

Research design

A qualitative multiple embedded case study design has been applied in this thesis. Case study designs are suitable for exploring complex real-life situations that need contextualised understandings (Yin, 2003). Qualitative case study designs are considered the most suitable design to unfold complex, heterogenous, and non-linear transition processes (Köhler et al., 2019). In addition, such designs are commonly applied in studies on producer organizations (e.g. De Herde et al., 2020;

de los Ríos et al., 2016), and value chain actors (e.g. Fernández-Barcala et al., 2017; Wever et al., 2010). However, transition research, and the multi-level perspective in particular, is criticized for having an 'observer-expectancy bias', caused by relying on a single case that exemplifies a successful transition. Therefore, comparative or multiple embedded case study designs are recommended in transition research (Genus and Coles, 2008; Zolfagharian et al., 2019).

The case study design in this thesis consists of multiple food systems (delineated by commodity), with multiple actor cases studied in each system (either producer organizations or value chain actors). In addition, within-case and cross-case analyses are conducted, for instance to compare producer organizations across niche and regime, or to compare organizational arrangements among multiple value chain actors. Such multiple embedded designs have replication logic, which is found more impactful than studies without replication logic (Hoorani et al., 2019).

Data collection and analysis

A first visit to Uruguay was conducted in July and August 2016 to prepare data collection. During this visit, the three commodity food systems were selected, and sampling frames were developed for producer organizations in the vegetable system, and for processors in the dairy and citrus systems. The second field visit took place between November 2016 and April 2017, in which cross-sectional data were collected. A total of 93 semi-structured interviews were performed.

For Chapter 2 and 4, a total of 54 interviews were accomplished in the vegetable system. Ten cases of producer organizations were studied in a conventional regime and an organic niche, based on 20 interviews with producer organizations, and 34 interviews with value chain and institutional actors. Most interviews were used for both chapters, with different topics being addressed to use in either one or both chapters.

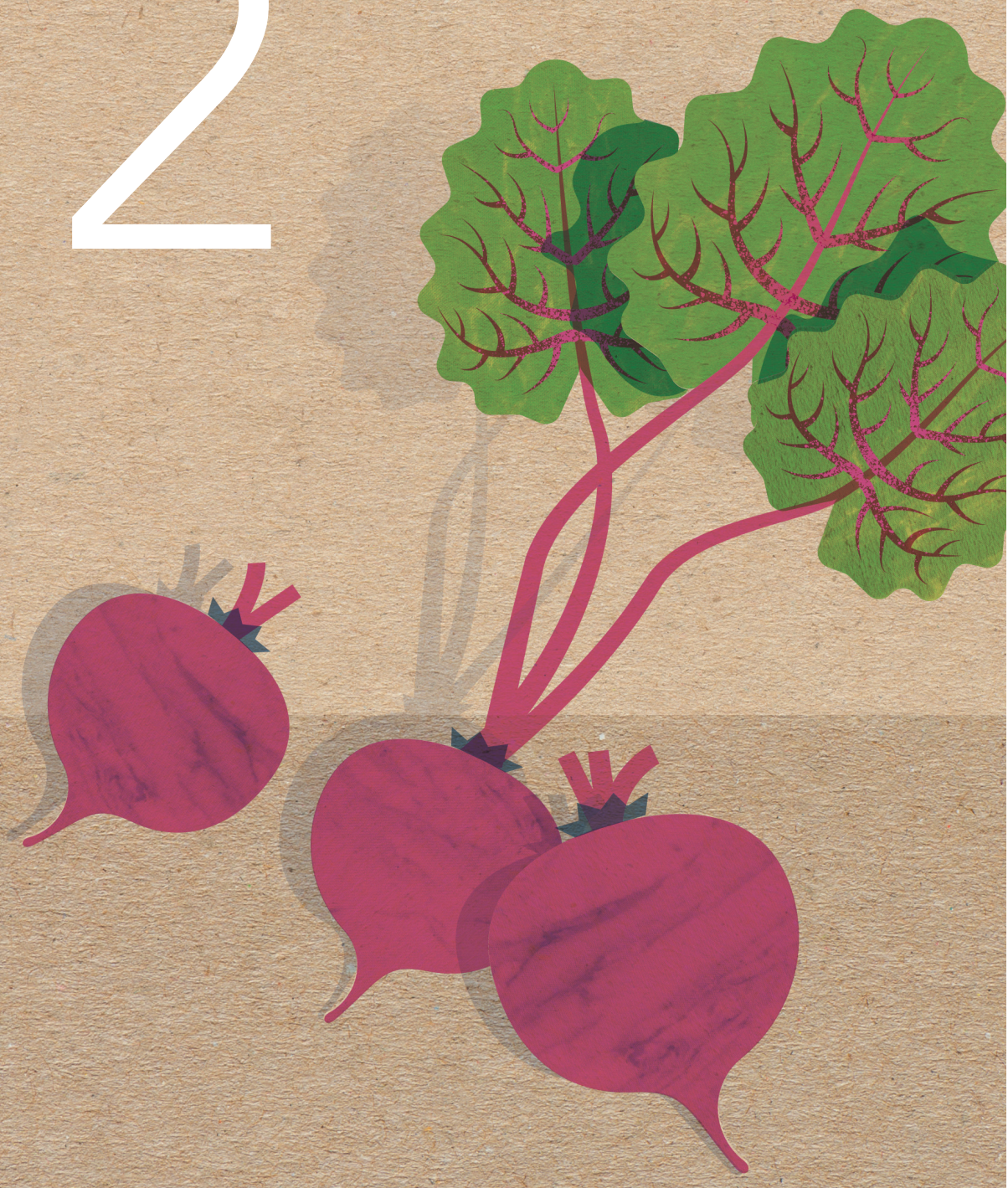
For Chapter 3, a total of 39 interviews were conducted to study processors and their up- and downstream organizational arrangements with producers and retailers in dairy and citrus regime systems. Twenty interviews were accomplished in the dairy system, and 19 interviews were performed in the citrus system. The majority of interviews were held with value chain actors, but also interviews with institutional actors were conducted, for instance with the government, and with quality control institutes. Extensive secondary data were collected, including public quality laws and decrees, regulations of quality standards, and export retailer documentation.

All interviews were conducted in Spanish, recorded with consent of the interviewees, and transcribed by a native Spanish speaker. Interviews were coded and analysed in Atlas.ti through qualitative content analysis. The individual chapters provide more details about data collection and analysis.

1.8 OUTLINE OF THIS THESIS

The remainder of this thesis is organized as follows. Chapter 2 focuses on the organizational diversity of producer organizations in a vegetable system with a conventional regime and an organic niche. Chapter 3 studies the coordination of quality, safety and sustainability improvements among value chain actors in dairy and citrus regimes by zooming in on organizational arrangements and quality standards. Chapter 4 provides insights into the potential of producer organizations as transition intermediaries in a vegetable system with a conventional regime and an organic niche. The thesis ends with the discussion and conclusions in Chapter 5, in which the research questions are answered, theoretical, policy and practical implications are discussed, and limitations and directions for future research are given.

2



Chapter 2. Characterizing Producer Organizations: The case of organic versus conventional vegetables in Uruguay

Abstract

Producer organizations are considered important for rural development in developing and transition countries. Scientific studies on producer organizations mostly focus on their impact, but do not distinguish among different types. However, producer organizations are a heterogeneous group. This chapter explores the organizational characteristics that distinguish producer organizations in the vegetable sector of Uruguay. In comparing organic and conventional vegetable chains, we have identified five types of producer organizations and we have investigated their distinct organizational characteristics. We found, first, that producer organizations in the organic value chain are responding to market incentives, whereas producer organizations in the conventional value chain are responding to public incentives. Second, contrary to producer organizations with a focus on social and political activities, producer organizations with economic activities are small, they have a product focus, they require member investment, and they have a high formalization status. Third, producer organizations with output-driven objectives have higher levels of horizontal and vertical coordination than producer organizations with value-driven objectives. Our study contributes to the increasing body of literature on the internal and external conditions that explain the diversity of producer organizations in developing and transition countries.

Keywords

Producer organizations, organizational characteristics, organic, vegetables, value chains, Uruguay

This chapter is published as

Groot Kormelinck, A., Bijman, J., and Trienekens, J. (2019). Characterizing Producer Organizations: The case of organic versus conventional vegetables in Uruguay. *Journal of Rural Studies, 69(March),* 65–75. https://doi.org/10.1016/j.jrurstud.2019.04.012

2.1 INTRODUCTION

Producer organizations (POs) may improve farmer income, food security, and rural development. Producer organizationss are considered, by researchers, policymakers, and donors, as an organisational solution for the problem of the weak economic and social position of farmers in developing and transition countries (Poulton et al., 2010; World Bank, 2007). In addition to its primary economic function, producer organizations often provide social and political benefits for the rural community in which they are embedded (Emery et al., 2017). An increasing number of studies evaluate the performance of producer organizations by measuring *impact* on farmer household outcomes (e.g. Abebaw and Haile, 2013; Ma and Abdulai, 2017; Wossen et al., 2017). A small number of impact studies also incorporate measurements of *inclusion* of smallholder farmers in producer organizations (Bernard and Spielman, 2009; Ito et al., 2012; Mojo et al., 2017).

While studies evaluating the impact and inclusiveness of producer organizations are highly relevant, these studies do not pay attention to the wide diversity in organizational characteristics of the producer organizations under study. Assuming all producer organizations are equal is not only a problem in scientific research on the development and impact of these collective action organizations; it is also a problem in policy-making for rural development. Ignoring differences in organizational characteristics inhibits gaining a better understanding of the factors that determine their performance, and constrains making comparisons among producer organizations and across locations (Grashuis and Su, 2018).

Thus, studies on producer organizations in developing and transition countries focus on *whether* and *for whom* these organizations achieve impact. However, by ignoring the question how organizational characteristics affect the performance of a producer organizations, key information is left out in the effort to better understand *how* and *under what conditions* producer organizations achieve impact and inclusion (Bijman, 2016; Verhofstadt and Maertens, 2014). This chapter provides an exploration of how organizational characteristics affect the performance of producer organizations, based on a qualitative empirical study among producer organizations in the vegetable sector of Uruguay. In comparing organic and conventional vegetable chains, we identified five types of producer organizations. Our main objective is to analyse differences in organizational characteristics across the types of producer organizations, and develop a number of propositions.

This chapter makes several contributions to the academic literature on producer organizations. First, the chapter explores the organizational characteristics of producer organizations. While most studies on producer organizations focus on the impact, ignoring the often-large differences among producer organizations, we show that the functionality of producer organizations is strongly associated with their structural and functional characteristics. Second, a study that compares producer organizations in the organic value chain with producer organizations in the

conventional chain is pertinent considering the global challenge of sustainably feeding a growing world population. Concerns about the unsustainability of conventional agriculture have led to an increased attention for organic farming systems (Reganold and Wachter, 2016). The number of organic farms, the area of organically farmed land, and the size of the organic food market are all increasing steadily, while more than three quarters of all organic producers in the world live in developing and transition countries (Willer and Lernoud, 2016). Studying the differences between producer organizations in organic and conventional chains allows for better interventions and policies in support of sustainable food systems.

Finally, to our knowledge, this is the first study on vegetables producer organizations in Uruguay. With a population that faces the double burden of stunting and obesity (Bove et al., 2012), the availability of vegetables is vital for a healthy diet. Uruguay relies almost entirely on domestic vegetable production, which makes local producer organizations important institutions for contributing to food and nutrition security in the domestic food system. As Uruguay is experiencing societal challenges similar to other developing and transition countries, such as urbanization, an increasing rural-urban divide, and the increasing consumption of low-nutritional food (Santos and Perazzoli, 2015), lessons learned in Uruguay may also apply to other developing and transition countries.

The remainder of this chapter is structured as follows. Section 2.2 presents a literature review on producer organizations, whereas section 2.3 describes the methods of our empirical study. Section 2.4 outlines the findings and formulates propositions. Section 2.5 concludes, gives directions for future research, and formulates policy recommendations.

2.2 LITERATURE REVIEW ON PRODUCER ORGANIZATIONS

The term producer organization has been used in many academic publications and policy chapters, referring to an organization that is (at least in majority) owned and controlled by agricultural producers and that provides services and products to its member-producers. The term has become popular, particularly in a development context, since the turn of the century (Penrose-Buckley, 2007; Rondot and Collion, 2001; Ton and Bijman, 2008; World Bank, 2007). These publications explore the role of producer organizations in establishing a link between producers and other (economic) actors in the context of restructuring value chains. By strengthening the bargaining power of producers, reducing the risk and coordination costs in transactions, and providing appropriate inputs and services, producer organizations support the economic welfare of its member-producers. A diversity of organizational forms exist for this class of economic producer organizations. For example, studies focus on economic functions of producer groups in Poland (Fałkowski et al., 2017), marketing cooperatives in Ethiopia (Groot Kormelinck et al., 2016), farmer marketing

groups in Kenya (Fischer and Qaim, 2012), and producer companies in India and Sri Lanka (Trebbin, 2014).

A second stream of literature has taken a broader perspective on the functionality of producer organizations. Rondot and Collion (2001) have argued that producer organizations often provide their members with three kinds of services: economic services when markets fail, public or semi-public goods when states fail, and a voice in political affairs. This perspective of the broad role of producer organizations was also included in the 2008 World Development Report (World Bank, 2007). Thorp et al. (2005) have made the distinction between claims groups and efficiency groups. Claims groups seek to get favourable conditions (including subsidies) from governments. Efficiency groups seek to increase the efficiency of the production and marketing activities of farmers, by reducing transaction costs and strengthening bargaining power.

A third stream of literature has focused on the social embeddedness and the institutionalization of producer organizations. Community groups, village associations and various types of self-help groups are examples of producer organizations that cater for the needs of the community as whole, and not only for those of the member-producers (Bernard and Spielman, 2008; Emery et al., 2017). While in many countries business-oriented producer organizations have grown out of community associations, the continuous interaction with political and administrative authorities depends largely on the institutional culture of the country. For instance, Pesche and Losch (2016) describe the ongoing interaction of rural producer organizations with policy circles in West Africa, while Fonte and Cucco (2017) explore the social obligations that cooperatives carry in Italy. More recently, also within the literature on community organizations, there is increasing attention to the entrepreneurial role of these organizations, not only to support producers, but also to strengthen the economic viability of the community as a whole (Dentoni et al., 2018; Donovan et al., 2008).

A fourth stream of literature deals with organizations in which producers closely collaborate with other actors, such as multi-stakeholder cooperatives and multi-actor rural networks (Kilelu et al., 2013). The objectives of these types of producer organizations range from the more narrowly defined goal of introducing innovations at the farm among members (Tregear and Cooper, 2016), or even induce larger societal changes, such as alternative food systems (Ajates Gonzalez, 2017a).

This brief literature review indicates that producer organizations are multi-faceted organizations that may provide benefits to its members and to the wider community. Besides developing different conceptualizations of producer organizations, literature also uses various (multi)disciplinary perspectives in studying evolution and design, performance, institutionalization, and internal social and governance relations. In our study, we explore the organizational characteristics of producer organizations in vegetable value chains in Uruguay, while explicitly taking into account the

institutional and social interactions that affect the establishment of producer organizations, and their product and market focus.

While the majority of empirical studies on producer organizations leave organizational characteristics undescribed, a few studies *do* include and define organizational features. Francesconi and Heerink (2010), and Bernard et al. (2008) distinguish producer organizations on the basis of their function (livelihood versus marketing cooperatives), whereas Fischer and Qaim (2012) include activities, the initiator, age and homogeneity of the group. Barham and Chitemi (2009) incorporate group composition characteristics, group heterogeneity, and social structure (group assets, trust, altruism), whereas Verhofstadt and Maertens (2014) distinguish the type of remuneration schemes (individual or collective). In an overview chapter, Bijman and Hanisch (2012) list twelve different characteristics, including the main function of the organization, the initiator for establishment, the legal form, and the position of the producer organization in the value chain.

Based on the different strands of literature reviewed here, we took a broad approach in selecting key organizational characteristics. In the next section, we will elaborate on the choice of characteristics that have been explored in our study.

2.3 METHODS

Research context

We carried out our empirical study on organizational characteristics of producer organizations in the organic and conventional vegetable chains of Uruguay. The following outline of the conventional and organic value chain, and of the institutional support for producer organizations, is based on interviews with value chain and institutional actors – triangulated with data from secondary sources.

Vegetable production forms six percent of the agricultural production value, whereas the agricultural sector as a whole accounts for five percent of the gross domestic product (DIEA-MGAP, 2018). Given its high labour intensity, horticulture is Uruguay's second largest agricultural labour occupancy after dairy, with more than 15,000 people employed in 2013 (Ackermann, 2014). The latest census data, collected in 2011, show that more than eleven thousand vegetable producers were active on a total of 18,111 hectares of land. The large majority of vegetable producers are small family farmers, whereby most farms have between one and three hectares of land (DIEA-MGAP, 2011).

Many vegetable producers are closing their farms as their income is declining due to decreasing prices and increasing costs (Dogliotti et al., 2014). The number of vegetable producers decreased with more than 50 percent between 2000 and 2011 (MGAP-Opypa, 2017). Agriculture and particularly the vegetable sector is

characterized by a process of farm concentration and agricultural intensification. The intensification of vegetable production has led to a loss of biodiversity, soil degradation, and contamination of drinking water resources due to the high and imprecise use of pesticides (Dogliotti et al., 2014).

In this context, the organic vegetable sector has developed as a sustainable alternative. While still being a niche, the sector has evolved over the past 25 years from a few isolated producers to an estimated 120 certified organic vegetables growers (Santos and Perazzoli, 2015). Accredited by the Ministry of agriculture, a participatory certification program exists that is coordinated and enforced by the agroecology network, in which small teams of organic producers, extension officers and agronomists control compliance. Apart from this certification program, the organic vegetable sector remains largely undocumented and informal. Interviews revealed that different actors estimate the number of actual organic producers to be higher, as not all producers sell in a market that requires certification (e.g. organic street markets).

Vegetables are mostly consumed fresh, and production is almost entirely destined for the domestic market. Conventional and organic vegetables are sold in a variety of domestic market channels. Conventional vegetables are sold via the wholesale market to supermarkets, street markets, small retail stores, institutional buyers, and (only a minor part) to the processing industry. Conventional vegetables are low-value commodities that are sold based on visual quality inspection in a chain with many intermediaries. In the market for conventional vegetables, supply exceeds demand. The chain is characterized by high informality and uncertainty, high price volatility, and a low producer bargaining position.

Organic vegetables are sold in short chains to organic street markets, organic shops, supermarkets, and via organic bag systems. Organic vegetables are high-value products that are sold based on its credence quality attributes, especially the absence of agro-chemicals in the production process. In the organic market, demand grows more rapidly than supply. Organic producers have a strong bargaining position; they receive relatively stable prices and earn a good income (as compared to producers of conventional vegetables).

Uruguay has a large and diverse trajectory of collective experiences, with origins of cooperative formation dating back to the 1870s. The first agricultural organizations were formed in the beginning of the 20th century, when small family producers collectively tried to resolve problems of scale and bargaining power. In 1941, law institutionalized the cooperative organization, while the Cooperative law has been revised in 2008. Legally, three types of formal agricultural producer organizations are acknowledged: 1) Agricultural cooperatives; 2) Rural support associations; and 3) Agricultural trade unions (FIDA and CCU, 2014). The latest cooperative census, of 2008, indicated an existence of 125 agricultural producer organizations with

21,519 members and 4,393 employees (INE, 2009).[2] Primary producer organizations are federated in two unions[3], while these unions are members of the Uruguayan confederation of cooperatives.

Various policy instruments have been developed by the Ministry of agriculture to support (family) producers and their organizations. Rural support associations have the legal mandate to apply these instruments to its members. Support may be directed towards individual producers (e.g. providing inputs and technical assistance), or towards the producer organizations (e.g. strengthening the capacity of the organization). One such instrument is the support for producer organizations to collectively sell vegetables to institutional buyers (Ackermann, 2014). Producer organizations in both the organic and conventional chain can benefit from these support instruments. However, different respondents (e.g. organic producers, organic and agroecology organizations, and ministry representatives) indicated the lack of specific support for organic agriculture, for example the insufficient number of agronomists that are knowledgeable about organic farming.

Data collection and analysis

A qualitative case study design was chosen, which is appropriate for obtaining insights into complex processes, formulating propositions, and revealing details (Yin, 2003). Data were collected between November 2016 and April 2017. At the start of data collection, a mapping of all producer organizations in both value chains was done, based on interviews with key informants and secondary data. The mapping led to a categorization of producer organizations into five types (see Table 3).

Table 3. Population and sampling method

Types of producer organizations	Population	N	Sampling
Type 1. Rural support association	33[1]	2	Non-random
Type 2. Marketing cooperative with institutional contract	2	2	Total population
Type 3. Producer network	1	1	Total population
Type 4. Marketing cooperative with own shop	2	2	Total population
Type 5. Marketing cooperative with supermarket contract	2	2	Total population

[1] The total population of 100 includes rural support associations from all agricultural sectors. An estimated 33 of these associations have a majority of vegetable member-producers (source: two interviews with union representatives).

[2] This is a reduction of 31 percent in number of agricultural producer organizations, and 56 percent of its members since 1989. Agricultural producer organizations form 11 percent of the country's 1,165 producer organizations.

[3] The Federation of agricultural cooperatives represents agricultural cooperatives, while the National commission for rural development represents rural support associations.

Types 1 and 2 are organizations of conventional producers, while types 3 – 5 include organic producers. Types 2, 4, and 5 fall under the legal form of Agricultural cooperatives, while type 1 falls under the legal form of rural support associations. Type 3 is an informal producer organization. Given that for each of the types 2 – 5, only one or two producer organizations exist in Uruguay, the total population was included in the study. For type 1, non-random sampling was conducted through typical-case sampling. Based on two interviews with union representatives, two producer organizations were selected that are representative for their population.

Fifty interviews were held in the organic chain (*N=21*) and in the conventional chain (*N=29*), including three actor groups: Producer organizations, value chain actors, and institutional actors (for details, see Appendix Table 2.1). Interviewees were selected through purposive and snowball sampling, until data saturation was achieved. Sixteen interviews were conducted with members of producer organizations, whose contact details were obtained via the union (for type 1), the public support institution they are working with (for type 2), the agroecology network (for type 3), or the buyer (for type 4, 5). Fifteen interviews were held with various actors from the value chain. Nineteen interviews were held with representatives of regulating and supporting institutions. Interviews with members of producer organizations were triangulated through interviews with unions, buyers, and the institutions supporting producer organizations.

To enhance validity and reliability, a standardized topic list was used for each of the three actor groups (Yin, 2003) (see Appendix Table 2.2). The main objective of the interviews with producer organizations was to measure their organizational characteristics. On the basis of the empirical studies reviewed in section 2.2, we selected twelve organizational characteristics. Eventually, eight measures were included[4] in the analysis: 1) *Incentives for establishment* (public, market)*;* 2) *Size* (small, medium, large); 3) *Product* (vegetables, multiple); 4) *Member investment* (yes, no); 5) *Formalization* (low, medium, high); 6) *Activity* (social and political, economic); 7) *Objectives* (output-driven, value-driven)*;* 8) *Level of horizontal and vertical coordination* (low, medium, high). For more details, see Appendix Table 2.3. Interviews with value chain and institutional actors focused on measuring value chain characteristics, and the availability of institutional support. Results of the interviews are included in the description of the research context (section 2.3) and in the cross-case analysis (section 2.4).

Interviews were conducted in Spanish by the principal researcher; they lasted between 45 and 75 minutes for producer organizations and institutional actors, and

[4] The following variables were measured but excluded from the analysis:
- *Level of producer organization in multilayer system:* Only type 1 had a union;
- *Sector:* All producer organizations are studied in the vegetable sector;
- *Geographical scope*: All producer organizations cater for the whole domestic market;
- *Position in the value chain:* This variable is captured by our more informative variable 'Level of horizontal and vertical coordination'.

15-30 minutes for value chain actors. Interviews were recorded, and subsequently transcribed by a native Spanish speaker. Interview data were complemented with secondary data from sector reports, policy documents, and business plans of producer organizations. The principal researcher coded the data. Coding was done deductively (using the topic list of each actor group), as well as inductively (based on new topics that arose from the data). Based on content analysis, reports were written in English for each of the producer organizations. Two types of analyses were carried out: Within-case analysis to describe organizational characteristics of each type of producer organization, and cross-case analysis to explore the relationship among organizational characteristics (Goertz and Mahoney, 2012). Finally, preliminary results were discussed and verified in a multi-stakeholder workshop in Uruguay in March 2018.

2.4 RESULTS

This section presents results of the within-case analysis on the organizational characteristics of the five types of producer organizations. Two types of producer organizations are described for the conventional chain, and three types of producer organizations are described for the organic chain. Subsequently, results of the cross-case analysis are presented on differences in organizational characteristics across the five types of producer organizations.

Within-case analysis

Producer organizations in the conventional chain

PO type 1: Rural support association

The first type consists of rural support associations. Around 100 of these associations currently exist in Uruguay with varying membership size (between 30 and 100 farmers). Associations are formed based on geographical location, and they include non-vegetable producers. An estimated 33 associations have a majority of vegetable producing members. The associations and their union are established by law in 1915, in order to channel government support to producers. The associations have social and political activities. Social activities focus on social interaction among members, including activities targeted at women and young farmers. Political activities focus on channelling support from the government to producers, and – via the union – to lobby the government for better policies. Various interviewees indicated difficulties of maintaining active membership. As a coordinator from the union stated: *"A large part of the associations still exist because of public support,*

they are a channel for the government to help family farmers." The establishment law of the associations forbids them to conduct economic activities, although there are plans to change this. Hence, up until now, no vertical coordination in the value chain is done.

PO type 2: Marketing cooperative with institutional contract

The second type consists of marketing cooperatives that have a so-called institutional contract. In 2017, two of such cooperatives exist. The cooperatives are small (between 10 and 20 members), and are established in response to a 2014 government law that seeks to support family farming through collective marketing to institutional buyers (e.g. military, schools, hospitals). Both cooperatives have been established by members of type 1 who decided to form a separate cooperative to obtain a guaranteed market without intermediaries, and to receive a higher and more stable price.

Horizontal coordination within the cooperative entails production planning of vegetable varieties among members, and organizing logistics of bringing produce to the central distribution place. A part of the sales revenues is used by the cooperative to cover operational costs, and to invest in new infrastructure (e.g. to set up a cold storage and a processing plant). The cooperatives focus on compliance of the delivery agreement with institutional buyers. Vertical coordination takes place within the context of the institutionalized three-party contract. The government provides financial support for the cooperatives, facilitates technical advice, and monitors contract compliance. The contract includes an annual forecast of demand, quality requirements, and logistic conditions – although adaptations on volumes are coordinated bilaterally between buyer and cooperative. Buyer and cooperative can agree on a price within the boundaries set by the government instrument, meaning that prices should fall within 140 percent of prices in the wholesale market.

Figure 4 shows the two types of producer organizations in the conventional chain, whereas Table 4 overviews their organizational characteristics.

Figure 4. Types of producer organizations in the conventional chain

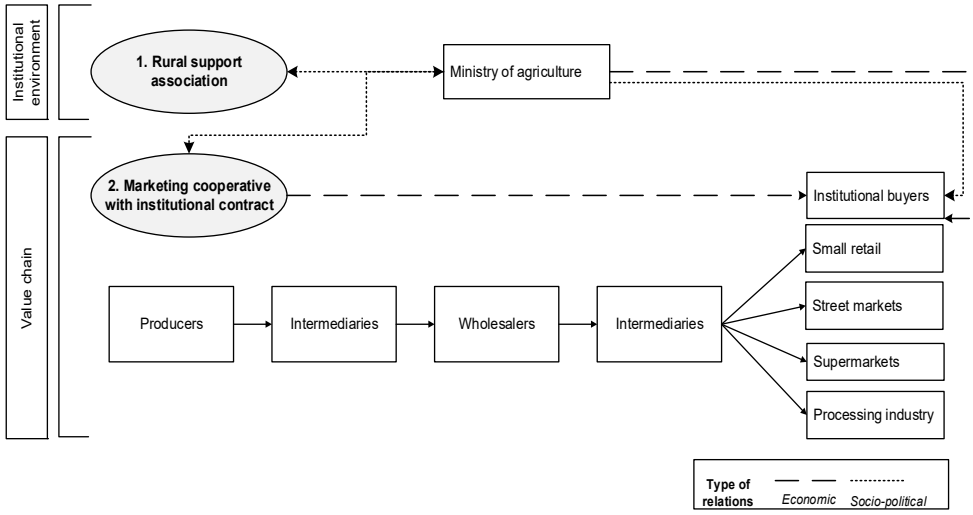


Table 4. Types of producer organizations in the conventional chain

Organizational characteristics	**1. Rural support association**	**2. Marketing cooperative with institutional contract**
Incentives for establishment	Public	Public
Size (N)	Medium / large (30-100)	Small (10-20)
Product	Multiple	Vegetables
Member investment	No	Yes
Formalization	Low	High
Activity	Social, Political	Economic
Objectives	--	--
Level of coordination	Low	Medium
Horizontal	Social activities, lobby to and channel support from	Production planning, transport, payment, investments in
Vertical	government	collective infrastructure
	--	3-party contract (incl. government) specifying volume, quality, delivery conditions

Producer organizations in the organic chain

PO type 3: Producer network

The third type is a producer network. It is an informal network, consisting of relations among individual farmers and (in)formal subgroups. Its members are part of the participatory certification program of the agroecology network.[5] Members also produce other products than vegetables. The producers have united to obtain certification, and thereby have recognizable, differentiated products for consumers. The network has social, political, and economic activities. Producers informally exchange information on production and markets, and have social meetings. Other social and political activities involve membership in agroecology organizations. As a member of a small cooperative of young producers stated: *"We have collective production on collective land. We want to be social and political actors, so we have discussed in which agroecology organizations we participate."*

Economic activities include marketing of produce, individually or in small subgroups, in a variety of market channels, such as organic street markets, and organic bags systems. In all cases, it implies selling directly to consumers. The level of horizontal and vertical coordination is low in terms of rules for commercialization, price setting, and logistics. There is no financial investment of members in the network. The objectives of network members are value-driven, such as selling directly to consumers for a fair price, and exchanging information with consumers about agroecology.

PO type 4: Marketing cooperative with own shop

The fourth type consists of marketing cooperatives with their own organic shop in the capital Montevideo. In 2017, two of such cooperatives exist. The cooperatives originate from type 1 and 3 and respond to market opportunities, as their members were looking for an organic market channel with daily sales. The cooperatives are small (between five and twelve members), and sell vegetables only. Although the cooperatives had initial financial support from NGOs, both cooperatives run without external support.

Horizontal coordination within the marketing cooperative entails sharing production information, buying inputs collectively, production planning based on sales records, development of basic quality guidelines, price setting, and arranging transport logistics. Members invest in the cooperative, and a percentage of revenues is used

[5] The agroecology network is an organization that supports agroecology (including organic). Its members are producers, organic chain actors and consumers. Organic producers receive certification via its participatory certification program. In 2017, the agroecology network has around 120 certified producers. Organic producers from type 4 and 5 are also part of this network, however they are not using the network for their marketing activities. Thus, we do not consider them to be part of type 3.

to pay for collective costs. The cooperatives are vertically integrated with the retail function, as they pay the rent for the shop, and hire a manager and an accountant. Vertical coordination entails aligning production, logistics and sales, with three to six deliveries per week. The shop manager conducts visual quality inspections upon arrival. The cooperatives aim to combine output-driven with value-driven objectives, such as direct relations with consumers and fairness of pricing, while maintaining efficiency in operations.

PO type 5: Marketing cooperative with supermarket contract

The fifth type consists of marketing cooperatives with contracts with national supermarkets. In 2017, two of such cooperatives exist. The cooperatives are small in size (eight and nine members), and sell vegetables only. The cooperatives originate from type 1, whereby a few conventional producers decided to pilot with organic farming in an informal group, resulting in the cooperatives. The cooperatives have economic activities and respond to market opportunities. The level of horizontal and vertical coordination is high. Sales records of the supermarkets are translated into detailed crop production planning per member. Cooperatives clean and package vegetables, and apply the organic label. Members invest in the cooperative, and part of the revenues is reinvested, whereas transport and financial administration are outsourced. Besides full traceability of products, members have internal quality control mechanisms. Side-activities include production of organic pest control inputs, trials with importing and selling organic fruit, and trials to process lower-quality vegetables into conserves.

The cooperatives have an output-driven strategy that considers organic as business model to sell for a high price to supermarkets, with a focus on efficiency. Cooperatives have a verbal or written contract with the supermarkets. Supermarkets require high volumes, a broad assortment (>25 crops/varieties), high quality, year-round delivery with three to five deliveries per week, and organic certification. Supermarkets conduct quality control upon receiving the products, next to laboratory control on pesticide residues. Supermarkets established an organic brand that has the cooperative name in it, while producers invest in marketing and promotions of the supermarket, and pay fifty to hundred percent of the costs for laboratory analyses.

Figure 5 shows the three types of producer organizations in the organic chain, whereas Table 5 provides an overview of their organizational characteristics.

Figure 5. Types of producer organizations in the organic chain

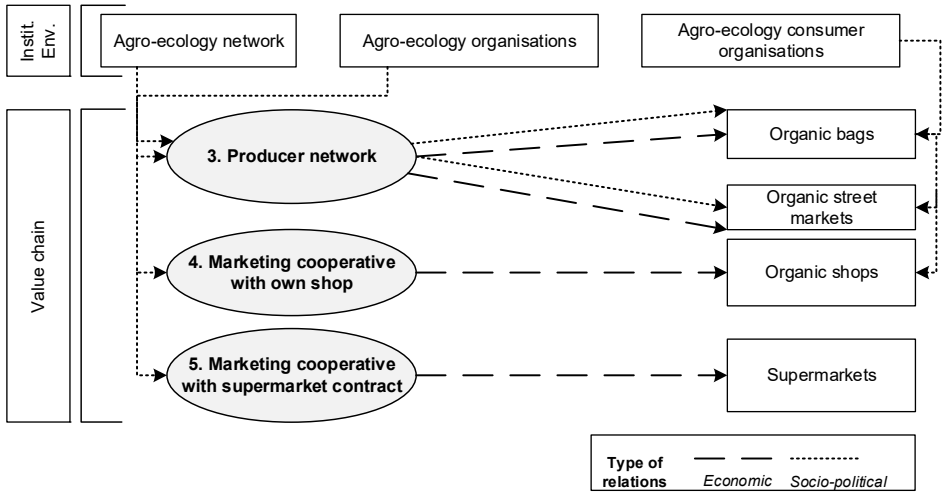


Table 5. Types of producer organizations in the organic chain

Organizational characteristics	3. Producer network	4. Marketing cooperative with own shop	5. Marketing cooperative with supermarket contract
Incentives for establishment	Market	Market	Market
Size (N)	Large (60-80)	Small (5-12)	Small (8-9)
Product	Multiple	Vegetables	Vegetables
Member investment	No	Yes	Yes
Formalization	Low	High	High
Activity	Social, political, economic	Economic	Economic
Objectives	Value-driven	Value + output-driven	Output-driven
Level of coordination	Low	Medium	High
Horizontal	Exchange (social, production, market information)	Production planning, quality setting, logistics, pricing	Production planning, quality setting and control, logistics, pricing, side-activities
Vertical	Partial collective commercialization directly to consumers	Integration with own shop. With manager: Production, logistics, quality	Contract with supermarket: Product, quality, packaging, branding, logistics, investments

Cross-case analysis

Incentives for establishment

The first finding that differentiates the five types of producer organizations concerns differences in the incentives that have led to establishment. Whereas producer organizations in the organic value chain (type 3, 4, 5) have been established in response to market incentives, producer organizations in the conventional chain (type 1, 2) are initiated in response to public incentives.

The conventional value chain is characterized by medium to high public support for producer organizations. Type 1 has political activities, including lobbying to the government for improved farmer policies, and channelling government support to its members, while type 2 is selling farm products to institutional buyers facilitated by a government contract. The product and market characteristics – a low-value commodity sold in a long chain with many intermediaries, and low producer prices – may not be favourable for more market-oriented producer organization. A saturated market implies that producers are competitors, which does not favour integration into a marketing producer organizations. Different interviewees reported failed attempts to establish a producer organization: "*Producer organizations don't have the commercial skills to operate in the speculative wholesale market. Also, the groups make costs for taking up vertical activities, such as transport and commercialization, whilst they don't have the product or market channel that pays a higher price for it."*

In the organic chain, product and market characteristics are more favourable for integration into a marketing producer organization. Organic vegetables are a high-value niche product, sold in a short chain with preferred supplier transactions, and with high and stable producer prices. The type 3 and 4 producer organizations are established in response to consumer demand: "*We saw the demand for organic. As a niche product, you can't wait for intermediaries to come to your farm. We decided to establish a cooperative and open our own shop"* (type 4). Type 5 was supported by the supermarket. As the supermarket manager stated, *"Consumers are demanding organic production, so we were incentivizing producers to organize and sell to us. We are still giving the cooperatives signals about new varieties, new production technologies, etc."* With public support being absent, producer organizations in the organic chain collaborate with other organic and agroecology organizations. This finding lead us to formulate the following proposition:

> **Proposition 1:** Producer organizations operating in an organic chain (a conventional chain) are more likely to be established in response to market (public) incentives.

Structural organizational characteristics

The second finding that differentiates the five types of producer organizations concerns differences in structural organizational characteristics of the producer organizations. The producer organizations that focus on economic activities (type 2, 4, 5) have four structural characteristics in common: they are small in size (and only open to new members under specific conditions), they deal with vegetables only, they require member investment, and they have a high formalization status. The producer organizations with non-economic activities[6] (type 1, 3) have opposite characteristics: they are large (and open to new members), they focus on multiple products, they do not require member investment, and they have a low formalization status.

The producer organizations with economic activities focus on collective marketing. Due to the perishable nature of vegetables, buyers and producer organizations have three to six transactions per week, and therefore need efficient coordination. This translates into vertical integration with an own shop (type 4), or contracts with institutional buyers or supermarkets (type 2 and 5). Producers coordinate with buyers to comply with requirements on volume, variety, quality, and logistics. This implies daily contact among all members, and a high reliance on informal coordination mechanisms. As a member from type 5 states: *"If the cooperative would be large, it would be more difficult to coordinate internally. We would compete amongst ourselves, and it would be more difficult to find agreement. We resolved many problems for over twenty years, our group is strong."* On the contrary, a large size, a large variety of products, and a low formalization status seems to align better with social and political activities, such as lobbying to the government, and organizing youth meetings. We translate our findings into the following proposition:

> **Proposition 2:** Producer organizations with economic activities – as compared to non-economic activities – are more likely to be small, have a product focus, require member investment, and have a high formalization status.

Level of coordination

The third finding that differentiates the five types of producer organizations concerns the differences in the level of horizontal and vertical coordination among the three types of producer organizations in the organic chain. The producer organizations with value-driven objectives (type 3) have low levels of horizontal and vertical coordination, while the producer organizations with output-driven objectives (type 5) have high levels of horizontal and vertical coordination. The producer organizations that combine value with output-driven objectives have medium levels of coordination (type 4).

[6] Non-economic activities are mainly social and political activities.

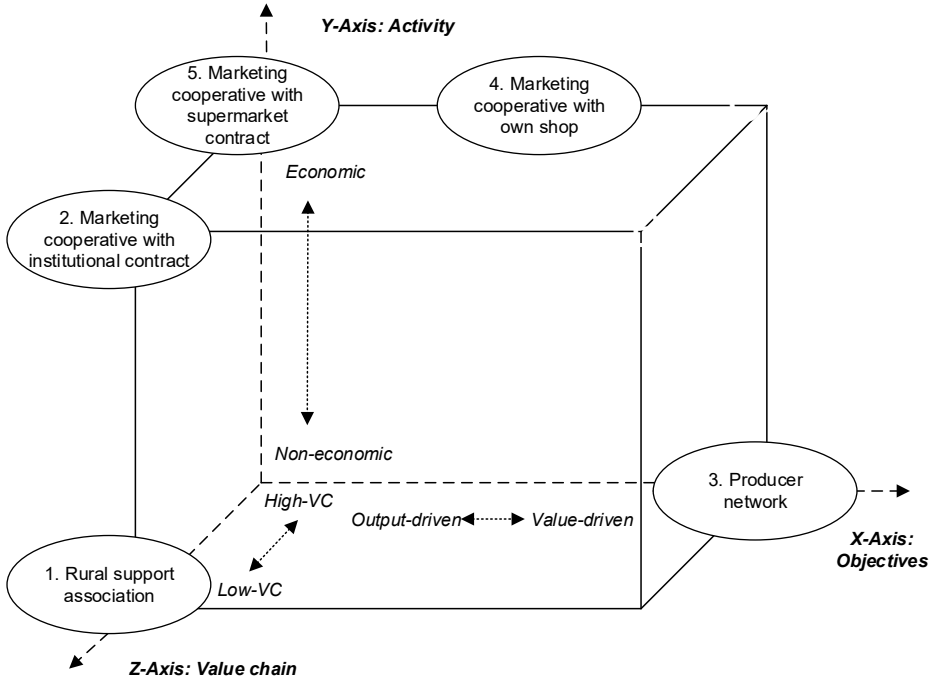
The producer organization with value-driven objectives (type 3) translates its objectives in low levels of horizontal and vertical coordination. The mechanisms of coordination are aligned to the objectives that are rooted in agroecology. As a network member stated: "*We want to sell in nearby markets with direct contact with the consumer, and with a price that reaches more consumers. Our way of commercialization asks a lot from us, it slows down our infrastructure and logistics – but this is the way we want it."* A member who produces and delivers organic bags to consumers in Montevideo stated, *"Even though we make very long days and have little rest, we don't want to outsource the delivery of bags to consumers to an intermediary. We would then lose our friendship and connection with consumers."* Thus, their prioritization of value over output is reflected in the level and mechanism of coordination.

The type 4 producer organization combines value- and output-driven objectives, and has medium levels of horizontal and vertical coordination. This is not always easy, as the following quote by a cooperative member shows: "*We first co-owned and managed the shop with consumers, in which each producer would sell in the shop one day per week jointly with consumers. It was a good idea, but didn't function. We were few producers and many consumers, and coordination and administration was difficult. There were also endless discussions on price setting. We still sell directly to consumers, but we now set the price ourselves, for the whole season. We keep prices accessible to a wider public, as we don't want organic to be for the elite."* The producer organizations with output-driven objectives (type 5) have high levels of horizontal and vertical coordination. As a member of one of the cooperatives stated: *"Our cooperative is a commercial company with profit objectives; we not only have organic production because it is better for the environment, but also to sustain us economically. This is reflected in the way we work with the supermarket. There is nothing romantic about that."* We translate our finding into the following proposition:

> **Proposition 3:** Producer organizations with output-driven objectives have higher levels of horizontal and vertical coordination than producer organizations with value-driven objectives.

We visualize our findings by placing the five types of producer organizations in a three dimensional graph (Figure 6). Each of the dimensions of the box represent a scale on which producer organizations can be placed: from conventional to organic chain; from non-economic to economic activities; and from output-driven to value-driven objectives.

Figure 6. Distribution of producer organizations on three dimensions



2.5 CONCLUSION AND DISCUSSION

This chapter investigated the organizational characteristics of producer organizations. A detailed analysis of the producer organization can provide better insights in the relationship among different characteristics, which can lead to better support policies. A qualitative case study was conducted on producer organizations in organic and conventional vegetable chains in Uruguay. We identified five types of producer organizations for the two value chains, and compared these types on eight organizational characteristics. We identified three key dimensions along which producer organizations can be classified: conventional versus organic chain, economic versus non-economic activities, output-driven versus value-driven objectives.

Empirical and theoretical contribution

The first finding is about incentives for establishing a producer organization. Producer organizations in the organic chain are established in response to market incentives, whereas producer organizations in the conventional chain are established in response to public incentives (Proposition 1). This finding confirms empirical studies of Narrod et al. (2009), and Hellin et al. (2009), who found that producer organizations are more likely to be a response to market incentives available in high-value chains, such as organic. Conversely, Reganold and Wachter (2016), in their review of organic versus conventional agriculture, found that considerably less public and private financial support is put towards organic than towards conventional systems worldwide.

The second finding is about structural organizational characteristics. Contrary to producer organizations with non-economic activities, producer organizations with economic activities are small, they have a product focus, they require member investment, and they have a high formalization status (Proposition 2). Our finding fits within the debate on inclusiveness of producer organizations and is in line with Bernard and Spielman (2009), and Shiferaw et al. (2011), who found that a higher level of economic-orientation is associated with a smaller group size, which may have a trade-off with inclusion. It is also in line with Bijman (2016), who argued that many producer organizations in developing and transition countries are in a transformation from social and political functions towards more economic functions.

The third finding is about levels of coordination. We show that among the three types of producer organizations within the organic chain, producer organizations with output-driven objectives have higher levels of horizontal and vertical coordination than producer organizations with value-driven objectives (Proposition 3). Producer organizations with output-driven objectives require stronger coordination, particularly when producer organizations engage in vertical arrangements, such as contracts with buyers (Mugwagwa et al., 2019; Ton et al., 2018). Lower levels of coordination in value-driven producer organizations were also found by DuPuis and Gillon (2009), and Kirwan (2006), who studied producer-consumer relations and mechanisms for coordination in direct market channels, such as for organic produce.

Both our findings on high coordination in output-driven producer organizations and on structural characteristics of economic producer organizations can be explained by transaction cost economics (Williamson, 1985). These findings align with economic-organization literature on cooperatives, the first stream of literature discussed in section 2.2. Due to the perishability and heterogeneity of vegetables, particularly in the organic chain, transaction costs tend to be high. Producer organizations, therefore, choose formal and informal governance mechanisms that keep transaction costs low. Because transactions in organic chains are characterized by high uncertainty, high information asymmetry, and relation-specific investments, the organizational choices reflect the need to reduce transaction costs,

such as a small number of members (Cox et al., 2010), the use of trust and reputation mechanisms (Ostrom, 2010), and formal contracting (Ménard, 2017).

However, transaction cost economics cannot explain the existence and durability of all producer organizations in the organic value chain. Producer organizations based on value-driven objectives deliberately choose to engage in time-consuming interaction with consumers. Selling and engaging directly with consumers in short chains, selling at fair prices to make organic products available to a large group of consumers, and contributing to food system transformation, are crucial objectives for producers and their producer organizations. Literature on alternative food systems (Hinrichs, 2003; Marsden et al., 2000), and on multi-stakeholder cooperatives (Ajates Gonzalez, 2017a) can better explain that values can be more important than economic efficiency, and that the participation of different stakeholders in itself is valuable, particularly in the light of pursuing a transformation towards more sustainable agriculture.

Limitations and future research

Our study has a number of limitations, particularly related to our empirical approach. First, we acknowledge the small number of respondents per producer organization as a limitation. Second, in addition to the eight variables explored in our study, there may be other organizational characteristics that associate with the performance of producer organizations. For instance, group features like trust and reciprocity may be even important, as indicated by research on collective action studies in natural resource management (Cox et al., 2010; Ostrom, 2010). We suggest that future studies on organizational characteristics of producer organizations also include such social-psychology variables. Another area of future research may focus on different capacities and skills of leaders, particularly when producer organizations are making a transition from conventional to organic, or from a social-political orientation towards an economic orientation (Bijman, 2016). Finally, our findings have shown a broad variety of producer organizations that do not fit in a simple dichotomy of organic versus conventional. In accordance with Tregear (2011) and Sonnino and Marsden (2006), we conclude that producer organizations in organic versus conventional chains are not opposites separated by strict boundaries. Future research may zoom into interlinkages among producer organizations in both chains, for example on developing efficient value chains.

Policy recommendations

This chapter has shown that producer organizations are heterogeneous in the way they are organized and embedded in their value chain context. This yields recommendations for policy makers, donors, and NGOs on how producer organizations can be supported. First, in absence of market incentives, public support may induce establishment of producer organizations. However the sustainability of producer organizations with economic activities (such as those that collectively sell farm produce) may be at risk when they are based purely on public support instruments (Francesconi and Wouterse, 2015; Shiferaw et al., 2011). Conversely, public support for producer organizations in the organic chain may need to be increased to fill institutional voids that hamper growth in this sector. Public support can facilitate the transition from conventional to organic systems (Reganold and Wachter, 2016).

Second, when seeking to strengthen market access of organic farmers, it may be better to establish new producer organizations instead of transforming traditional producer organizations. In our study, the producer organizations with economic activities were often a spinoff of conventional producer organizations, but had clearly different organizational characteristics. In addition, it is important for policymakers to realize that besides the investment, it takes different resources to become an economic group, such as commercialization capacity, and time to spend on organizing internal meetings. Finally, given the diversity of objectives that translate into different levels of coordination in value chains, it is important for policymakers to realize that there are no one-size-fits-all solutions in supporting producer organizations – especially when supporting the transition to more sustainable food systems.

3

Chapter 3. Coordinating food quality: How do quality standards influence contract arrangements? A study on Uruguayan food supply chains

Abstract

Purpose – The aim of this chapter is to study the influence of quality standards on contract arrangements in food supply chains.

Design/methodology/approach – A qualitative double case study was conducted on the dairy and citrus sectors in Uruguay. A transaction cost theoretical framework was used. All current public and private quality standards applied by processors were studied in relation to contract arrangements between processors and upstream producers as well as downstream buyers for each sector.

Findings – Quality standards *complement* contract arrangements for *upstream* transactions, leading to hierarchy-type contract arrangements. Quality standards *substitute* contract arrangements for *downstream* transactions, leading to market- or hybrid-type contract arrangements.

Research limitations / implications – Longitudinal studies that measure changes in contract arrangements over time are recommended.

Practical / social implications – Supply chain actors can reduce transaction costs by aligning quality standards with appropriate contract arrangements – further supported by public instruments.

Originality / value – Quality standards have differential influence on underlying transaction characteristics, and therefore on contract arrangements, depending on the location of the transaction in the supply chain.

Keywords

Quality standards, contract arrangements, transaction cost economics, food quality management, supply chain governance, Uruguay

This chapter is published as

Groot-Kormelinck, A., Trienekens, J., and Bijman, J. (2021). Coordinating food quality: How do quality standards influence contract arrangements? A study on Uruguayan food supply chains. *Supply Chain Management*, *26(4),* 449–466. https://doi.org/10.1108/SCM-02-2020-0087

3.1 INTRODUCTION

Coordinating food quality throughout supply chains has become more important over the past decades (Lee et al., 2012). With globalising supply chains, food products travel across multiple continents – leading to greater food safety risks. Moreover, the prevalence of food safety scandals has caused more public anxiety (Pouliot and Wang, 2018). In addition, consumers are increasingly demanding quality of the food production process, such as assurance of good social practices, animal welfare, and environmental management. Food quality has thereby become multidimensional (Goodhue, 2011), and there has been a shift in interest from observable towards non-observable quality attributes, which implies additional quality uncertainty for buyers and increased interdependencies among supply chain actors (Raynaud et al., 2009).

Quality standards are external institutions to coordinate food quality in supply chains. Quality standards are rules of classification and measurement established by recognised and consistent use or by regulation (Giovannucci and Reardon, 2001). In recent decades, mandatory public standards, such as (inter)national laws and regulations have tightened requirements on food safety, and widened in focus by including production process characteristics (Trienekens and Zuurbier, 2008). Besides, private standards, such as GlobalGap or ISO, have proliferated, both in scope and scale. Such standards are established by individual or collective private actors, and adoption by supply chain actors can be voluntary or demanded by retailers to access a certain market (Henson and Humphrey, 2010). Private standards may be established to complement inadequate public standards, reduce transaction costs by standardising products and processes, protect brand capital and defend companies' reputation, and create competitive advantage through product differentiation (Lee et al., 2012). Quality standards increase vertical coordination throughout the supply chain by setting quality requirements and controlling compliance at multiple supply chain nodes, often through third-party audits (Trienekens et al., 2012).

A broad range of studies have emerged on the relation between quality standards and food supply chain governance. These studies focus on reasons for supply chain actors to adopt quality standards (Stranieri et al., 2017), their preferred enforcement mechanisms (van der Merwe et al., 2019), quality performance (López-Bayón et al., 2018), and quality control (Jraisat and Sawalha, 2013). A specific field of studies analyses how quality standards affect bilateral contract arrangements between supply chain actors (e.g. Raynaud et al., 2005; Banterle and Stranieri, 2008; Wever et al., 2010; Ghozzi et al., 2016, 2018; Fernández-Barcala et al., 2017). Transaction cost economics is the most used theory in these studies, explaining the choice for a contract arrangement based on the need of supply chain actors to keep transaction costs as low as possible (Williamson, 1991). Contract arrangements vary from markets (little control) to hierarchies (high control), with hybrid types in between (Williamson, 2002).

Quality standards are considered to influence the choice of contract arrangement by affecting the transaction characteristics (Young and Hobbs, 2002). To reach quality coordination, some studies claim that quality standards lead to additional quality coordination in hierarchy-type contract arrangements (e.g. Banterle and Stranieri, 2008; Ghozzi et al., 2018), whereas others find standards to lead to reduced quality coordination in market-type contract arrangements (Raynaud et al., 2005; Fernández-Barcala et al., 2017). Thus, existing studies yield mixed results on the influence of quality standards on contract arrangements. Besides, these studies focus on how the introduction of a single quality standard affects contract arrangements in a supply chain. A knowledge gap exists on the influence of quality standards on contract arrangements, when combinations of public and private quality standards are taken into account.

This chapter aims to fill this gap by providing insights on how quality standards affect contract arrangements in food supply chains. Primary and secondary data were collected in a double case study on the dairy and citrus sectors in Uruguay. For each sector, quality standards and contract arrangements were studied for transactions that processors – the focal supply chain company – have with upstream producers (T1) and with downstream buyers in three supply chains (T2, T3, T4). All current public and private standards applied by processors have been included – a total of 60 public and 15 private standards. Quality standards and contract arrangements are compared on coordination and control of quality requirements, classified into three attributes: 1) Sensory; 2) Safety; and 3) Process quality. This study takes a broad, qualitative approach in studying how combinations of public and private quality standards applied by supply chain actors affect contract arrangements for different transactions within and across supply chains.

We aim to make four contributions. First, to our knowledge, this is the first attempt to study all public and private quality standards present in a case. In this way, our approach yields more realistic insights in the complex coordination of food quality in supply chains, as compared to existing studies on single quality standards (e.g. Ghozzi et al., 2016; Fernández-Barcala et al., 2017). Second, studying four transactions in each case allows analysis on how quality standards affect contract arrangements within and across supply chains. Such design goes beyond studies on dyadic transactions (e.g. Raynaud et al., 2005; and Banterle and Stranieri, 2008) – and contributes to increased calls for addressing interdependencies among multiple supply chain transactions (e.g. Mena et al., 2013; Kataike et al., 2019).

A third contribution is that we add insights on the application of transaction cost economics in supply chain management by showing how quality standards affect contract arrangements by changing the transaction characteristics. Our results advance studies that attribute contract arrangements to a quality standard without explaining how the effects come about (e.g. Wever et al., 2010; Trienekens and Wognum, 2013). Finally, while most studies focus on highly-specialised supply chains in Europe, the context of Uruguay provides useful insights on how supply

chain actors in transition countries combine contract arrangements with multiple public and private quality standards. Such insights contribute to the increasing body of literature that focuses on how farmers in developing and transition countries can participate in high-quality food supply chains (e.g. Jaffee et al., 2011; Groot Kormelinck and Bijman, 2016).

The remainder of this chapter is organised as follows. Section 3.2 presents the literature review, including the theoretical basis, conceptual framework, and a review of empirical studies. Section 3.3 contains the methods, followed by the descriptive results in section 3.4. Section 3.5 analyses and discusses the findings. Finally, section 3.6 provides the policy and managerial implications, limitations, directions for further research, contributions and concluding remarks.

3.2 LITERATURE REVIEW

Contract arrangements

Contract arrangements, sometimes called 'organizational arrangements' or 'governance structures', refer to the organisation of transactions within supply chains. Transaction cost economics predicts that choices for a contract arrangement are determined by transaction characteristics, mainly uncertainty and asset specificity (Williamson, 1985). Uncertainty refers to the inability of transaction actors to measure the outcomes of a transaction, such as uncertainty arising from unobservable behaviour of the transaction partner. Asset specificity refers to investments an actor makes exclusively for a transaction, and thus increases dependency on the other transaction actor (Rindfleisch and Heide, 1997). Increasing levels of uncertainty and asset specificity lead to higher transaction costs – which causes shifts from low control in market-type contract arrangements to higher control in hybrid- or hierarchy-type contract arrangements (Williamson, 2002). In this chapter, we distinguish five types of contract arrangements (adapted from Wever et al., 2010, and van der Merwe et al., 2019): 1) Spot market exchange; 2) Non-contractual relationship; 3) Contractual relationship; 4) Equity-based contract; 5) Vertical integration (see Appendix Table 3.2).

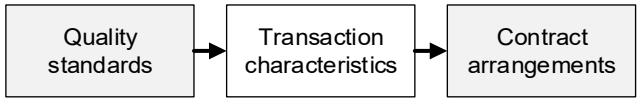
The coordination of food quality in supply chains affects the choice for contract arrangements – for two reasons. First, final food quality is the result of decisions and behaviour of all supply chain actors, which makes supply chain transactions interdependent (Trienekens et al., 2012). Second, food quality is multidimensional and consists of different quality attributes (Raynaud et al., 2005). Quality consists of search, experience and credence attributes (Darby and Karni, 1973). Search means that quality can be observed, such as size and appearance. Experience means that quality can be assessed during consumption, such as taste and texture. Credence means that quality cannot be observed or assessed, such as safety and process

requirements. In this chapter, we distinguish sensory, safety, and process quality attributes (adapted from Luning and Marcelis, 2009). Sensory quality is a search or experience attribute, whereas safety and process are credence attributes.

Coordinating food quality in supply chains affects the transaction attributes of uncertainty and asset specificity (Young and Hobbs, 2002). The interdependence of behaviour of supply chain actors to achieve the desired food quality and the unobservability of credence attributes lead to information asymmetries and uncertainty about the quality performance of partners. Transaction partners often invest in specific assets to comply with quality standards. Such investments increase bilateral dependency and create the risk of hold-up (Williamson, 1985). Transaction cost economics predicts that if quality requirements go up, transaction costs go up (due to higher uncertainty and asset specificity), which would lead to a shift from market-type to hierarchy-type contract arrangement (Ménard and Valceschini, 2005).

This chapter follows the rationale that quality standards affect transaction characteristics which in turn affect the choice of contract arrangement (see Figure 7).

Figure 7. Conceptual framework



Quality standards and contract arrangements

Quality standards are an external coordinator of food quality in supply chains, and are considered to affect contract arrangements by changing the transaction characteristics. Through transmitting information on the product and production process, quality standards provide credible quality signals, which reduces buyers' search and measurement costs, particularly for credence attributes (Raynaud et al., 2009). However, implementing a quality standard leads to costs, such as for implementing good agricultural or manufacturing practices at production or processing nodes (Kirezieva et al., 2013). These investments are transaction specific if they only pay off the current partners. The effect of quality standards on uncertainty and asset specificity is, however, ambiguous. Empirical studies have found that public and private quality standards affect contract arrangements differently.

For public quality standards, Raynaud et al. (2005) find that the region-of-origin standard in three European agri-food supply chains leads to more market-type

contract arrangements. Similarly, Fernández-Barcala et al. (2017) find that the same standard in European meat supply chains leads to more market-type contract arrangements. The authors show that the public quality standard adds layers of control to the supply chain, which allows contract arrangements to specialise in quality control, for instance through monitoring and motivating compliance of the transaction partner. Public quality standards reduce uncertainty and lower the need for transaction partners to protect their reputational capital (Ménard and Valceschini, 2005). In addition, adherence to public standards is the responsibility of individual actors, therefore not demanding additional coordination in more hierarchy-type contract arrangements (Trienekens and Wognum, 2013).

For private quality standards, Raynaud et al. (2005) find that private brand names lead to more hierarchy-type arrangements. These results are in line with Ghozzi et al. (2016, 2018) and Banterle and Stranieri (2008), who find that, respectively, non-GMO standards in Europe and voluntary traceability standards in Italy lead to more hierarchy-type contract arrangements. Private quality standards reduce uncertainty, but increase asset specificity and therefore bilateral dependency – resulting in higher transaction costs, and thus more hierarchy-type contract arrangements. In conclusion, the effects of quality standards on contract arrangements seem to depend on their ability to influence the transaction characteristics. Especially whether investments for a quality standard by transaction partners are truly transaction specific – which seems to be the case for private standards, contrary to public standards –, affect levels of asset specificity and related levels of quality uncertainty that increase the risks of hold-up (David and Han, 2004; Williamson, 1985), and explains shifts to more market- or hierarchy-type contract arrangements (Ghozzi et al., 2018).

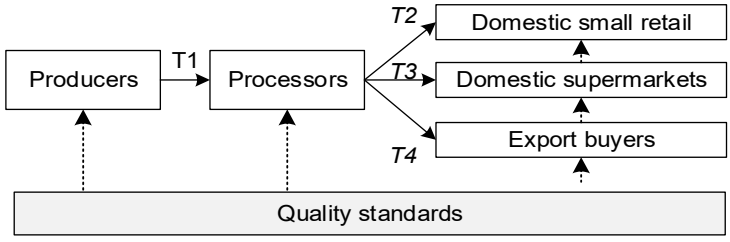
3.3 METHODS

Research context

Dairy is the third largest agricultural export product of Uruguay, with an export value of 591 million US dollar. Production is concentrated in the north and west of the country. In 2017, 3,718 dairy producers sent 1,822 million litres of raw milk to eight dairy processors (MGAP-DIEA, 2018). Processors process raw milk into a variety of dairy products, which are sold in three supply chains: domestic small retail, domestic supermarkets (33 percent for the two supply chains combined), and export (67 percent) (Inale, 2017). Butter and cheese are sold in all three supply chains, whereas perishable products like yoghurt and fresh milk are only sold in the domestic markets. Milk powder is the main export product, which is principally exported to Brazil, Algeria, Russia, and Mexico (MGAP-Opypa, 2018).

Citrus is the tenth largest agricultural export product of Uruguay, with an export value of 80 million US dollar. With a favourable production climate, citrus is predominantly produced in the north of the country. In 2017, 407 citrus producers sent 264,000 tons of citrus (50 percent oranges, 35 percent mandarins, 15 percent lemons) to processors. The four largest producers account for 60 percent of all domestic citrus production, and are vertically integrated with processors. Processors clean citrus fruit and apply post-harvest treatments (MGAP-DIEA, 2018). Processors sell to three supply chains: domestic small retail, domestic supermarkets (38 percent for the two supply chains combined), and export (40 percent).[7] Small- and medium-sized producers (below twenty hectares) predominantly supply domestic markets, whereas large producers supply all markets, including export. Main export markets are the USA and the EU, followed by Russia and Canada (MGAP-Opypa, 2018). Figure 8 shows that the dairy and citrus sectors are studied through analysis of bilateral transactions (T1 – T4) that occur between several dyads in the supply chain.

Figure 8. Three supply chains



Data collection and analysis

A qualitative case study design was applied, which is suitable for exploring causal links in complex real-life situations that need contextualised understandings (Yin, 2003). Two cases – the dairy and citrus sectors in Uruguay – were selected, based on sector reports and explorative expert interviews. Selection criteria were the sectors' contribution to the agricultural GDP, perishability of produce, and differences in production methods (animal versus fruit). A multiple embedded case study was applied, with two cases and multiple units within each case (Yin, 2003). Such a design has replication logic within and across cases, which is more rigorous and impactful than studies without replication logic (Hoorani et al., 2019).

[7] Twenty-one percent of fruit is sold to juice processors, two percent are post-harvest losses.

Table 6. Data collection per topic

Topic	Primary interviews with*:*	Secondary data on:
Public quality standards	Institutional actors	National public decrees, laws, regulations
Private quality standards	Supply chain actor: Processors	Processors: Websites, annual reports
		For each private QS: Websites, standard quality requirements, audit documents
Contract arrangements	Supply chain actors: Processors, producers, small retail, supermarkets	Export buyers: Websites, documents on sourcing polices and quality requirements

Table 6 offers an overview of the primary and secondary data collection, which is further detailed in Appendix Table 3.2. The data were collected between November 2016 and April 2017. Twenty interviews were conducted for dairy, nineteen for citrus. Selection of actors took place through an inventory of sector reports and websites. Processors were selected based on the condition that they sell in the export supply chain and in at least one domestic supply chain (small retail or supermarkets). In each sector, seven processors fulfilled that condition (MGAP-Opypa, 2018). Four out of seven dairy processors participated, which provided a good representation of the dairy sector in terms of ownership types and milk volumes.[8] All seven citrus processors participated, although one was omitted because of incomplete data.[9]

Processors and institutional actors were invited by email, with a formal letter attached explaining the purpose of the research, and guaranteeing confidential treatment of data. Interviews with processors were conducted with food quality and commercial managers. Interviews with institutional actors were conducted with experts on quality standards in the sector, as found in sector reports and through recommendations of other respondents. These interviews lasted between 50 and 80 minutes.

Subsequently, two to three supply chain actors per node were interviewed (see Figure 8**,** and Appendix Table 3.1). Supply chain actors were sampled based on information from processors, and served to triangulate information on contract arrangements. These interviews lasted between 15 and 40 minutes. All interviews

[8] Processor 1: A family company with 45 producers (2%); Processor 2: A cooperative with 20 member and 60 non-member producers (3%); Processor 3: An investor-owned firm with vertical integration (own milk production) (5%); Processor 4: A cooperative with 1800 producers (71%). Percentages are litres of milk processed / all milk processed in Uruguay in 2017 (MGAP-Opypa, 2018).

[9] Processor 1: A family company (2%); Processor 2: A listed company (4%); Processor 3: A cooperative (6%); Processor 4: A family company (6%); Processor 5: An international listed company (11%); Processor 6: A listed company (14%). Given the lack of data on citrus volumes processed in Uruguay, the percentages represent export market value / total citrus export market value in Uruguay in 2017 (MGAP-Opypa, 2018).

were conducted in Spanish by the principal researcher, recorded, and subsequently transcribed.

To triangulate interview data, secondary data were collected. For public quality standards, a total of 60 national public decrees, regulations and laws that apply to dairy, citrus or both sectors were studied (see Appendix Table 3.3). For private quality standards, a total of 15 private quality standards were studied that were implemented by a dairy or citrus processor, or both (see Appendix Table 3.4). These private quality standards were obtained through websites and official standard documents, such as standard compliance criteria, quality requirements, and audit documents. For contract arrangements, interview data from processors were complemented with secondary data from their website and annual reports. Additionally, secondary data on export requirements were analysed. Based on processor respondents, secondary data of four export buyers for dairy (Nestlé, Unilever, FrieslandCampina, and Danone), and four foreign retailers for citrus (Walmart, Kroger, Carrefour, and Aldi) were analysed.

Primary data were coded in Atlas.ti by the principal researcher. Coding was done deductively (using the topic list of the interviews), and inductively (based on new topics that arose from the data). For coding, quality attributes were distinguished for three attributes, and contract arrangements were distinguished for five types (see Appendix Table 3.2 for coding rules on contract arrangements). Within-case and cross-case analyses were conducted – as advocated by Eisenhardt (1989) and Goertz and Mahoney (2012). The within-case analysis details descriptive writeups for each case in section 3.4, whereas the cross-case analysis is a comparative case search for patterns to aggregate findings, as used for analysis and discussions in section 3.5.

3.4 RESULTS

This section describes the results on quality standards and contract arrangements that are found in the supply chains of the dairy and citrus sectors in Uruguay.

Dairy sector

Quality standards

Table 7 details the quality requirements and control in public and private quality standards in the dairy supply chain.

Table 7. Quality standards in the dairy sector

Quality coordination	Quality standards	
	Public	*Private*
Quality requirements	Animal welfare norms (production) Quality and safety parameters for raw milk and dairy products (production, processing) Management of soil, water, effluents, agrochemical residues (production, processing) Implementation of HACCP, traceability, auto-control schemes, good manufacturing practices (processing) Safe and fair labour conditions (all nodes) Sanitary, hygiene and safety procedures for milk production, collection, transport, processing, packaging, storage, sales (all nodes)	7 ISO standards with guidelines for management systems (processing): Food safety (HACCP, ISO 22000), Food quality (ISO 9001), Generic food safety and quality (FSSC 2000), Lab testing (ISO 17025) Occupational health and safety (ISO18001) Environmental (ISO 14001), and Energy management (ISO 50001)
Quality control	Accreditation and sanitary export certificates (processing) Lab control of cow urine, raw milk, dairy products (production, processing) Accreditation and periodic control (all nodes)	Certification and annual audits by third party certification bodies

Public quality standards have requirements on quality and control for all supply chain nodes.

For *production*, microbiological safety parameters are determined for raw milk, such as inhibitors of microbial growth, Maximum Residue Levels (MRL) for fertilizers and veterinary medicines, and absence of prohibited products, such as growth hormones and antibiotics (decree 174/002). Hygienic and safety procedures are prescribed to ensure health of personnel (laws 13.130, 13.389, 14.785, decree 321/009), animal welfare (laws 18.471, 18.242), sanity of cows, and hygienic milking and storing (decree 315/994, Mgap, 2018). Producers need to register and obtain annual accreditation, and are controlled and sanctioned by the Ministry of livestock, agriculture, and fisheries (hereafter Ministry of agriculture) on sanitation of cows and raw milk through lab analysis (decree 174/002).

For *processing*, physical and chemical quality and safety parameters of raw milk are determined.[10] These parameters are set to equal EU norms (the destination market with the highest demands) to enable processors to export to all markets (decrees 315/994, 359/013, 382/016). Traceability is required, and detailed procedures prescribe milk processing per dairy product (decree 174/002). General requirements for food industries (valid for dairy and citrus) involve food safety prescriptions for processing, packaging, labelling, storage, and transport (decree 315/994), and safety and health of personnel in the working environment (decrees 291/007, 127/014). Additionally, general requirements are set for safe and fair labour conditions, such as working hours, payment, insurances, and conflict resolution (laws 18.441, 14.407), and for environmental norms, such as management of soil, water, effluents, and agrochemical residues (decrees 182/013, 152/013, 253/79).

Processors are required to make several investments, such as the implementation of HACCP (Hazard Analysis and Critical Control Points), traceability, auto-control schemes, and a manual on good manufacturing practices that details internal control of products, operations, procedures for cleaning, health and hygiene of staff, and programmes for staff capacitation, for water quality, and for pest control. Processors need to implement a traceability system, control accreditation, communicate lists of supplying producers, and communicate producers that violate public quality norms to the Ministry of agriculture (law 18.242, decree 174/002). They are also required to conduct lab analysis of raw milk and dairy products – of which the frequency, number of samples, parameters, control techniques, and sanctions are publicly defined (decree 382/016). Processors need to register and obtain annual accreditation, including sanitary certificates for each export market. Processors are controlled by several ministries, and additional public lab control is conducted on raw milk and dairy products (decrees 368/2000, 65/2003, 359/013, 62/2002), as well as on safe labour practices and work authorisations (laws 14.489, 15.903).

For *retailing,* general basic safety and hygienic requirements exist (valid for dairy and citrus), such as for loading and unloading products. The public requirements for domestic supermarkets (T3) are more extensive than for domestic small retail (T2), for example with additional rules for refrigeration, separate offloading areas, and staff hygiene (decree 174/002). All nodes of the chain are subject to annual or more frequent controls and inspections. Appendix Table 3.3 provides more details on the public standards in the dairy sector.

Private quality standards have requirements for quality procedures for the processing node only. A total of seven ISO standards and HACCP, with varying adoption rates, are implemented by processors. *HACCP* (100% adoption) has a technical focus, and sets guidelines for hazard analysis, determining critical control points and critical limits, and implementing procedures for monitoring, corrective

[10] Sensory: Minimum fat: 2.9 gram/cc, protein: 2.7 gram/cc. Safety: <400.000 white blood cells/ml for Somatic cell count and <100.000 bacterial cells/ml for Bacterial count (decree 382/016).

actions, verification, and record-keeping. The ISO standards have a management focus, and prescribe frameworks and guidelines to improve procedures at company level. The adopted standards focus on system improvements on: Food safety management (ISO 22000, 100% adoption), Quality management (ISO 9001, 75% adoption), Food safety ánd quality management (FSSC 22000,[11] 50% adoption), Occupational health and safety (ISO 18001, 25% adoption), Environmental management (ISO 14001, 50% adoption), Energy management (ISO 50001, 50% adoption), and Lab testing (ISO 17025, 25% adoption). Contrary to public standards, these ISO standards are less specific for the investments that processors should make for successful standard implementation. Depending on the focus of the standard, processors may invest in design of preventive measures (e.g. design of sanitation program), assurance activities (e.g. record keeping), and implementing monitoring and control activities (e.g. design of corrective actions) – in addition to certification and auditing costs. Compliance with ISO standards is annually controlled by third-party auditors. Appendix Table 3.4 provides more details on the private standards in the dairy sector.

Contract arrangements

Table 8 presents the type of contract arrangements and the corresponding quality requirements and control for different dyads in the dairy supply chain. Averages are given for the type of contract arrangement among all processors under study, although variations are described.

Contract arrangements between *producers and processors* (T1) are contractual relationships and equity-based contracts. One processor has a contractual relationship with its suppliers, another processor has a contractual relationship and equity-based contract,[12] whereas a third processor is an equity-based cooperative, and a fourth is vertically integrated. Although the contracts have a one-year duration, they get repeated over numerous years. Many producers supply to the same dairy company for their entire work life. The processor with the contractual relationship equals milk safety parameters to the public quality standard, whereas – in anticipation to most demanding export buyers – the other three processors set stricter parameters.[13] Processors exert strict quality control on raw milk, by conducting rapid analysis in milk tanks (e.g. on antibiotics), and elaborate lab analyses on microbiological, physical and chemical quality and safety parameters.[14]

[11] Officially, this is not an ISO standard, however as a generic food safety and quality management standard, it makes use of ISO 22000 and ISO 9001. For simplicity, the standard is therefore classified in this chapter as ISO standard.

[12] 75% of the processors' suppliers have a (verbal) contract, whereas 25% are cooperative member.

[13] Depending on the processor: 200.000 or 300.000 instead of 400.000 white blood cells/ml for somatic cell count, and 50.000 instead of 100.000 bacterial cells/ml for bacterial count.

[14] Tests are done for: fat, protein, somatic cell count, bacterial count, lactose, urea, free fatty acids, brucellosis, mycotoxins, and antibiotics.

Table 8. Contract arrangements in the dairy sector

Quality coordination	Producers – Processors (T1)	Processors – Small retail (T2)	Processors – Supermarkets (T3)	Processors – Export buyers (T4)
Type contract arrangement	Mix of contractual relationship and equity-based contract	Mix of (non)-contractual relationships	Contractual relationship	Contractual relationship
Quality requirements	Internal coordination of requirements from public and private QS and export buyers	--[1]	--	Milk quality and safety parameters Packaging / labelling information Traceability systems *Some buyers:* Private quality standards (e.g. FSSC 22000, ISO 9001) Safety procedures and process requirements (social, animal welfare, and environmental)
Quality control	Lab control on raw milk Farm inspections on cows, milk sanitation	--	--	Lab control on dairy products *Some buyers:* Coordinating missions Audits (private or third party)

[1] For contract arrangements in T2 and T3, no quality requirements or control takes place, given that processes do not manufacture dairy products based on direct quality requirements of small retail and supermarkets.

Analysis results are used by all processors with producer suppliers (excluding the vertically-integrated processor) for a quality-based payment system that rewards better sensory quality and safety, and punishes antibiotics.[15] Two of the three processors with producer suppliers have in-house veterinarians and agronomists

[15] Producers receive a basic milk price per kilogram solids (a combination of fat and proteins), meaning that producers are paid more for higher sensory quality. Producers receive a bonus that gradually increases up to 18 or 19% (depending on the processor), that is contingent on higher product safety (lower bacterial values for somatic cell count and bacterial count). The payment system is partly publicly defined, but processors can tailor price bonuses to incentive quality.

that inspect the sanitary situations on the farm. To a varying degree, processors additionally stimulate quality by providing production inputs, credit, and pre-financing private veterinarian and agronomic assistance to producers, and by stimulating quality improvements through projects and workshops – often with public support.

Contract arrangements between *processors and domestic small retail* (T2) are non-contractual and contractual relationships with intermediary distributors. Distributors are responsible for the sales-based coordination and distribution with networks of small shops. Contract arrangements between *dairy processors and domestic supermarkets* (T3) are annually recurring contractual relationships. For both contract arrangements in T2 and T3, no quality requirements or control takes place, given that processors do not manufacture dairy products based on direct quality requirements from small retail and domestic supermarkets. For small retail (T2), agreements are based on price margins and logistics, whereas supermarket contracts (T3) specify the number and shelf-space per dairy product, and stipulate price, payment and discount systems.

Contract arrangements between *processors and export buyers* (T4) are contractual relationships. Export buyers are multinational dairy and food manufacturing companies that buy dairy products to sell or transform into other products. Most buyers require milk safety and quality parameters equal to the public quality standard (these parameters equal those of the EU, the most demanding market), and have additional requirements on packaging, labelling, and traceability systems. The most demanding export buyers (multinational dairy companies) insist on milk safety and quality parameters stricter than the public standard (see footnote 13), and require processors to adopt one or multiple private quality standards, with requirements for the processing node only.

Going beyond public and private standards, the most demanding export buyers (T4) set additional quality requirements for safety procedures and process quality on social practices, animal welfare, and environmental management. These requirements are implemented through buyer-owned quality guidelines and manuals, online monitoring systems, and codes of conduct. Before the first transaction, these export buyers often visit dairy processors (or vice versa) to coordinate quality requirements. Subsequent transactions are sales-based purchase orders that focus on volume, price, logistics, and technical quality specifications of milk products. Transactions are often repeated (monthly to six months) and only a minor part is sold on the spot – in response to fluctuating global market demand. Quality control takes place through elaborate lab control on quality, safety and sensory parameters. In addition, the most demanding export buyers send third-party auditors to inspect producers and processors with regard to these private requirements.

Citrus sector

Quality standards

Table 9 details the quality requirements and control in public and private quality standards in the citrus supply chain.

Table 9. Quality standards in the citrus sector

Quality coordination	Quality standards	
	Public	*Private*
Quality requirements	MRL[1] for agrochemicals (production, processing) Sustainable soil, energy, water management (production, processing) Safe and fair labour conditions (all nodes) Sanitary, hygiene, and safety procedures for production, harvesting, processing, packaging, transport, storage, sales (all nodes)	9 Standards with requirements for production and/or processing nodes: Broad food safety, social, and environmental norms (GlobalGap, Tesco Nurture) Food safety (HACCP, BRC, OHSAS 1800), Quality (ISO 9001), Generic food safety and quality (FSSC 22000) Social / Ethical norms (GRASP, SMETA)
Quality control	Accreditation and sanitary export certificates (processing) Sanitary disease control (production, processing) Basic lab control on MRL (all nodes) Accreditation and periodic control (all nodes)	Certification and annual audits by third party certification bodies

[1] MRL = Maximum Residue Levels

Public quality standards for the *production* node entail safety, social and environmental requirements.

For *production,* safety parameters for MRL of agrochemicals are those of the Codex Alimentarius, which are substantially less strict than the most demanding export market, the EU. Various norms prescribe safety procedures to ensure safe purchase, storage, and disposition of agrochemicals (law 13.663). Other requirements prescribe safe and hygienic on-site handling to reduce incidence of sanitary diseases (decree 535/003, law 16.332). Producers need accreditation from the Ministry of

agriculture, and of the national authority of environment. Strict on-site public quality control takes place on sanitary diseases.

For *processing*, similar safety parameters on MRL for agrochemicals apply. A range of generic industry requirements (that also apply to dairy processors) specify safety and hygienic procedures for processing, transport, packaging, labelling and storage (decree 315/994), for safety and health of personnel (decree 291/007), for labour conditions (law 18.441), and for environmental management of soil, water, and residues (decree 182/013). Processors need accreditation and are controlled by several ministries, for instance on safety and environmental requirements. Processors are subjected to strict control on sanitary diseases, upon which accreditation for the highest demanding export markets is contingent. Processor respondents, for example, indicate the presence of a permanent public officer in their packing plant to continuously monitor the sanitary situation.

For *retailing,* the same generic requirements (that also apply to dairy) exist for basic safety and hygienic requirements for domestic small retail (T2), and domestic supermarkets (T3) (decree 174/002). Samples of citrus fruit are taken at production, processor, wholesale and retail nodes for lab analysis on MRL – although respondents reported low implementation, amongst other challenges.[16] Finally, all actors in the chain are subject to annual and more frequent controls and inspections. Appendix Table 3.3 provides more details on the public standards in the citrus sector.

Private quality standards set requirements for safety procedures, social, and environmental norms. A total of nine standards are implemented by processors. Five of these standards have requirements for production and processing nodes. *GlobalGap* (100% adoption) is a broad standard with food safety, social and environmental requirements through good agricultural practices – with requirements ranging from preharvest activities to postharvest handling. Record keeping and internal audits are required on, amongst others, food safety assessments, hygiene protocols, traceability, working conditions, pest management, and conservation of water, soil, and biodiversity. *Tesco Nurture* (50% adoption) is the only single-retailer standard of the nine, and to avoid duplication for processors, has merged the majority of its social and environmental requirements with GlobalGap. Tesco's safety procedures on agrochemical applications, however, are more stringent than GlobalGap, for example with obligatory lab analysis to be conducted by processors, and stricter requirements on agrochemical application records.

GRASP (GlobalGap Risk Assessment on Social Practices in agricultural operations, 50% adoption) is a social add-on to GlobalGap, and sets requirements for fair social practices, such as employee representation, complaint procedures, and

[16] Different institutional respondents indicated challenges of guaranteeing food safety, because the Codex Alimentarius and the National register of agrochemical products do not always overlap – which makes enforcement difficult. Since 2012, the National Residues Monitoring Plan (decree 009/012) is in place to apply Codex with a certain flexibility – however multiple respondents indicate adoption to be in incipient stages.

documentation of contracts, wages, and non-employment of minors. *SMETA* (Sedex Members Ethical Trade Audit, 50% adoption) is another social standard that sets requirements for ethical business practices, with requirements for a management system on freedom of association and employment, health and safety, child labour, labour conditions, and discrimination, amongst others. The *FSSC 22000* (Food Safety System Certification, 17% adoption) sets guidelines for a generic food safety and quality management system. The following four quality standards set requirements for the processing node only. HACCP (100% adoption) sets guidelines for hazard analysis and control. *BRC* (British Retail Consortium, 67% adoption) sets requirements for food safety, such as the implementation of HACCP, and management systems for safety, quality, packaging, traceability, hygienic product and process control, side standards, and staff training. Finally, *ISO 9001* (34% adoption), and *OHSAS 18000* (Occupational Health and Safety Assessment Series, 17% adoption) require implementation of management systems on food quality and occupational health and safety, respectively. All the above standards are audited annually by third-party auditors. Appendix Table 3.4 provides more details on the private standards in the citrus sector.

Contract arrangements

Table 10 on the next page presents the type of contract arrangements and the corresponding quality requirements and control for different dyads in the citrus supply chain.

The contract arrangement between *production and processing* (T1) is vertical integration (VI). Five of the six processors have production and processing vertically integrated. The sixth processor is an equity-based cooperative in which producers manage their own production, whereas the processor decides on timing and volumes of harvesting. The three processors with the largest production volumes have commercialisation integrated vertically as well, whereas the three smallest processors (two VI, and the equity-based cooperative) have a shared strategic alliance with an agency that commercialises their produce for export. All six processors have a high level of internal coordination to assure compliance with quality requirements from the public and private quality standards and from contract arrangements downstream the chain. For three processors, the export agency adds quality requirements and control. The six processors have continuous alignment of production, harvesting and packaging processes, implementing quality standard requirements, and controlling compliance thereof – for example through sanitary management protocols and internal lab analysis on agrochemicals.

Table 10. Contract arrangements in the citrus sector

Quality coordination	Producers – Processors (T1)	Processors – Small retail (T2)	Processors - Supermarkets (T3)	Processors – Export buyers (T4)
Type contract arrangements	Vertical integration	Mix of spot market – Non-contractual relationship	Contractual relationship	Contractual relationship
Quality requirements	Internal coordination of export buyer requirements, public and private QS	Size, cleanliness of skin	Size, calibre, cleanliness of skin Consistent quality Packaging Informal traceability	Size, calibre, cleanliness of skin Internal quality (e.g. sugar levels, texture) Consistent quality Packaging and labelling Traceability systems *Some buyers:* Stricter on number, types, MRL[1] of agrochemicals Private quality standards Codes of conduct
Quality control	Visual inspection Lab control on MRL	--	Visual inspection Lab control on MRL Annual coordination visits	Visual inspection Advanced lab control on MRL *Some buyers:* Annual coordination visits Audits (private or third party)

[1] MRL = Maximum Residue Levels

Contract arrangements between *processors and domestic small retail* (T2) are spot market exchanges and non-contractual relationships. Transactions take place in the national wholesale market, whereby processors have their own stand or sell through other operators. Although most buyers may have a preference for larger-sized fruit

with a clean skin, these preferences are not coordinated as quality requirements *ex ante* to the transaction, nor is there quality control. Buyers come to the wholesale market, search for fruit that has their preferred cosmetic quality and price, negotiate and pay.

Contract arrangements between *processors and domestic supermarkets* (T3) are annually repeated contractual relationships with two of the six processors. Because these supermarkets already have a preferred supplier relation with a single processor, the other four processors do not supply to domestic supermarkets. Sensory quality requirements are coordinated, such as size and cleanliness of skin (class 1 or 2) – which are stricter than the preferences of buyers in small retail (T2). Supermarkets set additional requirements for consistent quality, uniform packaging, and informal traceability (knowing the producers of a batch, but not using a formal barcode system). Whereas daily coordination of volume, and price for next day deliveries are communicated through purchase orders, quality and non-quality requirements, such as pricing and payment systems, promotions, and logistics, are coordinated through annual contracts. Additionally, supermarkets pay annual visits to producers. Quality control is carried out by visual inspection. Two of the three supermarkets conduct basic lab control, and sanction producers with a fine or temporary suspension when MRL exceeds the public standard norms.

Contract arrangements between *processors and export buyers* (T4) are contractual relationships. Export buyers are large retailers that often buy through importers, such as fruit wholesalers. Buyers set detailed requirements on sensory quality, such as size, cleanliness of skin (class 1 or 2), sugar levels, and texture – which are stricter and more elaborate than the requirements of domestic supermarkets. Buyers set additional requirements for consistent quality, packaging and labelling, traceability systems, and transport. Buyers also demand adoption of private quality standards. GlobalGap is demanded by all buyers, thus obligatory *de facto* for export market access, whereas additional standards may be demanded, such as BRC, GRASP or Tesco Nurture. Some of the most demanding European retailers set stricter product safety requirements, for example allowing fewer agrochemical products and demanding seventy percent MRL of EU norms.

Going beyond public and private standards, large retailers in T4 have suppliers sign their private code of conduct on food safety and process quality. Retailers often provide training and support for suppliers to comply with their private quality requirements. Before the first transaction, processors regularly visit new buyers to coordinate requirements. Processors also have annual planning meetings with clients at a global fruit fair in Berlin. Given that both quality and non-quality requirements (e.g. on payment system and logistics) are established in the contract, subsequent transactions occur through sales-based purchase orders that specify volume, price, and desired quality per variety of citrus. The majority of agreements are with repeated clients, only a minor part is sold on the spot. Processors inform buyers on actual MRL for all their varieties. Intermediary importers control

compliance, after which buyers also conduct sanitary and organoleptic analyses, in addition to visual inspections on size and cosmetic quality, maturity, and sugar levels. Large retailers send third-party auditors or intermediaries to verify compliance with their private requirements.

3.5 ANALYSIS AND DISCUSSION

This section presents the results of the cross-case analysis, which lead to two main findings. Figure 9 shows specific combinations of quality standards and contract arrangements for each transaction. Figure 10 provides insights in whether quality standards function as substitutes for or as complements to contract arrangements. The figure shows specific combinations of quality standards and contract arrangements to coordinate quality attributes for each transaction.

Figure 9. How transactions make use of quality standards and contract arrangement types

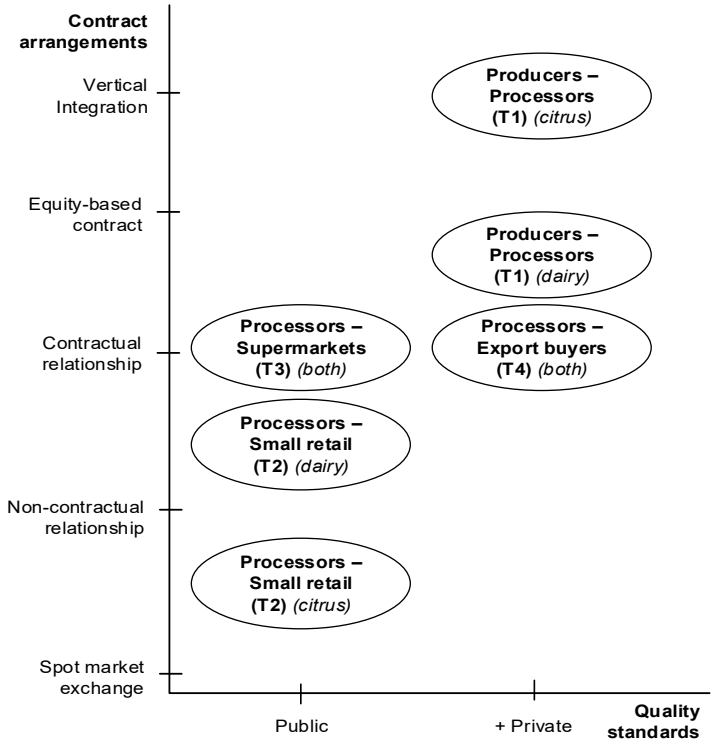
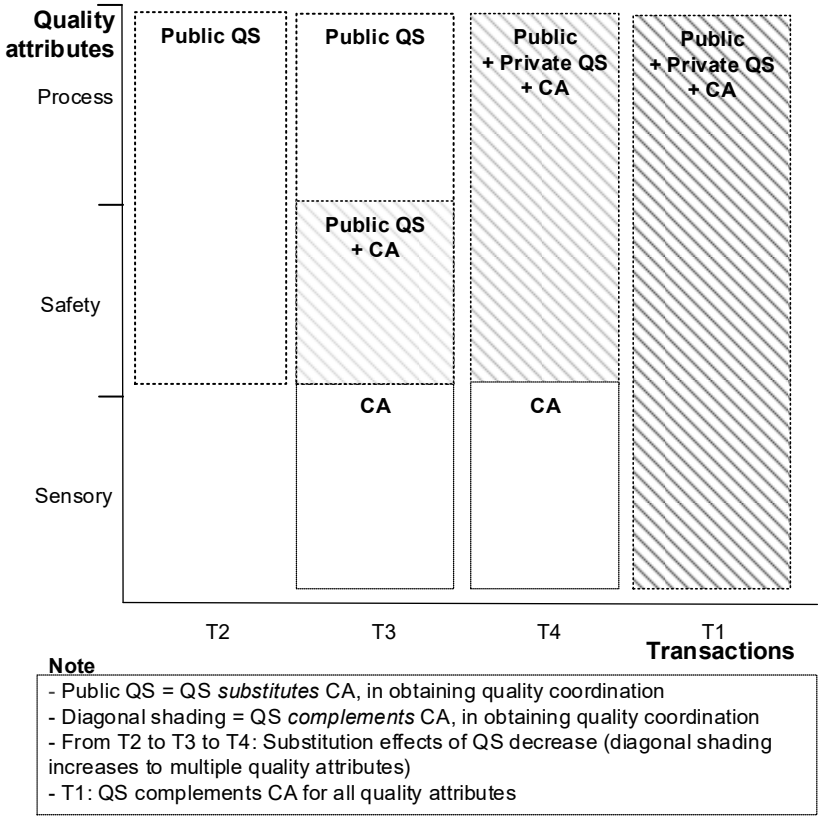


Figure 10. Combinations of quality standards and contract arrangements for quality in transactions



Finding 1: Upstream vs downstream

The first finding is that the influence of quality standards on contract arrangements differs according to the place of transactions within supply chains. We find quality standards to *complement* contract arrangements in *upstream* transactions (T1). Contract arrangements set additional quality requirements and control in hierarchy-type contract arrangements. On the contrary, we find quality standards to *substitute* contract arrangements in *downstream* transactions (T2, T3, T4). Contract arrangements set few additional requirements and control in market-or hybrid-type contract arrangements.

In upstream transactions between producers and processors (T1), the combination of public and private standards complement contract arrangements on all quality attributes. To complement quality standards, contract arrangements set additional requirements of sensory, safety and process quality requirements (see Figure 10). Hierarchy-type contract arrangements include strong quality incentives and controls

to assure producers' compliance with the quality standards and the additional requirements agreed in the contract arrangement. These contract arrangements are designed for the most demanding buyers (export buyers, T4). Contract arrangements in citrus are vertical integration with hierarchical control, whereas contract arrangements in dairy are equity-based contracts with quality incentives in pricing mechanisms and service delivery (see Figure 9). As a citrus processor stated: *"We get audits from public and private standards, including from private export buyers. We are always running backwards with production to get everything perfect, with hundred percent quality."*

This finding for upstream transactions is in line with findings on private brand names (Raynaud et al., 2005), non-GMO standards (Ghozzi et al., 2018, 2016) and voluntary traceability standards (Banterle and Stranieri 2008), which all lead to more hierarchy-type contract arrangements. In line with predictions of transaction cost economics, we found that quality standards increase specific investments and quality uncertainty for upstream transactions. In our cases, the majority of quality requirements are implemented at the production and processing nodes, for which producers and processors make significant, interdependent investments. For example, public quality standards in dairy oblige processors to test producers' raw milk quality, and private quality standards in citrus oblige processors to document producers' use of agrochemical products. Thus, processors depend on the quality performance of producers for their own quality assurance. Quality standards insufficiently reduce quality uncertainty for processors, due to measurement difficulties of credence attributes, unobservability of the transaction partners' behaviour and the given that periodic controls of quality standards seem insufficient for processors to guarantee compliance. Subsequently, transaction costs increase and more contractual safeguards are needed – which makes a hierarchy-type of contract arrangement appropriate.

In downstream transactions between processors and buyers in three supply chains (T2, T3, T4), quality standards substitute contract arrangements on credence requirements of safety and process quality (see Figure 10). Quality standards are combined with market- or hybrid-type contract arrangements. Our finding is in line with findings of Raynaud et al. (2005) and Fernández-Barcala et al. (2017), who find region-of-origin standards in different European supply chains to lead to more market-type contract arrangements. As transaction cost economics predicts, quality standards reduce buyers' quality uncertainty and reduce asset specificity and dependency between processors and buyers. In our cases, buyers in downstream transactions are retailers, who demand adoption of private quality standards in addition to requirements in the contract arrangement. Given that most quality standards are implemented at production and processing nodes, quality standards transfer monitoring and control to the upstream transaction. Subsequently, transaction costs decrease and fewer contractual safeguards are needed – which makes a market- or hybrid-type of contract arrangement appropriate.

Our findings lead to the following propositions:

Proposition 1: Quality standards complement contract arrangements for upstream transactions, because quality standards alone insufficiently reduce uncertainty and risks from specific investments.

Proposition 2: Quality standards (partially) substitute contract arrangements for downstream transactions, because quality standards sufficiently reduce uncertainty and risks from specific investments.

Finding 2: Downstream differences

The second finding is that the substitution effect of quality standards on contract arrangements differs for downstream transactions across different supply chains. This finding builds further on the first finding, by showing that the substitution effect is strongest for contract arrangements between processors and domestic small retail buyers (T2), followed by domestic supermarkets (T3), and export buyers (T4). Figure 10 shows that public quality standards substitute contract arrangements for T2. The substitution effect gradually decreases in T3 where the coordination of safety attributes in quality standards is complemented with contract arrangements. The figure shows that the substitution effect further decreases in T4, where safety ánd process quality attributes in quality standards are complemented with contract arrangements.

In T2 transactions between processors and domestic small retail, public standards substitute contract arrangements on safety and process requirements and control. These contract arrangements are market-type contract arrangements without additional contractual requirements on sensory, safety or process quality. As a citrus wholesaler states: *"We have buyers for all kinds of visual quality, but we never discuss quality beforehand with our producers or buyers. […] Government representatives take samples for residue analysis, but buyers never ask me about residue outcomes, or how ethical or sustainable the fruit is produced."*

In T3 transactions between processors and domestic supermarkets, public standards substitute contract arrangements on safety procedures and process quality for dairy, but not entirely for citrus. Contract arrangements are a hybrid-type of arrangement, whereby for citrus, contract arrangements set additional control on safety that is not covered by the public quality standard, such as pesticide residue analysis. As this supermarket manager states: *"We started to do our own pesticide analysis, because we noticed an increased consumer concern on agrochemical residues found in Uruguay, and we consider public control not sufficient for us."* In addition, these citrus contract arrangements set basic guidelines on sensory quality.

In T4 transactions between processors and export buyers, public and private standards partially substitute contract arrangements on safety and process quality.

The adoption of private quality standards by processors is demanded by export buyers. Contract arrangements are a hybrid-type of arrangement, whereby only the most demanding dairy and citrus export buyers set more stringent product safety requirements, such as lower bacterial milk values or lower agrochemical residue levels. Moreover, these most demanding export buyers set additional requirements on process quality, such as private codes of conduct on social and sustainable practices, to which compliance is audited privately, often by third parties.[17] Processors indicate that external audits for private standards reduce needs for requirement setting and control in the contract arrangement: *"Private standards help to open more strategic markets. Buyers do not need to set similar quality requirements, or send their own auditors, because the certification shows our quality management procedures are in place."*

To our knowledge, this is the first study on quality standards and contract arrangements that not only compares transactions within supply chains, but also analyses effects across downstream transactions in three supply chains. Based on transaction cost economics reasoning and in line with Young and Hobbs (2002), we argue that a gradual increase in the complexity of credence requirements (from T2, to T3, to T4) explains the different substitution effects of quality standards on contract arrangements for the three downstream transactions. First, contract arrangements are market-type when public quality standards substitute credence attributes in contract arrangements. For these transactions (T2), contract arrangements do not set additional requirements (dairy), or they only set requirements for search attributes, such as visual quality (citrus). Second, contract arrangements shift to a hybrid-type when public quality standards substitute most credence attributes in contract arrangements. For these transactions (T3), buyers require additional control in the contract arrangement, such as analyses on pesticide residues. Third, whereas private quality standards, as demanded by export buyers, substitute to a large extent the requirements for credence attributes in contract arrangements, the most demanding export buyers set additional requirements and control for credence attributes. These additional requirements explain a further increase in control in the hybrid-type contract arrangements (as compared to T3) (see Figures 3 and 4). Thus, increases in requirements for unobservable credence attributes, such as safety and process quality, increase information asymmetry and therefore quality uncertainty for buyers. This results in higher transaction costs and higher needs for contractual safeguards, explaining the shifts from the market- to the hybrid-type contract arrangements.

[17] These requirements do not always seem to be stricter than those by private quality standards, however they do lead to additional implementation in the contract arrangement, for example through signing codes of conduct, uploading data in monitoring systems, and receiving private audits.

Our finding leads to the following proposition:

Proposition 3: Quality standards affect contract arrangements differently across supply chains, depending on the complexity of credence requirements by downstream buyers, influencing uncertainty and risks from specific investments.

3.6 CONCLUSIONS AND IMPLICATIONS

The increased importance of coordinating food quality in supply chains has resulted in studies on the relation between quality standards and supply chain governance. This chapter investigated the influence of quality standards on bilateral contract arrangements in different stages of food supply chains. A qualitative double case study was conducted on the dairy and citrus sectors of Uruguay. For each sector, public and private quality standards and contract arrangements were studied for transactions that processors – the focal supply chain company – have with upstream producers and with downstream buyers in three supply chains. Within-case and cross-case analyses were conducted to understand whether quality standards substitute or complement contract arrangements, through comparisons on specific quality attributes.

Policy and managerial implications

Our findings have several policy and managerial implications. Supply chain actors can reduce transaction costs and improve efficiency of operations and transactions when they seek optimal alignment between quality standards and contract arrangements. Given the interdependency of transactions, actors that are intermediary between upstream and downstream transactions need to design contract arrangements that take the full chain into account. Processors can improve supply chain coordination by better communicating their quality requirements and implementing a combination of formal and informal quality monitoring mechanisms. Governments can support supply chain coordination for food quality, for instance by facilitating the establishment of chain-wide quality monitoring and control organisations. In our case, the government established a national public-private organisation that supports quality performance of the entire dairy chain. In addition, public support can facilitate access to the most demanding export markets by providing sanitary export certificates, foreign trade missions, and aligning public quality standards with export market requirements.

Limitations and directions for future research

Our chapter is not without limitations. First, detailed comparisons between the dairy and citrus sectors were excluded. Whilst we found similar results for both sectors, we recommend future research to explore wider product, market and institutional characteristics that may explain differences across agricultural sectors. Second, analysis of plural contract arrangements, such as dairy processors having both vertically integrated milk production ánd contracts with independent producers, were beyond the scope of this chapter. Such plural governance forms provide interesting opportunities for future research, in line with research by Menard (2013) and Mugwagwa et al. (2019). Third, we acknowledge the limited number of interviews per supply chain actor, and the cross-sectional research design, which only allowed measurement of quality standards and contract arrangements at one point in time. Longitudinal studies that analyse changes in contract arrangements over time, would be an interesting area for future research.

Contributions and concluding remarks

Our findings show that quality standards affect contract arrangements differently depending on the place of transactions within supply chains. In the upstream part of the supply chain, quality standards complement contract arrangements. These contract arrangements are of a hierarchy-type that sets additional sensory, safety and process quality requirements, and provides additional quality incentives and control (Proposition 1). In the downstream part of the supply chain, quality standards substitute contract arrangements (Proposition 2). The substitution effect in downstream transactions is strongest for contract arrangements between processors and domestic small retail, followed by domestic supermarkets, and export buyers. These contract arrangements are of a market- or hybrid-type that sets limited additional quality requirements and control (Proposition 3). Quality standards increase specific investments and quality uncertainty for upstream transactions, but decrease these transaction characteristics for downstream transactions. Moreover, the substitution effect decreases when the complexity of credence requirements in upstream transactions increases.

This chapter provides several contributions to the existing literature on quality standards and contract arrangements in supply chains. First, we contribute to the debate on whether quality standards and contract arrangements are complements or substitutes in food quality coordination (Goodhue, 2011), by showing that they can be both, depending on the place of the transaction within the supply chain – upstream or downstream. Our findings go beyond studies that investigate dyadic transactions (e.g. Raynaud et al., 2005; Banterle and Stranieri, 2008), or studies that find quality standards to affect all supply chain transactions similarly (e.g. Fernández-Barcala et al. (2017).

Second, this chapter shows that supply chain transactions are interdependent on one another within the coordination of food quality. The adoption of private quality standards, as required by retailers in downstream transactions, has implications for the requirements in upstream transactions. Upstream transactions are designed to comply with the most demanding buyers, in our case export buyers. This implies that requirements for quality standards in downstream transactions affect the design of contract arrangements in upstream transactions. Our study answers the call in supply chain management literature to address interdependencies and spill-over effects across multiple transactions (e.g. Mena et al., 2013; Kataike et al., 2019). Our two final contributions add insight into the application of transaction cost economics in supply chain management.

Third, we use transaction cost economics to discuss how quality standards affect contract arrangements by changing the transaction characteristics. We do this through detailed empirical comparisons on quality attributes in quality standards versus contract arrangements. This advances studies of Wever et al. (2010) and Trienekens and Wognum (2013), who relate quality standards to contract arrangements without explaining how such effects come about.

Finally, to the best of our knowledge, this is the first study that explores the combination of public and private quality standards. Studies on single quality standards agree that quality standards reduce uncertainty, but find private standards to increase asset specificity (e.g. Banterle and Stranieri, 2008; Ghozzi et al., 2016), and public standards to reduce asset specificity (e.g. Raynaud et al., 2005; Fernández-Barcala et al., 2017) – resulting in ambiguous effects on contract arrangements. We found that i) public and private quality standards show a significant overlap in their quality requirements; ii) high adoption rates of private standards reduce asset specific investments; and iii) requirements of different private quality standards are increasingly harmonised to reduce duplication efforts – which is also stated by Henson and Humphrey (2010). Thus, we conclude that the simultaneous adoption of multiple public and private standards makes investments in private standards less specific. Effects of quality standards on contract arrangements seem therefore to be not so much explained by asset specificity, but more by uncertainty – which is also stated by Ménard and Valceschini (2005). We recommend future studies to refrain from focusing on a single quality standard in isolation, but to include all quality standards – and thus further improve our understanding of the complexity of quality coordination in food supply chains.

4

Chapter 4. Producer organizations as transition intermediaries? Insights from organic and conventional vegetable systems in Uruguay

Abstract

Increased pressures on agri-food systems have indicated the importance of intermediaries to facilitate sustainability transitions. While producer organizations are acknowledged as intermediaries between individual producers and other food system actors, their role as sustainability transition intermediaries remains understudied. This chapter explores the potential of producer organizations as transition intermediaries to support producers in their needs to adopt sustainable production practices. Ten cases of producer organizations in conventional (regime) and organic (niche) vegetable systems in Uruguay were studied qualitatively. Findings show that the classic intermediary roles that producer organizations fulfil in food systems also address the needs of producers in their transition to sustainable food systems. By providing organic inputs, organizing access to output markets, sharing knowledge, and facilitating sustainable production practices, producer organizations support producers within and across regime and niche. Producer organizations mostly function as implicit transition intermediaries, facilitated by their legitimacy among producers, their embeddedness in rural networks, and by refraining from taking a strong normative position. Producer organizations have the potential to be more explicit transition intermediaries, however this position comes with limitations. We provide policy recommendations to optimize the transition intermediary potential of producer organizations in their facilitation towards sustainable food systems.

Keywords

Producer organization, transition intermediary, food system, sustainability transitions, organic agriculture, agroecology, vegetables, Uruguay

This chapter is published as

Groot-Kormelinck, A., Bijman, J., Trienekens, J., and Klerkx, L. (2022). Producer organizations as transition intermediaries? Insights from organic and conventional vegetable systems in Uruguay. *Agriculture and Human Values (April),* 1–24. https://doi.org/10.1007/s10460-022-10316-3

4.1 INTRODUCTION

Agri-food systems are under unprecedented and intertwined environmental, social, and economic pressures, such as climate change, ecosystem degradation, resource scarcity, population growth, and social inequalities (El Bilali, 2020; Barrett et al., 2020). These pressures require sustainability transitions of dominant agri-food systems, and have led to the rise of alternative food systems, such as organic agriculture and agroecology (Forssell and Lankoski, 2014; Hinrichs, 2014). There is increased attention for the role of intermediaries to catalyse transitions towards sustainable agri-food systems (Goldberger, 2008; Tisenkopfs et al., 2015; Hermans et al., 2016; Betzold et al., 2018). Intermediaries bridge between actors, each with their activities, skills and resources, to build networks that can support transformative change (Gliedt et al., 2018; Kivimaa et al., 2019). Intermediaries can be various entities with different types of ownership, funding sources, governance structures, and mandates (Mignon and Kanda, 2018), and they may fulfil multiple roles simultaneously. They can be specifically created for intermediation in (sustainability) transitions or they can perform classic intermediary roles in economic and societal systems, such as industry associations or advisory organizations (Watkins et al., 2015).

Producer organizations are horizontal collective action organizations of producers and they are intermediaries between producers and other food system actors, such as policymakers, service providers, sellers and buyers (World Bank, 2007). Producer organizations can be formal or informal, and they differ in size, type of members, objectives and values, internal governance, and other organizational characteristics (Bijman and Hanisch, 2020). The last decade has seen an increased academic interest in producer organizations, from different disciplines (Grashuis and Su, 2019). One literature stream focuses on the economic performance and impact of producer organizations, such as linking smallholder producers to global value chains through collective commercialization (Shiferaw et al., 2011). Another literature stream focuses on the 'more-than-economic' functions of producer organizations in providing material and immaterial benefits to members and local communities (Emery et al., 2017), for instance through contributing to sustainability movements and organizing alternative food networks (Anderson et al., 2014).

Producer organizations fulfil various classic intermediary roles in the day-to-day functioning of food systems (Poulton et al., 2010), for example as intermediary between producers and buyers in different value chains (Groot Kormelinck et al., 2019), as orchestrators of agricultural clusters (Ramirez et al., 2018), as part of agri-service hubs (Kilelu et al., 2017), and as connectors in agricultural innovation systems (Yang et al., 2014). However, to the best of our knowledge, the intermediary roles of producer organizations in a food system sustainability transition context have not been studied. Thus, whilst producer organizations are acknowledged classic intermediaries in food systems, it is not yet known to what extent they also act as so-

called *transition intermediaries* (Kivimaa et al., 2019) to support their member producers in sustainability transitions.

To address this gap, the aim of this chapter is to explore the (potential) roles of producer organizations as transition intermediaries. A broad interpretation of sustainability transitions is taken, including both incremental and transformative transitions. This implies that we explore how producer organizations as intermediaries support their member producers to optimize production practices in their current food system or undergo a transition from one system to the other. By taking the producer organization as the unit of analysis, a qualitative study is conducted of ten cases of producer organizations in the conventional and organic vegetable systems in Uruguay. We describe the various classic intermediary roles that producer organizations fulfil in food systems and show how these roles support sustainable production practices within and across two food systems. Subsequently, we discuss how these roles address the needs of producers to adopt sustainable production practices, and we explore the characteristics and limitations of producer organizations as transition intermediaries.

Vegetable systems in Uruguay provide a relevant research context. The vegetable sector is the second largest agricultural sector in number of producers and laborers. The sector is characterized by small family farm producers, and is pivotal for domestic food security (Ackermann, 2014; Dogliotti et al., 2014). Uruguay's conventional vegetable systems are under high socio-economic and environmental pressures, which led many conventional producers to collapse. Latest census data showed that the number of conventional vegetable producers has declined with more than fifty percent between 2000 and 2011 (DIEA-MGAP, 2011; Rossing et al., 2020). Uruguay's organic vegetable systems have developed as a sustainable alternative to the conventional systems. With an increased consumer demand for organic vegetables, and higher and more stable prices for producers, organic vegetable systems have gradually developed over the past thirty years (Gazzano and Gómez Perazzoli, 2017; Groot Kormelinck et al., 2019).

This chapter aims to make contributions to both literature on producer organizations and on intermediaries in food system sustainability transitions. First, we conceptualize producer organizations as organizations that perform multiple roles within and across food systems. To address recent calls in literature on producer organizations (e.g. Forney and Häberli, 2017; Papaoikonomou and Ginieis, 2017; Stock et al., 2014), this chapter moves beyond the dichotomy in most of the literature, where producer organizations are studied either from only an economic perspective, or from only a social and political perspective. We empirically show that different producer organizations fulfil various roles in both conventional and alternative food systems, which bridge across economic and social and political perspectives.

Second, this chapter contributes to the literature on producer organizations by exploring the potential of producer organizations as transition intermediaries. We

show that intermediary roles of producer organizations not only take place within their current food system, but also facilitate transitions by supporting sustainable production practices from one system to the other. In addition, we assess producer organizations using four intermediary characteristics, and we discuss their contributions and limitations as transition intermediaries. This advances the understanding of intermediary roles of producer organizations in food systems, which is important considering the increased need for producer organizations to respond to sustainability challenges of their members and improve their capabilities in supporting transitions (Lucas et al., 2019).

Third, our examination of the producer organization as a specific type of transition intermediary also adds to the rapidly growing literature on transition intermediaries (e.g. Kivimaa et al., 2019). This chapter responds to critique in the literature on intermediaries that, without sufficiently detailing the type of intermediary, mismatches arise between what is expected and what is actually done (Mignon and Kanda, 2018).

The remainder of this article is structured as follows. Section 4.2 presents our theoretical framework. Section 4.3 describes the research context and methods, followed by the findings in section 4.4. Section 4.5 discusses the potential of producer organizations as transition intermediaries in food system transitions. Finally, Section 4.6 concludes and discusses ways forward.

4.2 THEORETICAL FRAMEWORK

The theoretical framework consists of three sections. First, the literature on sustainability transitions is applied to conventional and organic food systems. Second, the two main literature streams on producer organizations are discussed, and four classic intermediary roles of producer organizations in food systems are described. Third, the distinct literature on transition intermediaries is discussed by outlining roles and characteristics of transition intermediaries.

Sustainability transitions in food systems

Conventional and organic food systems

Food systems consist of interactions between actors (e.g. producers, retailers, consumers), networks (e.g. local food networks), institutions (e.g. food safety standards, innovation support policies) and infrastructures (e.g. farms, distribution centres) (Hinrichs, 2014), and contain a set of activities from production to processing, distribution, retailing and consumption (Ericksen, 2008). Acknowledging the importance of institutions and infrastructures, we follow Gaitán-Cremaschi et al.

(2019) in operationalizing food systems into three components: 1) production; 2) value chain; and 3) institutional support.[18] Two archetype food systems form the context of our study: conventional and organic vegetable systems. Recognizing the diversity in practices in conventional and organic food systems,[19] we will now describe different practices in both types of food systems.

Conventional food systems consist of production systems that focus on input-output efficiency – reached through intensification by using synthetic seeds, fertilizers and pesticides (Garibaldi et al., 2017; Levidow et al., 2014). Produce may be commercialized in a variety of value chains. Whereas commercialization in global, industrialized value chains is often emphasized, commercialization may also occur in domestic value chains, such as sales to national supermarkets (Gibbon et al., 2008; Trienekens, 2011). Institutional support is provided by different actors, such as extension services, R&D, and public policies. Such support is for instance directed towards the development of new inputs, training on improving output efficiency, subsidies for commodity crops, and sectoral support policies (Darnhofer, 2014). Conventional food systems are widely criticized for producing unfavourable environmental and social outcomes (Buttel, 2006; McMichael, 2005).

Organic food systems compare favourably against conventional systems across many environmental and socio-economic sustainability indicators (Reganold and Wachter, 2016). There is a huge diversity in practices and principles within organic systems, with gradients in sustainability (Pretty, 2008; Shennan et al., 2017). Production practices may range from input substitution, whereby synthetic inputs are replaced for organic inputs, to the use of biodiversity ecosystem services in more holistic production systems (Ollivier et al., 2018; Tittonell et al., 2016). Commercialization may occur in global or domestic value chains, but also in local, short value chains with direct producer-consumer relations (Renting et al., 2003; Sonnino and Marsden, 2006). Institutional support can be provided by actors from the conventional system, but also by dedicated NGOs and grassroots and sustainability movements oriented towards organic and agroecology (Anderson et al., 2019; Hinrichs, 2014).

[18] The production component refers to the farm structure and set of agricultural practices, and may comprise of cropping and livestock systems that interact with the environment (Le Gal et al., 2011). The value chain component refers to the set of actors and activities that bring a basic agricultural product from production to final consumption, whereby each stage (e.g. processing, packaging, and distribution) adds value to the product (Trienekens, 2011). The institutional support component refers to structures that support producers and value chain actors to obtain knowledge, skills, capabilities and technologies, which may be provided by public policy, research institutes and extension services (Edler and Fagerberg, 2017).

[19] In recent years, food systems have been classified based on sustainability practices that combine biotechnical functioning of farm systems with socio-economic contexts. For different classifications, see Gaitán-Cremaschi et al. (2019); Shennan et al. (2017); and Therond et al. (2017). Besides a conventional food system, these classifications include several alternative food systems. Such alternative systems are all organic but differ in production practices, type of value chains, and wider food systems context (Plumecocq et al., 2018).

Transitions towards sustainable food systems

Food system transitions are often studied through the classification of niches and socio-technical regimes. Niches are considered protected spaces where alternative systems emerge, whereas regimes refer to existing sets of relatively stable practices, technologies and institutions (Geels, 2019; Melchior and Newig, 2021).[20] Niches may induce system transitions by proposing alternatives to regimes, and replace or alter regimes (Bui, 2021; Bui et al., 2016; Elzen et al., 2017). Niches may follow incremental strategies to fit-and-conform niches to the existing regime, or radical strategies to stretch-and-transform regimes (Smith and Raven, 2012). System transitions may also rely on regime actors that change regimes from within, for instance by reorienting towards niche innovations (Ingram, 2015; Runhaar et al., 2020). To match the empirical context of Uruguay, we classify conventional as regime, and organic as niche. Such classification is also found in other studies (e.g. Bui et al., 2016; Smith, 2006, 2007). Nonetheless we acknowledge that in some contexts, organic has moved out of its niche and is appropriated or captured by the regime (Darnhofer et al., 2010), although considerable variation exists (Nikol and Jansen, 2021).

Transitions to sustainable food systems generally take place over a considerable period of time (10-20 years or longer). They may occur through different transition pathways that include sustainability in production, and socio-economic and institutional policy practices connected to various food system components (Marsden, 2013; Meynard et al., 2017).[21] Producers may adopt sustainable production practices within the current food system, or undergo a transition from one system to the other. For instance, producers may adopt sustainable production practices within their conventional food system by lowering the use of synthetic inputs in integrated pest management systems (Pretty and Bharucha, 2015), thereby following incremental, sustainable intensification pathways (Struik and Kuyper, 2017; Weltin et al., 2018). Producers may also convert from conventional to organic systems by replacing synthetic inputs by organic inputs in input-substitution systems (Lamine, 2011). In addition, producers may adopt sustainable production practices within organic systems, for instance by moving from input substitution to the adoption

[20] The classification of niches and regimes in the study of transitions has become prominent in key conceptual approaches: Multi-level perspective, strategic niche management, transition management, and technological innovation systems (see Markard et al., 2012; Köhler et al., 2019). The literature on food system transitions and transition intermediaries mostly uses the conceptual approaches of multi-level perspective and strategic niche management (Kivimaa et al., 2019; El Bilali, 2020).

[21] Three main transition pathways are sustainable intensification, ecological intensification, and agroecological intensification. Although the boundaries among these pathways are not always clear-cut (Therond et al., 2017), general differences are recognized. Sustainable intensification may include any intensification practice with a sustainability component, and is more general and widely used – often associated with more incremental transitions in regimes. Ecological intensification and agroecological intensification have more nuances and sharper definitions, and focus on the role of nature in system design and synergies with livelihoods, food security and other system components, such as social, cultural, and economic relations with food system actors based on principles of food sovereignty, justice, and fairness (for reviews, see Mockshell and Kamanda, 2018; Tittonell, 2014; and Wezel et al., 2015).

of ecosystem services (Bommarco et al., 2013; Tittonell et al., 2016) – thereby following more transformative (agro)ecological pathways (Dumont et al., 2020; Wezel et al., 2020).

Depending on the sustainable production practices they adopt and transition pathways they follow, producers need different kinds of support related to the various food system components. Producers need access to non-synthetic seeds, fertilizers, and pesticides. They may also need knowledge and skills on crop diversification and rotation, biological pest control, management of soil fertility and nutrients, and conservation of energy, water, biodiversity, and landscape (Shennan et al., 2017; Therond et al., 2017). Knowledge and skills may be needed about how to add sustainability value to products, and commercialize these successfully in value chains, for instance through selling to traditional regime actors or by creating new markets such as organic street markets or boxing schemes (Anderson et al., 2019; Morgan and Murdoch, 2000). For fulfilling these needs, producers often need institutional support. Producers may participate in innovation projects, receive training and extension on sustainable production practices, and benefit from an established certification system and favourable sustainability policies (Hermans et al., 2016; Laforge et al., 2017). Producer organizations, as collective organizations of producers, may support producer members to meet their needs to adopt more sustainable practices.

Producer organizations in food systems

Producer organizations

Two streams of literature on producer organizations can be distinguished. The first stream is rooted in organizational economics and focuses mostly on formal producer organizations, such as cooperatives, as object of study. Recent years have seen an increase in studies (for an overview, see for instance Bijman and Hanisch, 2020; Grashuis and Su, 2019; Luo et al., 2020). Producer organizations are conceptualized based on their user-owned, user-controlled, and user-benefit principles (Dunn, 1988). Studies use theoretical approaches from new institutional economics, with applications of transaction cost economics, property rights theory, and collective action theory (Cook, 1995). Main topics under study are the evolution and survival of producer organizations (Cook, 2018; Grashuis, 2020), the weak incentives for members to invest in their cooperative (Cook and Chaddad, 2004), the performance of producer organizations as businesses (Grashuis and Su, 2019; Soboh et al., 2009), and internal governance structures of cooperatives (Bijman et al., 2014). Of particular policy and academic attention is the role of producer organizations in linking smallholder producers to modern value chains in developing and transition countries (Markelova et al., 2009).

The second stream is rooted in sociology and political economy and deals with a large variety of formal and informal producer organizations. Producer organizations are conceptualized based on the cooperative principles of the international cooperative alliance,[22] which emphasize the democracy, solidarity, and autonomy principles that underpin (transformative) collective action. The last decade has seen an increase in studies on producer organizations that contribute to alternative food systems.[23] Studies use actor-network theory (e.g. Goodman, 1999), and social capital theory (e.g. Tregear and Cooper, 2016), sometimes combined with political economy theories when dealing with grassroots sustainability movements and alternative food systems (Goodman et al., 2011). Main topics include the social, cultural, ethical, and other values-based roles of producer organizations for their members and their communities, thereby promoting bottom-up agrarian-based, sustainable rural development (Marsden et al., 2002; Ortiz-Miranda et al., 2010).

The two literature streams have often been positioned as a reductionist dichotomy, with each stream relying on a different logic for collective action. While in one stream the producer organization is conceptualized as a jointly-owned enterprise, in the other stream the producer organization is seen as a social, solidarity and community organization. Particularly the second stream positions itself opposite the first stream by emphasizing the small size of the organization, the democratic and solidarity values, and the sustainability inherent in the organization. This second stream of literature often studies the role of producer organizations in short food supply chains, alternative food systems, and wider social movements (Anderson et al., 2014; Fonte and Cucco, 2017; Mooney, 2004). However, even within this stream, some authors doubt whether the alternative perspectives on collective action in food systems are truly different from the economic perspectives they challenge (e.g. Hinrichs, 2003; Papaoikonomou and Ginieis, 2017). In addition, scholars have argued against a reductionist and simplified dichotomy, for instance by warning for romanticization (Stock et al., 2014).

Following a plea for converging perspectives in studies on producer organizations (Forney and Häberli, 2017), we look for complementarity between the two streams and find three main areas of correspondence. First, both streams study social mechanisms that facilitate cooperation, often conceptualized as social capital. In the first stream, researchers focus on trust (e.g. Groot Kormelinck et al., 2016), and commitment (e.g. Cechin et al., 2013), whereas in the second stream social capital relates to embeddedness of producer organizations and their members in local communities and networks (e.g. Tregear and Cooper, 2016). Second, both streams position producer organizations in a value chain by emphasizing their interdependence with other food system actors. In the first stream, this is particularly

[22] www.ica.coop. Retrieved, June 21, 2021.
[23] Two special issues have been devoted to roles of producer organizations, particularly in their contributions to alternative food system initiatives: in the *Journal of Agriculture, Food Systems, and Community Development* (Anderson et al., 2014), and the *Journal of Rural Studies* (Emery et al., 2017).

shown in studies on how producer organizations operate and survive in increasingly complex global value chains (Markelova et al., 2009), whereas in the second stream, this is studied through local, short value chains, for instance by establishing direct producer-consumer relations (Papaoikonomou and Ginieis, 2017). Studies that bridge across the streams show how both large producer organizations in mainstream food systems (De Herde et al., 2020; Forney and Häberli, 2016, 2017), and small producer organizations in alternative food systems, such as in organic (Groot Kormelinck et al., 2019), redesign and align economic activities with different social and sustainability objectives. Third, both streams study the impact of producer organizations on local communities as well as the contribution to wider rural development. For instance, a large number of studies in the first stream investigate inclusiveness of producer organizations and the impact of membership on producer livelihoods and rural development outcomes, such as improvements in income, employment, food security, and gender equality (Bijman and Wijers, 2019; Bizikova et al., 2020; Mwambi et al., 2020). In the second stream, benefits to community and rural development are at the core of all studies (Emery et al., 2017; Wynne-Jones, 2017).

Classic intermediary roles of producer organizations

Given the complementarity in approaches that study roles of producer organizations in food systems, we suggest, based on a transversal reading of the literature, that producer organizations can perform up to four classic intermediary roles. First, producer organizations *provide market access* by operating as intermediaries in the value chain between producers and input suppliers or output buyers. Through pooling of resources, achieving economies of scale, increasing bargaining power, coordinating compliance to buyer requirements, bulking production, setting common quality standards, processing and packaging, producer organizations provide better market access for producers (World Bank, 2007). Producer organizations may provide market access in efficiency-driven global value chains (Fałkowski et al., 2017; Shiferaw et al., 2011), or in local, short food chains through direct producer-consumer relations that are based on socio-environmental values (Ajates Gonzalez, 2017a; Anderson et al., 2014).

Second, producer organizations *facilitate production support* by operating as intermediaries between producers and providers of inputs and services, such as financial service providers, manufacturers of production inputs, research, knowledge and extension agencies (Poulton et al., 2010). Producer organizations have greater credibility in service delivery than individual providers, and may fill market voids through lowering transaction costs and benefiting from economies of scale, as well as supporting knowledge exchange among producers (Penrose-Buckley, 2007). Producer organizations may facilitate producers' access to new production technologies and to capacity development on these new technologies (Shiferaw et

al., 2011). Such production support include, for instance, the promotion of different sustainable production practices by informal producer collaboration (Wynne-Jones et al., 2020), through knowledge exchange and machinery sharing in formal cooperatives (Lucas et al., 2018), or through attracting external financial support for projects that promote sustainable practices (Iyabano et al., 2021).

Third, producer organizations *lobby for policy support* by operating as intermediaries between producers and institutional actors, such as national, regional or local governments. Producer organizations may lobby for favourable agricultural policies, such as market protection or subsidies for specific crops (World Bank, 2007), or for policies to promote sustainable production practices. Lobby can be carried out at local scale by producer organizations themselves, or at national scale by unions and federations (Hanisch, 2016). Producer organizations can also participate in political lobbying for social and environmental agendas, for instance as part of sustainability and food sovereignty movements (Fonte and Cucco, 2017; Ajates Gonzalez, 2017a).

Fourth, producer organizations *contribute to community development* by operating as intermediaries between producers and other members of local communities in which they are embedded. This role of producer organizations may be based on formal legislation and on producers' intrinsic values (Emery et al., 2017; Forney and Häberli, 2017). Through grassroots approaches, producer organizations may engage in providing social, economic, cultural and environmental benefits to communities. Through their activities and by using their local knowledge and social capital, producer organizations may provide employment, education, knowledge sharing and other welfare services (Tregear, 2011; Tregear and Cooper, 2016). De los Ríos et al. (2016), for instance, show how the multi-faceted strategy of an organic cooperative contributes to prosperity and development in communities. Producer organizations may also be part of wider grassroots approaches to sustainable rural development, for instance by engaging in communal natural resource management (Moragues-Faus and Sonnino, 2012).

Since our aim is to explore what roles producer organizations fulfil in transitions, going beyond their classic intermediary roles, the next section explores the separate literature on transition intermediaries.

Transition intermediaries: roles and characteristics

The transition intermediary literature studies a great variety of intermediary organizations and transition contexts. As a result, this literature outlines the numerous roles that transition intermediaries can play (Gliedt et al., 2018; Mignon and Kanda, 2018). In a meta-study on intermediary roles, Kivimaa (2014) distinguishes three main roles. First, transition intermediaries help *articulate expectations and visions*, such as strategy development, advancement and commercialization of new technologies, and advancement of sustainability aims.

Second, they help *build social networks,* such as the creation and facilitation of networks, gatekeeping and brokering, configuring and aligning interests, managing financial resources, and identifying human resources. Third, transition intermediaries *facilitate knowledge exchange and support learning processes,* such as information gathering and dissemination, technology assessments and piloting, communication, and providing advice, training, and education.

Transition intermediaries typically differ from classic intermediaries in four characteristics: 1) Level of action; 2) Emergence; 3) Goal of intermediation; and 4) Normative position (Kivimaa et al., 2019). Transition intermediaries may fulfil multiple roles simultaneously at different *levels of action* within or across regime and niche. Their roles may be non-systemic, such as facilitating multiple bilateral relations for accessing resources or conducting activities, or take place at low aggregate system levels, such as connecting various local grassroots projects. Roles may also take place at high aggregate system levels, such as through brokering many-to-many-to-many relationships, for instance through agenda setting, and building legitimacy and coalitions across several networks of actors (Kanda et al., 2020).

Regarding their *emergence,* whereas some intermediaries are specifically set up to facilitate transitions, others are existing organizations that grow into an intermediating role during the transition process, or may even intermediate without being aware of it – for instance through day-to-day activities in projects (Kivimaa et al., 2019). Transition intermediaries pursue a transformative *goal of intermediation,* for instance promoting sustainability goals to maintain the status quo of a regime, to disrupt a regime, or to promote a certain niche (Matschoss and Heiskanen, 2017). They do this by influencing opinions and advocating new policies, promoting an explicit system-level transition agenda, setting standards, scaling up local projects, or brokering partnerships beyond the niche (Hargreaves et al., 2013; Mignon and Kanda, 2018). Hence, while transition intermediaries may sometimes be considered a neutral broker, they are often associated with having a *normative position* regarding the system they intermediate, such as a strong intent to drive sustainability transitions (Klerkx and Leeuwis, 2009).

We draw from this review that there are (potential) overlaps between classic intermediary roles of producer organizations and transition intermediaries' roles. For example, in view of the classic intermediary roles as discussed above, activities such as lobby and community development support seem akin to transition intermediary roles.

4.3 METHODS

Research context

Uruguay's conventional vegetable systems have a long history and reflect a typical regime that is under high socio-economic and environmental pressures (Rossing et al., 2020). Over the past twenty years, production systems have experienced mechanization and intensification processes. Due to an increased use of external inputs, environmental problems arose, such as soil degradation, biodiversity loss, and water contamination (Colnago et al., 2021). Producers sell vegetables through traders to the wholesale market, after which the products are sold in domestic supermarkets, small retail outlets, and street markets. With long and not transparent value chains and supply that exceeds demand, producers have a weak bargaining position and receive low and fluctuating prices (Groot Kormelinck et al., 2019). Institutional support is provided by the Ministry of agriculture and other public agencies. Support is targeted at family producers and their organizations (MGAP-Opypa, 2017), such as extension services for new crop varieties and public procurement by institutional buyers. Uruguay's cooperative law (2008) stipulates two types of agricultural producer organizations: Rural support associations and Agricultural cooperatives. Both type of organizations have their interests represented by unions and a confederation of unions (FIDA and CCU, 2014).

Uruguay's organic vegetable systems are a sustainable alternative to conventional systems. Around 140 certified organic vegetable producers existed in 2017, which is around three percent of all vegetable producers. Nonetheless, actual numbers are likely to be higher due to the sector being largely informal (Gazzano and Gómez Perazzoli, 2017).[24] Besides omitting synthetic inputs, producers adopt a variety of sustainability practices (Rossing et al., 2020).[25] A number of formal and informal producer organizations sell in different short food chains, such as through organic shops, street markets or boxing schemes, or in conventional supermarkets. Vegetables are sold for their sustainability value, and with demand exceeding supply, producers have a stronger bargaining position and receive higher and more stable prices compared to conventional producers (Groot Kormelinck et al., 2019). Since the turn of the century, institutional support arose from emerging niche actors. A key actor is the agroecology network, a multi-stakeholder organization that provides participatory certification, lobbies for sustainability policies, and provides other social and networking functions in the niche. Other niche actors are

[24] Not all organic farmers are certified, for instance because do they do not sell in a value chain that requires certification, or because producers farm organically by default (i.e. without being aware of it) (Gazzano and Gómez Perazzoli, 2017).

[25] Organic vegetable systems in Uruguay are often defined through the agroecology principles they are based on, which includes organic production, but entails wider environmental, economic and social sustainability principles (Anderson et al., 2019). See Gazzano and Gómez Perazzoli (2017) for the evolution of organic and agroecological niche food systems in Uruguay.

sustainability-oriented NGOs and food movements, agroecological consumer associations, and creole seed networks. Despite interviewees indicating a lack of systemic and tailored support by regime actors, in recent years regime actors increasingly support the niche food system (Gazzano and Gómez Perazzoli, 2017). A milestone was the approval of the national agroecology law in 2018 by the Ministry of agriculture, which is implemented by a commission consisting of regime and niche actors, including representation of producer organizations.[26] Besides national legislation, also at regional and zonal level, tailored sustainability policies emerge in response to local sustainability problems, and bridge across regime and niche.

Study design, data collection and analysis

A qualitative multiple case study design was applied, because our aim was to explore the diversity and multiplicity of intermediary roles that various producer organizations may fulfil within and across two food systems. Qualitative case studies are common in research on the contribution of producer organizations to conventional (e.g. De Herde et al., 2020; Forney and Häberli, 2017) and organic food systems (Ajates Gonzalez, 2017a; de los Ríos et al., 2016). We followed an abductive approach through an iterative interplay between collecting and analysing data, developing the theoretical framework, and advancing findings and discussion (Kennedy, 2018; Thornberg, 2012).

Data collection occurred in two field visits. The first field visit was conducted in August 2016, with the aim to sample cases of producer organizations. For a first exploration and for the identification of different producer organizations, we interviewed four representatives of producer organizations and two academic researchers on food systems (one focused on conventional, the other on organic food systems). Interviews (30-60 minute duration) were complemented with information found in scientific articles and sector reports (see Appendix Table 4.1). On the basis of this information, we developed a mapping of different types of producer organizations in the two food systems. The mapping served as a frame for maximum variation sampling, which is useful to describe a phenomenon in all its variations (Patton, 2015) – in our case, to yield a broad understanding on various roles of producer organizations in different food systems. The mapping also helped to develop a typology of producer organizations, to explore organizational characteristics and challenges of producer organizations as transition intermediaries. We classified producer organizations into five types based on 1) the dominant production system of the members (conventional or organic); 2) their legal status; and 3) the value chain used by the producer organization. Appendix Table 4.2 shows the organizational characteristics of the types of producer organizations.

[26] For more information, see www.planagroecologia.uy and Gazzano and Gómez Perazzoli (2017). For more information about the agroecology network, a key initiator behind the agroecology law, see www.redagroecologia.uy/.

We selected two cases for each of the five types. For type 2, 4, and 5, only two producer organizations were active at the time of sampling, and thus were automatically selected. For type 1 and 3, two producer organizations were selected based on information obtained in the first set of interviews; we particularly looked for variation in the activities and geographical location of the organizations.

In the second field visit, between November 2016 and March 2017, data were collected through semi-structured interviews with representatives of producer organizations *(N=20)* and food system actors *(N=15*). Interviews were held with two members per producer organization: one regular member and one coordinating member (for instance coordinating with buyers and institutional actors). Data from interviews with producer organizations were complemented with data from interviews with food system actors. Food system actors were selected based on the interviews with members of producer organizations that indicated their food system relations. These actors were the Ministry of agriculture, research institutes and buyers in both food systems, cooperative confederations in the conventional system, and specific actors focused on sustainability support in the organic food system. Table 11 provides an overview of the interviews.

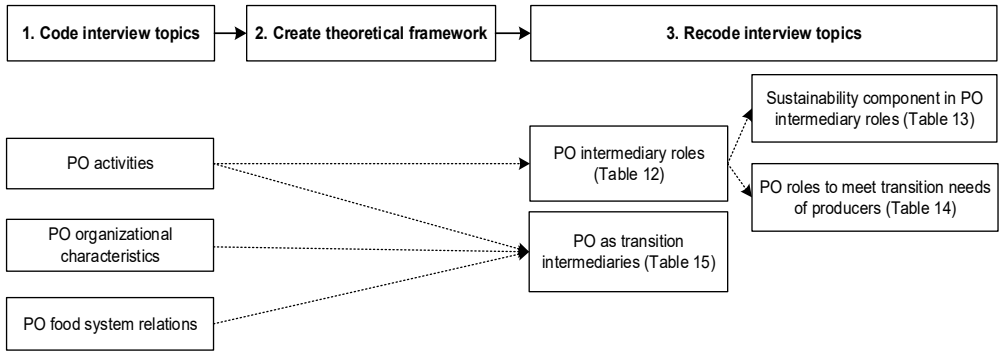
Table 11. Interviews with producer organizations and food system actors

Food system	Producer organization (N=20)	N	Food system actors (N=15)	N
Conventional	Type 1. Rural support association	4	Ministry (2); Research institute	7
	Type 2. Marketing cooperative with institutional contract	4	(1); Buyers (1); Cooperative confederations (3)	
Organic	Type 3. Informal producer group with direct sales	4	Ministry (1); Research institute	8
	Type 4. Marketing cooperative with own shop	4	(1); Buyers (1); Agroecology network (2); Creole seeds network (1); Agroecology	
	Type 5. Marketing cooperative with supermarket contract	4	consumer associations (1); Sustainability NGO (1)	

Producer organizations were asked about their 1) Activities (what activities, for whom, with what objective, and with which sustainability component); their 2) Organizational characteristics (general characteristics, sustainability objectives and values, and internal challenges to execute activities); and their 3) Relations with food system actors (which actors, type of relation, type of support). These topics were also used for food system actors, tailored to their relations with producer organizations (see Appendix Table 4.3 for the topic list). Interviews lasted between 1 and 1.5 hour, whereby all interviewees gave verbal consent to record the interview and use the information for research purposes. Interview recordings were transcribed by a native Spanish speaker. Data from the interviews were

complemented with secondary data, such as news articles, reports, and other documents on activities of producer organizations and support projects. Figure 11 shows the process of data analysis and conceptualization.

Figure 11. Three steps in data analysis and conceptualization



Following the principles of good abductive research (Dubois and Gadde, 2002; Kennedy, 2018), data analysis and conceptualization occurred in three steps. In the first step, interviews and secondary data were coded by the principal researcher, using Atlas.ti, through qualitative content analysis (Schreier, 2012). Data were coded following the structure of the interview topic list, whereby topics for the interviews with producer organizations were categorized into three main groups: their activities, their organizational characteristics, and their relations with food system actors (also see Appendix Table 4.3). Following the structure of the topic list, summary analysis reports were written in English, one for each producer organization case and two for each of the food systems, in which organizations were anonymized. In addition, a document was made containing quotes from interviews with producer organizations and food system actors. The quotes serve an illustrative purpose, i.e., to make findings in section 4.4 insightful by using examples from different cases. In the second step, a literature review was conducted to develop the theoretical framework, resulting in section 4.2.

In the third step, the theoretical framework was used to recode our data and generate findings tables (Tables 12 – 15). First, the four classic intermediary roles of producer organizations were used to recode activities of producer organizations. Second, the literature on sustainability transitions in food systems was used to further assess intermediary roles of producer organizations, focussing on (i) their sustainability component, and (ii) how these roles address needs of producers in transitions. Third, the four characteristics of transition intermediaries were used to conceptualize producer organizations as potential transition intermediaries. Appendix Table 4.4 provides the coding rules that were used for both rounds of coding. The four tables

that resulted from our analysis and conceptualization form the structure for our findings (section 4.4) and discussion (section 4.5).

4.4 FINDINGS

This section first describes the classic intermediary roles of producer organizations in food systems, followed by an analysis on the sustainability component in the intermediary roles of producer organizations. The findings end with the contributions and challenges of producer organizations in fulfilling such intermediary roles in food system transitions.

Classic intermediary roles of producer organizations in food systems

First, the roles that producer organizations fulfil in vegetable systems in Uruguay are presented. Activities of producer organizations are shown in Table 12, classified for the four classic intermediary roles of producer organizations in food systems. Subsequently, roles are described for each of the five producer organizations.[27]

Table 12. Classic intermediary roles of POs in vegetable systems in Uruguay

PO Roles	POs in conventional food system	POs in organic food system
Market access	Commercialize to public institutions (PO2)	Commercialize in street markets, boxing schemes (PO3); own organic shop (PO4); conventional supermarket (PO5) Experiment with organic fruit import, making convenience foods and conserves (PO5) Produce organic inputs (PO5)
Production support	Coordinate production (PO2) Channel support funds from government (PO1)	Coordinate production (PO4, PO5) Exchange information, share machinery, buy inputs (all)
Lobby for policies	Indirectly through union that lobbies for family farm policies (PO1)	Indirectly through membership in organization that lobbies for sustainability policies (all)
Community development	Build networks of producer families (PO1)	Participate in research and knowledge sharing activities for sustainability (all) Communicate with consumers about sustainability principles (all)

[27] We present findings per type producer organization (PO), thus including two cases per type. We refer to these types as PO1, 2, 3, 4 and 5.

PO1, the rural support association, is the principal territorial organization that brings together all types of agricultural crop and livestock producers and their families, including conventional and organic vegetable producers. This producer organization is established based on public incentives. As institutionalized by law, this producer organization channels government funds to members, for instance for inputs provision, technical assistance, and capacity development. This producer organization does not commercialize members' products. Through their union, the organization lobbies for additional policy support, for instance for promoting family farms. In addition, the producer organization plays a role in rural community development, by organizing activities that improve social cohesion, such as activities for rural women or young farmers. As part of being a public support channel for its members, this producer organization has relations with conventional food system actors, such as the Ministry of agriculture, public extension, and research institutes, and with niche actors, such as the agroecology network and organic producer organizations. Such relations are sometimes directly (e.g. at regional level, through membership in rural development boards), sometimes indirectly (e.g. at national level, through a union).

PO2, the marketing cooperative with institutional contract, consists of conventional producers that have been self-organized as part of a public procurement instrument to sell to institutional buyers, such as schools and prisons. The members know each other from PO1 and have created a formal cooperative as spin-off, in response to requirements of the public instrument. The producer organization has a three-party contract with institutional buyers and the government. For its market access role, the organization provides production support to its members by planning and coordinating production. The producer organization does not lobby, nor does it have a particular community development role. Beyond coordination with buyers and the Ministry of agriculture in the conventional food system, the producer organization does not have systemic relations with other actors in the conventional or organic food system.

PO3, the informal producer group with direct sales, consists of organic producers that sell to consumers in local organic street markets. The producer organization is self-organized to create short organic value chains that facilitate direct interactions with conscious consumers based on the principles of food sovereignty, fairness and equity. Producers know each other through informal networks of local organic producers or formal networks, such as the agroecology network. The value chains require limited internal production planning and coordination, but members indicated they informally exchange production information and machinery, and sometimes they produce organic seedlings or pest control inputs together. Such exchange is not always limited to the organization, and producers are often member of several groups that sell in different markets. For instance, producers sell in an informal group in a weekly organic street market, sell as part of an organic cooperative in their own shop (PO4), and also sell organic vegetable boxes individually. When selling directly

to consumers, the producer organization informs its consumers about the sustainability principles, which are based on agroecology. The producer organization occasionally participates in research and knowledge sharing activities, such as seminars, workshops and farm visits. The producer organization has received support from both conventional (e.g. Ministry of agriculture) and niche actors (e.g. sustainability NGO). As the social and relational nature of their participation in food system is part of their sustainability objectives, members discuss in which niche activities they want to participate, such as the agroecology network, creole seed networks, and agroecological consumer associations.

PO4, the marketing cooperative with its own shop, consists of organic producers that have united formally to sell together and directly to consumers in a collectively-run organic shop in Montevideo. The producer organization is self-organized, based on producers knowing each other from PO1, and from selling in organic street markets (as part of PO3). Producers have opened a shop to have an outlet for their perishable vegetables on non-market days. The producer organization rents the shop and hires a manager as well as sales and administrative staff. The organization coordinates its commercialization and production planning with the shop manager. Members visit each other's farms, and discuss production information, for instance on where to purchase inputs. The producer organization buys part of its supplies from other producers. In addition, it also sells part of its vegetables in other markets, as part of a PO3 group. For their establishment, the producer organization received support from actors in the conventional (Ministry of agriculture, research institute), and niche food system (sustainability NGO). The producer organization has sustainability objectives based on agroecology principles but also seeks efficiency in its operations. Initially, producers themselves were present in the shop to engage with consumers, but for efficiency reasons they hired a shop manager – which reduced their interaction with consumers. The producer organization has relations with various organic food system actors (e.g. the agroecology network), and occasionally participates in research and knowledge sharing activities.

PO5 is a marketing cooperative with a supermarket contract. Organic producers have established a formal cooperative to sell organic vegetables to a conventional supermarket. Members knew each other from PO1, where they started with experiments in sustainable production practices – which eventually led to the establishment of their organic producer organization. The producer organization has a high level of coordination, both internally as well as with the supermarket, such as detailed production planning and coordination for an almost daily supply, with a wide range of crops and high visual quality. Producers sell most of their produce to the supermarket, whereas lower quality vegetables are sold in other value chains, often through informal relations with members of organic PO3 and PO4. The producer organization is experimenting with importing organic fruits, making and selling conserves from lower quality produce, and processing vegetables into ready-made salads. Additional activities entail buying inputs and materials, and the production of

organic pest control inputs. For these activities, the producer organization often received temporal support from both conventional and organic food system actors. Engagement with conscious consumers is indirectly, for instance through consumers who call them or visit their farm. In its sustainability objectives, the producer organization has a commercial orientation of organic as a sustainable business opportunity, but the organization increasingly moves towards agroecology principles. The producer organization engages with organic food system actors, such as the agroecology network, and participates in research and knowledge sharing activities.

Roles of producer organizations to support sustainable production practices in food systems

While above we described the classic intermediary roles of producer organizations in food systems, in this section we explore how the roles of producer organizations support sustainable production practices. Table 13 shows the classic intermediary roles of each producer organization in its respective food system, as well as cross-linkages, such as an organic producer organization supporting producers in the conventional food system and vice versa.

Table 13. Roles of POs to support sustainability in vegetable systems in Uruguay

	Conventional producer organizations	**Organic producer organizations**
Conventional food system	*Production support:* Experiment with sustainable production practices; produce organic pest control inputs (PO1)	*Production support:* Share knowledge about organic production and commercialization with conventional producers (all) *Market access:* Sell organic pest control inputs to conventional producers (PO3, PO5)
Organic food system	*Production support:* Support for organic production (PO1) *Lobby:* Participate in Agroecology commission; Facilitate support projects that are also used by organic producer organizations (PO1) *Community development:* Network and conduct social activities that promote interaction and exchange (PO1)	*Market access:* Create new organic markets (all) *Community development:* Share knowledge on sustainable production practices with consumers and other food system actors (all)

Support to producers from conventional producer organizations

Support to producers in each food system differs for the two conventional producer organizations. PO2 focuses on creating market access in the conventional food system and provides no activities that support sustainable production practices within the conventional or the organic food system (and is therefore not included in Table 13). The conventional PO1 supports sustainable production practices in both the conventional and organic food system through various roles. This producer organization contributes to the *conventional food system* through its production support projects, of which some have a sustainability component. For instance, projects experiment with sustainable production practices. Such support has led to conventional producers adopting integrated pest management, which relies on fewer pesticides as compared to conventional production.

These support projects of PO1 also seem to contribute to the *organic food system*. Interviewees from both conventional and organic producer organizations indicated that PO1 has had several support projects, such as trials with organic production, the production of organic pest control inputs, or the development of a native seed bank. An example of this is the following statement of one member: *"We have mostly conventional members, but we conduct some projects related to organic and agroecology. These are small initiatives, but we try to work on sustainable production practices and build relations with organic producers."*

Eventually, such projects led to spill-overs and led to the conversion of farms – resulting in the first organic producers in Uruguay. As this organic producer organization states in this regard: *"We were members of the local producer organization [PO1] and started a small project with trials on organic production. Only a few members were interested, but we saw the results and attracted more support projects. Eventually we converted to fully organic, and more and more conventional members wanted to follow."* Several organic producer organizations have emerged from support projects by conventional PO1.

PO1 also provides support for producers in the organic food system in other ways. Because of their family farm character, organic producer organizations can make use of the support projects that the union of PO1 successfully lobbied for, such as experiments with more sustainable production practices within the niche. This is important considering the lack of structural support for the organic food system – as reported by organic producer organizations and organic food system actors. In addition, PO1 is open to all kinds of members, including organic producers. Interviewees indicated that networking and social activities as facilitated by PO1 promote exchange and learning between conventional and organic producers. In addition, conventional producer organizations exchange knowledge and experiences with organic producer organizations, sometimes formally through farm visits and workshops, sometimes informally among producers. Besides, some PO1 members have joined the agroecology network, and the PO1 union is the only

conventional representation of producer organizations in the commission to implement the national agroecology law.

Support to producers from organic producer organizations

Organic producer organizations support producers in the *organic food system* by creating new value chains for organic produce, and by producing organic production inputs. The three organic producer organizations have been established bottom-up by members, to meet the needs of producers for inputs and output markets. This is illustrated by the following quote of an organic member: *"When we converted, we knew the need to commercialize directly. With a niche product, you can't sell in the speculative wholesale market and wait for traders to come to your farm. So we united ourselves to get scale and opened our own shop."* The three organic producer organizations created various value chains that are in line with different sustainability objectives, such as agroecology-oriented direct producer-consumer relations in short value chains, e.g. selling in street markets (PO3), and in their own shop (PO4), as well as more commercial-oriented sales of organic vegetables to conventional supermarkets (PO5).

Organic producer organizations have also started to produce organic seedlings and pest control inputs because such inputs were not available when they started. In addition, within the producer organization, producers exchange production experiences and techniques and collectively search for extension services, training, and certification. Knowledge about organic production is also shared with other actors in the food system, including consumers. For instance, producer organizations host farm visits, participate in diverse research and knowledge sharing events, and add information for consumers when selling their products. According to a conventional PO1 member, organic producer organizations have multiple relations with conventional and organic food system actors: *"Organic producer organizations are better than us in linking with others. They go beyond sustainable production, and build relations with consumers, with sustainability movements, with others (...) perhaps because they have a more holistic view on building relations collectively in the food system."*

Organic producer organizations support producers in the *conventional food system*. For instance, they are members of the same PO1, or they participate in local networks of conventional and organic neighbours. Such interaction has led to sharing their knowledge about producing and commercializing organic vegetables. As this conventional producer in conversion to organic states: *"The local organic cooperative helps us a lot with our conversion. We already knew them, but when we started the conversion, we speak to them more frequently. This goes very informally; we just call them each time when we have a question."* Some of the organic producer organizations engage in knowledge generation and sell organic inputs to conventional producers, which is illustrated by this quote: *"We had a public research*

project to test which of our organic pest control inputs are most suitable for conventional production. Conventional producers said they had never heard of such inputs before, started to apply it, and saw the results. They got so convinced, that we now sell 95% of our inputs to conventional producers."

Contributions and challenges of producer organizations in fulfilling intermediary roles

The previous section has shown that in addition to their classic intermediary roles, producer organizations also support sustainable production practices in the current food system and create spill-overs across conventional and organic food systems. Interviews with members of producer organizations and food system actors revealed that producer organizations are considered legitimate to represent producer interests to other actors in the food system. As an organic member says: *"What other person would be more suitable to promote organic than the one who sows, who plants, who lives that life every day?"* However, producer organizations do not seem to pursue such sustainability support roles to non-members as part of their objectives. This is illustrated by the following quote of an organic member: *"We help when we are asked to do so, for example when a conventional producer approaches us, or to school talks. It gives us a lot of motivation. But as an organic cooperative, we don't consider it our role to promote the conversion of conventional producers or promote wider changes. We don't have it institutionalized in our cooperative activities."*

Despite their contributions in providing sustainability support, producer organizations face several challenges. Members emphasize limitations in time and skills, as stated by this interviewee: "*We are primarily producers who need to earn our family income by producing and going out to sell. It's difficult enough already to successfully produce and commercialize. We don't have the time or skills to be also a generator of knowledge ánd to be political and promote organic. Other organizations are much better in doing that."* Besides lack of time and skills, different interviewees indicated they do not have the interest to participate directly in more political and institutional arenas, because it lies outside their comfort zone. Members also indicate to face challenges in providing sustainability support because of their type organization. In the words of this interviewee: "*For commercializing our vegetables, we need to make quick decisions. It helps to be small and have high internal coordination. If we would need to lobby for organic policies, it would be much better to have a larger organization that represents more diverse interests*." Another organizational challenge is that organic members indicated the difficulty to have a united vision about the type of sustainability practices to promote. Organic producer organizations consist of members who converted from conventional production and consider organic as a business opportunity from which they earn a living, whereas other members have more values-based or politicized visions. Such heterogeneity leads

to discussions, and several producer organizations have reported members leaving the organization.

Thus, even though producer organizations make several (unintended) contributions, as intermediaries that support sustainability practices, they are not without challenges. This leads to the next section, in which we discuss the potential of producer organizations to function as transition intermediaries in food systems.

4.5 DISCUSSION

In this section, we move from our empirical findings to a broader discussion. We first discuss how classic intermediary roles of producer organizations may address transition needs of producers. Next, we explore the potential of producer organizations as transition intermediaries by assessing their roles and characteristics in transitions. We end with discussing the limitations that producer organizations face as (potential) transition intermediaries.

How classic intermediary roles of producer organizations address transition needs

Classic intermediary roles of producer organizations address the needs of producers to adopt more sustainable production practices within the regime (conventional), the niche (organic), and across systems to differing extents. Table 14 compares our findings on the classic intermediary roles of producer organizations in conventional and organic vegetable systems in Uruguay with the transition needs of producers to adopt more sustainable production practices. These needs of producers are based on the literature review on food system transitions in section 4.2, and are structured following the food system operationalization by Gaitán-Cremaschi et al. (2019) intro three system components: production, value chain, and institutional support.

Table 14. Exploring how POs address transition needs of producers

System components	Transition needs of producers[1]	Producer organizations' classic intermediary roles in vegetable systems in Uruguay
Production	Knowledge on inputs substitution and other sustainable practices[2] Access to non-synthetic seeds, fertilizers, pesticides	*Production support*: Experiment with sustainability practices; exchange knowledge among members *Market access*: Produce and sell organic inputs
Value chain	Access to value chains that differentiate sustainability of produce Knowledge on how to add sustainability value[3]	*Market access:* Create organic value chains in line with sustainability objectives *Market access*: Exchange information with value chain partners and other producers
Institutional support	Policies to support sustainability practices Certification and standards Sustainability-focused research and extension	*Lobby:* Participate in lobby organizations for enabling policies and support projects *Production support*: Participate in setting up certification schemes; participate in projects that support the production and value chain components

[1] Based on Morgan and Murdoch, 2000; Smith, 2006; Darnhofer, 2014; FAO, 2015; Shennan et al., 2017; Therond et al., 2017; Gaitán-Cremaschi et al.,2019; Anderson et al., 2019.
[2] For instance on crop diversification, biological pest control, management of soil, energy, water, biodiversity, landscape.
[3] For instance on how to commercialize organic products successfully and comply with certification requirements.

For the *production* component, the conventional PO1 and the three organic producer organizations, through their support projects and (informal) exchange of experiences within and outside the organization, contribute to knowledge and skills of producers on sustainable production practices. Multiple organic producer organizations engaged in support projects, leading to production of organic inputs (seedlings, pest control products), which are sold to organic and conventional producers. This contributes to meeting needs of producers for non-synthetic production inputs (Lamine, 2011; Therond et al., 2017).

For the *value chain* component, four out of five POs (2 - 5) have self-organized to create output market access. Whereas the conventional PO2 does not play a transition role, the three organic producer organizations – with external support from regime and niche actors – have created value chains to fill a market void, as no organic value chain existed. Organic and conventional producer organizations also exchange experiences about commercialization, for instance on how to coordinate

production internally, and meet buyer requirements. This meets the needs of producers to successfully supply to various value chains that are built on different sustainability objectives, for instance the shift from selling in regime-oriented conventional supermarkets to selling to conscious consumers directly in niche-oriented organic shops and street markets (Anderson et al., 2019; Morgan and Murdoch, 2000).

For the *institutional support* component, producer organizations do not lobby directly. However, their voices are represented by the union (conventional PO1) or by niche-oriented intermediaries, such as the agroecology network (organic PO3 - 5). Membership of the union of PO1 in the honorary commission to implement the agroecology law advances policy and institutional support in the organic food system. Organic producer organizations participate in collective certification activities, which benefit all organic producer organizations. Besides, the organic producer organizations and conventional PO1 contribute to sustainability-oriented research and extension by participating in various support projects. These activities contribute to various needs of producers for institutional support (FAO, 2015; Laforge et al., 2017), and also support the transition of the research and extension system to become more inclusive of organic and agroecological farming (Klerkx, 2020; Wezel et al., 2018).

The roles of producer organizations seem to support different transition pathways within or across regime and niche. For instance, integrated pest management projects of conventional PO1 support incremental change of conventional producers within their regime through sustainability intensification pathways (Weltin et al., 2018), whereas the production of organic inputs (particularly PO5) supports ecological pathways of input substitution and facilitates transitions from regime to niche (Bommarco et al., 2013; Lamine, 2011). Organic producer organizations (particularly PO3, PO4) support (agro)ecological intensification pathways in the niche, for instance through projects with biodiversity-enhancing production practices, and by creating short value chains with direct producer-consumer relations based on food sovereignty, fairness, and other ethical principles (Forssell and Lankoski, 2014; Wezel et al., 2020). Finally, we have found several regime-niche interactions (Bui et al., 2016; Smith, 2007), for instance by joint policy lobbying of the union of the conventional PO1 and the agroecology network, and by sales of organic inputs to conventional producers. These contributions of producer organizations to transition needs bring us to the next point in our discussion, how producer organizations can be positioned as transition intermediaries.

Positioning producer organizations as transition intermediaries

We will now discuss how producer organizations can be positioned as transition intermediaries by exploring how their classic intermediary roles may function as (implicit) transition intermediary roles.

First, we assess how classic intermediary roles of producer organizations perform the three main transition intermediary roles, as identified by Kivimaa (2014), and as discussed in section 4.2. Producer organizations *articulate expectations and visions* to advance their own sustainability objectives, such as through creating market access. This is especially the case for organic producer organizations, which created various value chains and consumer relations in alignment with their sustainability objectives. The conventional PO1 has such articulation directed towards more general policy support for small family producers but may include sustainability objectives through projects and exchanges. In addition, producer organizations *build social networks* by connecting with other (groups of) producers and other food system actors within and across regime and niche, such as commercial service providers, institutional support actors and sustainability-oriented actors to attract knowledge, extension and financial resources. Moreover, producer organizations engage in *learning and knowledge generation* by experimenting with new sustainable production practices, exploring new business opportunities (e.g. with emerging niche actors), or sharing knowledge through seminars, school garden projects, and farm exchange visits. Such learning and knowledge generation often extends membership of producer organizations and supports producers and other actors in both regime and niche. It may thus be argued that classic intermediary roles of producer organizations in Uruguayan vegetable systems also fulfil these three transition intermediary roles within and across regime and niche, though this may not be explicitly stated or recognized by the producer organization.

Second, in view of this implicitness in transition intermediation, we will now discuss the potential of producer organizations as transition intermediaries by exploring how they compare against the characteristics of a transition intermediary. Table 15 presents characteristics of producer organizations as transition intermediaries. The characterization is based on interviews with producer organizations and food system actors assessed for the four characteristics of transition intermediaries of Kivimaa et al. (2019), and as discussed in section 4.2.

Table 15. POs as transition intermediaries in vegetable systems in Uruguay

Characteristics	Producer organizations as transition intermediaries
Level of action	Operate mostly at actor-level, facilitating multiple bilateral relations or small networks
	Do not operate at system-level within or across networks of actors
Emergence	Not established as transition intermediary, nor given mandate nor funds for intermediation
	Exist already (conventional) or emerge in transition process as bottom-up, grassroots organizations (organic)
Goal of intermediation	No explicit transition intermediation goal at food system level
	Important contributions through classic intermediary roles
Normative position	High legitimacy to represent producer interests
	Low legitimacy to represent other food system actors

Regarding their *level of action*, producer organizations perform rather actor-level than system-level intermediation. Producer organizations in our cases have multiple bilateral relations, for instance with retail buyers or consumers, national government or extension agencies, or sustainability-oriented NGOs and movements. Whereas conventional producer organizations mostly interact with regime actors, organic producer organizations interact with both regime and niche actors – thereby often deliberately building relations with sustainability-oriented NGOs, food movements, and consumer associations. At grassroots level, producer organizations are also part of community-level producer networks. Thus, producer organizations facilitate non-systemic bilateral or multilateral relations in small rural networks, which is in line with findings by studies on producer organizations as innovation intermediaries in different food systems in China (Yang et al., 2014), and Burkina Faso (Iyabano et al., 2021). This also aligns with the studies of Kilelu et al. (2017) on dairy hubs in Kenya, and Ramirez et al. (2018) on mango clusters in Peru, where producer organizations – contrary to our study – were given a more central position amongst other food system actors, but in reality faced challenges to intermediate with actors beyond their producer networks. Producer organizations can be contrasted to transition intermediaries that operate at high aggregate system level with many-to-many-to-many relationships across several networks (Kanda et al., 2020), for instance among more systemic intermediaries, such as industry associations (Watkins et al., 2015).

Regarding their *emergence*, producer organizations are not explicitly established to operate as transition intermediary to foster food systems transformation, nor are they given the mandate nor funds to do so. Conventional producer organizations are established in response to direct support from the government – independent from any transition process. Thus the contributions that conventional producer organizations make to transitions in both regime and niche are based on their own

initiative in taking up transition intermediation roles, rather than being mandated for it. This contrasts with transition intermediaries that are established, mandated or funded for transition intermediation in regimes (Kivimaa et al., 2019). Although they received some initial support by regime and niche actors, organic producer organizations have been self-organized by producers in the transition process and then act as bottom-up grassroots organizations that seem to be driven by internal motivations for change (e.g. to share their sustainability objectives through participating in organic school projects), or to fill certain voids in their food systems (e.g. to create organic input and output market access). Grassroots organizations that emerge in the transition process rather than being established specifically for intermediation are a recognized type of transition intermediary (Seyfang and Smith, 2007) and have also been identified in the food systems literature (e.g. Rossi, 2017).

Regarding their goal of intermediation, producer organizations in our study did not pursue explicit transition intermediary goals at food system level. Conventional PO1 traditionally has most of their roles focused on the regime, but does not seem to take an anti-niche position. On the contrary, various roles of conventional PO1 contribute to inducing sustainable production practices in both regime and niche. Our findings have shown that whilst intermediary roles of organic producer organizations have important transition effects, such efforts are often undeliberate. Yet we found that organic producer organizations often do have sustainability objectives, but these manifest mostly in the design of their classic intermediary roles. As an example, differences in sustainability objectives among the three organic producer organizations are reflected in the design of their production systems, the type value chains, and their relations with consumers and other food system actors – from regime orientations based on organic, to niche orientations based on agroecology. Nonetheless, organic producer organizations seem to leave their sustainability objectives aside in their relations with conventional producers, focussing on pragmatic support. This makes producer organizations differ from more activist-type grassroots intermediaries regarding their goal of intermediation (Hargreaves et al., 2013; Seyfang and Smith, 2007). Hence, it can be argued that producer organizations act more as implicit than as explicit transition intermediaries.

Regarding their *normative position*, because of their producer-member nature, producer organizations are highly legitimate to represent interests of producers towards external actors in the food system. Interviews with food system actors revealed that producer organizations are associated with high member knowledge about production and commercialization, and with being well-embedded in rural networks. Our findings are in line with Ramirez et al. (2018), who conclude that producer organizations in mango clusters in Peru have high legitimacy due to their embeddedness in local producer networks. However, our findings seem to suggest that producer organizations have low legitimacy to represent interests of other food system actors, such as value chain actors (e.g. input providers, processors, retailers) and institutional support actors (e.g. policy-makers, researchers, lobby groups,

sustainability movements). They are not considered neutral and have been established to focus on improving the position of their producer members in food systems. Perhaps this is why producer organizations do not lobby directly, but have their voices represented through policy-oriented intermediaries, such as unions and intermediaries in the niche. This is in line with Yang et al. (2014), who found producer organizations in China to be taking a gatekeeping position for farmers in relations with other actors. Other types of transition intermediaries may be less associated with representation of one actor group, for instance those that are established to provide brokering roles at higher levels of system aggregation in food systems and manage broader dedicated transition programmes (see Klerkx and Leeuwis, 2009; Betzold et al., 2018). Nonetheless, transition intermediaries are rarely considered fully neutral, as there is always some degree of agenda setting (Kivimaa et al., 2019).

Limitations of producer organizations as transition intermediaries

Finally, we discuss three limitations that producer organizations face as transition intermediaries. These limitations emerged from the interviews with producer organizations and food system actors and are discussed from the perspective of transition intermediary roles and characteristics. The limitations of producer organizations relate to all three intermediary roles distinguished in the previous section, being the articulation of expectations and visions, building social networks, and engaging in learning and knowledge generation.

First, when producer organizations want to act as transition intermediaries, they face conflicts with the *time, interest and skills* of members. This is particularly the case for intermediary roles that focus on lobby and advocating policies at higher aggregate system levels. This finding is in line with literature on producer organizations, which emphasizes that different roles require different skills of members or managers. For instance, producer organizations need good networking skills for lobbying and commercial skills for commercialization (Bijman, 2016; Francesconi and Wouterse, 2019). This makes producer organizations different from intermediary organizations who dedicate their time, interest and skills for lobby and advocacy at higher system levels.

Second, transition intermediary roles may conflict with the *organizational design* of the producer organization. In our cases, four out of five producer organizations commercialize collectively and therefore are small, have a homogenous membership and apply strict requirements on member investment and internal coordination (see Appendix Table 4.2). These characteristics are common to be found among producer organizations with a focus on market access (Bijman and Wijers, 2019). Effectively performing transition intermediary roles usually requires a large organization. Whereas producer organizations have become smaller and with more homogeneous membership as they shift towards commercialization (Bernard et al., 2008; Shiferaw et al., 2011), a large size and a more diverse membership increase

voice in the policy domain (Penrose-Buckley, 2007). Whilst different authors acknowledge that producer organizations may combine multiple roles, the complexity of the organizational design for producer organizations when combining various intermediary roles is acknowledged (Bijman, 2016; World Bank, 2007). This makes producer organizations differ from what have been called systemic or process intermediaries, whose organizational design is directed toward intermediation of transitions, for instance as reflected in a large size multi-stakeholder membership and specific coordination across various system levels (Kivimaa et al., 2019; Klerkx and Leeuwis, 2009; Betzold et al., 2018).

Third, to have the producer organization operate as transition intermediary, the members need a *shared vision* about which sustainability practices to promote. Creating such vision easily leads to disagreements among the members, which hampers the roles in which they focus on market access and production support. The difficulty to create a shared sustainability vision reflects the classic and inherent tension within producer organizations – due to their nature as producer-owned and controlled organizations – to navigate between democratic decision-making on the one hand and efficiency in the execution of their roles on the other hand (Ortiz-Miranda et al., 2010; Forney and Häberli, 2017). Whereas some literature emphasizes that tensions are good to strengthen innovation and flexibility (e.g. Mooney, 2004), other authors consider heterogeneous interests to be problematic in collective decision-making (e.g. Höhler and Kühl, 2018; Poteete and Ostrom, 2004). Particularly in the context of sustainability transitions, tensions related to creating a harmonized sustainability vision may hamper efficient operations as transition intermediary.

4.6 CONCLUSIONS AND IMPLICATIONS

Calls for sustainable agri-food systems have led to a rise in studies on intermediaries that facilitate sustainability transitions. This chapter explored the (potential) roles of producer organizations as transition intermediaries in supporting producers to adopt sustainable production practices. Ten qualitative case studies were conducted in organic (niche) and conventional (regime) vegetable systems in Uruguay. We provide theoretical implications and contributions, give recommendations for practice and policy, and discuss limitations and directions for future research.

Theoretical implications and contributions

The first conclusion is that the *classic intermediary roles of producer organizations also address the needs of producers to adopt more sustainable production practices.* Producer organizations facilitate production support, produce organic inputs, and create various organic value chains that are built on different sustainability objectives. To a lesser extent, producer organizations participate in lobbying for

sustainability policies and engage in sustainable community development activities. Although producer organizations were initially established for classical economic and socio-political reasons, four out of five producer organizations increasingly take up sustainability-enhancing roles – which addresses needs of producers in their transition to sustainable food systems. We found that conventional producer organizations support sustainable production practices in the regime and form the basis for the emergence of organic producer organizations in the niche. We found that organic producer organizations take up additional roles to fill market and institutional voids in the niche and contribute to more sustainable production practices in the regime. These findings add insights, for instance to Bui et al. (2016) and Smith (2007), on regime-niche interactions in conventional and organic food systems. Our findings also bridge the two main literature streams on producer organizations and respond to pleas for converging rather than diverging perspectives on producer collective action (Forney and Häberli, 2017; Stock et al., 2014).

The second conclusion is that *producer organizations mostly function as implicit transition intermediaries.* We contribute to the rapidly growing literature on transition intermediaries in agri-food systems (e.g. El Bilali, 2020; van Lente et al., 2020) by showing how classic intermediary roles of producer organizations also function as transition intermediary roles (Kivimaa, 2014). In addition, based on an exploration of transition intermediary characteristics of producer organizations (Kivimaa et al., 2019), we argue that the potential of producer organizations lies in their ability to operate as implicit transition intermediaries, facilitated by their embeddedness in rural networks and high legitimacy in representing producer interests. Due to the diversity in their roles and by refraining from taking a strong normative position, producer organizations align several pathways of food system transitions. For instance, producer organizations align with incremental sustainable intensification pathways in the regime (Struik and Kuyper, 2017), as well as with more transformative (agro)ecological pathways that support transitions within the niche or from regime to niche (Tittonell et al., 2016; Wezel et al., 2020).

The third conclusion is that producer organizations have the potential to be more explicitly positioned as transition intermediaries, however this position comes with limitations. While there are diverse types of producer organizations, each playing its own transition intermediary role, producer organizations may not be well-equipped to fulfil the role of the systemic transition intermediary that promotes transformative change at the level of the overall food system. Such systemic intermediation would require producer organizations to bridge within and across large networks of actors (Kanda et al., 2020), take a stronger normative position, and have the legitimacy to represent the interests of all food system actors (Mignon and Kanda, 2018). We found that formulating a shared sustainability vision may lead to internal tensions in the producer organization. We also found that a systemic intermediation role conflicts with the organizations' current organizational design as well as with the time, interests, and skills of the members. These limitations contribute to literature

on producer organizations with regards to organizational design and performance – for instance when dealing with group size, member heterogeneity, and conflicting visions (Poteete and Ostrom, 2004; Mooney, 2004). Finally, by applying the literature of transition intermediaries to producer organizations, we gained insights into the potential and limitations of producer organizations as specific transition intermediaries in food systems.

Recommendations for practice and policy

We provide three recommendations for producer organizations and policymakers. First, we encourage leaders of producer organizations to acknowledge the (new) roles they have to play in supporting their members in transitions to sustainable food systems. With the increased sustainability challenges in food systems, producer organizations need to rethink their support to members and add activities that help members to adopt sustainable production practices. At the same time, producer organizations may not be well equipped to take up too many different roles. The democratic decision-making structure and the reliance on members for board and staff functions entail limitations on the range of activities that a producer organization can effectively carry out. Heterogeneity in membership poses governance challenges (Höhler and Kühl, 2018), while a broad range of activities in the producer organization presents management challenges (Bernard and Taffesse, 2012).

Second, we advise producer organizations as well as policy makers to acknowledge the complementarity of different producer organizations for the transition towards sustainable food systems. Our findings showed the diversity among producer organizations, with each organization making an idiosyncratic contribution to the transition. Producer organizations may provide specialized extension, certification, input provision and other services (World Bank, 2007; Kilelu et al., 2017), which give structural and tailored support for diverse sustainability practices of producers (Hinrichs, 2014). For leaders of producer organizations this implies maintaining focus in the main activities of the organization; for policy makers this implies acknowledging that different types of producer organizations may need different public support or regulation.

This brings us to our third recommendation, specifically for policy makers, to promote an institutional landscape that allows the development and growth of different types of producer organizations, each of them performing a specific but complementary role as transition intermediary. Public policies may provide direct financial and technical support to producers making a sustainability transformation within their regime or niche. Public policies may also furnish an institutional environment in which different producer organizations can prosper, each with its specific intermediary role. In addition, policy makers, or more likely administrators, may perform coordination roles among the various policies and different producer organizations that all promote sustainability transitions.

Limitations and future research

This chapter has not been without empirical limitations. Interviews have focused on roles and characteristics of producer organizations in food systems, without detailing on topics such as the perceptions of respondents on the roles producer organizations should play – for instance, on the extent to which they consider themselves as transition intermediaries. Besides, our data is cross-sectional. Although our data revealed implicit time dimensions, for instance showing how support from conventional producer organizations led to the rise of organic producer organizations, we did not include process questions to measure how roles of producer organizations changed over time. Considering that intermediary roles are likely to change during transition processes (van Lente et al., 2020), we recommend future research to collect process data (Langley, 1999), for instance in a longitudinal study design.

Another topic that was out of the scope of this study was the positioning of producer organizations as different types of transition intermediaries (for instance, following the typology of Kivimaa et al., 2019). Our data seems to suggest that whereas characteristics of producer organizations do not fit one archetype transition intermediary, conventional producer organizations resemble mostly regime-type intermediaries, whereas organic producer organizations resemble mostly grassroots intermediaries. Some organic producer organizations thereby seem to fit incremental fit-and-conform intermediation, whilst others seem to pursue more radical stretch-and-transform intermediation to the existing regime (Smith and Raven, 2012). Such positioning of producer organizations as different types of transition intermediaries in regime and niche food systems is an interesting venue for future research. Finally, we encourage future research to study producer organizations as transition intermediaries in different country and commodity food systems – as to further advance our understanding on their potential and limitations in facilitating sustainable food system transitions.


5

Chapter 5. Discussion and conclusions

5.1 RECAP: OPENING UP FOOD SYSTEM TRANSITIONS

Unprecedented pressures on global agri-food systems have led to urgent calls by scientists and policymakers for food systems to produce more healthy and nutritious food, and become more environmentally sustainable, inclusive and resilient (Barrett et al., 2020; FAO, 2020). As a result, there is a rapid increase in studies on food system transitions (El Bilali, 2020). Food system transitions are considered multi-actor processes in which diverse types of actors collaborate and coordinate to implement incremental changes in dominant regimes or radical changes in emerging niches (Brouwer et al., 2020; Geels, 2002). Although studies in transition research increasingly acknowledge contributions of different actors to transitions, work on conceptualizing these different actors has just begun (Wittmayer et al., 2017). Transition research is considered to benefit from intersecting with organizational theories to improve understanding of actors in transitions (Köhler et al., 2019; Markard et al., 2012).

The aim of this thesis is therefore to open up food system transitions by applying an organizational perspective to study the organization, activities and relations of actors in transitions. The underlying rationale is that an organizational perspective allows to go beyond simplistic characterization of actors and to improve understanding of the diversity and complexity of actors in transitions. The main research question of this thesis is*: How do actors (re)arrange their organization, activities and relations in food systems that undergo transitions?* The theoretical aim is to bridge transition research (notably the multi-level perspective) with organizational theories, in particular transaction cost economics and alternative food networks. Moreover, this thesis aims to generate policy and practitioner recommendations for supporting various actors in transitions.

To answer the research question, qualitative empirical data has been collected on producer organizations and value chain actors in three commodity food systems in Uruguay that are experiencing different transitions. Value chain actors, such as producers, processors, wholesalers, retailers and consumers, are important actors in food systems. Producer organizations, as horizontal organizations of farmers, have received a lot of academic and policy interest for their potential roles in food systems – however they are not much studied in a transition context. In seeking a better understanding and conceptualization of the different actors in transitions, using an organizational perspective, four specific knowledge gaps have been identified.

First, actors in transitions are often studied from a singular actor perspective. However, actors in transitions may be more complex and diverse and not fit within simple categorizations. This gap is addressed by studying producer organizations

from business and grassroots perspectives, as well as by exploring their transition intermediary potential. Second, most transition studies do not address interactions and interdependencies among multiple actors. This gap is tackled by studying the coordination of multiple value chain actors through their organizational arrangements, as well as the coordination of producer organizations with value chain and institutional actors.

Third, actors are mostly studied for undertaking radical changes in niche transitions. However, what is less studied are incremental changes adopted by regime actors, and how niche and regime actors mutually influence each other. Fourth, actors are mostly studied in transitions that focus on environmental sustainability, often ignoring other type transitions that lead to different transition outcomes, such as food and nutrition security. The third and fourth gap are addressed by exploring incremental safety, quality and sustainability improvements in regimes, and by studying environmental sustainability changes through niche-regime interactions.

This concluding chapter will first summarize the main findings by answering the three research questions. This is followed by answering the main research question in section 5.3. Section 5.4 will discuss the theoretical implications of this research, followed by policy and practical implications in section 5.5. Section 5.6 provides the limitations and directions for future research, while the thesis ends with concluding remarks in section 5.7.

5.2 SUMMARY OF FINDINGS

Research question 1: To what extent do producer organizations have different organizational characteristics across niche and regime food systems?

Research question 1 is dealt with in Chapter 2. Despite being considered key actors in food systems, producer organizations are often treated as a black box by neglecting their organizational diversity. Such neglect hampers insights into how and under what conditions producer organizations can contribute to food system transitions. With the aim to investigate their organizational diversity, ten cases of producer organizations are studied in a vegetable food system consisting of a conventional regime and an organic niche. Producer organizations are classified into five types and each type is compared on eight organizational characteristics, including structures (e.g. origin, type of products, size, formality, member investment, objectives), activities (e.g. social, political, economic), and relations with value chain and institutional actors.

This thesis has found that niche and regime producer organizations in the vegetable food system appear to have both differences and commonalities in their organizational characteristics.

A major difference among niche and regime producer organizations is their origin. Niche producer organizations have emerged in response to market incentives, to produce organic inputs, or to find a market for their produce to fill market and institutional voids. Regime producer organizations have emerged in response to public incentives, to channel government support to members or to join a public procurement project.

Commonalities across niche and regime producer organizations are found when they perform the same main activity. Producer organizations with socio-political activities are large in number of members, focus on multiple products, have a low formalization status, and do not require member investment, whereas producer organizations with economic activities are small, specialize in vegetables, have a high formalization status, and require member investment. This means that economic producer organizations across niche and regime have more organizational characteristics in common than economic and socio-political producer organizations within the regime have.

Finally, diversity in organizational characteristics is found among niche producer organizations. Niche producer organizations show variation in their sustainability objectives, ranging from output-driven to value-driven. The sustainability objectives are related to different degrees of coordination internally and with value chain buyers. Output-driven producer organizations sell to conventional supermarkets with high coordination arrangements, whereas value-driven producer organizations sell directly to consumers in street markets and boxing schemes with low coordination.

The findings have led to the design of a three dimensional figure (Figure 6, Chapter 2), which shows variation among producer organizations from regime to niche, from socio-political to economic activities, and from output-driven to value-driven objectives. Theories of transaction cost economics and alternative food networks are used to explain findings and to formulate three propositions. The chapter contributes insights to the food system transition literature by describing the organizational diversity among producer organizations. Knowing the organizational diversity within and across niche and regime systems can lead to better research on food system transitions.

Research question 2: How are transitions in regime food systems coordinated among multiple value chain actors?

Answering research question 2 is the focus of Chapter 3. Although value chain actors are key actors in food systems, the coordination among multiple value chain actors in regime transitions is not often studied. Therefore, the aim is to study how value chain actors respond to incremental changes in safety, quality and sustainability requirements in regimes by examining how the adoption of multiple quality standards affects coordination within organizational arrangements. Three groups of value chain

actors – producers, processors and retailers – are studied in three value chains in dairy and citrus regime systems.

The research question is answered by showing that the adoption of incremental changes as required by public or private quality standards affects organizational arrangements in value chains in different ways – depending on the type of value chain, and the position of the actor in the value chain.

For the coordination between producers and processors upstream the value chain, quality standards are found to complement organizational arrangements. Producers and processors apply a high level of coordination in hybrid or hierarchy type arrangements, such as contracts and vertical integration. These arrangements are implemented to assure the other actor's compliance with public and private quality standards, and to coordinate and control additional retailer-specific safety, quality and sustainability requirements. For the coordination between processors and retailers downstream the value chain, quality standards are found to (partially) substitute the need for a high level of coordination in organizational arrangements. This is particularly the case for arrangements between processors and retailers in the traditional domestic value chain (small shops), followed by the domestic modern value chain (supermarkets), and the export chain (global retailers).

Transaction cost economics is used to formulate three propositions and to explain variations in organizational arrangements related to the type of value chain and the position of actors in the chain (up- or downstream). The theory is used to explain how retailers in more demanding value chains (such as export chains) have more stringent requirements that cannot be coordinated by quality standards alone, and that need additional coordination through organizational arrangements. Such additional coordination is found particularly between actors that conduct activities that have high influence on final safety, quality and sustainability of the product: producers and processors. Therefore, to offset additional risks and uncertainty coming from information asymmetry and investments, these upstream arrangements are more strictly coordinated than downstream arrangements between processors and retailers. The chapter contributes insights into how incremental food system transitions in regimes are steered by combinations of tailored organizational arrangements and quality standards among multiple value chain actors.

Research question 3: To what extent can producer organizations operate as transition intermediary in niche and regime food systems?

Research question 3 is the focus of Chapter 4. Transition intermediaries are acknowledged as important actors to facilitate transitions, however little is known about producer organizations as specific transition intermediaries. The aim of this chapter is to explore the potential of producer organizations to function as transition intermediary in food systems. Ten cases of producer organizations are studied in a

vegetable system with a conventional regime and an organic niche. To study roles and characteristics of producer organizations from business, grassroots, and intermediary perspectives, insights from transition research (the multi-level perspective and transition intermediaries) are combined with theories of transaction cost economics and alternative food networks.

The answer to the research question is that producer organizations have potential as (implicit) transition intermediaries. Findings show how activities of producer organizations, conceptualized as classic intermediary roles in food systems, also address the needs of producers in their transition to sustainable food systems within and across niche and regime. For instance, by creating organic value chains, niche producer organizations support their members' needs. Niche producer organizations also contribute to transitions in the regime by sharing knowledge about sustainable practices or by selling organic inputs to regime producers. Regime producer organizations, through their open and broad membership and projects with sustainability experiments, foster the emergence of niche producer organizations. Given that producer organizations are not established, mandated, or funded as transition intermediary nor pursue explicit transition intermediary objectives, producer organizations seem to function as implicit transition intermediaries.

The chapter shows that different types of producer organizations fulfil different roles across niche and regime food systems. The potential of producer organizations as implicit transition intermediary is facilitated by their high legitimacy among producers, their embeddedness in rural networks, and by refraining from taking a strong normative position. However, different organizational limitations may hamper the potential to fulfil more explicit transition intermediary roles, for instance for more systemic intermediation. Such systemic intermediation conflicts with current organizational characteristics of producer organizations, such as the optimal size of the organization, internal tensions arising from the need to formulate a shared sustainability vision, and the time, interests, and skills of the members. The chapter provides insights into potential roles and characteristics of producer organizations to fulfil implicit and explicit transition intermediation functions to facilitate food system transitions.

5.3 MAIN CONCLUSION

This brings us to answering the main research question of this thesis:

How do actors (re)arrange their organization, activities and relations in food systems that undergo transitions?

This thesis has shown the multiplicity in how food system actors (re)arrange their organization, activities and relations to respond and contribute to different transitions within and across niche and regime food systems.

The thesis has opened up the black box of producer organizations, and demonstrated the diversity in their organizational characteristics and activities and the relations they undertake in niche and regime food systems. In addition, the thesis has revealed the interdependence of value chain actors in adjusting their organizational arrangements whilst simultaneously adopting multiple quality standards as part of incremental safety, quality and sustainability changes in regimes. Finally, the thesis has shown that producer organizations, even without being established, mandated or funded for it, have the potential to fulfil roles and operate as implicit transition intermediaries to support sustainability transitions in niche and regime food systems.

Thus, this thesis has shown that different actors respond to transitions or actively seek a role in transitions through the (re)arrangement of their own organization, their positioning in value chains and through establishing relations with institutional actors. These organizational insights contribute to an improved understanding on the complexity and diversity of actors in food system transitions and help to increase the understanding of transition processes.

5.4 THEORETICAL IMPLICATIONS

This section first discusses the contributions of this thesis to transition research, followed by zooming in on contributions to organizational theories, and ending with discussing contributions to actor conceptualizations in transition research.

Contributions to transition research

Beyond binary viewpoints: niche – regime

A first contribution is that this thesis shows the need for more nuance in studying niches and regimes. This thesis provides insights into the large organizational diversity of producer organizations within niches and regimes. In addition, the thesis demonstrates that niche and regime producer organizations overlap in several organizational characteristics. By focussing on the commonalities and differences of actors across niche and regime, this thesis responds to criticism that the multi-level perspective should go beyond simple notions of niche or regime actors (Fischer and Newig, 2016; Wittmayer et al., 2017). Besides, this thesis shows that niche and regime producer organizations receive institutional support from actors that are typically associated with regimes, such as the government, NGOs, and research

institutes. This finding adds insights into the conceptualization of hybrid actors that support both niche and regime transitions (Diaz et al., 2013; Elzen et al., 2012), and the conceptualization of shared institutional structures in hybrid food systems (Gaitán-Cremaschi et al., 2019).

Second, this thesis adds insights into mutual niche-regime linkages by showing that producer organizations support transitions across niche and regime. These mutual niche-regime linkages complement empirical studies that focus on contributions from organic niches to conventional regimes (e.g. Bui et al., 2016; Hörisch, 2018). In addition, findings of this thesis align to criticism on the multi-level perspective for its unidirectional focus on how niches influence regimes, whilst endogenous regime change (Runhaar et al., 2020), and niche-regime interactions need better understanding (Diaz et al., 2013). Besides, the findings respond to more generic calls for the multi-level perspective to study niche and regime as dynamic rather than static spheres as to fully capture complexity of transitions (de Haan and Rotmans, 2018; Ingram, 2015).

Contributions by applying organizational theories

Economic organization

This thesis contributes insights about the economic organization of actors in food system transitions by using transaction cost economics. Although its application in a food system transition context is rare, transaction cost economics is the most used theory to explain the large diversity of organizations in the agri-food sector (Ménard, 2017). This thesis has shown that the theory can be applied to study how incremental safety, quality, and sustainability improvements change transaction attributes, and therefore explain organizational diversity within and across niches and regimes. This thesis makes two contributions to better understand the economic organization of actors in food system transitions.

A first contribution is that the application of transaction cost economics provides explanations for the organizational diversity of producer organizations in niche and regime vegetable systems (Chapter 2). The theory is used to explain why producer organizations with economic activities have different organizational structures and higher internal coordination than producer organizations with socio-political activities. This adds valuable insights into the discussion on economic functions of producer organizations and relations with size and other structural characteristics (Bijman and Hanisch, 2020). In addition, the theory is used to explain how differences in output- versus value-orientation among niche producer organizations relate to differences in uncertainty and specific investments, and are therefore coupled with different levels of coordination, both internally and with value chain buyers (Barrett et al., 2012; Ton et al., 2015).

A second contribution is that the application of transaction cost economics provides explanations for the diversity in organizational arrangements among value chain actors in dairy and citrus regime systems (Chapter 3). The theory is used to form propositions about why upstream arrangements between producers and processors are more tightly coordinated than downstream arrangements between processors and retailers, and why arrangements differ for the type of value chain. This thesis provides insights into coordination among multiple value chain actors, which goes further than studies on bilateral coordination (e.g. Raynaud et al., 2005; Banterle and Stranieri, 2008), and responds to calls for research to address interdependencies among value chain actors (Mena et al., 2013; Soosay and Hyland, 2015). In addition, this thesis adds insights into how organizational arrangements are adjusted under the adoption of multiple public and private quality standards as compared to studies that focus on the adoption of single standards (e.g. Ghozzi et al., 2016; Fernández-Barcala et al., 2017).

Sociological organization

This thesis contributes insights to the sociological organization of actors in food system transitions by using alternative food networks. Alternative food networks theory studies the coordination of actors in alternative food systems that are based on different values and aim for different outcomes (e.g. local, inclusive, sustainable) as opposed to conventional food systems (Goodman et al., 2011). Alternative food networks theory is often applied in combination with the multi-level perspective, whereby alternative food systems are studied as niches (Lamine et al., 2019). This thesis makes two contributions to better understand the multi-dimensional organization of actors in food system transitions.

A first contribution is that the application of the theory of alternative food networks allows to understand that producer organizations in niche food systems differ in the way they combine economic activities with sustainability objectives (Chapter 2). The theory is used to show that differences in sustainability objectives (from output- to value-orientation) among three types of niche producer organizations lead to a different organization of the value chain and different relations with institutional actors. This finding contributes to studies on producer organizations that aim to resolve tensions between economic activities and different values in niches or as part of regime transitions (e.g. De Herde et al., 2020; Feyereisen et al., 2017; Forney and Häberli, 2017; Swagemakers et al., 2019). The thesis also adds insights to studies on short value chains (e.g. Chiffoleau et al., 2019; Renting et al., 2003), producer-consumer relations (e.g. Papaoikonomou and Ginieis, 2017) and sustainable food movements (Duncan and Pascucci, 2017).

A second contribution is that the application of alternative food networks theory allows to understand that producer organizations in niches and regimes have mutual linkages (Chapter 2, 4). The findings show that both niche and regime producer

organizations support each other in transitions, whereby producer organizations are able to leave their normative positions aside in their day to day activities. These findings address critiques from Tregear (2011) and Sonnino and Marsden (2006), who argue that alternative food networks studies should not study niches in isolation from regimes. In addition, the findings align to the study of Ilbery and Maye (2005), who argue that boundaries between niche and regime actors are not always clearcut. In addition, these findings show that alternative food networks scholars may benefit from less outspoken normative positions in the debate on transitions, for instance when they warn against the appropriation or conventionalization of niche practices by regimes (Ajates Gonzalez, 2017b; Kirwan, 2004). Instead, alternative food networks studies would benefit from acknowledging the complexity of real-life food system transitions (Ingram, 2015).

Beyond binary viewpoints: economy – sociology

An additional contribution is that this thesis has shown the benefit of going beyond the economy-sociology binary viewpoint to understand the complexity and diversity of certain actors in transitions, such as producer organizations. By combining economic and sociological viewpoints, two contributions are made to the literature on producer organizations in food systems (Chapter 2, 4).

First, the combination of theories enables to study a broad range of organizational characteristics of producer organizations. Eight organizational characteristics have been studied that stem from economic (such as size, formality, investment of members, economic activities), and sociological studies (such as sustainability objectives, social and political activities). This combination of characteristics allows to study organizational diversity of producer organizations in food systems in a more holistic way, which goes beyond studies that include organizational characteristics from economic (e.g. Bernard et al., 2008; Verhofstadt and Maertens, 2015) or sociological (e.g. Ajates Gonzalez, 2017a; Emery et al., 2017) viewpoints alone.

Second, the combination of viewpoints allows to study a broad range of roles that producer organizations play in food systems. Whereas economic perspectives predominantly focus on provision of market access through collective commercialization (e.g. Markelova et al., 2009), and sociological perspectives on contributions to community development (e.g. de los Ríos et al., 2016), the combination of viewpoints leads to the formulation of four main roles. That is, next to market access and community development, producer organizations also provide production support (e.g. Lucas et al., 2019; Poulton et al., 2010), and engage in lobbying for favourable policies (e.g. Fonte and Cucco, 2017; Hanisch, 2016).

Contributions to the study of actors in transitions

Beyond binary viewpoints: business – grassroots

Finally, this thesis makes contributions to the conceptualization of different actors in food system transition research. Three key actor perspectives in transition research are perspectives of businesses, grassroots initiatives, and transition intermediaries (Köhler et al., 2019). This thesis makes three contributions to the conceptualization of actors in transition research.

First, this thesis adds insights to the conceptualization of businesses in transitions by showing their interdependencies, and thus the need for coordination through organizational arrangements in value chains (Chapter 3). This finding adds to studies on businesses in niche and regime food systems (e.g. Hörisch, 2018; Loorbach and Wijsman, 2013), and transitions in other sectors (e.g. Farla et al., 2012; Musiolik et al., 2012).

Second, this thesis yields insights into the conceptualization of intermediaries in system transitions (Chapter 4). By exploring producer organizations as (potential) transition intermediaries, this thesis contributes to studies that investigate producer organizations as intermediaries in innovation systems (e.g. Iyabano et al., 2021; Yang et al., 2014), and adds a specific actor case study to the rapidly growing field on transition intermediaries (Kivimaa et al., 2019; Mignon and Kanda, 2018).

The final contribution is that this thesis shows that producer organizations are more complex and more diverse to be conceptualized by applying a business or grassroots actor perspective only (Chapter 2, 4). Findings from this thesis imply that producer organizations may be conceptualized as hybrids on a continuum, with some producer organizations resembling more business, and others more grassroots characteristics. For instance, producer organizations aim for profit but also balance their activities with different values, they earn their own income whilst also receiving external funding, and they share organizational characteristics of both businesses as well as grassroots initiatives. This contribution provides a nuance to the conceptualization of grassroots and business actors as opposites by Seyfang and Smith (2007),[28] which is widely adopted in transition research (e.g. Geels, 2019; Hargreaves et al., 2013; Kirwan et al., 2013).

[28] Seyfang and Smith (2007) oppose grassroots innovations to market-based innovations in context (market versus social economy), in driving force (profit versus social needs, ideology), in niche (different market rules versus different values), in organizational forms (firms versus voluntary associations, cooperatives, informal community groups), and in resource base (income from commercial activity versus funding, voluntary inputs, limited commercial activity).

5.5 POLICY AND PRACTICAL IMPLICATIONS

This thesis yields a number of policy and practical implications.

Producer organizations

A first recommendation is for producer organizations to acknowledge their potential to fulfil various roles in food system transitions. By acknowledging this potential and making their contributions more explicit, producer organizations obtain a better understanding of the facilitating or constraining impact of current organizational structures and activities.

Second, for producer organizations to fulfil various roles in food system transitions, they are recommended to start dialogues about what their roles in transitions can or should be. Producer organizations may engage in external dialogues with local governments, NGOs, and social and sustainability movements, whereas internal dialogues among members implies the creation of a shared vision about the roles to play in transitions.

Third, acknowledging the potential roles of producer organizations in transitions also implies that both managers and members need to gain the proper knowledge and skills to fulfil such roles. External training, advice, and capacity development may be sought to improve lobbying, agenda-setting and networking for socio-political producer organizations, and production and commercialization support, quality control and certification activities for economic producer organizations.

Value chain actors

A first recommendation is that value chain actors are encouraged to optimize their coordination in organizational arrangements by aligning specific requirements from retailers in the value chain with requirements from multiple public and private quality standards. Particularly foreign retailers, who were found to pose specific requirements, are recommended to seek harmonization with current quality standards – as to reduce coordination efforts for processors in their own activities, as well as in the coordination between processors and producers upstream the value chain.

Second, value chain actors are recommended to design their organizational arrangements from a ‘whole chain’ perspective. This implies that they take the interdependencies among all value chain actors into account in the design of their bilateral organizational arrangements. Particularly processors, who operate between producers and retailers, are encouraged to include the requirements of retailers into the design of their organizational arrangements with producers. Processors may communicate retailer-specific requirements to producers, establish proper incentives

for producers to make necessary investments, and provide capacity support to enable compliance.

Policymakers

First, policymakers are recommended to promote a broad landscape of different types of producer organizations that fulfil distinct but complementary roles within and across regimes and niches. Although typically considered as regime actors, this thesis has shown that governments were supportive to both regime and niche actors, and thus support a diversity of transition pathways. Governments are recommended to acknowledge that different types of producer organizations need different public regulation, for instance by directing specific financial, technical, and capacity development support.

Second, policymakers are recommended to provide tailored support to value chain actors as to facilitate supply to domestic and global value chains with differentiated safety, quality and sustainability requirements. This thesis has shown that coordination among multiple value chain actors benefits from clear national safety, quality, and sustainability regulations, supported by an accreditation and control system. In addition, policymakers can support sustainability transitions in domestic value chains by facilitating conventional and organic chains, for instance by establishing public procurement instruments.

5.6 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

In this section limitations of this thesis and directions for future research are discussed.

First, within the focus on exploring organizational diversity of actors, two organizational topics were beyond the scope of this thesis. A first topic is the inclusion of informal governance mechanisms, such as trust, commitment, loyalty, and power dynamics – which is interesting for future research, for instance to add insights to studies on such mechanisms in producer organizations (e.g. Poteete and Ostrom, 2004), or among value chain actors (e.g. Ramirez et al., 2021). A second topics is the existence of plural organizational forms, where value chain actors adopt different organizational arrangements for the same transaction. Plural forms provide interesting opportunities for future research, for instance to advance understandings of Menard (2013), and Mugwagwa et al. (2019).

Second, the inclusion of management theories was out of the scope of this thesis. An interesting avenue for future research is to combine transition research with management perspectives, for instance to apply perspectives of strategic management (Planko et al., 2016), innovation management (Musiolik et al., 2020),

corporate social responsibility (Bansal and Song, 2017), or institutional entrepreneurship (Fuenfschilling and Truffer, 2014).

Third, even though interviews were conducted with a wide range of institutional actors, these actors were not focal actors in this thesis. Given that most actor studies in transition research focus on businesses, grassroots initiatives, or intermediaries (Fischer and Newig, 2016; Köhler et al., 2019), an interesting avenue for future research is to study roles and contributions of policy actors to transitions, for instance in the line of studies by Quitzau et al. (2012), and Kronsell et al. (2019).

A final limitation is that data was collected in a cross-sectional design. Although interviews with all actors revealed rich insights into changes in organization, activities and relations over time, no systemic process data were collected. Given the inherent time dimensions of transitions, future studies are recommended to collect process data (Langley, 1999), for instance implemented in a longitudinal study design (Zolfagharian et al., 2019).

5.7 CONCLUDING REMARKS

This thesis has opened up the topic of food system transitions by studying how different actors (re)arrange their organization, activities and relations in food system transitions. By highlighting the need to go beyond binary viewpoints, this thesis has aimed to improve our understanding on how actors may best be studied and supported in their contributions to transitions. I would like to end this thesis with optimism. While the challenges affecting our food systems are complex and the expected food system outcomes may seem ambitious, this thesis has shown that actor contributions can be manifold. Actors in this thesis have proven to be both responsive to changes in requirements and to contribute actively by adjusting their organizations, undertaking different activities, and by engaging in relations with others. Actors have shown how they find various transition pathways to align to, whether incremental or radical, whether focussing on sustainability or addressing safety, quality and sustainability improvements. Actors have demonstrated that they can leave their normative positions aside to help others, across niche and regime, even when they are not funded, mandated, or established to do so. This thesis has hopefully inspired future researchers, policymakers, and practitioners to continuously improve our understanding of how to study and support actors – as to further advance transitions of our global agri-food systems.

REFERENCES

Abebaw, D., & Haile, M. G. (2013). The impact of cooperatives on agricultural technology adoption: Empirical evidence from Ethiopia. *Food Policy*, *38*, 82–91. https://doi.org/10.1016/j.foodpol.2012.10.003

Ackermann, M. N. (2014). Horticultura: situación y perspectivas [Horticulture: situation and perspectives]. In OPYPA & MGAP (Eds.), *Anuario 2014.* (p. 650).

Ajates Gonzalez, R. (2017a). Going back to go forwards? From multi-stakeholder cooperatives to open cooperatives in food and farming. *Journal of Rural Studies*, *53*, 278–290. https://doi.org/10.1016/j.jrurstud.2017.02.018

Ajates Gonzalez, R. (2017b). The solution cannot be conventionalized: Protecting the alterity of fairer and more sustainable food networks. In J. Duncan & M. Bailey (Eds.), *Sustainable Food Futures: Multidisciplinary Solutions*. Oxon: Routledge.

Aldabe, L., & Dogliotti, S. (2014). Plan estratégico para el sector hortícola *[Strategic plan for the horticultural sector]*. Montevideo.

Allen, P., FitzSimmons, M., Goodman, M., & Warner, K. (2003). Shifting plates in the agrifood landscape: The tectonics of alternative agrifood initiatives in California. *Journal of Rural Studies*, *19*(1), 61–75. https://doi.org/10.1016/S0743-0167(02)00047-5

Anderson, C. R., Bruil, J., Chappell, M. J., Kiss, C., & Pimbert, M. P. (2019). From transition to domains of transformation: Getting to sustainable and just food systems through agroecology. *Sustainability (Switzerland)*, *11*(19). https://doi.org/10.3390/su11195272

Anderson, C. R., Brushett, L., Gray, T., & Renting, H. (2014). Working Together to Build Cooperative Food Systems. *Journal of Agriculture, Food Systems, and Community Development*, *4*(3), 3–9. https://doi.org/10.5304/jafscd.2014.043.017

Anderson, C. R., Maughan, C., & Pimbert, M. P. (2019). Transformative agroecology learning in Europe: building consciousness, skills and collective capacity for food sovereignty. *Agriculture and Human Values*, *36*(3), 531–547. https://doi.org/10.1007/s10460-018-9894-0

Avelino, F., & Wittmayer, J. M. (2016). Shifting power relations in sustainability transitions: A multi-actor perspective. *Journal of Environmental Policy and Planning*, *18*(5), 628–649. https://doi.org/10.1080/1523908X.2015.1112259

Bansal, T., & Song, H. (2017). Similar But Not the Same: Differentiating Corporate Sustainability from corporate responsibility. *Academy of Management Annals*, *11*(1), 105–149. https://doi.org/10.5465/annals.2015.0095

Banterle, A., & Stranieri, S. (2008). The consequences of voluntary traceability system for supply chain relationships. An application of transaction cost economics. *Food Policy*, *33*(6), 560–569. https://doi.org/10.1016/j.foodpol.2008.06.002

Barham, J., & Chitemi, C. (2009). Collective action initiatives to improve marketing performance:

Lessons from farmer groups in Tanzania. *Food Policy*, *34*(1), 53–59. https://doi.org/10.1016/j.foodpol.2008.10.002

Barrett, C. B., Bachke, M. E., Bellemare, M. F., Michelson, H. C., Narayanan, S., & Walker, T. F. (2012). Smallholder Participation in Contract Farming: Comparative Evidence from Five Countries. *World Development*, *40*(4), 715–730. https://doi.org/10.1016/j.worlddev.2011.09.006

Barrett, C. B., Benton, T. G., Cooper, K. A., Fanzo, J., Gandhi, R., Herrero, M., … Wood, S. (2020). Bundling innovations to transform agri-food systems. *Nature Sustainability*, *3*(12), 974–976. https://doi.org/10.1038/s41893-020-00661-8

Bellamy, A. S., Furness, E., Nicol, P., Pitt, H., & Taherzadeh, A. (2021). Shaping more resilient and just food systems : Lessons from the COVID-19 Pandemic. *Ambio*, *50*(4), 782–793. https://doi.org/10.1007/s13280-021-01532-y

Bernard, T., Collion, M.-H., de Janvry, A., Rondot, P., & Sadoulet, E. (2008). Do Village Organizations Make a Difference in African Rural Development? A Study for Senegal and Burkina Faso. *World Development*, *36*(11), 2188–2204. https://doi.org/10.1016/j.worlddev.2007.10.010

Bernard, T., & Spielman, D. J. (2008). *Mobilizing Rural Institutions for Sustainable Livelihoods and Equitable Development. A Case Study of Agricultural Marketing and Smallholder Cooperatives in Ethiopia*. Addis Ababa.

Bernard, T., & Spielman, D. J. (2009). Reaching the rural poor through rural producer organizations? A study of agricultural marketing cooperatives in Ethiopia. *Food Policy*, *34*(1), 60–69. https://doi.org/10.1016/j.foodpol.2008.08.001

Bernard, T., & Taffesse, A. S. (2012). Returns to Scope? Smallholders' Commercialisation through Multipurpose Cooperatives in Ethiopia. *Journal of African Economies*, *21*(3), 440–464. https://doi.org/10.1093/jae/ejs002

Bernard, T., Taffesse, A. S., & Gabre-Madhin, E. (2008). Impact of cooperatives on smallholders' commercialization behavior: Evidence from Ethiopia. *Agricultural Economics*, *39*(2), 147–161. https://doi.org/10.1111/j.1574-0862.2008.00324.x

Betzold, A., Carew, A. L., Lewis, G. K., & Lovell, H. (2018). The Emergence, Articulation and Negotiation of a New Food Industry Initiative in Rural Australia: Boundary Object, Organisation or Triple Helix Model? *Sociologia Ruralis*, *58*(4), 867–885. https://doi.org/10.1111/soru.12211

Bijman, J. (2016). The changing nature of farmer collective action: introduction to the book. In J. Bijman, R. Muradian, & J. Schuurman (Eds.), *Cooperatives, Economic Democratization and Rural Development* (p. 320). Cheltenham: Edward Elgar Publishers.

Bijman, J. (2018). Exploring the sustainability of the cooperative model in dairy: The case of the Netherlands. *Sustainability (Switzerland)*, *10*(7). https://doi.org/10.3390/su10072498

Bijman, J., & Hanisch, M. (2012). *Support for Farmers Cooperatives. Developing a typology of cooperatives and producer organisations in the EU.* Wageningen.

Bijman, J., & Hanisch, M. (2020). Understanding the heterogeneity among agricultural cooperatives. In

CIRIEC (Vol. 13). https://doi.org/10.1515/mt-1999-417-807

Bijman, J., Hanisch, M., & van der Sangen, G. (2014). Shifting control? The changes of internal governance in agricultural cooperatives in the EU. *Annals of Public and Cooperative Economics*, *85*(4), 641–661. https://doi.org/10.1111/apce.12055

Bijman, J., Muradian, R., & Cechin, A. (2011). Agricultural cooperatives and value chain coordination. In A. Helmsing & S. Vellema (Eds.), *Value chains, inclusion and endogenous development. Contrasting theories and realities* (pp. 82–101). Oxford: Routledge.

Bijman, J., & Wijers, G. (2019). Exploring the inclusiveness of producer cooperatives. *Current Opinion in Environmental Sustainability*, *41*, 74–79. https://doi.org/10.1016/j.cosust.2019.11.005

Bilali, H. El, & Strassner, C. (2021). Sustainable Agri-Food Systems : Environment, Economy, Society, and Policy. *Sustainability*, *13*, 1–67.

Bizikova, L., Nkonya, E., Minah, M., Hanisch, M., Turaga, R. M. R., Speranza, C. I., … Timmers, B. (2020). A scoping review of the contributions of farmers' organizations to smallholder agriculture. *Nature Food*, *1*(10), 620–630. https://doi.org/10.1038/s43016-020-00164-x

Bommarco, R., Kleijn, D., & Potts, S. G. (2013). Ecological intensification: Harnessing ecosystem services for food security. *Trends in Ecology and Evolution*, *28*(4), 230–238. https://doi.org/10.1016/j.tree.2012.10.012

Boström, M., Jönsson, A. M., Lockie, S., Mol, A. P. J., & Oosterveer, P. (2015). Sustainable and responsible supply chain governance: Challenges and opportunities. *Journal of Cleaner Production*, *107*, 1–7. https://doi.org/10.1016/j.jclepro.2014.11.050

Bove, I., Miranda, T., Campoy, C., Uauy, R., & Napol, M. (2012). Stunting, overweight and child development impairment go hand in hand as key problems of early infancy: Uruguayan case. *Early Human Development*, *88*(9), 747–751. https://doi.org/10.1016/j.earlhumdev.2012.04.002

Brousseau, E., & Glachant, J. (2008). *New Institutional Economics: a guidebook* (Eric Brousseau & J.-M. Glachant, eds.). Cambridge/New York, Cambridge University Press. https://doi.org/https://doi.org/10.1017/CBO9780511754043

Brouwer, I. D., McDermott, J., & Ruben, R. (2020). Food systems everywhere: Improving relevance in practice. *Global Food Security*, *26*(August), 100398. https://doi.org/10.1016/j.gfs.2020.100398

Bui, S. (2021). Enacting transitions—the combined effect of multiple niches in whole system reconfiguration. *Sustainability (Switzerland)*, *13*(11), 1–21. https://doi.org/10.3390/su13116135

Bui, S., Cardona, A., Lamine, C., & Cerf, M. (2016). Sustainability transitions: Insights on processes of niche-regime interaction and regime reconfiguration in agri-food systems. *Journal of Rural Studies*, *48*, 92–103. https://doi.org/10.1016/j.jrurstud.2016.10.003

Buttel, F. (2006). Sustaining the unsustainable: agro-food systems and environment in the modern world. In P. Cloke, T. K. Marsden, & P. H. Mooney (Eds.), *The handbook of rural studies* (pp. 213–229). https://doi.org/10.4135/9781848608016

Cechin, A., Bijman, J., Pascucci, S., & Omta, O. S. W. F. (2013). Decomposing the Member Relationship

in Agricultural Cooperatives: Implications for Commitment. *Agribusiness*, *29*(1), 39–61. https://doi.org/10.1002/agr

Chiffoleau, Y., Millet-Amrani, S., Rossi, A., Rivera-Ferre, M. G., & Merino, P. L. (2019). The participatory construction of new economic models in short food supply chains. *Journal of Rural Studies*, *68*(April 2018), 182–190. https://doi.org/10.1016/j.jrurstud.2019.01.019

Colnago, P., Rossing, W. A. H., & Dogliotti, S. (2021). Closing sustainability gaps on family farms: Combining on-farm co-innovation and model-based explorations. *Agricultural Systems*, *188*(June 2020), 103017. https://doi.org/10.1016/j.agsy.2020.103017

Cook, M. L. (1995). The Future of Agricultural A Neo-Institutional Cooperatives : Approach. *American Journal of Agricultural Economics*, *77*(5), 1153–1159.

Cook, M. L. (2018). A life cycle explanation of cooperative longevity. *Sustainability*, *10*(5). https://doi.org/10.3390/su10051586

Cook, M. L., & Chaddad, F. (2004). Redesigning Cooperative Boundaries: The Emergence of New Models. *American Journal of Agricultural Economics*, *86*(5), 1249–1253.

Cox, M. E., Arnold, G., & Villamayor, S. (2010). A Review of Design Principles for Community-based Natural Resource Management. *Ecology and Society*, *15*(4), 28. https://doi.org/38

Darby, M. R., & Karni, E. (1973). Free Competition and the Optimal Amount of Fraud. *The Journal of Law and Economics*, *16*(1), 67–88. https://doi.org/10.1086/466756

Darnhofer, I. (2014). Contributing to a transition to sustainability of agri-food systems: Potentials and pitfalls for organic farming. In S. Bellon & S. Pernvern (Eds.), *Organic Farming, Prototype for Sustainable Agricultures: Prototype for Sustainable Agricultures* (Vol. 9789400779, pp. 1–489). https://doi.org/10.1007/978-94-007-7927-3

Darnhofer, I., Lindenthal, T., Bartel-Kratochvil, R., & Zollitsch, W. (2010). Conventionalisation of organic farming practices: From structural criteria towards an assessment based on organic principles. *Agronomy for Sustainable Development*, (30), 67–81. https://doi.org/10.1007/978-94-007-0394-0_18

David, R. J., & Han, S. K. (2004). A systematic assessment of the empirical support for transaction cost economics. *Strategic Management Journal*, *25*(1), 39–58. https://doi.org/10.1002/smj.359

de Haan, F. J., & Rotmans, J. (2018). A proposed theoretical framework for actors in transformative change. *Technological Forecasting and Social Change*, *128*(December 2017), 275–286. https://doi.org/10.1016/j.techfore.2017.12.017

De Herde, V., Baret, P. V., & Maréchal, K. (2020). Coexistence of Cooperative Models as Structural Answer to Lock-Ins in Diversification Pathways: The Case of the Walloon Dairy Sector. *Frontiers in Sustainable Food Systems*, *4*(December). https://doi.org/10.3389/fsufs.2020.584542

de los Ríos, I., Rivera, M., & García, C. (2016). Redefining rural prosperity through social learning in the cooperative sector: 25 years of experience from organic agriculture in Spain. *Land Use Policy*, *54*, 85–94. https://doi.org/10.1016/j.landusepol.2016.02.009

Dentoni, D., Pascucci, S., Poldner, K., & Gartner, W. B. (2018). Learning “who we are” by doing: Processes of co-constructing prosocial identities in community-based enterprises. *Journal of Business Venturing*, *33*(5), 603–622. https://doi.org/10.1016/j.jbusvent.2017.12.010

Diaz, M., Darnhofer, I., Darrot, C., & Beuret, J. E. (2013). Green tides in Brittany: What can we learn about niche-regime interactions? *Environmental Innovation and Societal Transitions*, *8*, 62–75. https://doi.org/10.1016/j.eist.2013.04.002

DIEA-MGAP. (2011). *Censo General Agropecuario 2011. [General agricultural census 2011. Final results]*. Montevideo, Uruguay.

DIEA-MGAP. (2018). *Anuario Estadístico Agropecuario [Annual Agricultural Statistics]*. https://doi.org/10.1016/S0367-326X(02)00066-7

Dogliotti, S., García, M. C., Peluffo, S., Dieste, J. P., Pedemonte, a. J., Bacigalupe, G. F., … Rossing, W. A. H. (2014). Co-innovation of family farm systems: A systems approach to sustainable agriculture. *Agricultural Systems*, *126*, 76–86. https://doi.org/10.1016/j.agsy.2013.02.009

Dogliotti, S., Rodríguez, D., López-Ridaura, S., Tittonell, P., & Rossing, W. A. H. (2014). Designing sustainable agricultural production systems for a changing world: Methods and applications. *Agricultural Systems*, *126*, 1–2. https://doi.org/10.1016/j.agsy.2014.02.003

Donovan, J., Stoian, D., & Poole, N. (2008). *Global review of rural community enterprises. The long and winding road to creating viable businesses, and potential shortcuts.* Technical series. Turrialba, Costa Rica.

Dubois, A., & Gadde, L. E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, *55*(7), 553–560. https://doi.org/10.1016/S0148-2963(00)00195-8

Dumont, A. M., Gasselin, P., & Baret, P. V. (2020). Transitions in agriculture: Three frameworks highlighting coexistence between a new agroecological configuration and an old, organic and conventional configuration of vegetable production in Wallonia (Belgium). *Geoforum*, *108*(December 2019), 98–109. https://doi.org/10.1016/j.geoforum.2019.11.018

Duncan, J., & Pascucci, S. (2017). Mapping the Organisational Forms of Networks of Alternative Food Networks: Implications for Transition. *Sociologia Ruralis*, *57*(3), 316–339. https://doi.org/10.1111/soru.12167

Dunn, J. R. (1988). Basic cooperative principles and their relationship to selected practices. *Journal of Cooperatives*, *3*, 83–93.

DuPuis, E. M., & Gillon, S. (2009). Alternative modes of governance: Organic as civic engagement. *Agriculture and Human Values*, *26*(1–2), 43–56. https://doi.org/10.1007/s10460-008-9180-7

DuPuis, E. M., & Goodman, D. (2005). Should we go “home” to eat?: Toward a reflexive politics of localism. *Journal of Rural Studies*, *21*(3), 359–371. https://doi.org/10.1016/j.jrurstud.2005.05.011

Edler, J., & Fagerberg, J. (2017). Innovation policy: What, why, and how. *Oxford Review of Economic Policy*, *33*(1), 2–23. https://doi.org/10.1093/oxrep/grx001

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *The Academy of Management*

Review, *14*(4), 532–550.

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

Elzen, B., Augustyn, A. M., Barbier, M., & van Mierlo, B. (2017). *Agroecological transitions. Changes and breakthroughs in the making*. https://doi.org/http://dx.doi.org/10.18174/407609

Elzen, B., Van Mierlo, B., & Leeuwis, C. (2012). Anchoring of innovations: Assessing Dutch efforts to harvest energy from glasshouses. *Environmental Innovation and Societal Transitions*, *5*, 1–18. https://doi.org/10.1016/j.eist.2012.10.006

Emery, S. B., Forney, J., & Wynne-Jones, S. (2017). The more-than-economic dimensions of cooperation in food production. *Journal of Rural Studies*, *53*, 229–235. https://doi.org/10.1016/j.jrurstud.2017.05.017

Ericksen, P. J. (2008). Conceptualizing food systems for global environmental change research. *Global Environmental Change*, *18*(1), 234–245. https://doi.org/10.1016/j.gloenvcha.2007.09.002

Fałkowski, J., Chlebicka, A., & Łopaciuk-Gonczaryk, B. (2017). Social relationships and governing collaborative actions in rural areas: Some evidence from agricultural producer groups in Poland. *Journal of Rural Studies*, *49*(1305), 104–116. https://doi.org/10.1016/j.jrurstud.2016.11.010

FAO. (2015). *Training manual for organic agriculture*. https://doi.org/10.4135/9781412973809.n108

FAO. (2019). *URUGUAY Y LA FAO COLABORANDO POR UN URUGUAY Y UN MUNDO MÁS AGROINTELIGENTES [Uruguay and FAO, collaborating for a more agro-intelligent world]*. Retrieved from https://www.fao.org/3/au086s/AU086S.pdf

FAO. (2020). *The State of Food Security and Nutrition in the World: Transforming Food Systems For Affordable Healthy Diets.* (FAO, IFAD, UNICEF, WFP, & WHO, eds.). Retrieved from https://doi.org/10.4060/ca9692en %0D

FAO. (2021). FAOstat Uruguay. Retrieved December 7, 2021, from https://www.fao.org/faostat/en/#country/234

Farla, J., Markard, J., Raven, R., & Coenen, L. (2012). Sustainability transitions in the making: A closer look at actors, strategies and resources. *Technological Forecasting and Social Change*, *79*(6), 991–998. https://doi.org/10.1016/j.techfore.2012.02.001

Fernández-Barcala, M., González-Díaz, M., & Raynaud, E. (2017). Contrasting the governance of supply chains with and without geographical indications: complementarity between Levels. *Supply Chain Management: An International Journal*, *22*(4), 305–320. https://doi.org/10.1108/SCM-05-2016-0161

Feyereisen, M., Stassart, P. M., & Mélard, F. (2017). Fair Trade Milk Initiative in Belgium: Bricolage as an Empowering Strategy for Change. *Sociologia Ruralis*, *57*(3), 297–315. https://doi.org/10.1111/soru.12174

FIDA, & CCU. (2014). Contribución del Cooperativismo al Desarrollo de la Agricultura Familiar en el

Uruguay [Contribution of Cooperatives to the Development of Family Farming in Uruguay]. In *Seminario Internacional sobre Cooperativismo en la Agricultura Familiar*. Foz de Iguazu.

Fischer, E., & Qaim, M. (2012). Linking Smallholders to Markets: Determinants and Impacts of Farmer Collective Action in Kenya. *World Development*, *40*(6), 1255–1268. https://doi.org/10.1016/j.worlddev.2011.11.018

Fischer, L. B., & Newig, J. (2016). Importance of actors and agency in sustainability transitions: A systematic exploration of the literature. *Sustainability (Switzerland)*, *8*(5). https://doi.org/10.3390/su8050476

Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal*, *54*(2), 393–420.

Fonte, M., & Cucco, I. (2017). Cooperatives and alternative food networks in Italy. The long road towards a social economy in agriculture. *Journal of Rural Studies*, *53*, 291–302. https://doi.org/10.1016/j.jrurstud.2017.01.019

Forney, J., & Häberli, I. (2016). Introducing 'seeds of change' into the food system? Localisation strategies in the Swiss dairy industry. *Sociologia Ruralis*, (2), 135–156. https://doi.org/10.1111/soru.12072

Forney, J., & Häberli, I. (2017). Co-operative values beyond hybridity: The case of farmers' organisations in the Swiss dairy sector. *Journal of Rural Studies*, *53*, 236–246. https://doi.org/10.1016/j.jrurstud.2017.04.003

Forssell, S., & Lankoski, L. (2015). The sustainability promise of alternative food networks: an examination through "alternative" characteristics. *Agriculture and Human Values*, *32*(1), 63–75. https://doi.org/10.1007/s10460-014-9516-4

Francesconi, G. N., & Heerink, N. (2010). Ethiopian Agricultural Cooperatives in an Era of Global Commodity Exchange: Does Organisational Form Matter? *Journal of African Economies*, *20*(1), 153–177. https://doi.org/10.1093/jae/ejq036

Francesconi, G. N., & Wouterse, F. (2015). Promoting the role of farmer-based organizations for value chain integration: The tension between a program's targeting and an organization's investment strategy. *Agricultural Economics (United Kingdom)*, *46*(4), 527–536. https://doi.org/10.1111/agec.12179

Francesconi, G. N., & Wouterse, F. (2019). Building the Managerial Capital of Agricultural Cooperatives in Africa. *Annals of Public and Cooperative Economics*, *90*(1), 141–159. https://doi.org/10.1111/apce.12218

Fuenfschilling, L., & Truffer, B. (2014). The structuration of socio-technical regimes - Conceptual foundations from institutional theory. *Research Policy*, *43*(4), 772–791. https://doi.org/10.1016/j.respol.2013.10.010

Gaitán-Cremaschi, D., Klerkx, L., Duncan, J., Trienekens, J., Huenchuleo, C., Dogliotti, S., … Rossing, W. A. H. (2019). Characterizing diversity of food systems in view of sustainability transitions. A review. *Agronomy for Sustainable Development*, *39*(1). https://doi.org/10.1007/s13593-018-0550-2

Garibaldi, L. A., Gemmill-Herren, B., D'Annolfo, R., Graeub, B. E., Cunningham, S. A., & Breeze, T. D. (2017). Farming Approaches for Greater Biodiversity, Livelihoods, and Food Security. *Trends in Ecology and Evolution*, *32*(1), 68–80. https://doi.org/10.1016/j.tree.2016.10.001

Gazzano, I., & Gómez Perazzoli, A. (2017). Agroecology in Uruguay. *Agroecology and Sustainable Food Systems*, *41*(3–4), 380–400. https://doi.org/10.1080/21683565.2017.1286533

Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case-study. *Research Policy*, *31*(8–9), 1257–1274. https://doi.org/10.1016/S0048-7333(02)00062-8

Geels, F. W. (2019). Socio-technical transitions to sustainability: a review of criticisms and elaborations of the Multi-Level Perspective. *Current Opinion in Environmental Sustainability*, *39*, 187–201. https://doi.org/10.1016/j.cosust.2019.06.009

Geels, F. W., & Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy*, *36*(3), 399–417. https://doi.org/10.1016/j.respol.2007.01.003

Genus, A., & Coles, A. M. (2008). Rethinking the multi-level perspective of technological transitions. *Research Policy*, *37*(9), 1436–1445. https://doi.org/10.1016/j.respol.2008.05.006

Gereffi, G. (2019). Global value chains and international development policy: Bringing firms, networks and policy-engaged scholarship back in. *Journal of International Business Policy*, *2*(3), 195–210. https://doi.org/10.1057/s42214-019-00028-7

Gernert, M., El Bilali, H., & Strassner, C. (2018). Grassroots Initiatives as Sustainability Transition Pioneers: Implications and Lessons for Urban Food Systems. *Urban Science*, *2*(1), 23. https://doi.org/10.3390/urbansci2010023

Ghozzi, H., Platoni, S., Tillie, P., & Soregaroli, C. (2018). TCE determinants and governance forms in the EU "Non-GMO" soybean supply chain. *Food Policy*, *78*, 68–80. https://doi.org/10.1016/j.foodpol.2018.02.011

Ghozzi, H., Soregaroli, C., Boccaletti, S., & Sauvée, L. (2016). Impacts of non-GMO standards on poultry supply chain governance: transaction cost approach vs resource-based view. *Supply Chain Management: An International Journal*, *21*(6), 743–758. https://doi.org/10.1108/SCM-03-2016-0089

Gibbon, P., Bair, J., & Ponte, S. (2008). Governing global value chains: an introduction. *Economy and Society*, *37*(3), 315–338. https://doi.org/10.1080/03085140802172656

Giddens, A., & Sutton, P. W. (2021). *Essential concepts in sociology* (Third edit). Cambridge, UK: Polity Press.

Giovannucci, D., & Reardon, T. (2001). *Understanding grades and standards and how to apply them. A Guide to Developing Agricultural Markets and Agro- enterprises.* Retrieved from https://mpra.ub.uni-muenchen.de/13549/1/MPRA_paper_13549.pdf

Gliedt, T., Hoicka, C. E., & Jackson, N. (2018). Innovation intermediaries accelerating environmental sustainability transitions. *Journal of Cleaner Production*, *174*, 1247–1261.

https://doi.org/10.1016/j.jclepro.2017.11.054

Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., … Toulmin, C. (2010). The Challenge of Food Security. *Science*, *327*(February), 812–818. https://doi.org/10.4337/9780857939388

Goertz, G., & Mahoney, J. (2012). *A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences*. https://doi.org/10.23943/princeton/9780691149707.003.0007

Goldberger, J. R. (2008). Non-governmental organizations, strategic bridge building, and the "scientization" of organic agriculture in Kenya. *Agriculture and Human Values*, *25*(2), 271–289. https://doi.org/10.1007/s10460-007-9098-5

Goodhue, R. E. (2011). Food Quality: The Design of Incentive Contracts. *Annual Review of Resource Economics*, *1*(3), 119–140. https://doi.org/10.1146/annurev-resource-040709-135037

Goodman, D. (1999). Agro-Food Studies in the 'Age of Ecology.' *Sociologia Ruralis*, *39*(1), 17–38.

Goodman, D. (2004). Rural Europe Redux? Reflection on Alternative Agro-Food and Paradigm Change. *Sociologia Ruralis*, *44*(1), 3–16. https://doi.org/10.1111/j.1467-9523.2004.00258.x

Goodman, D., Cruz, S., Dupuis, E. M., & Goodman, M. K. (2011). *Alternative Food Networks*. (January). https://doi.org/10.4324/9780203804520

Grandori, A., & Furnari, S. (2008). A Chemistry of Organization: Combinatory Analysis and Design. *Organization Studies*, *29*(3), 459–485. https://doi.org/10.1177/0170840607088023

Grashuis, J. (2020). Agricultural firm survival: The case of farmer cooperatives in the United States. *Agribusiness*, *36*(1), 79–93. https://doi.org/10.1002/agr.21612

Grashuis, J., & Su, Y. (2019). a Review of the Empirical Literature on Farmer Cooperatives: Performance, Ownership and Governance, Finance, and Member Attitude. *Annals of Public and Cooperative Economics*, *90*(1), 77–102. https://doi.org/10.1111/apce.12205

Grin, J., Rotmans, J., & Schot, J. (2010). *Transitions to Sustainable Development New Directions in the Study of Long Term Transformative Change* (First). https://doi.org/https://doi.org/10.4324/9780203856598

Groot-Kormelinck, A., & Pizzolon, A. (2020). *Caracterización y análisis de algunas organizaciones de productores orgánicos y convencionales hortícolas en Uruguay [Characterization and analysis of conventional and organic vegetable producer organizations in Uruguay]*. Retrieved from https://coprofam.org/2021/04/22/fagro-con-el-apoyo-de-cnfr-camm-y-una-universidad-holandesa-publico-un-estudio-sobre-organizaciones-de-productores/

Groot Kormelinck, A., & Bijman, J. (2016). Co-innovation for quality in African food chains: Discovering integrated quality solutions. In J. Bijman & V. Bitzer (Eds.), *Quality and Innovation in Food Chains* (p. 274). https://doi.org/10.3920/978-90-8686-825-4_12

Groot Kormelinck, A., Bijman, J., & Trienekens, J. (2019). Characterizing Producer Organizations: The case of organic versus conventional vegetables in Uruguay. *Journal of Rural Studies*, *69*(March), 65–75. https://doi.org/10.1016/j.jrurstud.2019.04.012

Groot Kormelinck, A., Plaisier, C., Muradian, R., & Ruben, R. (2016). Social capital and agricultural cooperatives: Experimental evidence from Ethiopia. In J. Bijman, J. Schuurman, & R. Muradian (Eds.), *Cooperatives, Economic Democratization and Rural Development* (pp. 123–150). https://doi.org/10.4337/9781784719388.00014

Hanisch, M. (2016). Cooperatives in rural development and poverty alleviation. In J. Bijman, R. Muradian, & J. Schuurman (Eds.), *Cooperatives, Economic Democratization and Rural Development* (pp. 48–74). UK: Edward Elgar Publishers. https://doi.org/10.4337/9781784719388

Hargreaves, T., Hielscher, S., Seyfang, G., & Smith, A. (2013). Grassroots innovations in community energy: The role of intermediaries in niche development. *Global Environmental Change*, *23*(5), 868–880. https://doi.org/10.1016/j.gloenvcha.2013.02.008

Hebinck, A., Klerkx, L., Elzen, B., Kok, K. P. W., König, B., Schiller, K., … von Wirth, T. (2021). Beyond food for thought – Directing sustainability transitions research to address fundamental change in agri-food systems. *Environmental Innovation and Societal Transitions*, *41*(October), 81–85. https://doi.org/10.1016/j.eist.2021.10.003

Hellin, J., Lundy, M., & Meijer, M. (2009). Farmer organization, collective action and market access in Meso-America. *Food Policy*, *34*(1), 16–22. https://doi.org/10.1016/j.foodpol.2008.10.003

Henson, S., & Humphrey, J. (2010). Understanding the complexities of private standards in global agri-food chains as they impact developing countries. *The Journal of Development Studies*, *46*(9), 1628–1646. https://doi.org/10.1080/00220381003706494

Hermans, F., Roep, D., & Klerkx, L. (2016). Scale dynamics of grassroots innovations through parallel pathways of transformative change. *Ecological Economics*, *130*, 285–295. https://doi.org/10.1016/j.ecolecon.2016.07.011

Hinrichs, C. C. (2003). The practice and politics of food system localization. *Journal of Rural Studies*, *19*(1), 33–45. https://doi.org/10.1016/S0743-0167(02)00040-2

Hinrichs, C. C. (2014). Transitions to sustainability: a change in thinking about food systems change? *Agriculture and Human Values*, *31*, 143–155. https://doi.org/10.1007/s10460-014-9479-5

HLPE. (2017). High Level Panel of Experts. 2017. Nutrition and food systems. In *Committee o World Food Security (CFS)* (Vol. 44). Retrieved from http://www.fao.org/3/a-i7846e.pdf

Höhler, J., & Kühl, R. (2018). Dimensions of Member Heterogeneity in Cooperatives and Their Impact on Organization – a Literature Review. *Annals of Public and Cooperative Economics*, *89*(4), 697–712. https://doi.org/10.1111/apce.12177

Hoorani, B. H., Nair, L. B., & Gibbert, M. (2019). Designing for impact: the effect of rigor and case study design on citations of qualitative case studies in management. *Scientometrics*, *121*(1), 285–306. https://doi.org/10.1007/s11192-019-03178-w

Hörisch, J. (2018). How business actors can contribute to sustainability transitions : A case study on the ongoing animal welfare transition in the German egg industry. *Journal of Cleaner Production*, *201*, 1155–1165. https://doi.org/10.1016/j.jclepro.2018.08.031

Hospes, O., & Brons, A. (2016). Food system governance: a systematic literature review. *Food Systems Governance: Challenges for Justice, Equality and Human Rights*, (May 2016), 13–42. Retrieved from https://www.researchgate.net/publication/310457890

IFAD. (2021). *Transforming food systems for rural prosperity*. Rome.

IFOAM. (2003). *Training Manual for Organic Agriculture in the Tropics*. Retrieved from http://www.fao.org/3/ca4048en/ca4048en.pdf

IFPRI. (2021). *2021 Global Food Policy Report: Transforming Food Systems after COVID-19*. https://doi.org/https://doi.org/10.2499/9780896293991 This

Ilbery, B., & Maye, D. (2005a). Alternative (Shorter) Food Supply Chains and Specialist Livestock Products in the Scottish–English Borders. *Environment and Planning A: Economy and Space*, *37*(5), 823–844. https://doi.org/10.1068/a3717

Ilbery, B., & Maye, D. (2005b). Food supply chains and sustainability: Evidence from specialist food producers in the Scottish/English borders. *Land Use Policy*, *22*(4), 331–344. https://doi.org/10.1016/j.landusepol.2004.06.002

Inale. (2017). *Situation and perspectives of the Uruguayan dairy sector - 2017 (in Spanish)*. Retrieved from https://www.inale.org/informes/2017/

INE. (2009). *Censo Nacional de Cooperativas y Sociedades de Fomento Rural [National census on Cooperatives and Rural Support Associations]*. Retrieved from https://www.ine.gub.uy/documents/10181/326048/Censo+Nacional+de+Cooperativas+y+Sociedades+de+Fomento+Rural+2008+-+2009/9c5138e8-e330-4363-a455-4d9ad936fd86

INE. (2020). *Anuario Estadístico Nacional 2020 [National Annual Statistics]* Retrieved from https://www.ine.gub.uy/documents/10181/697245/Anuario+Estadístico+2020/5e981c54-2a50-47f8-a62e-78516edcad69

Ingram, John. (2011). A food systems approach to researching food security and its interactions with global environmental change. *Food Security*, *3*(4), 417–431. https://doi.org/10.1007/s12571-011-0149-9

Ingram, Julie. (2015). Framing niche-regime linkage as adaptation: An analysis of learning and innovation networks for sustainable agriculture across Europe. *Journal of Rural Studies*, *40*, 59–75. https://doi.org/10.1016/j.jrurstud.2015.06.003

Ingram, Julie. (2018). Agricultural transition: Niche and regime knowledge systems' boundary dynamics. *Environmental Innovation and Societal Transitions*, *26*(April 2017), 117–135. https://doi.org/10.1016/j.eist.2017.05.001

Ito, J., Bao, Z., & Su, Q. (2012). Distributional effects of agricultural cooperatives in China: Exclusion of smallholders and potential gains on participation. *Food Policy*, *37*(6), 700–709. https://doi.org/10.1016/j.foodpol.2012.07.009

Iyabano, A. H., Klerkx, L., Faure, G., Toillier, A. (2021). Farmers' Organizations as innovation intermediaries for agroecological innovations in Burkina Faso. International Journal of Agricultural

Sustainability Journal. *International Journal of Agricultural Sustainability*, *0*(0), 1–17. https://doi.org/10.1080/14735903.2021.2002089

Jaffee, S., Henson, S., & Rios, L. D. (2011). Making the grade-Smallholder farmers, emerging standards, and development assistance programs in Africa-a research program synthesis. *The World Bank*, (Report No. 62324).

Jørgensen, U. (2012). Mapping and navigating transitions - The multi-level perspective compared with arenas of development. *Research Policy*, *41*(6), 996–1010. https://doi.org/10.1016/j.respol.2012.03.001

Jraisat, L. E., & Sawalha, I. H. (2013). Quality control and supply chain management: a contextual perspective and a case study. *Supply Chain Management: An International Journal*, *18*(2), 194–207. https://doi.org/10.1108/13598541311318827

Kanda, W., Kuisma, M., Kivimaa, P., & Hjelm, O. (2020). Conceptualising the systemic activities of intermediaries in sustainability transitions. *Environmental Innovation and Societal Transitions*, (January 2019), 0–1. https://doi.org/10.1016/j.eist.2020.01.002

Kataike, J., Schmidt, O., & Gellynck, X. (2019). Measuring chain performance beyond supplier – buyer relationships in agri-food chains. *Supply Chain Management: An International Journal*, *4*, 484–497. https://doi.org/10.1108/SCM-03-2018-0097

Kennedy, B. L. (2018). Deduction, Induction, and Abduction. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data Collection* (pp. 49–64). https://doi.org/10.4135/9781526416070

Kilelu, C. W., Klerkx, L., & Leeuwis, C. (2013). Unravelling the role of innovation platforms in supporting co-evolution of innovation: Contributions and tensions in a smallholder dairy development programme. *Agricultural Systems*, *118*, 65–77. https://doi.org/10.1016/j.agsy.2013.03.003

Kilelu, C. W., Klerkx, L., & Leeuwis, C. (2017). Supporting smallholder commercialisation by enhancing integrated coordination in agrifood value chains: Experiences with dairy hubs in Kenya. *Experimental Agriculture*, *53*(2), 269–287. https://doi.org/10.1017/S0014479716000375

Kirezieva, K., Jacxsens, L., Uyttendaele, M., Van Boekel, M. A. J. S., & Luning, P. A. (2013). Assessment of Food Safety Management Systems in the global fresh produce chain. *Food Research International*, *52*(1), 230–242. https://doi.org/10.1016/j.foodres.2013.03.023

Kirwan, J. (2004). Alternative strategies in the UK agro-food system: Interrogating the alterity of farmers' markets. *Sociologia Ruralis*, *44*(4), 395–415. https://doi.org/10.1111/j.1467-9523.2004.00283.x

Kirwan, J. (2006). The interpersonal world of direct marketing: Examining conventions of quality at UK farmers' markets. *Journal of Rural Studies*, *22*(3), 301–312. https://doi.org/10.1016/j.jrurstud.2005.09.001

Kirwan, J., Ilbery, B., Maye, D., & Carey, J. (2013). Grassroots social innovations and food localisation: An investigation of the Local Food programme in England. *Global Environmental Change*, *23*(5), 830–837. https://doi.org/10.1016/j.gloenvcha.2012.12.004

Kivimaa, P. (2014). Government-affiliated intermediary organisations as actors in system-level transitions.

Research Policy, *43*(8), 1370–1380. https://doi.org/10.1016/j.respol.2014.02.007

Kivimaa, P., Boon, W., Hyysalo, S., & Klerkx, L. (2019). Towards a typology of intermediaries in sustainability transitions: A systematic review and a research agenda. *Research Policy*, *48*(4), 1062–1075. https://doi.org/10.1016/j.respol.2018.10.006

Klerkx, L. (2020). Advisory services and transformation, plurality and disruption of agriculture and food systems: towards a new research agenda for agricultural education and extension studies. *The Journal of Agricultural Education and Extension*, *26*(2), 131–140. https://doi.org/10.1080/1389224X.2020.1738046

Klerkx, L., & Leeuwis, C. (2009). Establishment and embedding of innovation brokers at different innovation system levels: Insights from the Dutch agricultural sector. *Technological Forecasting and Social Change*, (76), 849–860. https://doi.org/:10.1016/j.techfore.2008.10.001

Köhler, J., Geels, F. W., Kern, F., Markard, J., Onsongo, E., Wieczorek, A., … Wells, P. (2019). An agenda for sustainability transitions research: State of the art and future directions. *Environmental Innovation and Societal Transitions*, *31*(January), 1–32. https://doi.org/10.1016/j.eist.2019.01.004

Kronsell, A., Khan, J., & Hildingsson, R. (2019). Actor relations in climate policymaking: Governing decarbonisation in a corporatist green state. *Environmental Policy and Governance*, *29*(6), 399–408. https://doi.org/10.1002/eet.1867

Kump, B., & Fikar, C. (2021). Challenges of maintaining and diffusing grassroots innovations in alternative food networks: A systems thinking approach. *Journal of Cleaner Production*, *317*(June), 128407. https://doi.org/10.1016/j.jclepro.2021.128407

Lachman, D. A. (2013). A survey and review of approaches to study transitions. *Energy Policy*, *58*, 269–276. https://doi.org/10.1016/j.enpol.2013.03.013

Laforge, J. M. L., Anderson, C. R., & McLachlan, S. M. (2017). Governments, grassroots, and the struggle for local food systems: containing, coopting, contesting and collaborating. *Agriculture and Human Values*, *34*(3), 663–681. https://doi.org/10.1007/s10460-016-9765-5

Lamine, C. (2011). Transition pathways towards a robust ecologization of agriculture and the need for system redesign . Cases from organic farming and IPM. *Journal of Rural Studies*, *27*(2), 209–219. https://doi.org/10.1016/j.jrurstud.2011.02.001

Lamine, C., Darnhofer, I., & Marsden, T. (2019). What enables just sustainability transitions in agrifood systems? An exploration of conceptual approaches using international comparative case studies. *Journal of Rural Studies*, *68*(January), 144–146. https://doi.org/10.1016/j.jrurstud.2019.03.010

Lamine, C., Garçon, L., Brunori, G., & Ecodeveloppement, I. (2019). Territorial agrifood systems : A Franco-Italian contribution to the debates over alternative food networks in rural areas. *Journal of Rural Studies*, *68*(September 2018), 159–170. https://doi.org/10.1016/j.jrurstud.2018.11.007

Langley, A. (1999). Strategies for Theorizing from Process. *The Academy of Management Review*, *24*(4), 691–710. https://doi.org/https://doi.org/10.5465/amr.1999.2553248

Le Gal, P. Y., Dugué, P., Faure, G., & Novak, S. (2011). How does research address the design of

innovative agricultural production systems at the farm level? A review. *Agricultural Systems*, *104*(9), 714–728. https://doi.org/10.1016/j.agsy.2011.07.007

Lee, J., Gereffi, G., & Beauvais, J. (2012). Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences*, *109*(31), 12326–12331. https://doi.org/10.1073/pnas.0913714108

Levidow, L., Pimbert, M., & Vanloqueren, G. (2014). Agroecological Research: Conforming—or Transforming the Dominant Agro-Food Regime? *Agroecology and Sustainable Food Systems*, *38*(10), 1127–1155. https://doi.org/10.1080/21683565.2014.951459

Loorbach, D., Frantzeskaki, N., & Avelino, F. (2017). Sustainability Transitions Research: Transforming Science and Practice for Societal Change. *Annual Review of Environment and Resources*, *42*(1), 599–626. https://doi.org/10.1146/annurev-environ-102014-021340

Loorbach, D., & Wijsman, K. (2013). Business transition management : exploring a new role for business in sustainability transitions. *Journal of Cleaner Production*, *45*, 20–28. https://doi.org/10.1016/j.jclepro.2012.11.002

López-Bayón, S., González-Díaz, M., Solís-Rodríguez, V., & Fernández-Barcala, M. (2018). Governance decisions in the supply chain and quality performance: The synergistic effect of geographical indications and ownership structure. *International Journal of Production Economics*, *197*(October 2017), 1–12. https://doi.org/10.1016/j.ijpe.2017.12.022

Lucas, V., Gasselin, P., & Van Der Ploeg, J. D. (2019). Local inter-farm cooperation: A hidden potential for the agroecological transition in northern agricultures. *Agroecology and Sustainable Food Systems*, *43*(2), 145–179. https://doi.org/10.1080/21683565.2018.1509168

Luning, P. A., & Marcelis, W. J. (2009). *Food quality management - technological and managerial principles and practices*. Retrieved from http://operationstech.about.com/od/glossary/g/Quality-assurance.htm

Luo, J., Han, H., Jia, F., & Dong, H. (2020). Agricultural Co-operatives in the western world: A bibliometric analysis. *Journal of Cleaner Production*, *273*, 122945. https://doi.org/10.1016/j.jclepro.2020.122945

Ma, W., & Abdulai, A. (2017). The economic impacts of agricultural cooperatives on smallholder farmers in rural China. *Agribusiness*, *33*(4), 537–551. https://doi.org/10.1002/agr.21522

Markard, J., Raven, R., & Truffer, B. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy*, *41*(6), 955–967. https://doi.org/10.1016/j.respol.2012.02.013

Markelova, H., Meinzen-Dick, R., Hellin, J., & Dohrn, S. (2009). Collective action for smallholder market access. *Food Policy*, *34*(1), 1–7. https://doi.org/10.1016/j.foodpol.2008.10.001

Marsden, T. (2013). From post-productionism to reflexive governance: Contested transitions in securing more sustainable food futures. *Journal of Rural Studies*, *29*(June 2008), 123–134. https://doi.org/10.1016/j.jrurstud.2011.10.001

Marsden, T., Banks, J., & Bristow, G. (2000). Food Supply Chain Approaches: Exploring Their Role in

Rural Development. *Sociologia Ruralis*, *40*(4), 424–437. https://doi.org/10.1111/1467-9523.00158

Marsden, T., Banks, J., & Bristow, G. (2002). The social management of rural nature: Understanding agrarian-based rural development. *Environment and Planning A*, *34*(5), 809–825. https://doi.org/10.1068/a3427

Matschoss, K., & Heiskanen, E. (2017). Making it experimental in several ways: The work of intermediaries in raising the ambition level in local climate initiatives. *Journal of Cleaner Production*, *169*, 85–93. https://doi.org/10.1016/j.jclepro.2017.03.037

Maye, D., & Duncan, J. (2017). Understanding Sustainable Food System Transitions: Practice, Assessment and Governance. *Sociologia Ruralis*, *57*(3), 267–273. https://doi.org/10.1111/soru.12177

McMichael, P. (2005). Global Development and The Corporate Food Regime. In F. H. Buttel & P. McMichael (Eds.), *New Directions in the Sociology of Global Development* (pp. 265–299). https://doi.org/10.1016/S1057-1922(05)11010-5

Melchior, I. C., & Newig, J. (2021). Governing transitions towards sustainable agriculture—taking stock of an emerging field of research. *Sustainability (Switzerland)*, *13*(2), 1–27. https://doi.org/10.3390/su13020528

Mena, C., Humphries, A., & Choi, T. Y. (2013). Toward a theory of multi-tier supply chain management. *Journal of Supply Chain Management*, *49*, 58–77. https://doi.org/10.1111/jscm.12003

Ménard, C. (2013). Plural forms of organization: where do we stand. *Governance of Franching Networks,c Ooperatives, and Alliances*, *34*(3–5), 124–139.

Ménard, C. (2004). The Economics of Hybrid Organizations. *Journal of Institutional and Theoretical Economics JITE*, *160*(3), 345–376. https://doi.org/10.1628/0932456041960605

Ménard, C. (2017). Organization and governance in the agrifood sector: How can we capture their variety? *Agribusiness*, (September 2017), 142–160. https://doi.org/10.1002/agr.21539

Ménard, C., & Valceschini, E. (2005). New institutions for governing the agri-food industry. *European Review of Agricultural Economics*, *32*(3), 421–440. https://doi.org/10.1093/eurrag/jbi013

Meynard, J. M., Jeuffroy, M. H., Le Bail, M., Lefèvre, A., Magrini, M. B., & Michon, C. (2017). Designing coupled innovations for the sustainability transition of agrifood systems. *Agricultural Systems*, *157*, 330–339. https://doi.org/10.1016/j.agsy.2016.08.002

MGAP-DIEA. (2018). *Agricultural Statistical Yearbook (in Spanish)*. Retrieved from https://descargas.mgap.gub.uy/DIEA/Anuarios/Anuario2018/Anuario_2018.pdf

MGAP-Opypa. (2017). *Análisis sectoral y cadenas productivas. Temas de política. Estudios. Anuario 2017 [Sectoral analysis and production chains. Annual 2017]*. Montevideo, Uruguay.

MGAP-Opypa. (2018). *Sectoral analysis and production chains - Annals 2018 (in Spanish)*. Retrieved from https://www.gub.uy/ministerio-ganaderia-agricultura-pesca/comunicacion/publicaciones/anuario-opypa-2018

MGAP-Opypa. (2020). *Analisis sectorial y cadenas productiveas. Temas de politica, Estudios [Sector analysis and producive chains. Policy themes and studies]*. Retrieved from https://descargas.mgap.gub.uy/OPYPA/Anuarios/anuario2020/anuario2020.pdf

MGAP. (2018). *National Biological Residues Programme.* Report. (in Spanish). Montevideo.

MGAP. (2021). *Anuario Estadistico Agropecuario [Annual Agricultural Statistics]*. Retrieved from https://descargas.mgap.gub.uy/DIEA/Anuarios/Anuario2021/LIBRO ANUARIO 2021 Web.pdf

Mignon, I., & Kanda, W. (2018). A typology of intermediary organizations and their impact on sustainability transition policies. *Environmental Innovation and Societal Transitions*, *29*(October 2017), 100–113. https://doi.org/10.1016/j.eist.2018.07.001

Mockshell, J., & Kamanda, J. (2018). Beyond the agroecological and sustainable agricultural intensification debate: Is blended sustainability the way forward? *International Journal of Agricultural Sustainability*, *16*(2), 127–149. https://doi.org/10.1080/14735903.2018.1448047

Mojo, D., Fischer, C., & Degefa, T. (2017). The determinants and economic impacts of membership in coffee farmer cooperatives: recent evidence from rural Ethiopia. *Journal of Rural Studies*, *50*, 84–94. https://doi.org/10.1016/j.jrurstud.2016.12.010

Mooney, P. H. (2004). Democratizing rural economy: Institutional friction, sustainable struggle and the cooperative movement. *Rural Sociology*, *69*(1), 76–98. https://doi.org/10.1526/003601104322919919

Moragues-Faus, A. M., & Sonnino, R. (2012). Embedding Quality in the Agro-food System: The Dynamics and Implications of Place-Making Strategies in the Olive Oil Sector of Alto Palancia, Spain. *Sociologia Ruralis*, *52*(2), 215–234. https://doi.org/10.1111/j.1467-9523.2011.00558.x

Morgan, K., & Murdoch, J. (2000). Organic vs. conventional agriculture: Knowledge, power and innovation in the food chain. *Geoforum*, *31*(2), 159–173. https://doi.org/10.1016/S0016-7185(99)00029-9

Mugwagwa, I., Bijman, J., & Trienekens, J. (2019). Why do agribusiness firms simultaneously source from different contract farming arrangements? Evidence from the soybean industry in Malawi. *International Food and Agribusiness Management Review*, *22*(1), 79–96. https://doi.org/10.22434/ifamr2018.0079

Musiolik, J., Markard, J., & Hekkert, M. (2012). Networks and network resources in technological innovation systems: Towards a conceptual framework for system building. *Technological Forecasting and Social Change*, *79*(6), 1032–1048. https://doi.org/10.1016/j.techfore.2012.01.003

Musiolik, J., Markard, J., Hekkert, M., & Furrer, B. (2020). Creating innovation systems: How resource constellations affect the strategies of system builders. *Technological Forecasting and Social Change*, *153*(February 2018), 119209. https://doi.org/10.1016/j.techfore.2018.02.002

Mwambi, M., Bijman, J., & Mshenga, P. (2020). Which type of producer organization is (more) inclusive ? Dynamics of farmers ' membership and participation in the decision-making process. *Annals of Public and Cooperative Economics*, (January), 1–24. https://doi.org/10.1111/apce.12269

Narrod, C., Roy, D., Okello, J. J., Avendaño, B., Rich, K., & Thorat, A. (2009). Public–private partnerships

and collective action in high value fruit and vegetable supply chains. *Food Policy*, *34*(1), 8–15. https://doi.org/10.1016/j.foodpol.2008.10.005

Nikol, L. J., & Jansen, K. (2021). Rethinking conventionalisation: A view from organic agriculture in the Global South. *Journal of Rural Studies*. https://doi.org/10.1016/j.jrurstud.2021.07.001

OECD. (2021). *Making Better Policies for Food Systems*. https://doi.org/https://doi.org/10.1787/ddfba4de-en

Ollivier, G., Magda, D., Mazé, A., Plumecocq, G., & Lamine, C. (2018). Agroecological transitions: What can sustainability transition frameworks teach us? an ontological and empirical analysis. *Ecology and Society*, *23*(2). https://doi.org/10.5751/ES-09952-230205

Ortiz-Miranda, D., Moreno-Pérez, O. M., & Moragues-Faus, A. M. (2010). Innovative strategies of agricultural cooperatives in the framework of the new rural development paradigms: the case of the Region of Valencia (Spain). *Environment and Planning A*, *42*(3), 661–677. https://doi.org/10.1068/a42168

Ostrom, E. (2010). Analyzing collective action. *Agricultural Economics*, *41*(SUPPL. 1), 155–166. Retrieved from http://www.scopus.com/inward/record.url?eid=2-s2.0-78149451111&partnerID=40&md5=b2f0e3dea6122d481ff26553e1a083e6

Papaoikonomou, E., & Ginieis, M. (2017). Putting the farmer's face on food: governance and the producer–consumer relationship in local food systems. *Agriculture and Human Values*, *34*(1), 53–67. https://doi.org/10.1007/s10460-016-9695-2

Patton, M. Q. (2015). *Qualitative evaluation and research methods* (4th ed.). Newbury Park: SAGE Publications.

Penrose-Buckley, C. (2007). *Producer Organisations*. Oxford: Oxfam GB https://doi.org/10.3362/9780855988357

Pesch, U. (2015). Tracing discursive space: Agency and change in sustainability transitions. *Technological Forecasting and Social Change*, *90*(PB), 379–388. https://doi.org/10.1016/j.techfore.2014.05.009

Pesche, D., & Losch, B. (2016). The progressive participation of rural producer organizations in the policy debate: lessons from the experience of West Africa. In *Cooperatives, Economic Democratization and Rural Development* (pp. 25–47). Cheltenham: Edward Elgar.

Pilbeam, C., Alvarez, G., & Wilson, H. (2012). The governance of supply networks: a systematic literature review. *Supply Chain Management: An International Journal*, *17*(4), 358–376. https://doi.org/10.1108/13598541211246512

Planko, J., Cramer, J. M., Chappin, M. M. H., & Hekkert, M. P. (2016). Strategic collective system building to commercialize sustainability innovations. *Journal of Cleaner Production*, *112*, 2328–2341. https://doi.org/10.1016/j.jclepro.2015.09.108

Plumecocq, G., Debril, T., Duru, M., Magrini, M. B., Sarthou, J. P., & Therond, O. (2018). The plurality of values in sustainable agriculture models: Diverse lock-in and coevolution patterns. *Ecology and*

Society, *23*(1). https://doi.org/10.5751/ES-09881-230121

Ponte, S., & Gibbon, P. (2005). Quality standards, conventions and the governance of global value chains. *Economy and Society*, *34*(1), 1–31. https://doi.org/10.1080/0308514042000329315

Poteete, A. R., & Ostrom, E. (2004). In pursuit of comparable concepts and data about collective action. *Agricultural Systems*, *82*, 215–232. https://doi.org/10.1016/j.agsy.2004.07.002

Pouliot, S., & Wang, H. H. (2018). Information, Incentives, and Government Intervention for Food Safety. *Annual Review of Resource Economics*, *10*(1), 83–103. https://doi.org/10.1146/annurev-resource-100516-053346

Poulton, C., Dorward, A. R., & Kydd, J. (2010). The Future of Small Farms: New Directions for Services, Institutions, and Intermediation. *World Development*, *38*(10), 1413–1428. https://doi.org/10.1016/j.worlddev.2009.06.009

Pretty, J. (2008). Agricultural sustainability: Concepts, principles and evidence. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *363*(1491), 447–465. https://doi.org/10.1098/rstb.2007.2163

Pretty, J., & Bharucha, Z. P. (2015). Integrated pest management for sustainable intensification of agriculture in Asia and Africa. *Insects*, *6*(1), 152–182. https://doi.org/10.3390/insects6010152

Quitzau, M. B., Hoffmann, B., & Elle, M. (2012). Local niche planning and its strategic implications for implementation of energy-efficient technology. *Technological Forecasting and Social Change*, *79*(6), 1049–1058. https://doi.org/10.1016/j.techfore.2011.11.009

Ramirez, M., Clarke, I., & Klerkx, L. (2018). Analysing intermediary organisations and their influence on upgrading in emerging agricultural clusters. *Environment and Planning A*, *50*(6), 1314–1335. https://doi.org/10.1177/0308518X17741316

Ramirez, M. J., Roman, I. E., Ramos, E., & Patrucco, A. S. (2021). The value of supply chain integration in the Latin American agri-food industry: trust, commitment and performance outcomes. *The International Journal of Logistics Management*, *32*(1), 281–301. https://doi.org/10.1108/IJLM-02-2020-0097

Raynaud, E., Sauvee, L., & Valceschini, E. (2005). Alignment between quality enforcement devices and governance structures in the agro-food vertical chains. *Journal of Management and Governance*, *9*(1), 47–77. https://doi.org/10.1007/s10997-005-1571-1

Raynaud, E., Sauvee, L., & Valceschini, E. (2009). Aligning branding strategies and governance of vertical transactions in agri-food chains. *Industrial and Corporate Change*, *18*(5), 835–868. https://doi.org/10.1093/icc/dtp026

Reardon, T., Barrett, C. B., Berdegue, J. A., & Swinnen, J. F. M. (2009). Agrifood Industry Transformation and Small Farmers in Developing Countries. *World Development*, *37*(11), 1717–1727. https://doi.org/10.1016/j.worlddev.2008.08.023

Reganold, J. P., & Wachter, J. M. (2016). Organic agriculture in the twenty-first century. *Nature Plants*, *2*(February), 15221. https://doi.org/10.1038/nplants.2015.221

Renting, H., Marsden, T., & Banks, J. (2003). Understanding alternative food networks: Exploring the role of short food supply chains in rural development. *Environment and Planning A*, *35*(3), 393–411. https://doi.org/10.1068/a3510

Rindfleisch, A., & Heide, J. B. (1997). Transaction cost analysis: past, present, and future applications. *Journal of Marketing*, 30–54. https://doi.org/10.2307/1252085

Rip, A., & Kemp, R. (1998). Technological Change. In S. Rayner & E. Malone (Eds.), *Human Choice and Climate Change* (pp. 327–399). https://doi.org/10.1016/B978-008044910-4.00230-3

Rivera-Ferre, M. G., López-i-Gelats, F., Ravera, F., Oteros-Rozas, E., di Masso, M., Binimelis, R., & El Bilali, H. (2021). The two-way relationship between food systems and the COVID19 pandemic: causes and consequences. *Agricultural Systems*, *191*(October 2020). https://doi.org/10.1016/j.agsy.2021.103134

Rondot, P., & Collion, M.-H. (2001). *Agricultural Producer Organizations. Their contribution to rural capacity building and poverty reduction*. Washington, DC.

Rossi, A. (2017). Beyond food provisioning: The transformative potential of grassroots innovation around food. *Agriculture (Switzerland)*, *7*(1), 9–14. https://doi.org/10.3390/agriculture7010006

Rossing, W. A. H., Groot Kormelinck, A., Alliaume, F., Dogliotti, S., Duncan, J., Huenchuleo, C., … Gaitán-cremaschi, D. (2020). Transitioning to the safe and just space inside ' the doughnut ' by means of agroecological niche food systems: insights from Chile and Uruguay. *International Journal of Agriculture and Natural Resources*, *47*(3), 295–311. https://doi.org/10.7764/ijanr.v47i3.2258

Ruben, R., Cavatassi, R., Lipper, L., Smaling, E., & Winters, P. (2021). Towards food systems transformation — five paradigm shifts for healthy, inclusive and sustainable food systems. *Food Security*, (0123456789). https://doi.org/10.1007/s12571-021-01221-4

Ruben, R., Verhagen, J., & Plaisier, C. (2019). The challenge of food systems research: What difference does it make? *Sustainability (Switzerland)*, *11*(1), 1–14. https://doi.org/10.3390/su11010171

Runhaar, H., Fünfschilling, L., van den Pol-Van Dasselaar, A., Moors, E. H. M., Temmink, R., & Hekkert, M. (2020). Endogenous regime change: Lessons from transition pathways in Dutch dairy farming. *Environmental Innovation and Societal Transitions*, *36*(June), 137–150. https://doi.org/10.1016/j.eist.2020.06.001

Santos, I. G., & Perazzoli, A. G. (2015). Agroecología en uruguay. *Agroecología*, *10*(2), 103–113.

Schreier, M. (2012). *Qualitative Content Analysis in Practice*. In *EBL-Schweitzer*. London: SAGE Publications.

Seyfang, G., & Smith, A. (2007). Grassroots innovations for sustainable development: Towards a new research and policy agenda. *Environmental Politics*, *16*(4), 584–603. https://doi.org/10.1080/09644010701419121

Shennan, C., Krupnik, T. J., Baird, G., Cohen, H., Forbush, K., Lovell, R. J., & Olimpi, E. M. (2017). Organic and Conventional Agriculture: A Useful Framing? *Annual Review of Environment and Resources*, *42*(1), 317–346. https://doi.org/10.1146/annurev-environ-110615-085750

Shiferaw, B., Hellin, J., & Muricho, G. (2011). Improving market access and agricultural productivity growth in Africa: What role for producer organizations and collective action institutions? *Food Security*, *3*(4), 475–489. https://doi.org/10.1007/s12571-011-0153-0

Shove, E., & Walker, G. (2010). Governing transitions in the sustainability of everyday life. *Research Policy*, *39*(4), 471–476. https://doi.org/10.1016/j.respol.2010.01.019

Smith, A. (2006). Green niches in sustainable development: The case of organic food in the United Kingdom. *Environment and Planning C: Government and Policy*, *24*(3), 439–458. https://doi.org/10.1068/c0514j

Smith, A. (2007). Translating sustainabilities between green niches and socio-technical regimes. *Technology Analysis and Strategic Management*, *19*(4), 427–450. https://doi.org/10.1080/09537320701403334

Smith, A., & Raven, R. (2012). What is protective space? Reconsidering niches in transitions to sustainability. *Research Policy*, *41*(6), 1025–1036. https://doi.org/10.1016/j.respol.2011.12.012

Smith, A., Stirling, A., & Berkhout, F. (2005). The governance of sustainable socio-technical transitions. *Research Policy*, *34*(10), 1491–1510. https://doi.org/10.1016/j.respol.2005.07.005

Soboh, R. a. M. E., Lansink, A. O., Giesen, G., & van Dijk, G. (2009). Performance Measurement of the Agricultural Marketing Cooperatives: The Gap between Theory and Practice. *Review of Agricultural Economics*, *31*(3), 446–469. https://doi.org/10.1111/j.1467-9353.2009.01448.x

Sonnino, R., & Marsden, T. (2006). Beyond the divide: Rethinking relationships between alternative and conventional food networks in Europe. *Journal of Economic Geography*, *6*(2), 181–199. https://doi.org/10.1093/jeg/lbi006

Soosay, C. A., & Hyland, P. (2015). A decade of supply chain collaboration and directions for future research. *Supply Chain Management*, (August), 613–630. https://doi.org/10.1108/SCM-06-2015-0217

Spaargaren, Oosterveer, P., & Loeber, A. (2011). Sustainability Transitions in Food Consumption, Retail and Production. In G. Spaargaren, P. Oosterveer, & A. Loeber (Eds.), *Food practices in transition* (p. 376). https://doi.org/https://doi.org/10.4324/9780203135921

Stock, P. V., Forney, J., Emery, S. B., & Wittman, H. (2014). Neoliberal natures on the farm: Farmer autonomy and cooperation in comparative perspective. *Journal of Rural Studies*, *36*, 411–422. https://doi.org/10.1016/j.jrurstud.2014.06.001

Stranieri, S., Orsi, L., & Banterle, A. (2017). Traceability and risks: an extended transaction cost perspective. *Supply Chain Management: An International Journal*, *22*(2), 145–159. https://doi.org/10.1108/SCM-07-2016-0268

Struik, P. C., & Kuyper, T. W. (2017). Sustainable intensification in agriculture: the richer shade of green. A review. *Agronomy for Sustainable Development*, *37*(5). https://doi.org/10.1007/s13593-017-0445-7

Swagemakers, P., Domínguez García, M. D., Milone, P., Ventura, F., & Wiskerke, J. S. C. (2019).

Exploring cooperative place-based approaches to restorative agriculture. *Journal of Rural Studies*, *68*(April 2018), 191–199. https://doi.org/10.1016/j.jrurstud.2018.12.003

Swinnen, J. F. M. (2007). *Global Supply Chains, Standards and the Poor. How the globlalization of fod systems and standards affets rural development and poverty* (J.F.M. Swinnen, eds). Trowbridge: Cromwell Press.

Therond, O., Duru, M., Roger-Estrade, J., & Richard, G. (2017). A new analytical framework of farming system and agriculture model diversities. A review. *Agronomy for Sustainable Development*, *37*(3). https://doi.org/10.1007/s13593-017-0429-7

Thornberg, R. (2012). Informed Grounded Theory. *Scandinavian Journal of Educational Research*, *56*(3), 243–259. https://doi.org/10.1080/00313831.2011.581686

Thorp, R., Stewart, F., & Heyer, A. (2005). When and how far is group formation a route out of chronic poverty? *World Development*, *33*(6), 907–920. https://doi.org/10.1016/j.worlddev.2004.09.016

Tisenkopfs, T., Kunda, I., šūmane, S., Brunori, G., Klerkx, L., & Moschitz, H. (2015). Learning and Innovation in Agriculture and Rural Development: The Use of the Concepts of Boundary Work and Boundary Objects. *Journal of Agricultural Education and Extension*, *21*(1), 13–33. https://doi.org/10.1080/1389224X.2014.991115

Tittonell, P. (2014). Ecological intensification of agriculture-sustainable by nature. *Current Opinion in Environmental Sustainability*, *8*, 53–61. https://doi.org/10.1016/j.cosust.2014.08.006

Tittonell, P., Klerkx, L., Baudron, F., Félix, G. F., Ruggia, A., Apeldoorn, D. Van, … Rossing, W. A. H. (2016). *Tittonell et al (2016) Ecological Intensification - Local Innovation to Address Global Challenges.pdf*. https://doi.org/10.1007/978-3-319-26777-7

Ton, G., & Bijman, J. (2008). *Producer Organisations and Chain Development: Facilitating Trajectories of Change in Developing Countries*. Retrieved from www.betteraid.org

Ton, G., Vellema, W., D'Haese, M., & Desiere, S. (2015). *Systematic Review of the Effectiveness of Contract Farming for Income and Food Security of Smallholder Farmers in Low- and Middle Income Countries* (No. Systematic Review-SR6.1088. Protocol).

Ton, G., Vellema, W., Desiere, S., Weituschat, S., & D'Haese, M. (2018). Contract farming for improving smallholder incomes: What can we learn from effectiveness studies? *World Development*, *104*, 46–64. https://doi.org/10.1016/j.worlddev.2017.11.015

Trebbin, A. (2014). Linking small farmers to modern retail through producer organizations - Experiences with producer companies in India. *Food Policy*, *45*, 35–44. https://doi.org/10.1016/j.foodpol.2013.12.007

Tregear, A. (2011). Progressing knowledge in alternative and local food networks: Critical reflections and a research agenda. *Journal of Rural Studies*, *27*(4), 419–430. https://doi.org/10.1016/j.jrurstud.2011.06.003

Tregear, A., & Cooper, S. (2016). Embeddedness, social capital and learning in rural areas: The case of producer cooperatives. *Journal of Rural Studies*, *44*, 101–110.

https://doi.org/10.1016/j.jrurstud.2016.01.011

Trienekens, J. (2011). Agricultural value chains in developing countries a framework for analysis. *International Food and Agribusiness Management Review*, *14*(2), 51–82. https://doi.org/103987.html

Trienekens, J., & Wognum, N. (2013). Requirements of supply chain management in differentiating European pork chains. *Meat Science*, *95*(3), 719–726. https://doi.org/10.1016/j.meatsci.2013.03.035

Trienekens, J., Wognum, P. M., Beulens, A. J. M., & van der Vorst, J. G. A. J. (2012). Transparency in complex dynamic food supply chains. *Advanced Engineering Informatics*, *26*(1), 55–65. https://doi.org/10.1016/j.aei.2011.07.007

Trienekens, J., & Zuurbier, P. (2008). Quality and safety standards in the food industry, developments and challenges. *International Journal of Production Economics*, *113*(1), 107–122. https://doi.org/10.1016/j.ijpe.2007.02.050

UN. (2021). Uruuay. Retrieved December 7, 2021, from http://data.un.org/en/iso/uy.html

van der Merwe, M., Kirsten, J. F., & Trienekens, J. (2019). Enforcement mechanisms and governance structures to protect a region of origin lamb product. *Supply Chain Management: An International Journal*, *5*, 561–573. https://doi.org/10.1108/SCM-01-2019-0026

Van Der Ploeg, J. D. (2008). *The new peasantries: struggles for autonomy and sustainability in an era of empire and globalization*. London: Eartscan.

van Lente, H., Boon, W. P. C., & Klerkx, L. (2020). Positioning of systemic intermediaries in sustainability transitions: Between storylines and speech acts. *Environmental Innovation and Societal Transitions*, (February), 0–1. https://doi.org/10.1016/j.eist.2020.02.006

van Lente, H., Hekkert, M., Smits, R., & van Waveren, B. (2003). Roles of Systemic Intermediaries in Transition Processes. *International Journal of Innovation Management*, *07*(03), 247–279. https://doi.org/10.1142/s1363919603000817

Verhofstadt, E., & Maertens, M. (2014). Smallholder cooperatives and agricultural performance in Rwanda: Do organizational differences matter? *Agricultural Economics (United Kingdom)*, *45*(S1), 39–52. https://doi.org/10.1111/agec.12128

Verhofstadt, E., & Maertens, M. (2015). Can agricultural cooperatives reduce poverty? Heterogeneous impact of cooperative membership on farmers' welfare in Rwanda. *Applied Economic Perspectives and Policy*, *37*(1), 86–106. https://doi.org/10.1093/aepp/ppu021

Vermeulen, S. J., Campbell, B. M., & Ingram, J. S. I. (2012). Climate Change and Food Systems. *Annual Review of Environment and Resources*, *37*(1), 195–222. https://doi.org/10.1146/annurev-environ-020411-130608

Watkins, A., Papaioannou, T., Mugwagwa, J., & Kale, D. (2015). National innovation systems and the intermediary role of industry associations in building institutional capacities for innovation in developing countries: A critical review of the literature. *Research Policy*, *44*(8), 1407–1418.

https://doi.org/10.1016/j.respol.2015.05.004

Webb, P., Benton, T. G., Beddington, J., Flynn, D., Kelly, N. M., & Thomas, S. M. (2020). The urgency of food system transformation is now irrefutable. *Nature Food*, *1*(10), 584–585. https://doi.org/10.1038/s43016-020-00161-0

Weber, H., Poeggel, K., Eakin, H., Fischer, D., Lang, D. J., Wehrden, H. Von, & Wiek, A. (2020). What are the ingredients for food systems change towards sustainability? - Insights from the literature. *Environmental Research Letters*, *15*(11). https://doi.org/10.1088/1748-9326/ab99fd

WEF. (2020). *Incentivizing Food Systems Transformation*. Retrieved from https://www.weforum.org/reports/incentivizing-food-systems-transformation

Weltin, M., Zasada, I., Piorr, A., Debolini, M., Geniaux, G., Moreno Perez, O., … Schulp, C. J. E. (2018). Conceptualising fields of action for sustainable intensification – A systematic literature review and application to regional case studies. *Agriculture, Ecosystems and Environment*, *257*(February), 68–80. https://doi.org/10.1016/j.agee.2018.01.023

Wever, M., Wognum, N., Trienekens, J., & Omta, O. (2010). Alignment between chain quality management and chain governance in EU pork supply chains: A Transaction-Cost-Economics perspective. *Meat Science*, *84*(2), 228–237. https://doi.org/10.1016/j.meatsci.2009.05.012

Wever, M., Wognum, P. M., Trienekens, J., & Omta, O. S. W. F. (2012). Supply Chain-Wide Consequences of Transaction Risks and Their Contractual Solutions: Towards an Extended Transaction Cost Economics Framework. *Journal of Supply Chain Management*, *48*(1), 73–91. https://doi.org/10.1111/j.1745-493X.2011.03253.x

Wezel, A., Goette, J., Lagneaux, E., Passuello, G., Reisman, E., Rodier, C., & Turpin, G. (2018). Agroecology in Europe: Research, Education, Collective Action Networks, and Alternative Food Systems. *Sustainability*, *10*(April), 1–18. https://doi.org/10.3390/su10041214

Wezel, A., Herren, B. G., Kerr, R. B., Barrios, E., Gonçalves, A. L. R., & Sinclair, F. (2020). Agroecological principles and elements and their implications for transitioning to sustainable food systems. A review. *Agronomy for Sustainable Development*, *40*(6). https://doi.org/10.1007/s13593-020-00646-z

Wezel, A., Soboksa, G., McClelland, S., Delespesse, F., & Boissau, A. (2015). The blurred boundaries of ecological, sustainable, and agroecological intensification: a review. *Agronomy for Sustainable Development*, *35*(4), 1283–1295. https://doi.org/10.1007/s13593-015-0333-y

Willer, H., & Lernoud, J. (2016). The World of Organic Agriculture 2016: Statistics and Emerging Trends. In *FIBL & IFOAM - Organics International*. https://doi.org/10.4324/9781849775991

Willer, H., Trávníček, J., Meier, C., Schlatter, B., & (eds). (2021). *The World of Organic Agriculture: Statistics and Emerging Trends 2021*. https://doi.org/10.1108/ijshe.2009.24910aae.004

Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., … Murray, C. J. L. (2019). Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet*, *393*(10170), 447–492. https://doi.org/10.1016/S0140-6736(18)31788-4

Williamson, O. E. (1979). Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics*, *22*, 233–262.

Williamson, O. E. (1985). *The Economic Intstitutions of Capitalism*. Retrieved from https://books.google.com/books?id=MUPVLuiy9uQC&pgis=1

Williamson, O. E. (1991). Comparative Economic Organization: The Analysis of Discrete Structural Alternatives. *Administrative Science Quarterly*, *36*(2), 269–296. https://doi.org/10.2307/2393356

Williamson, O. E. (2002). Contract and economic organization. In Eric Brousseau & J.-M. Glachant (Eds.), *The economics of contracts: Theories and applications* (p. 579). https://doi.org/10.1111/j.1937-5956.2009.01102.x

Wittmayer, J. M., Avelino, F., van Steenbergen, F., & Loorbach, D. (2017). Actor roles in transition: Insights from sociological perspectives. *Environmental Innovation and Societal Transitions*, *24*, 45–56. https://doi.org/10.1016/j.eist.2016.10.003

Wollni, M., & Zeller, M. (2007). Do farmers benefit from participating in specialty markets and cooperatives? The case of coffee marketing in Costa Rica1. *Agricultural Economics*, *37*(2–3), 243–248. https://doi.org/10.1111/j.1574-0862.2007.00270.x

World Bank. (2007). Agriculture for Development. In *World Development Report 2008*. https://doi.org/10.1596/978-0-8213-7233-3

World Bank. (2021). The World Bank in Uruguay. Retrieved December 7, 2021, from https://www.worldbank.org/en/country/uruguay

Wossen, T., Abdoulaye, T., Alene, A., Haile, M. G., Feleke, S., Olanrewaju, A., & Manyong, V. (2017). Impacts of extension access and cooperative membership on technology adoption and household welfare. *Journal of Rural Studies*, *54*, 223–233. https://doi.org/10.1016/j.jrurstud.2017.06.022

Wynne-Jones, S. (2017). Understanding farmer co-operation: Exploring practices of social relatedness and emergent affects. *Journal of Rural Studies*, *53*, 259–268. https://doi.org/10.1016/j.jrurstud.2017.02.012

Wynne-Jones, S., Hyland, J., Williams, P., & Chadwick, D. (2020). Collaboration for Sustainable Intensification: The Underpinning Role of Social Sustainability. *Sociologia Ruralis*, *60*(1), 58–82. https://doi.org/10.1111/soru.12275

Yang, H., Klerkx, L., & Leeuwis, C. (2014). Functions and limitations of farmer cooperatives as innovation intermediaries: Findings from China. *Agricultural Systems*, *127*, 115–125. https://doi.org/10.1016/j.agsy.2014.02.005

Yin, R. K. (2003). *Case study research: Design and methods* (third). California: SAGE Publications.

Young, L. M., & Hobbs, J. E. (2002). Vertical Linkages in Agri-Food Supply Chains: Changing Roles for Producers, Commodity Groups, and Government Policy. *Review of Agricultural Economics*, *24*(2), 428–441. https://doi.org/10.2307/1349770

Zolfagharian, M., Walrave, B., Raven, R., & Romme, A. G. L. (2019). Studying transitions: Past, present, and future. *Research Policy*, *48*(9). https://doi.org/10.1016/j.respol.2019.04.012

APPENDICES

Appendix Tables Chapter 2

Appendix Table 2.1 Overview interviews per actor group

	Conventional		**Organic**		
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**
Producer Organization *(N=16)*	*4 interviews* 2 Members 2 Union representatives	*3 interviews* 1 Member 1 Group interview 1 Technical advisor	*3 interviews* 3 Members	*3 interviews* 3 Members	*3 interviews* 3 Members
Value chain *(N=15)*	*10 interviews* 2 Producers (non-members) 4 Intermediaries 3 Wholesalers 1 Supermarket		*5 interviews* 2 Supermarkets 2 Organic shops 1 Specialized bag system run by consumers		
Institutional environment *(N=19)*	*12 interviews* 3 Government departments 3 Technical advisors 1 Public research institute 3 Cooperative institutes 2 Governing body of wholesale market		*7 interviews* 1 Government department 1 University researcher 2 Agroecology network 2 Agroecology / organic organizations 1 Agroecology consumer organization		
Total (N=50)	**29**		**21**		

Appendix Table 2.2. Overview of topics per actor group

Topics covered per actor group
Producer organizations
PO characteristics Incentives for establishment, number and type of members, type of product, history of PO, formalization status, activities, objectives, internal governance (decision-making structures and mechanisms), member investment, relation among members, willingness to allow new members, horizontal coordination (level and mechanisms, e.g. production coordination, quality requirements and control, pricing and payment, logistics, other), existence of higher tier, geographical scope, strengths and challenges of PO, future plans of PO.
Vertical coordination in value chain Position in value chain, type of buyer, level of coordination (including formalization), mechanisms of coordination (production coordination, quality requirements, control and sanctions for non-compliance, pricing and payment, logistics), additional services of buyer, decision-making structure with buyer, history with buyer (how relationship established), strengths and challenges in relation with buyer, bargaining power, existence alternative market channels for PO, strengths and challenges in market channels.
Institutional environment Extent of collaboration with government, research, extension, organic and agroecology organizations, collaboration with other POs, strengths and challenges of POs in sector.
Value chain actors
Actor characteristics Type of product, activities, objectives. Additional questions for buyers working with POs: Same questions on vertical coordination in value chain (see above), but directed towards relation with PO.
Value chain characteristics Type of product, supply versus demand dynamics, type of transactions in chain, pricing system in chain, bargaining power of producers, strengths and weaknesses of chain, changes in chain over time.
Institutional actors Organizational structure, activities, objectives, financing sources, support to POs, PO landscape, comparison organic versus conventional institutional support (including for POs), collaboration other institutional actors.

Appendix Table 2.3. Explanation of the organizational characteristics

Organizational characteristics	Categories	Classification
Incentives for establishment	Public	Established in response to public incentives, e.g. public support for collective production, marketing, service provision
	Market	Established in response to market incentives, e.g. observed demand for produce, opportunities for collective marketing
Size	Small	Less than 20 members
	Medium	Between 20 and 50 members
	Large	More than 50 members
Product	Vegetables	Members with only vegetables production
	Multiple	Members with vegetables and other production (e.g. dairy)
Member investment	Yes	Members need to make an initial financial investment
	No	Members do not need to make an initial financial investment
Formalization	Low	Informal organization or formal organization with limited rules and regulations
	Medium	Formal organization with some rules and regulations
	High	Formal organization with extensive rules and regulations
Activity	Social	PO with social activities, e.g. social events and services
	Political	PO with political activities, e.g. lobbying for improved support
	Economic	PO with economic activities, e.g. collectively selling produce
Objectives	Output-driven	Organic PO with activities that focus on efficiency
	Value-driven	Organic PO with activities that focus on values
Level of horizontal and vertical coordination	Low	Low level of horizontal coordination and no or limited vertical coordination with buyer in value chain
	Medium	Medium level of horizontal and vertical coordination (e.g. basic production planning, alignment of logistics)
	High	High level of horizontal and vertical coordination (e.g. strict production planning, quality standards, logistics, pricing agreements, additional services)

Appendix Tables Chapter 3

Appendix Table 3.1 Overview of primary and secondary data sources per topic

Data	Dairy *(N = 20)*	Citrus *(N =19)*
Primary		
Supply chain	Producers (2), Processors (6),[1] Small retail (2), Supermarkets (3)	Producers (2), Processors (6) [1], Export agency (1) Wholesalers (3), Small retail (3)
Institutional	National dairy institute (5), Chamber of dairy industries (1), Researcher (1)	Ministry of agriculture (1), Technical advisors (2), Researcher (1)
Secondary		
Public quality standards	Laws, decrees, regulations (23), Shared documents (dairy, citrus) (32)	Laws, decrees, regulations (6)
Private quality standards	Websites: ISO, HACCP, FSSC22000,	Websites, Documents: GlobalGap (3), BRC (2), Tesco Nurture (3), GRASP (2), SMETA (2), OHSAS18000
Contract arrangements export buyers	Websites, documents: Nestlé (6), Unilever (4), FrieslandCampina (3), Danone (1)	Websites, Documents: Walmart (4), Kroger (4), Carrefour (1), Aldi (1)

[1] Triangulated with secondary data from their websites and annual reports.

Appendix Table 3.2. Coding rules for contract arrangement types

	Contract arrangement	Rule
Market ↑	**Spot market exchange**	Instant exchange of products. No commitment exists for future transactions.
	Non-contractual relationship	Exchanges not formalized into a verbal or written contract. Exchanges are often short-term and repeated
	Contractual relationship	Verbal or written contract. Exchanges are repeated (short-medium term), and a written commitment may exist for future transactions.
	Equity-based contract	An actor owns stock (and has the accompanying shareholder voting rights) up to 50% of (one of) its suppliers/buyers. Long-term relationship.
↓ *Hierarchy*	**Vertical integration**	An actor owns more than 50% of the stock (and has the accompanying shareholder voting rights) of (one of) its suppliers/buyers. Long-term relationship.

Source: Authors elaboration based on van der Merwe et al. (2019); and Wever et al. (2010).

Appendix Table 3.3. Overview of public quality standards in dairy and citrus

DAIRY
Sensory*:* Milk quality parameters (fat, proteins) (decree 174/002)
Safety (product): Milk safety parameters: Bacterial count, somatic cell count, mycotoxins, aflatoxins, heavy metals, veterinary residues, growth hormones, and other chemical products (dairy law 18.242, and decrees 174/002, 382/016, 359/013, 98/011, 915/988, 219/989, 215/013, 308/016, 177/004)
Safety (procedures): Safe and hygienic labour practices on: Dairy farms (law 13.130, law 13.389), and in Milk production and processing (specified per dairy product) (decree 174/002); Monitoring drinking water in dairy processors (decree 62/2002); Traceability (decree 174/002)
Animal welfare*:* Physical and sanitary norms; Food and shelter; Medical treatments (laws 18.471, 18.242)
Control: Health and hygienic control of dairy processors (decree 174/002); Lab control of residues in urine, dairy products (decrees 359/013, 576/009); Auto-control and producer register by dairy processors (368/2000, 65/2003); Accreditation of processors, and export sanitary certificates (decree 174/002, 159/013); Establishments of Ministry of agriculture as sanctioning power and controller (law 16.376, 18.242, decree 368/00); Milk quality system (decrees 359/013, 382/016, 90/995); Biological residues plan (decree 363/003); National dairy institute (law 18.242, decree 393/008); Veterinary medication register (resolution 193A/2015)
CITRUS
Safety (product): Register of agrochemical products, handled by Ministry of agriculture (law 13.663)
Safety (procedures): Occupational health and safety of: Producers and labourers (decree 3321/009), and in Production and harvesting operations (decree 312/009)
Control: Pest control programs for citrus cancer (decree 535/003); Financial support to prevent and control citrus pests and diseases (law 16.332); National residues monitoring plan (decree 009/012)
DAIRY + CITRUS
Safety (product): Microbiological, chemical, and physical properties/composition of food ingredients; MRL for: Inorganic contaminants and biological residues for all food ingredients (e.g. for dairy: mycotoxins, aflatoxins, heavy metals) (decree 315/994)
Safety (procedures): Standards for safe and hygienic production, conservation, packaging, distribution (general, and specified for dairy processing) (decrees 315/994); Safety and health of workers and working environment (decrees 291/007, 127/014, 307/09); Prevention of labour accidents (law 5.032, decree 460/88); Protective clothing and equipment (decree 103/996); Exposure to chemical and physical risks (law 17.775, decree 307/009); Safety for: Rural workers (law 14.785, decree 321/009) and processors (decree 406/099); Labour inspection (law 14.489); Work authorizations (law 15.903)
Social, labour rights: Working hours (rural workers: law 18.441); Company staff: (law 5.350); Salary (law 10.449), Health insurance (law 14.407); Work accidents (law 16.426); Unemployment (law 18.399); Dismissal (law 10.489); Maternity-paternity (law 19.161); Sexual harassment (law 18.561); Conflict resolution (law 18.572)
Environmental: Agrochemicals residue management (decree 152/013); Industrial solid waste (decree 182/013); Industrial packaging residues (law 17/849); Industrial effluent norms and water quality parameters (decree 253/79); Agricultural water use (law 16.858); Protected areas (law 17.234); Water protection (law 14.859); Soil and water conservation (law 15.239); Environmental impact law (law 16.466); Environmental law (law 17.283)

Appendix Table 3.4 Overview of private quality standards in dairy and citrus

Sector (adoption)	**Requirements**
DAIRY	
ISO 22000 (100%)	**Safety (procedures):** Guidelines for a Safety management system, focusing on prevention of food safety hazards, and implementing HACCP
ISO 14001 (50%)	**Environmental***:* Framework for an Environmental management system
ISO 50001 (50%)	**Environmental***:* Framework for an Energy management system
FSSC 22000 (50%)	**Sensory, safety (procedures):** Guidelines for a Generic food safety and quality management system
ISO 18001 (25%)	**Social***:* Framework to establish an occupational health and safety system
ISO 17025 (25%)	**Safety (procedures):** Guidelines for high quality and safe operations in lab testing
CITRUS	
GlobalGap (100%)	**Safety (procedures):** Agrochemical product handling; Hygiene protocols; Assessments on food safety, fraud, and defence; Traceability and recall; Record keeping of farm activities; Management of varieties, sites, soil, agrochemicals, irrigation, and harvesting; Worker health, safety and welfare; Staff training **Social:** Workers rights; Working conditions; Complaints handling **Environmental:** Management of pests, irrigation, waste, pollution, energy efficiency, and water collection; Conservation of soil, water, biodiversity, and wildlife
BRC (67%)	**Safety (procedures):** Implementation of HACCP, and Management systems for food safety, quality, packaging, and traceability; Hygienic product and process control; Site standards; Staff training
Tesco Nurture (50%)	**Safety (procedures):** Producers to have: Agrochemical list; Spray records; Residue monitoring system (conduct lab residue analysis on MRL); Safe agrochemical procedures
GRASP (50%)	**Social:** Implement social risk assessment system on: Employee representation; Complaint procedures; Good social practices on human rights; Documentation on contracts; Working hours; Pay slips; Wages; Records of no child labour
SMETA (50%)	**Social:** Implement ethical and social management system on: Freely chosen employment; Freedom of association; Health and safety; Child labour; Wages and benefits; Working hours; Discrimination; Human rights
OHSAS 18000 (17%)	**Safety (procedures):** Occupational health and safety management system; Guidance to design occupational health and safety system
DAIRY + CITRUS	
HACCP (100% dairy and citrus)	**Safety (procedures):** Hazard analysis; Determining critical control points; Establishing critical limits; Implementing procedures for monitoring, corrective actions, verification, and record-keeping
ISO 9001 (75% dairy, 34% citrus)	**Sensory, safety (procedures):** Guidelines for a Quality management system: Continuous quality improvement; Customers; Good manufacturing practices
FSSC 22000 (50% dairy, 17% citrus)	**Sensory, safety (procedures):** Guidelines for a Generic food safety and quality management system

Appendix Tables Chapter 4

Appendix Table 4.1. Data sources in the first step of data collection

Topic	Primary interviews *(N=6)*	Secondary data
Producer organizations	Union of Rural support organizations (1) Union of Agricultural cooperatives (1) Agroecology network (1) PO advisor (1)	Latest cooperative census data (INE, 2009) Cooperative sector report (FIDA and CCU, 2014)
Food system	Public research institute (1) University researcher (1)	Conventional (Ackermann, 2014; Aldabe and Dogliotti, 2014) Organic (Dogliotti et al., 2014; Santos and Perazzoli, 2015)

Appendix Table 4.2. Organizational characteristics of POs in conventional, organic

Organizational characteristics	POs in organic system				
	1. Rural support association	**2. Marketing cooperative with institutional contract**	**3. Informal producer group with direct sales**	**4. Marketing cooperative with own shop**	**5. Marketing cooperative with supermarket contract**
Size (N)	Large (30-100)	Small (10-20)	Small (6-15)	Small (5-12)	Small (8-9)
Formalization	Semi-formal	Formal	Informal	Formal	Formal
Member type	Various	Vegetables	Various	Vegetables	Vegetables
Member investment	No	Yes	No	Yes	Yes
Internal coordination	Low	High	Medium	High	High

Appendix Table 4.3. Topic list of interviews

Interview topics	Producer organizations	Food system actors
Activities of POs	Activities of POs Objectives in activities Target group in activities (PO members / other actors from current system / producers from other system / other actors from other system) Sustainability component in activities	Support activities to POs (to which POs, in which system) Objectives behind activities
Organizational characteristics	General characteristics (reason for establishment, size, formality, type members, member investment, year establishment) Sustainability objectives and values Internal challenges in executing activities	Perceived internal challenges POs in executing activities
Food system relations	Relation with food system actors (which actors, type of relation, type of support)	Relations with POs Relation with other actors General institutional support to system transitions

Appendix Table 4.4 Coding rules for data analysis and conceptualization

Theoretical framework	Recoding interview topics
Sustainability support (4.2.1)	**Target group in activities; Sustainability component in activities - Table 13**
Producers' needs (4.2.1)	**PO activities - Table 14**
Production	Support production practices; Create production inputs; Exchange production knowledge; Exchange tools and machinery
Value chain	Create output market access; Exchange knowledge about commercialization
Institutional support	Participate in lobby activities; Participate in certification activities; Participate in research and extension activities
Intermediary roles (4.2.2)	**PO activities - Table 12**
Market access	Create input (e.g. produce organic seedlings or pest control inputs) or output market access (e.g. collective commercialization of produce)
Production support	Support production practices (e.g. provide information, training, extension on more sustainable production practices; share machinery and equipment)
Lobby for policies	Establish, promote, or improve current or new policies, regulations, support instruments (e.g. lobby for more sustainable legislation)
Community development	Support non-producers in the food system (e.g. participate in educational activities for schools, attend research seminars and workshops, provide welfare services in the community)
Transition intermediaries (4.2.3)	**Interview topics – Table 15**
Level of action	Relations of POs with food systems actors; Target group in activities
Emergence	Objectives in activities; Reason for establishment
Goal of intermediation	Sustainability objectives; Internal challenges in executing activities
Normative position	Values; Relations of POs with food system actors

ENGLISH SUMMARY

Opening up food system transitions

Agri-food systems are under unprecedented pressures of complex and interlinked challenges, such as climate change, population growth, food and nutrition insecurity, and social inequalities. Academics, policymakers, and practitioners call for food systems to produce more healthy and nutritious food, and become more environmentally sustainable, inclusive and resilient. Food systems consist of actors and activities related to the production, processing, distribution, preparation and consumption of food, including markets and institutional networks, and the socio-economic and environmental outcomes of these activities. Food system frameworks have become popular in the study of relations between external food system drivers, internal food system components and desired outcomes, as to generate better insights for achieving food systems change.

Research on system transitions, through the lens of the multi-level perspective, conceptualizes transitions to occur through radical changes in emerging niches, or through more incremental changes in existing regimes – impacted by external drivers from the landscape. Although food system transitions are considered multi-actor processes in which diverse types of actors need to collaborate and coordinate across various parts of the system, the multi-level perspective has been widely criticized for a poor conceptualization and representation of actors. A growing number of studies therefore started to analyse the contributions of different actors, such as businesses, grassroots initiatives, and intermediaries. Different scholars address the need to further improve the conceptualization of actors in transitions – for instance by combining transition research with organizational theories.

Aim and research question

The aim of this thesis is to open up food system transitions by generating insights on actors from an organizational perspective. The underlying rationale is that an organizational perspective allows to go beyond narrow views on actors and improves understanding the diversity and complexity of actors in transitions. The main research question of this thesis is: *How do actors (re)arrange their organization, activities and relations in food systems that undergo transitions?*

The theoretical aim is to bridge transition research (notably the multi-level perspective) with economic and sociological organizational theories, in particular transaction cost economics and alternative food networks. Moreover, this thesis aims to generate policy and practitioner recommendations for supporting different actors in transitions. To answer the research question, qualitative empirical data has been collected on producer organizations and value chain actors in three commodity

food systems in Uruguay that are experiencing different transitions. Focusing on the need to better understand and conceptualize actors in transitions from an organizational perspective, this thesis aims to address the following four knowledge gaps.

First, actors in transitions are often studied from a singular actor perspective. However, actors in transitions may be more complex and diverse and not fit within simple categorizations. This gap is addressed by studying producer organizations from business and grassroots perspectives, as well as by exploring their transition intermediary potential. Second, most transition studies do not address interactions and interdependencies among multiple actors. This gap is tackled by studying the coordination of multiple value chain actors through their organizational arrangements, as well as the coordination of producer organizations with value chain and institutional actors. Third, actors are mostly studied for undertaking radical changes in niche transitions. However, what is less studied are incremental changes adopted by regime actors, and how niche and regime actors mutually influence each other. Fourth, actors are mostly studied in transitions that focus on environmental sustainability, often ignoring other type transitions that lead to different transition outcomes, such as food and nutrition security. The third and fourth gap are addressed by exploring incremental safety, quality and sustainability improvements in regimes, and by studying environmental sustainability changes through niche-regime interactions.

Findings

The main research question is answered by the following three research questions:

Research question 1: To what extent do producer organizations have different organizational characteristics across niche and regime food systems?

While scientists and policymakers consider producer organizations as key actors in food systems, the organizations are often treated as a black box. Neglecting organizational diversity among producer organizations hampers insights into how and under what conditions producer organizations can contribute to food system transitions. In Chapter 2, ten cases of producer organizations are studied in a vegetable food system with a conventional regime and an organic niche. Producer organizations are classified into five types, and each type is compared on eight organizational characteristics. Theories of transaction cost economics and alternative food networks are used to explain findings and to formulate three propositions. Findings show that niche and regime producer organizations in the vegetable food system have both differences and commonalities in their organizational characteristics. A major difference across niche and regime producer organizations is how the value chain and wider food system context affects their

origin – with niche producer organizations emerging in response to market incentives and regime producer organizations to public incentives. Commonalities across niche and regime producer organizations are found when they perform the same main activity. Producer organizations with economic activities (such as commercialization) are small in number of members, specialize in vegetables, require member investment, and have a high formalization status compared to producer organizations with socio-political activities (such as lobbying for favourable policies, channelling public support). The latter producer organizations are larger, focus on multiple products, have a low formalization status, and do not require member investment. Finally, niche producer organizations show organizational diversity in how sustainability objectives (from output-driven to value-driven) are coupled with different degrees of coordination in commercialization. These findings open the black box of producer organizations by showing the diversity of their organization, their activities and their relations with other actors within and across a niche and regime food system.

Research question 2: How are transitions in regime food systems coordinated among multiple value chain actors?

Although value chains are considered an important component of food systems, the coordination among multiple value chain actors in regime transitions is not often studied. Chapter 3 studies how value chain actors respond to incremental safety, quality and sustainability changes in regimes by simultaneously adopting multiple quality standards and adjusting their organizational arrangements with other value chain actors. Using transaction cost economics, three groups of value chain actors are studied (producers, processors, retailers) in three value chains in dairy and citrus regime systems. The answer to this research question is that quality standards affect organizational arrangements of value chain actors in different ways, depending on the type of value chain and the position of the actor (up- or downstream) in the value chain. For the coordination between producers and processors upstream the value chain, quality standards are found to complement organizational arrangements – with additional requirements in hybrid or hierarchy type arrangements to assure actor compliance and coordinate additional retailer-specific requirements in the value chain. For the coordination between processors and retailers downstream the value chain, quality standards are found to (partially) substitute the need for high coordination through organizational arrangements. The substitution effect is strongest for arrangements between processors and retailers in the traditional domestic value chain (small shops), followed by the domestic modern value chain (supermarkets), and the export chain (global retailers). The findings contribute insights into how incremental food system transitions in regimes involve combinations of coordination through quality standards and tailored organizational arrangements among multiple actors in value chains.

Research question 3: To what extent can producer organizations operate as transition intermediary in niche and regime food systems?

Transition intermediaries are acknowledged as key facilitators of transitions, however little is known about the potential of producer organizations as specific transition intermediary. Chapter 4 explores the potential of producer organizations to function as transition intermediary by studying ten cases of producer organizations in a vegetable system consisting of a conventional regime and an organic niche. Theoretical perspectives from transition research (the multi-level perspective and transition intermediaries) are combined with transaction cost economics and alternative food networks. Findings show how the activities of producer organizations, which can be conceptualized as classic intermediary roles in food systems, also address the needs of producers in their transition to sustainable food systems within and across niche and regime. For instance, producer organizations engage in projects with sustainability experiments, they share knowledge about sustainability practices, and they sell organic inputs, or create organic value chains. Producer organizations refrain from taking a strong normative position in supporting producers within and across niche and regimes, and benefit from embeddedness in rural networks and high legitimacy among producers. Given that they are not mandated, funded, or established as transition intermediary, producer organizations seem to function implicitly as such. However, different organizational characteristics may hamper their potential to fulfil more explicit, particularly systemic, transition intermediary roles. Such systemic intermediation could conflict with current organizational characteristics, for instance the optimal size of the organization. It could also lead to internal tensions arising from the need to formulate a shared sustainability vision, and could conflict with the time, interests, and skills of the members. The findings provide insights into potential roles and characteristics of producer organizations to fulfil implicit and more explicit transition intermediation functions for incremental and radical changes in niche and regime food systems.

Conclusions and contributions

To answer the main research question, this thesis has shown the diversity in the way in which food system actors (re)arrange their organization, activities and relations to respond and contribute to different transitions within and across niche and regime food systems. The thesis has shown what transitions imply for actors, internally within their organization, but also externally in coordinating with other actors in the value chain and the institutional environment.

By improving the understanding and conceptualizing of actors in transitions through taking an organizational perspective, three contributions are made to the literature. Each contribution focuses on a different level of abstraction – starting with transition

research, followed by organizational theory, and ending with actor perspectives. What the contributions have in common is the need to go beyond simple binary viewpoints in gaining a better understanding of real-life complexity of actors in transitions.

First, this thesis contributes to transition research and the multi-level perspective by showing the need for more nuance in studying niches and regimes and by including mutual niche-regime linkages. The two chapters on producer organizations demonstrate that niche and regime producer organizations overlap in certain organizational characteristics. In addition, actors within regimes and niches show considerable organizational diversity, thus they cannot be treated as a homogenous group of actors. Furthermore, niche and regime producer organizations make use of similar public support structures, and support each other in facilitating transitions across niche and regime. Rather than conceptualizing transitions as occurring in static and binary spheres, more dynamic interactions of niches and regimes need to be captured as to fully understand the complexity of transitions.

Second, this thesis contributes insights from combining economic and sociological organizational theories to improve the conceptualization of actors in transitions. This thesis shows that transaction cost economics is useful to study economic coordination of actors. Transaction cost economics provides explanations for differences in economic coordination across producer organizations, and among multiple value chain actors in regime and niche food systems. What transaction cost economics can contribute to transition research and the multi-level perspective is its ability to specify how incremental and radical changes in regimes and niches affect transaction characteristics, which alter organizational structures for multiple actor coordination. This thesis also shows that the theory of alternative food networks is useful to understand multi-dimensional organization of actors in food system transitions. For instance, the theory is used to understand organizational differences among niche producer organizations resulting from different sustainability objectives, and to study multiple interactions of niche and regime producer organizations. This thesis also aims to contribute by arguing the need to go beyond economy-sociology binary viewpoints to understand the complexity and diversity of certain actors in food system transitions, such as producer organizations. Only the combination of organizational theories allows to study both the broad range of organizational characteristics and the multiple roles of producer organizations in food systems in transition.

Third, this thesis contributes to the conceptualization of different actors in food system transitions. This thesis adds insights to the conceptualization of business actors in transitions by showing their interdependencies and thus the need for coordination through organizational arrangements in value chains. In addition, the thesis yields insights into the conceptualization of producer organizations as (potential) transition intermediaries, which contributes to both literature on producer organizations and vastly expanding field on transition intermediaries.

As a final contribution, this thesis shows that the diversity and complexity of producer organizations can only be understood when they are conceptualized as configurations of business and grassroots actors.

Recommendations and ways forward

This thesis provides the following recommendations for policymakers and practitioners on how actors in transitions may best be supported.

Producer organizations are recommended to acknowledge their potential to fulfil various roles in food system transitions and make their contributions more explicit. In addition, producer organizations are recommended to start dialogues externally with government and other actors, and internally among members to create a shared vision about the roles to play in transitions. Both managers and members are encouraged to seek external training and advice as to gain the proper knowledge and skills to fulfil different roles in transitions.

Value chain actors are encouraged to optimize their coordination in organizational arrangements, in which particularly foreign retailers may harmonize their specific requirements with current quality standards. Value chain actors are recommended to design their bilateral organizational arrangements by taking interdependencies among all value chain actors into account. Particularly processors may provide additional coordination to upstream producers, for instance to communicate retailer-specific requirements, establish proper incentives to make necessary investments, and provide capacity support to enable compliance.

Finally, policymakers are recommended to promote a broad landscape of different types of producer organizations that fulfil distinct but complementary roles within and across niche and regime food systems – for instance by implementing different public regulations, and establishing financial, technical, and capacity development support. Second, policymakers are recommended to provide tailored support to value chain actors as to facilitate supply to domestic and global value chains with differentiated safety, quality and sustainability requirements – for instance by supporting different domestic value chains and promoting successful supply to global value chains.

This thesis has shown how different actors (re)arrange their internal organization, activities and relations to respond and contribute to food system transitions. Actors have proven to be both responsive and active contributors to different transitions in different food systems. This thesis has highlighted the need to look beyond binary viewpoints when improving our understanding of how to study and support actors in food system transitions. The findings aim to inspire future researchers, policymakers, and practitioners to continue improving our food systems and to achieve desired transition outcomes.

NEDERLANDSE SAMENVATTING

Voedselsystemen in transitie

Mondiale voedselsystemen staan onder ongekende druk van complexe en onderling samenhangende uitdagingen, zoals klimaatverandering, bevolkingsgroei, voedselonzekerheid, en sociale ongelijkheid. Academici, beleidsmakers, en mensen uit de praktijk willen dat voedselsystemen duurzamer, inclusiever en veerkrachtiger worden, en dat ze gezonder voedsel produceren. Voedselsystemen bestaan uit actoren en hun activiteiten die zorgen voor de productie, verwerking, distributie, verkoop en consumptie van voedsel, alsmede de sociaaleconomische en ecologische gevolgen van deze activiteiten en de markten en institutionele omgeving waarin zij actief zijn. Een voedselsysteemperspectief geeft de relaties aan tussen externe factoren die het systeem beïnvloeden, interne componenten in het voedselsysteem, en de gewenste uitkomsten van het voedselsysteem. Dit systeemdenken helpt om betere inzichten te genereren voor het realiseren van transities in voedselsystemen.

Onderzoek naar systeemtransities, door de lens van het multi-level perspectief, conceptualiseert dat transities plaatsvinden door radicale veranderingen in opkomende niches (zoals biologische voedselsystemen), of door geleidelijke veranderingen in bestaande regimes (zoals verbeteringen in voedselveiligheid, voedselkwaliteit of duurzaamheid in conventionele voedselsystemen). Om transities te bewerkstellingen moeten diverse soorten actoren in verschillende componenten van het systeem samenwerken. Echter, onderzoek naar systeemtransities is alom bekritiseerd vanwege een slechte conceptualisering en vertegenwoordiging van actoren. Verschillende wetenschappers benadrukken de noodzaak om de bijdragen van actoren in transities beter te begrijpen – bijvoorbeeld door transities vanuit een organisatorisch perspectief te bestuderen.

Probleemstelling

Het doel van dit proefschrift is om meer inzicht te krijgen in de bijdrages van verschillende actoren aan transities in voedselsystemen. Door verschillende actoren vanuit een organisatorisch perspectief te bestuderen krijgen we beter inzicht in de diversiteit en complexiteit van actoren in transities. De hoofdvraag van dit proefschrift luidt:

Hoe (her)positioneren actoren hun organisatie, activiteiten en relaties in transities in voedselsystemen?

Het theoretische doel is om een brug te slaan tussen transitie-onderzoek (het multi-level perspectief) en economische en sociologische organisatietheorieën (in het bijzonder transactiekostentheorie en de theorie van alternatieve voedselnetwerken).

Bovendien genereert dit proefschrift aanbevelingen voor beleidsmakers en mensen in de praktijk hoe verschillende actoren in transities het best ondersteund kunnen worden. Om de onderzoeksvraag te beantwoorden zijn er interviews uitgevoerd met producentenorganisaties en ketenactoren die actief zijn in groente, zuivel, en citrusfruit systemen in Uruguay. Deze drie voedselsystemen ondergaan verschillende transities, zoals meer radicale duurzaamheidsveranderingen in niche systemen, of geleidelijke voedselveiligheid, voedselkwaliteit en duurzaamheids-veranderingen in regime systemen.

Dit proefschrift richt zich op de volgende vier specifieke onderzoeksproblemen.

Ten eerste, actoren in transities worden vaak bestudeerd vanuit het perspectief van één enkele actor. Actoren in transities kunnen echter meer complex en divers zijn en niet passen binnen een eenvoudige categorisering. Dit proefschrift bestudeert daarom producentenorganisaties in transities vanuit verschillende actor perspectieven, zoals hun organisatorische kenmerken en activiteiten als commercieel bedrijf, als zelforganiserend sociaal initiatief, en als intermediair. Ten tweede wordt in de meeste transitiestudies geen aandacht besteed aan de interacties tussen meerdere actoren. Als gevolg bestudeert dit proefschrift de coördinatie tussen meerdere ketenactoren in de waardeketen (boeren, verwerkers, retail), evenals de coördinatie tussen producentenorganisaties, ketenactoren en institutionele actoren (zoals de overheid).

Ten derde, actoren worden meestal bestudeerd als onderdeel van transities waarbij radicale niches (bijvoorbeeld biologische landbouw) bestaande regimes (zoals conventionele landbouw) beïnvloeden. Wat minder wordt bestudeerd zijn de geleidelijke veranderingen die door regime-actoren worden doorgevoerd (zoals minder pesticide gebruik in de conventionele landbouw), en de wijze waarop regime-actoren niches beïnvloeden. Ten vierde worden actoren meestal bestudeerd in transities die zich richten op duurzaamheid. Andere soorten transities worden minder bestudeerd, zoals transities die zich richten op voedselzekerheid. Om het derde en vierde onderzoeksprobleem aan te pakken, kijkt dit proefschrift naar actoren in voedselsystemen die verschillende transities ondergaan, zoals geleidelijke verbeteringen in voedselveiligheid, -kwaliteit en duurzaamheid in regime systemen, en radicale duurzaamheidsveranderingen in niche systemen. Er wordt gekeken naar hoe regime en niche actoren wederzijdse transities beïnvloeden.

Bevindingen

De hoofdvraag in dit proefschrift wordt beantwoord door de volgende drie onderzoeksvragen. Per onderzoeksvraag worden de belangrijkste bevindingen besproken.

Onderzoeksvraag 1: In welke mate hebben producentenorganisaties in niche en regime voedselsystemen verschillende organisatorische kenmerken?

Hoewel wetenschappers en beleidsmakers producentenorganisaties beschouwen als belangrijke actoren in voedselsystemen, wordt er niet vaak naar de organisatorische kenmerken van deze organisaties gekeken. Het gebrek aan inzicht in de diversiteit van producentenorganisaties belemmert inzicht in hoe en onder welke voorwaarden producentenorganisaties kunnen bijdragen aan transities in voedselsystemen. In hoofdstuk 2 zijn tien producentenorganisaties bestudeerd in een groentesysteem bestaande uit een conventioneel regime en een biologische niche. De tien producentenorganisaties zijn geclassificeerd in vijf types, en elk type is vergeleken op acht organisatorische kenmerken. Transactiekostentheorie en de theorie van alternatieve voedselnetwerken is gebruikt om de bevindingen te verklaren en drie proposities te formuleren. De bevindingen laten zien dat producentenorganisaties in niche en regime voedselsystemen zowel verschillen als overeenkomsten hebben in hun organisatorische kenmerken. Een belangrijk verschil is de invloed van de institutionele omgeving op de reden van hun ontstaan. Producentenorganisaties in niches zijn ontstaan vanuit stimulansen van de markt en producentenorganisaties in regimes vanuit stimulansen van de overheid. Producentenorganisaties in niche en regime hebben ook gemeenschappelijke organisatorische kenmerken indien zij dezelfde kernactiviteit uitvoeren. Producentenorganisaties met economische activiteiten (zoals gemeenschappelijke vermarkting in de waardeketen) hebben een klein aantal leden, zijn gespecialiseerd in groente, vereisen investeringen van de leden, en hebben een hoge mate van formalisering vergeleken met producentenorganisaties met sociaal-politieke activiteiten (zoals lobbyen, overdragen van overheidssteun). De laatstgenoemde producentenorganisaties hebben meer leden, richten zich op meerdere producten, vereisen geen investeringen van de leden, en hebben een lage mate van formalisering. Ten slotte is er organisatorische diversiteit onder producentenorganisaties in de niche. De producentenorganisaties variëren in de manier waarop zij verschillende duurzaamheidsdoelstellingen (van efficiëntie-gedreven tot waarde-gedreven) koppelen aan een andere mate van coördinatie in de waardeketen – zowel intern in de organisatie als in hun coördinatie met kopers. De bevindingen laten de diversiteit van producentenorganisaties zien in hun organisatie, hun activiteiten en hun relaties met andere actoren in transities in niche en regime voedselsystemen.

Onderzoeksvraag 2: Hoe worden transities in regime voedselsystemen gecoördineerd tussen meerdere actoren in de waardeketen?

Hoewel waardeketens worden beschouwd als een belangrijke component van voedselsystemen, wordt de coördinatie tussen meerdere ketenactoren in regime transities niet vaak bestudeerd. Het doel van hoofdstuk 3 is om te bestuderen hoe

geleidelijke veranderingen in voedselveiligheid, -kwaliteit, en duurzaamheid (in de vorm van kwaliteitsstandaarden zoals GlobalGap) in regime voedselsystemen leiden tot verschillende organisatievormen tussen meerdere ketenactoren. Transactiekostentheorie is gebruikt voor het bestuderen van organisatievormen die variëren in mate van coördinatie, zoals lage mate van coördinatie (bijvoorbeeld via de externe markt of verbale afspraken), hoge mate van coördinatie (bijvoorbeeld via verticaal geïntegreerde bedrijven) of coördinatie in hybride vormen (bijvoorbeeld via formele contracten). Drie groepen ketenactoren zijn bestudeerd (producenten, verwerkers, retail) in drie waardeketens (landelijke traditionele ketens, landelijke moderne ketens, mondiale exportketens) in de zuivel- en citrusfruit systemen. De bevindingen laten zien dat de adoptie van kwaliteitsstandaarden de coördinatie van ketenactoren op verschillende manieren beïnvloeden, afhankelijk van het type waardeketen en de positie van de actor (boven of onder) in de waardeketen. Voor de coördinatie tussen producenten en verwerkers boven in de waardeketen blijken kwaliteitsstandaarden alleen onvoldoende. Producenten en verwerkers moeten voldoen aan aanvullende eisen van retailers in exportketens, en implementeren daarom diverse motivatie- en controlemechanismen om aan alle eisen (van zowel kwaliteitsstandaarden als extra eisen van retailers) te voldoen. De onderlinge coördinatie tussen producenten en verwerkers is daarom hoog, gekenmerkt door hybride of hiërarchische organisatievormen (zoals contracten of verticale integratie). De coördinatie tussen verwerkers en retail onder in de waardeketen is minder hoog, waarbij kwaliteitsstandaarden de noodzaak tot onderlinge coördinatie (gedeeltelijk) vervangen. Dit is met name het geval voor traditionele binnenlandse ketens (kleine winkels en markten), gevolgd door de binnenlandse moderne ketens (supermarkten). In de exportketen is deels aanvullende coördinatie nodig, met name in contracten tussen verwerkers en retailers. Daarnaast blijken alle ketenactoren afhankelijk van elkaar om succesvol bij te dragen aan geleidelijke veranderingen in transities. De bevindingen dragen bij tot inzichten in hoe transities in regime voedselsystemen plaatsvinden door combinaties van coördinatie via kwaliteitsstandaarden en organisatievormen tussen meerdere ketenactoren.

Onderzoeksvraag 3: In hoeverre kunnen producentenorganisaties optreden als intermediair in transities van niche en regime voedselsystemen?

Intermediairs worden erkend als belangrijke actoren in het bevorderen van transities, bijvoorbeeld door te experimenteren met meer duurzame producten, het uitwisselen van kennis, of het bouwen van netwerken. Omdat er weinig bekend is over producentenorganisaties als intermediair in transities, verkent hoofdstuk 4 het potentieel van producentenorganisaties als intermediair in transities in voedselsystemen. Tien producentenorganisaties zijn bestudeerd in een groentesysteem met een conventioneel regime en een biologische niche. Theoretische perspectieven uit transitie-onderzoek (het multi-level perspectief en conceptualiseringen van intermediairs) zijn gecombineerd met

transactiekostentheorie en de theorie van alternatieve voedselnetwerken. De bevindingen laten zien dat de verschillende activiteiten van producentenorganisaties tegemoet komen aan de behoeften van producenten in niche en regime en hun transitie naar meer duurzame voedselsystemen. Producentenorganisaties nemen bijvoorbeeld deel aan projecten met duurzaamheidsexperimenten, zij delen kennis over duurzame productiemethoden, en zij produceren en verkopen biologisch plantgoed, of creëren van biologische waardeketens. Producentenorganisaties onthouden zich van het innemen van een sterke normatieve positie bij het ondersteunen van zowel conventionele regime als biologische niche producenten, en worden gekenmerkt door een sterke vertegenwoordiging in landelijke netwerken, en een hoge legitimiteit onder producenten. Aangezien producentenorganisaties niet worden gefinancierd of opgericht om te functioneren als intermediair, lijken ze vooral te functioneren als impliciete intermediairs in transities. Verschillende organisatorische kenmerken kunnen een belemmering vormen voor hun mogelijkheden om te opereren als meer expliciete, systemische intermediair in transities. Een dergelijke systemische positie lijkt in strijd met hun huidige organisatorische kenmerken (zoals de optimale omvang van de organisatie), leidt tot interne spanningen die voortkomen uit de noodzaak om een gedeelde duurzaamheidsvisie te formuleren, en lijkt te conflicteren met de tijd, interesses, en vaardigheden van de leden. De bevindingen bieden inzicht in de mogelijke rollen en kenmerken van producentenorganisaties om impliciete en meer expliciete intermediaire rollen te vervullen voor radicale en geleidelijke transities in niche en regime voedselsystemen.

Conclusies en wetenschappelijke bijdrages

Dit proefschrift heeft diversiteit laten zien in de manier waarop actoren in voedselsystemen hun organisatie, activiteiten en relaties (her)positioneren om te reageren op en bij te dragen aan verschillende transities in voedselsystemen. Dit proefschrift heeft laten zien wat transities betekenen voor actoren, intern binnen hun organisatie, maar ook extern in de afstemming met andere actoren in de waardeketen en de institutionele omgeving.

Door het toepassen van een organisatorisch perspectief op de studie van verschillende actoren in transities in voedselsystemen worden drie bijdragen geleverd aan de literatuur. Elke van de volgende drie bijdragen richt zich op een ander abstractieniveau – beginnend met transitie-onderzoek, gevolgd door organisatietheorie, en eindigend met actorperspectieven. Wat de bijdragen gemeen hebben is dat, om de complexiteit en diversiteit van verschillende actoren in transities te begrijpen, er verder moet worden gekeken dan naar simpele binaire standpunten.

Ten eerste draagt dit proefschrift bij aan transitie-onderzoek (met name het multi-level perspectief) door te laten zien dat er meer nuance nodig is voor het bestuderen van transities in niches en regimes. Transitie-onderzoek kan beter kijken naar wederzijdse interacties tussen niche en regime actoren. De hoofdstukken over producentenorganisaties hebben laten zien dat producentenorganisaties in niche en regime voedselsystemen bepaalde gemeenschappelijke organisatorische kenmerken hebben. Bovendien hebben actoren binnen regimes en binnen niches een aanzienlijke organisatorische diversiteit laten zien, waardoor zij niet als een homogene groep actoren kunnen worden beschouwd. Daarnaast maken producentenorganisaties in niches en regimes gebruik van dezelfde publieke steun, en ondersteunen zij elkaar bij het faciliteren van transities tussen niche en regime. Kortom, in plaats van transities te bestuderen in binaire concepten van niche versus regime, is er meer aandacht nodig voor de dynamische interacties tussen actoren in niches en regimes om de complexiteit van transities beter te begrijpen.

Ten tweede draagt dit proefschrift bij aan een betere conceptualisering van actoren in transities door het toepassen van economische en sociologische organisatietheorieën. Dit proefschrift heeft aangetoond dat transactiekostentheorie nuttig is om de economische coördinatie van actoren in transities te begrijpen. Transactiekostentheorie is gebruikt om verschillen in economische coördinatie te verklaren onder zowel producentenorganisaties, alsmede tussen meerdere actoren in de waardeketen. Wat transactiekostentheorie kan bijdragen aan transitie-onderzoek is het vermogen om te specificeren hoe incrementele en radicale veranderingen in regimes en niches transactiekenmerken beïnvloeden, waardoor organisatievormen veranderen. Daarnaast heeft dit proefschrift laten zien dat de theorie van alternatieve voedselnetwerken nuttig is om de multidimensionale organisatie van actoren in transities te begrijpen. Deze theorie is gebruikt voor het begrijpen van organisatorische verschillen van producentenorganisaties in niches als gevolg van verschillende duurzaamheidsdoelstellingen, of voor het bestuderen van interacties tussen producentenorganisaties in niches en regimes. Dit proefschrift heeft ook laten zien dat zowel economische als sociologische organisatietheorieën nodig zijn om de complexiteit en diversiteit van bepaalde actoren, zoals producentenorganisaties, in transities in voedselsystemen beter te begrijpen.

Ten derde draagt dit proefschrift bij aan de conceptualisering van verschillende actoren in transities in voedselsystemen. Dit proefschrift voegt inzichten toe aan de conceptualisering van actoren als bedrijven in transities door hun onderlinge afhankelijkheid en coördinatie in waardeketens te laten zien. Daarnaast levert dit proefschrift inzichten op in de conceptualisering van producentenorganisaties als (potentiële) intermediairs in transities, wat bijdraagt aan zowel de literatuur over producentenorganisaties, alsmede die van transitie-intermediairs.

Aanbevelingen voor beleid en praktijk

Dit proefschrift leidt tot de volgende aanbevelingen voor beleid en praktijk over hoe actoren in transities het beste ondersteund kunnen worden.

Producentenorganisaties wordt aanbevolen hun potentieel te erkennen en hun bijdragen explicieter te maken voor het vervullen van verschillende rollen in transities van voedselsystemen. Bovendien is het aanbevolen voor producentenorganisaties om een externe dialoog aan te gaan met de overheid en andere actoren, en een interne dialoog onder de leden, om een gedeelde visie te creëren over de rollen die zij kunnen spelen in transities. Zowel managers als leden worden aangemoedigd extern advies en scholing te zoeken om de juiste kennis en vaardigheden te verwerven voor het vervullen van verschillende rollen in transities.

Actoren in de waardeketen worden aangemoedigd hun onderlinge coördinatie in organisatievormen te optimaliseren, waarbij met name retailers in exportketens hun specifieke eisen nog beter kunnen afstemmen op de huidige kwaliteitsstandaarden in de keten. Ketenactoren wordt aanbevolen om bij het opstellen van hun organisatievormen rekening te houden met de onderlinge afhankelijkheid van alle actoren in de waardeketen. Met name verwerkers kunnen zorgen voor extra coördinatie met producenten boven in de keten, bijvoorbeeld om specifieke eisen van export retailers te communiceren, om de juiste investeringen te stimuleren, of om technische ondersteuning te bieden voor een succesvolle naleving van veranderen eisen in transities.

Beleidsmakers wordt aanbevolen om een breed landschap van verschillende type producentenorganisaties te bevorderen die verschillende maar complementaire rollen vervullen in transities. Beleidsmakers kunnen bijvoorbeeld verschillende overheidsregelingen implementeren die financiële en technische ondersteuning bieden, en het vergaren van de benodigde kennis en vaardigheden bevorderen. Ten tweede wordt beleidsmakers aanbevolen om op maat gemaakte steun te verlenen aan actoren in de waardeketen om succesvolle vermarkting in zowel landelijke als mondiale ketens met gedifferentieerde veiligheids-, kwaliteits- en duurzaamheidsvereisten te vergemakkelijken.

Tenslotte, dit proefschrift heeft laten zien hoe verschillende actoren hun interne organisatie, activiteiten en relaties in de keten (her)positioneren om te reageren op en bij te dragen aan verschillende transities in voedselsystemen. Dit proefschrift heeft de noodzaak onderstreept om breder te kijken dan alleen naar binaire standpunten bij het verbeteren van ons begrip van hoe actoren in transities het best bestudeerd en ondersteund kunnen worden. De bevindingen zijn bedoeld om toekomstige onderzoekers, beleidsmakers, en mensen in de praktijk te inspireren om de transities in onze voedselsystemen te blijven verbeteren om gewenste transitie-uitkomsten te bereiken.

RESUMEN EN ESPAÑOL

Transiciones de los sistemas alimentarios

Los sistemas agroalimentarios se ven amenazados por factores complejos e interrelacionados, como el cambio climático, el crecimiento de la población, la inseguridad alimentaria y nutricional, y las desigualdades sociales. Académicos, políticos, y profesionales pretenden alcanzar sistemas alimentarios más sostenibles, inclusivos y resilientes, produciendo alimentos más sanos y nutritivos. Los sistemas alimentarios se componen de actores y actividades relacionados con la producción, el procesamiento, la distribución, la preparación y el consumo de alimentos, pero también incluyen los resultados socioeconómicos y medioambientales de estas actividades, y los mercados y las redes institucionales en los que operan. Los marcos de los sistemas alimentarios se han enfocado en estudiar las relaciones entre los impulsores externos de los sistemas alimentarios, los componentes internos de los sistemas alimentarios y los resultados deseados, lo cual busca generar mejores conocimientos para lograr las transiciones de los sistemas alimentarios.

La investigación sobre las transiciones de los sistemas alimentarios, a través de la lente de la 'perspectiva multinivel', conceptualiza que las transiciones se generan a través de cambios radicales en nichos emergentes (por ejemplo, los sistemas ecológicos), o a través de cambios más incrementales en los regímenes existentes (por ejemplo, la mejora gradual de la seguridad, la calidad y la sostenibilidad de los alimentos en los sistemas convencionales). Aunque las transiciones de los sistemas alimentarios se consideran como procesos de múltiples actores, en los que diversos tipos de actores necesitan colaborar y coordinarse en varias partes del sistema, la perspectiva multinivel ha sido ampliamente criticada por una pobre conceptualización y representación de los actores. Diferentes estudios abordan la necesidad de mejorar la conceptualización de los actores en las transiciones, por ejemplo, combinando la investigación sobre las transiciones con las teorías organizativas.

Objetivo y definición del problema

El objetivo de esta tesis es explorar las transiciones de los sistemas alimentarios generando conocimientos sobre los actores desde una perspectiva organizativa. El razonamiento subyacente es que una perspectiva organizativa permite ir más allá de los puntos de vista limitados sobre los actores y mejora la comprensión de la diversidad y la complejidad de los actores en las transiciones.

La pregunta general de investigación de esta tesis es:

¿Cómo (re)posicionan los actores su organización, sus actividades y sus relaciones en los sistemas alimentarios en las transiciones?

El objetivo teórico es conectar la investigación sobre la transición (especialmente la perspectiva multinivel) con las teorías organizativas. Las teorías organizativas son la teoría económica de costos de transacción y la teoría sociológica de las redes alimentarias alternativas. Además, esta tesis pretende generar recomendaciones políticas y prácticas para apoyar a los diferentes actores en las transiciones. Para responder a la pregunta de investigación, se han recogido datos cualitativos (entrevistas) sobre las organizaciones de productores y los actores de la cadena de valor en tres sistemas alimentarios (verduras, lácteos, cítricos) en Uruguay – que están en diferentes tipos de transiciones. Centrándose en la necesidad de comprender y conceptualizar mejor a los actores en las transiciones desde una perspectiva organizativa. Esta tesis pretende abordar las siguientes cuatro brechas de conocimiento.

En primer lugar, los actores en las transiciones suelen ser estudiados desde una perspectiva de actor singular. Sin embargo, los actores en las transiciones pueden ser más complejos y diversos y no encajan dentro de categorizaciones simples. Esta brecha se aborda estudiando las organizaciones de productores como empresa y como organización de base, así como explorando su potencial como intermediario de transición. En segundo lugar, la mayoría de los estudios sobre la transición no abordan las interacciones e interdependencias entre múltiples actores. Esta brecha se aborda estudiando la coordinación de los múltiples actores de la cadena de valor a través de sus formas de organización, así como la coordinación de las organizaciones de productores con los actores de la cadena de valor y los actores institucionales.

En tercer lugar, la mayoría de estudios se enfocan en los actores que emprenden cambios radicales en las transiciones de nicho. Sin embargo, existe una escasez de información sobre los cambios incrementales adoptados por los actores del régimen ,y cómo los actores del nicho y del régimen interactúan. En cuarto lugar, los actores se estudian sobre todo en las transiciones que se centran en la sostenibilidad medioambiental, ignorando a menudo otro tipo de transiciones que conducen a resultados de transición diferentes, como la seguridad alimentaria y nutricional. La tercera y la cuarta brecha se abordan explorando las mejoras incrementales de la seguridad, la calidad y la sostenibilidad en los regímenes, y estudiando los cambios en la sostenibilidad medioambiental a través de las interacciones de los actores del nicho y del régimen.

Resultados

La pregunta general de la investigación se responde con las siguientes tres preguntas específicas de investigación:

Pregunta de investigación 1: ¿En qué medida las organizaciones de productores tienen características organizativas diferentes en los sistemas alimentarios de nicho y de régimen?

Aunque los científicos y entes gubernamentales consideran que las organizaciones de productores son actores importantes en los sistemas alimentarios, no suelen tener en cuenta las características organizativas de estas. La falta de conocimiento de la diversidad organizacional de los productores dificulta la comprensión de cómo y en qué condiciones las organizaciones de productores pueden contribuir en las transiciones de los sistemas alimentarios. En el capítulo 2 se estudian diez casos de organizaciones de productores dentro del sistema alimentario vegetal, compuesto por un régimen convencional y un nicho ecológico. Las organizaciones de productores se clasifican en cinco tipos, y cada uno de ellos se compara con ocho características organizativas. La teoría de costos de transacción y la teoría de las redes alimentarias alternativas se utilizan para explicar los resultados y formular tres proposiciones. Los resultados muestran que las organizaciones de productores de nicho y de régimen en el sistema alimentario vegetal tienen diferencias y similitudes en sus características organizativas. Una de las principales diferencias entre las organizaciones de productores de nicho y las de régimen es la forma en que la cadena de valor y el contexto institucional del sistema alimentario afectan su origen: las organizaciones de productores de nicho surgen en respuesta a los incentivos del mercado y las organizaciones de productores de régimen a los incentivos públicos. Las organizaciones de productores de nicho y de régimen tienen puntos en común al tener la misma actividad principal. Las organizaciones de productores con actividades económicas (como la comercialización) son pequeñas con respecto al número de miembros, se especializan en verduras, requieren la inversión de los miembros, y tienen un alto grado de formalización, al compararlas con las organizaciones de productores con actividades sociopolíticas (como el cabildeo por políticas favorables, la canalización de apoyo público). Estas últimas organizaciones de productores son más grandes, se centran en múltiples productos, no requieren la inversión de los miembros, y tienen bajos niveles de formalización. Por último, existe una diversidad organizativa entre las organizaciones de productores del nicho. Las organizaciones de productores varían en como vinculan los diferentes objetivos de sostenibilidad (desde los orientados a la eficiencia hasta los orientados al valor agregado), a nivel de coordinación en la cadena de valor, tanto al interno de la organización como en su coordinación con los compradores. Los resultados muestran la diversidad de las organizaciones de

productores en cuanto a su organización, sus actividades y sus relaciones con otros actores en las transiciones de los sistemas alimentarios de nicho y de régimen.

Pregunta de investigación 2: ¿Cómo se coordinan las transiciones en los sistemas alimentarios de régimen entre los múltiples actores de la cadena de valor?

Aunque las cadenas de valor se consideran un componente importante de los sistemas alimentarios, la coordinación entre los múltiples actores de la cadena en las transiciones de régimen ha sido poco estudiada. Capítulo 3 estudia cómo los cambios graduales en la seguridad, la calidad y la sostenibilidad de los alimentos (en forma de estándares de calidad como GlobalGap) en los sistemas alimentarios de régimen conducen a diferentes formas de organización entre los múltiples actores de la cadena. La teoría de costos de transacción se utiliza para estudiar formas organizativas que varían en grado de coordinación, como el bajo grado de coordinación (por ejemplo, a través del mercado externo o a través de acuerdos verbales), el alto grado de coordinación (por ejemplo, a través de empresas integradas verticalmente) o la coordinación en formas híbridas (por ejemplo, a través de contratos formales). Se estudian tres grupos de actores de la cadena (productores, procesadores, minoristas) en tres cadenas de valor (cadenas domesticas tradicionales, cadenas domesticas modernas, cadenas globales de exportación) en los regímenes de los sistemas lácteos y de los cítricos. Los resultados muestran que la adopción de los estándares de calidad afecta a la coordinación entre los actores de la cadena de diferentes maneras, dependiendo del tipo de cadena de valor y de la posición del actor (ascendente o descendente) en la cadena de valor. Para la coordinación entre los productores y los procesadores en la parte ascendente de la cadena de valor, los estándares de calidad parecen ser insuficientes por sí mismos. Los productores y procesadores tienen que cumplir requisitos adicionales de los minoristas en las cadenas de valor de la exportación, por lo que aplican diversos mecanismos de motivación y control para cumplir todos los requisitos (tanto de los estándares como de los requisitos adicionales de los minoristas). Por lo tanto, la coordinación entre productores y procesadores es alta y se caracteriza por formas de organización híbridas o jerárquicas (como los contratos o la integración vertical). La coordinación entre los procesadores y los minoristas en la cadena de valor es menos alta, y los estándares de calidad sustituyen (parcialmente) la necesidad de coordinación entre ellos. Este es el caso, sobre todo, de las cadenas domesticas tradicionales (minimercados y ferias), seguidas de las cadenas domesticas modernas (supermercados), con cierta coordinación adicional necesaria en la cadena de exportación, sobre todo en los contratos entre los procesadores y los minoristas. Además, los tres grupos de actores de la cadena parecen depender unos de otros para contribuir con éxito a los cambios graduales en las transiciones. Los resultados contribuyen a comprender cómo se producen las transiciones en los sistemas alimentarios de régimen a través de combinaciones de

la coordinación de estándares de calidad y de las formas de organización entre los múltiples actores de la cadena.

Pregunta de investigación 3: ¿En qué medida pueden las organizaciones de productores actuar como intermediarias en las transiciones de los sistemas alimentarios de nicho y de régimen?

Los intermediarios son reconocidos como actores importantes en la promoción de las transiciones, pero se sabe poco sobre el potencial específico de las organizaciones de productores como intermediarios en las transiciones del sistema. Capítulo 4 explora el potencial de las organizaciones de productores como intermediarios en las transiciones. Se estudian diez organizaciones de productores en un sistema alimentario vegetal compuesto por un régimen convencional y un nicho ecológico. Las perspectivas teóricas de la investigación sobre la transición (la perspectiva multinivel y las conceptualizaciones de los intermediarios) se han combinado con la teoría de costos de transacción y la teoría de las redes alimentarias alternativas. Los resultados muestran cómo las actividades de las organizaciones de productores, que pueden clasificarse como roles clásicas de intermediación en los sistemas alimentarios, responden a las necesidades de los productores tanto en el nicho como en el régimen y también contribuyen hacia la transición de sistemas alimentarios sostenibles. Por ejemplo, las organizaciones de productores participan en proyectos con experimentos de sostenibilidad, en los cuales comparten conocimientos sobre métodos de producción sostenibles, producen y venden insumos ecológicos, o crean cadenas de valor ecológicas. Las organizaciones de productores se abstienen de adoptar un posicionamiento frente a la decisión de normar la producción de vegetales, tanto para el régimen convencional como para los productores ecológicos especializados. Además se caracterizan por un alto grado de representación en las redes rurales y una alta legitimidad entre los productores. Las organizaciones de productores no están financiadas ni establecidas para funcionar como intermediarios, no obstante, parecen funcionar como intermediarios implícitos en las transiciones. Existen diversas características organizativas que pueden dificultar su capacidad para actuar como intermediarios más explícitos y sistémicos en las transiciones. Las características sistémicas parecen entrar en conflicto con sus características organizativas actuales (como el tamaño óptimo de la organización), provocando tensiones internas derivadas de la necesidad de formular una visión compartida de la sostenibilidad, y parecen entrar en conflicto con el tiempo, los intereses, y las capacidades de los miembros. Los resultados proporcionan una visión de las posibles funciones y características de las organizaciones de productores para desempeñarse implícita y explícitamente en la intermediación de transiciones radicales y graduales en los sistemas alimentarios de nicho y de régimen.

Conclusiones y contribuciones científicas

Esta disertación ha mostrado las diversas formas en que los actores de los sistemas alimentarios (re)posicionan su organización, actividades y relaciones, para responder y contribuir a las diferentes transiciones en los sistemas alimentarios. Esta tesis ha mostrado lo que las transiciones significan para los actores, internamente dentro de su organización, pero también externamente en la coordinación con otros actores de la cadena de valor y con el contexto institucional.

La aplicación de una perspectiva organizativa al estudio de los diferentes actores en las transiciones de los sistemas alimentarios supone tres contribuciones a la literatura. Cada una de las tres contribuciones siguientes se centra en un nivel de abstracción diferente, empezando por la investigación sobre la transición, siguiendo por la teoría de la organización, y terminando con las perspectivas de los actores. Lo que las contribuciones tienen en común es que, para entender la complejidad y la diversidad de los diferentes actores en las transiciones, es necesario mirar más allá de los simples binarios.

En primer lugar, esta tesis contribuye a la investigación sobre las transiciones (especialmente a la perspectiva multinivel) al mostrar que se necesitan más matices para estudiar las transiciones en los nichos y los regímenes, examinando más de cerca las interacciones entre los actores del nicho y del régimen. Los capítulos sobre las organizaciones de productores han demostrado que las organizaciones de productores de los sistemas alimentarios de nicho y de régimen tienen ciertas características organizativas comunes. Los actores dentro de los regímenes y dentro de los nichos han mostrado una considerable diversidad organizativa, lo que significa que no pueden ser considerados como un grupo homogéneo de actores. Además, las organizaciones de productores de los nichos y de los regímenes utilizan los mismos proyectos públicos y se apoyan mutuamente para facilitar las transiciones entre nicho y régimen. En resumen, en lugar de considerar las transiciones como esferas estáticas y binarias de nicho y régimen, es necesario prestar más atención a las interacciones dinámicas entre los actores de los nichos y los regímenes para comprender mejor la complejidad de las transiciones.

En segundo lugar, esta tesis contribuye a una mejor conceptualización de los actores desde la perspectiva de las transiciones, aplicando las teorías de la organización económica y sociológica. Esta tesis ha demostrado que la teoría de costos de transacción es útil para comprender la coordinación económica de los actores en las transiciones. La teoría de costos de transacción se ha utilizado para explicar las diferencias de coordinación económica tanto entre las organizaciones de productores como entre los múltiples actores de la cadena de valor. Lo que la teoría de costos de transacción puede aportar a la investigación sobre la transición, es su capacidad para especificar cómo los cambios incrementales y radicales en los regímenes y nichos afectan a las características de las transacciones, al cambiar las estructuras organizativas. Además, esta tesis ha demostrado que la teoría de

las redes alimentarias alternativas es útil para comprender la organización multidimensional de los actores en las transiciones. Esta teoría se ha utilizado para comprender las diferencias organizativas de las organizaciones de productores en nichos con respecto a los diferentes objetivos de sostenibilidad, o para estudiar las complejas interacciones entre las organizaciones de productores en nichos y regímenes. Esta tesis también ha demostrado que las teorías de la organización, tanto económicas como sociológicas, son necesarias para comprender la complejidad y la diversidad de actores, como las organizaciones de productores, en las transiciones de los sistemas alimentarios.

En tercer lugar, esta tesis contribuye a la conceptualización de los diferentes actores en las transiciones de los sistemas alimentarios. Esta disertación añade nuevas perspectivas al conceptualizar empresas en transición mostrando su interdependencia y coordinación en las cadenas de valor. Además, esta disertación aporta nuevas perspectivas sobre la conceptualización de las organizaciones de productores como intermediarios (potenciales) en las transiciones, contribuyendo tanto a la literatura sobre organizaciones de productores como a la creciente literatura relacionada al rol de los intermediarios en las transiciones. Como contribución final, esta disertación muestra que la diversidad y la complejidad de las organizaciones de productores sólo pueden entenderse cuando se las conceptualiza como configuraciones de actores económicos y sociales.

Recomendaciones para la política y la práctica

Esta tesis conduce a las siguientes recomendaciones para la política y la práctica profesional sobre cómo se puede apoyar mejor a los actores en las transiciones.

Se recomienda a las organizaciones de productores que reconozcan su potencial y hagan más explícitas sus contribuciones al momento de cumplir las diferentes funciones en las transiciones de los sistemas alimentarios. Además, se recomienda que las organizaciones de productores entablen un diálogo externo con el gobierno y otros actores, y un diálogo interno entre sus miembros para crear una visión compartida de las funciones que pueden desempeñar en las transiciones. Se anima tanto a los directivos como a los afiliados a capacitarse y asesorarse externamente para adquirir conocimientos y habilidades adecuados para desempeñar las diferentes funciones en las transiciones.

Se anima a los actores de la cadena de valor a optimizar su coordinación organizacional, para que los exportadores minoristas pueden ajustar sus demandas de acuerdo a los estándares específicos de calidad ya adoptados en la cadena. Se recomienda a los actores de la cadena que tengan en cuenta la interdependencia de todos los actores de la cadena de valor a la hora de definir sus formas de organización. En particular, los procesadores podrían coordinar estrechamente con los productores, por ejemplo, para comunicar los requisitos específicos de los

exportadores minoristas, o para estimular las inversiones adecuadas, o proporcionar apoyo técnico para garantizar el cumplimiento de los requisitos en las transiciones.

Se recomienda a los responsables políticos que promuevan diferentes tipos de organizaciones de productores que puedan desempeñar roles diferentes pero complementarios en las transiciones. Por ejemplo, los responsables políticos pueden poner en marcha diferentes planes gubernamentales que proporcionen apoyo financiero y técnico, y que desarrollen los conocimientos y habilidades adecuados. En segundo lugar, se recomienda a los responsables políticos apoyar a los actores de la cadena de valor para facilitar el éxito de la comercialización tanto en las cadenas domesticas como en las globales, tomando en cuenta los requisitos diferenciados de seguridad, calidad y sostenibilidad.

Por último, esta tesis ha mostrado cómo los diferentes actores (re)posicionan su organización interna, actividades y relaciones para responder y contribuir a las diferentes transiciones en los sistemas alimentarios. Esta tesis resalta la necesidad de mirar más allá de los puntos de vista binarios para mejorar nuestra comprensión de cómo se pueden estudiar y apoyar de mejor manera a los actores en las transiciones. Las conclusiones pretenden inspirar a futuros investigadores, responsables políticos, y profesionales para que sigan mejorando las transiciones en nuestros sistemas alimentarios con el fin de lograr los resultados deseados.

ACKNOWLEDGEMENTS

Finishing this PhD has only been possible because of the great support that I experienced by so many caring people around me.

First, I would like to express deep gratitude to my supervisors, Jos Bijman and Jacques Trienekens.

Jos, thank you for all your support, your down-to-earthness, your honesty and humor, your sharp editing, and your immense work ethic to always have your door open, and provide me with feedback even in the weekends and late evenings. Soon adjusting to your way of thinking, I always heard your voice in the back of my head when I started drifting off with crazy research ideas or fuzzy concepts ("What do you mean with 'this'", or "How do you define concept *x?*"). I appreciate immensely how you have kept me on track and endured the rollercoaster of this PhD process. On a personal level, I have greatly enjoyed the many personal talks we had about our shared interest in cycling, discussing weekend plans and holiday destinations, or talking about our lives in general.

Jacques, thank you for being such a kind and supportive supervisor. Working with you has been very pleasant due to your immense patience, your open-mindedness, humbleness, your constructive feedback, and your interest in new topics and multidisciplinary work. I enjoyed the trips we made to Chile and Uruguay as part of the HortEco project, and I hope that you now get to enjoy more of your well-deserved retirement.

Jos and Jacques, thank you for your support, your endurance, and your ability to (pretend to) laugh at my jokes. I will miss our frequent talks and hope to welcome you at our Italian *agriturismo* for a writing & cycling retreat or a family holiday.

Thank you, current and previous colleagues of the Business Management and Organisation (BMO) group for your collegiality, inspiration and fun over the past years. Special thanks go to the support team: Ina, Linette, Brigitte, Willemien, Liesbeth, and Marloes. Ina, thank you for making the start of each working day more enjoyable by engaging in our endless chats and jokes. I will miss it!

A benefit of a long PhD process is having had the opportunity to getting to know so many other PhDs from all over the world. Thank you, current and former PhDs: Francisco, Mercy, Daniel, Fanny, Sophia, Camila, Timothy, Alice, Jasmina, Ardinesh, Blandine, Robert, Aglaia, Katty, Carlo, Jia, Mmapatla, Daniel, Waliou, Delelegne, Lavlu, Franco, Carlos, Jilde, Teunis, Rob, and Lisa.

Francisco, thank you for your collaboration in HortEco, for your collegiality and support, and for all the conversations, good food, and fun! Carlo, thank you for transitioning from visiting PhD (for letting me beat you at table tennis, and for allowing me to make endless sarcastic jokes) into becoming a true Italian *amico*. Mercy and Daniel, thank you for the nice moments together, inside and outside the office. Jilde,

thank you for your collegiality, sweet nerdiness, and joint bike rides to Wageningen. Teunis, thank you for the many interesting conversations we had, particularly about our permaculture lifestyle ambitions outside the office. Rob, thank you for being my fellow 'oosterling', and for the dry humor, conversations in dialect, as well as our more philosophical talks.

Thank you, all current and former BMO postdocs, Mufty, Giustina, Celia, Abide, Gea, and Edurne, and all other academic colleagues, Emiel, Geoffrey, Valentina, Domenico, Maral, Wilfred, Onno, Maria, Verena, and Negin for your collegiality and for creating a welcoming working environment.

Maral, thank you so much for adding lots of joy to my working life in Wageningen, and for sharing great moments, good conversations and lots of fun in the corridor and outside the office! Mufty, thank you for bringing your energy into the group, and for sharing critical views on academic life as well as sharing a similar taste for sarcastic humor. Gea, thank you for being such a sweet and involved colleague, and for the good times in the office (and Italy). Domenico, thank you for being my roommate over the past years, I will miss our talks about life in Utrecht versus the Mediterranean, and about exploring new (non-)academic endeavors. Valentina, thank you for being such a nice and caring colleague, and I hope you see you soon in your beloved Marche.

During my ten working years in Wageningen, I have been fortunate to meet many inspiring people from other departments and institutes. First of all, thank you, Wageningen School of Social Sciences (Wass), for providing the research grant for this PhD. Thank you, former colleagues of the Centre for Development Innovation for four great years of gaining hands-on experience in the field, which formed the basis for starting this PhD. Thank you, Ellen, Mirjam, and Christine, for enacting similar career moves, in and out of academia, in and out of Wageningen, and for sharing the highs and lows of working in international development as young ambitious women. Bram, thank you for the good times together, whether in Liberia, the Leeuwenborch canteen, or in a brown bar in Utrecht.

Special thanks go to all Horteco partners in Wageningen, Chile, and Uruguay. Walter, we worked together since developing our first ideas about HortEco. Thank you for your collaboration, for your enthusiasm and interest in other disciplines, and for always finding a way to collaborate. Laurens, thank you for your collegiality, for your social talk, and for the nice collaboration with our joint paper. Felix, Jessica, Jacques, Laurens, Walter, Carlos, Santiago, Daniel, Francisco, Mariana, and Maria, thank you for the collaborative, inspiring, and fun times in Chile and Uruguay!

Un agradecimiento a todos los Uruguayos que me ayudaron enormemente durante mi trabajo de campo. Gracias a los socios de HortEco por compartir sus redes, por contribuir a la investigación y por compartir los resultados. Un agradecimiento especial a Gustavo Cabrera de la Comisión Nacional de Fomento Rural (CNFR), a

Alfredo Pérez y Pablo Pacheco de la Unidad Agroalimentaria Metropolitana (UAM), y a Alberto Gómez de la Red de Agroecología. Gracias a la Universidad de la República por facilitarme una oficina, y gracias a Gabriela por los buenos momentos dentro y fuera de la oficina. Santiago y Mariana, gracias por su ayuda en todo y por compartir contactos clave en pro de esta investigación. Alejandro, gracias por acompañarme en el campo, por ser mi apoyo logístico, gracias a ti y a Fernanda por los increíbles asados y por la amistad.

Un agradecimiento importante para todos los que tan amablemente me compartieron su tiempo y energía para participar en las entrevistas. Muchas gracias por su tiempo, por compartir sus conocimientos y su mate, y por tratar de entender mi español. Gracias por su increíble amabilidad. No olvidaré sus queridas palabras: "cualquier cosa que necesites, me llámas".... ¡Gracias!

Iniziare una nuova vita in Italia è stato molto più facile e piacevole grazie a quanto velocemente siamo stati adottati nelle reti locali. Grazie Carlo e Giulia, Wim e Gerrie, Andrea e Marcelo, Antonio e Cinzia, Giuseppina e Claudia, Cinzia e Maurizio, e tanti altri, per tutte le vostre visite, il cibo e i bei momenti con noi.

Tenslotte, het voltooien van deze PhD zou niet mogelijk zijn geweest zonder de steun van zoveel lieve vrienden en familieleden. Het is vrijwel onmogelijk om mijn dankbaarheid hiervoor te uiten op papier, maar hierbij toch een kleine poging.

Dank lieve Lindsey, Melanie, Liske, en Fleur voor 20 jaar vriendschap. Wat is het fijn om je roots te delen (hoe de bijgebrachte nuchterheid ons nooit zal verlaten), de hoogte- en dieptepunten in elkaars leven mee te maken, om eindeloos te kunnen theeleuten (met gelukkig ook de hoognodige borrels), om sinterkerst, vakanties, verjaardagen, babydates, en vooral veel gezelligheid te delen rondom alle belangrijke en heerlijk nutteloze zaken in het leven. Dank voor jullie geweldige vriendschap!

Lieve Jennie, we hebben nooit langer dan een half jaar tegelijk in hetzelfde land gewoond en toch weten we elkaar al 13 jaar te vinden – ergens in Latijns-Amerika of Europa, of via eindeloze whatsapp spraakberichten. Dank voor het mede aangaan van vele avonturen (Guadeloupe, hier is jouw Alfonso), voor je luisterende oor, relativering en empathie, en bovenal je gevoel voor humor.

Merit, Corine, en Palau, dank voor de mooie jaren samen in Nijmegen en alle bijpraatavondjes daarna, en Eline dank voor de fijne momenten in Nijmegen en Utrecht. Sanne en Annemieke, voor altijd nobelgirls, dank voor alle mooie momenten in Utrecht, gekke dansjes ondergedoken in rabbit holes, en alle borrels, bitterballen en bijpraatsessies. Lisa, dank voor de vele transities door de jaren heen: als oud-BMO collega, medemoestuinier in Utrecht, of elkaars paden kruisend in bootjes in Myanmar of op de fiets naar Wageningen. Dank voor de eindeloze PhD praat, maaltijden en drankjes, grappen, grollen en gezelligheid!

Lieve schoonfamilie, Riny, Dorien, Suzse, Geert, Niek, Madelon en de drie fantastische boefjes Liv, Rosa, en Tommie, dank voor alle steun en gezelligheid, voor het aanleren van het benodigde Brabantse en Limburgse dialect en verschillende zuidelijke gebruiken (worstenbroodjes, carnaval, vreemde spreuken en onverstaanbare gezegdes), en voor het openen van bourgondische deuren voor deze stoïcijnse Achterhoekse.

Lieve familie, dank voor alles. Grootse woorden zijn niet aan ons besteed, maar die zijn niet nodig om steun en liefde te voelen. Coen, dank voor je flauwe grappen en gevoel voor relativering ('Pee-haa-dee'), en Claudia, dank voor je nuchterheid, lieve berichtjes en belletjes, en het meebeleven van deze reis in je eigen PhD traject. Lieke en Heleen, dank voor de inbreng van externe gezelligheid en het aankunnen van onze nukken en sarcastische humor. Mai en Jasmijn, jullie zijn geweldige kleine muiters! Ria en Herman, dank voor jullie berichtjes, de paasbrunches en gezelligheid, en Tessa en Britta, dank voor de leuke jaren samen als Bouwman nichtjes.

Lieve paranimfen, Liske en Claudia, heel veel dank voor het willen aanvaarden van deze taak in drukke tijden van banen, bruiloften en andere verantwoordelijkheden!

Lieve pap, hopelijk heb je een iets beter beeld gekregen van waar ik al die jaren aan gewerkt heb, en hoef je niet langer aan familie en bekenden te zeggen dat ik 'iets van administratief werk doe in Wageningen'. Je bent onze rots in de branding en niet van je stuk te krijgen op je vertrouwde plek in Hupsel. Ik ben trots op je! Lieve mam, we leven alweer veel te lang zonder jou in ons midden, maar je bent nog altijd in onze hoofden en harten. Dank voor de opvoeding, samen met pap, die de basis is geweest van wat ik nu ben. Ik weet zeker dat je ergens meekijkt en trots zult zijn!

Lieve Tom, ik weet niet waar ik moet beginnen om de juiste woorden te vinden. Al bijna 10 jaar samen, en al zoveel mooie momenten samen beleefd. Je hebt ongetwijfeld vaak gewenst dat ik een andere baan had, maar je hebt me meer gesteund dan ik ooit had mogen hopen. Meegaan met veldwerk in Uruguay, het altijd klaar hebben van een luisterend oor voor mijn gepieker en geklaag, en het altijd in zijn voor vrolijkheid en relativering door het koken van experimentele maaltijden en het brouwen van funky drankjes. Het is ongelofelijk welke transitie we de laatste twee jaar in zijn gegaan: van kantoorbanen naar het buitenleven in Italië, en als ouders van kleine Sam. Ik kijk enorm uit naar onze toekomst samen, ik hou van je!

Lieve Sam, dit boekje draag ik op aan jou. Jouw komst was de grootste relativering die ik nodig had voor het afmaken van dit boek. Je bent het mooiste kleine dondersteentje dat ik ken. Wil je alsjeblieft niet te snel opgroeien?

Annemarie Groot Kormelinck

ABOUT THE AUTHOR

Annemarie Groot Kormelinck was born on May 20, 1987 in Enschede, the Netherlands. After finishing secondary education, she obtained a bachelor and master degree in Development studies at the Radboud University Nijmegen. She graduated cum laude with a master thesis on coffee cooperatives in Ethiopia, which awoke her interest to study and work in agriculture.

In 2011, she continued this interest with a traineeship at Wageningen University's Centre for Development Innovation (WCDI), combined with the Advanced Master International Development of the Radboud University Nijmegen. The traineeship evolved into a position of consultant, trainer and applied researcher at WCDI in the field of producer organizations, value chains and inclusive markets. The position involved different research and capacity development projects in multiple African countries.

After gaining four years of hands-on working experience in different agricultural contexts, she decided to return to academic life and pursue a PhD at Wageningen University. Starting in 2016, she had the opportunity to align her research grant to the HortEco project, and to fully dive into studying producer organizations, value chains and transition dynamics in vegetable, dairy, and citrus food systems in Uruguay – resulting in this PhD thesis.

Having seen and studied different types of sustainable food systems, she gained increased interest into 'getting her hands into the mud', as to learn and apply different organic farming principles herself. Whilst finishing the writeup of this PhD thesis, she transitioned from fulltime PhD researcher in Wageningen into a registered organic farmer and *agriturismo* owner in Italy. At the same time, she continues her interest to study and understand different aspects of food system transitions, therefore exploring options to combine a rural lifestyle in Italy with future consultancy or (applied) research opportunities.

Scientific publications

Groot-Kormelinck, A., Bijman, J., Trienekens, J., & Klerkx, L. (2022). Producer organizations as transition intermediaries ? Insights from organic and conventional vegetable systems in Uruguay. *Agriculture and Human Values*, (April), 1–24. https://doi.org/10.1007/s10460-022-10316-3

Groot-Kormelinck, A., Trienekens, J., & Bijman, J. (2021). Coordinating food quality: How do quality standards influence contract arrangements? A study on Uruguayan food supply chains. *Supply Chain Management*, *26*(4), 449–466. https://doi.org/10.1108/SCM-02-2020-0087

Rossing, W. A. H., Groot Kormelinck, A., Alliaume, F., Dogliotti, S., Duncan, J., Huenchuleo, C., … Gaitán-cremaschi, D. (2020). Transitioning to the safe and just space inside ' the doughnut ' by means of agroecological niche food systems: insights from Chile and Uruguay. *International Journal of Agriculture and Natural Resources*, *47*(3), 295–311. https://doi.org/10.7764/ijanr.v47i3.2258

Groot Kormelinck, A., Bijman, J., & Trienekens, J. (2019). Characterizing Producer Organizations: The case of organic versus conventional vegetables in Uruguay. *Journal of Rural Studies*, *69*(March), 65–75. https://doi.org/10.1016/j.jrurstud.2019.04.012

Groot Kormelinck, A, J. Bijman. (2016). Co-innovation for quality in agri-food chains: Discovering integrated solutions. In: Bijman, J., V. Bitzer (eds). *Quality and innovation in food chains: Lessons and insights from Africa*. Wageningen: Wageningen Academic Publishers. https://doi.org/10.3920/978-90-8686-825-4_12

Groot Kormelinck, A., C. Plaisier, R. Muradian, R. Ruben. (2016). Social capital and agricultural cooperatives: Experimental evidence from Ethiopia. In: Bijman, J., R. Muradian, J. Schuurman (eds). 2016. *Producer Organisations, Economic Democratization and Rural Development*. Cheltenham: Edward Elgar Publishing. https://doi.org/10.4337/9781784719388.00014

Groot Kormelinck, A. (2015). Back to the birthplace of the bean. Women's bargaining position and trust in Ethiopian coffee cooperatives. In: Ruben, R., P. Hoebink (eds). 2015. *Coffee certification in East Africa. Impact on farmers, families and cooperatives*. Wageningen: Wageningen UR Publishers. https://doi.org/10.3920/978-90-8686-805-6_8

Groot Kormelinck, A. (2014). Bargaining positions and trust in Ethiopian cooperatives: A gender perspective. In: Foeken, D., T. Dietz, L. de Haan, L. Johnson (eds). 2014. *Development and equity. An interdisciplinary exploration by ten scholars from Africa, Asia, and Latin America.* Leiden: Brill Publishers.

Selected professional publications

Groot-Kormelinck, A., & Pizzolon, A. (2020). *Caracterización y análisis de algunas organizaciones de productores orgánicos y convencionales hortícolas en Uruguay* [Characterization and analysis of conventional and organic vegetable producer organizations in Uruguay]. Retrieved from https://coprofam.org/2021/04/22/fagro-con-el-apoyo-de-cnfr-camm-y-una-universidad-holandesa-publico-un-estudio-sobre-organizaciones-de-productores/.

Schrader, T., L. van Benthum, A. Groot Kormelinck,, B. Wennink, I. Janssen. (2015). *It takes two to trade. A tool for understanding and improving farmer-firm relations in Africa*. Arnhem: De Groot Drukkerij.

Groot Kormelinck, A., S. Wiersema. (2014). *Seed Potato Development in Kenya.* Report. Wageningen UR Centre for Development Innovation.

Brouwer, H., Groot Kormelinck, A., van Vugt, S. (2012). Tools for analysing power in multi-stakeholder processes – a menu. Thematic Learning Programme on Power in MSPs. Report. Wageningen: Wageningen UR Centre for Development Innovation.

Posthumus, B., J.H. Brouwer, A. Groot Kormelinck. (2012). *CSOs and Business: Joint agents for change*. Publication based on international learning partnerships event for NGOs and businesses. Wageningen UR Centre for Development Innovation, PSO, ICCO, the Partnerships resource centre.

Groot Kormelinck, A., J.A. Woodhill. (2011). *Programmatic co-operation for improved food and nutrition security in selected countries: Consultations with stakeholders*. Report. Wageningen UR Centre for Development Innovation.

Ludemann, R., M. van Dorp, A. Groot Kormelinck, T. Chancellor. (2011). *'Capacity Development for ARD'.* Wageningen UR Centre for Development Innovation, Natural Resource Institute (NRI). The European Initiative for Agricultural Research for Development (EIARD).

APPROVED TRAINING AND SUPERVISION PLAN

Annemarie Groot Kormelinck

Wageningen School of Social Sciences (WASS)

Completed Training and Supervision Plan

Name of the learning activity	Department/Institute	Year	ECTS*
A) Project related competences			
From topic to proposal	WASS	2014	4
Summer school ESNIE	European School on New Institutional Economics (ESNIE)	2015	2
Writing research proposal	WASS	2016	6
Summer school IOEA	Institutional and Organizational Economics Academy (IOEA)	2016	2
B) General research related competences			
Quantitative data analysis: Multivariate techniques, YRM 60306	WUR	2015	6
Introduction course	WASS	2016	1
Data management planning	Wageningen UR Library	2016	0.4
Techniques for writing and presenting a scientific chapter	WGS	2016	1.2
'Producer organizations in food value chains: towards a theoretical framework'	WASS PhD day	2018	1
'Characterizing producer organizations: the case of organic and conventional vegetables'	International Cooperative Alliance (ICA) conference, Wageningen	2018	1
C) Career related competences/personal development			
Course Spanish B2.2	Instituto Cervantes, Utrecht	2016	2
Course Spanish B2.3	Instituto Cervantes, Utrecht	2016	2
Workshop carousel	WGS	2016	0.3
Assisting in coordination and lecturing in the course 'Cooperatives and producer organizations'	BEC/BMO	2016	2
Organizing Young Scholar Day	International Cooperative Alliance (ICA) Conference	2018	1
Supervising Bsc and Msc students	BMO	2018 - 2020	1
Total			**32.9**

*One credit according to ECTS is on average equivalent to 28 hours of study load

The research described in this thesis was financially supported by Wageningen School of Social Sciences (WASS). Support from the HortEco project is also gratefully acknowledged.

This thesis is printed on FSC certified paper.

Cover design: Harma Makken

Printing: Digiforce / Proefschriftmaken

Contact: agrootkormelinck@gmail.com