DIGGING INTO INDUSTRIAL FOOD SYSTEMS: A STUDY OF SOCIO-ECOLOGICAL DIVERSITY IN CONVENTIONAL AGRICULTURE

by

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Abstract

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The food system is in a state of stark conflict and contradiction, with capital and corporate concentration intensifying alongside growing social resistance. In the doctoral dissertation that follows, I explore this conflict through a crosscutting socio-ecological analysis of the Ontario agri-food system. While the origins of corporate-industrial and alternative food interests are fairly well understood, there has been little analysis of how power dynamics intersect within a socio-ecological systems (SES) lens. To fill this gap, my research explores specific power dynamics emerging, and how these dynamics interact and shape the system’s socio-ecological trajectory. Using a mixed methods approach, I apply both qualitative data, such as participant observation, interviews and focus groups, and quantitative data, including surveys, soil samples and content analysis, to reveal how agri-food actors, entities, and interests are maintaining social, ecological and material power, while helping the system to specialize over space and time. Additionally, I apply a range of theoretical tools to delineate the socio-historical origins of observed dynamics. Specifically, I delineate the political economic, settler colonial, and racial origins these dynamics, and link them to the socio-ecology of the system. Put simply, I argue we need to have a nuanced understanding of how we got here, before determining where we are going. In doing so, this thesis shows how particular socio-historical forces continue to preserve power in their interest, while assembling a food system divested of socio-ecological health and diversity. In articulating how interlocking forces of corporate capitalism, settler colonialism, structural racism, and patriarchy have shaped farmland and food relations in Ontario, I show how these interlocking forces may benefit from continued social and ecological specialization. The results of this research
reveal a few specific findings. First, dynamics of rising farmer retirement, farmland consolidation, increasing land values, and rental tenure are creating conditions ripe for ‘own-lease out’ models of financialization, while divesting resources and attention from agroecological health and diversity. Second, turning to human dimensions of diversity, settler colonial and racial logics and tactics help to preserve arable farmland and resources for certain actors and (white settler) populations—which delimits who is on the land, and how agriculture is practiced. Third, conventional agri-food interests are responding to growing alternative food pressure and criticism by building solidarity despite growing economic polarization, while concurrently undermining the voice and diversity of alternative food work. These power dynamics—and the discourse they produce—are, in turn, restricting support for the multitude of diverse agricultural paradigms, practices and futures that are theoretically possible. Concerning methodology, I argue that research methodology ought to remain flexible, contextually specific and reflexive. I close by identifying ways to diversify land relations, farming systems, and agricultural relationships in the interest of socio-ecological health.
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Preface

Authorship of the two conceptual chapters and the first empirical manuscript (Chapter 4) is shared between the student, her thesis advisor, and committee member. Following the guidelines set forth by the Department of Geography, it should be noted that these manuscripts are dominated by the intellectual effort of the student.
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Part One: Introduction
Chapter 1: Situating the Research

1.1 Introduction

Food systems are in an era of deep polarization, conflict and contradiction. Like all socio-ecological systems, food systems are always in flux. However—against the backdrop of unprecedented climate change—forces of financialization and resource consolidation (Clapp, 2014; Desmarais, Qualman, Magnan, & Wiebe, 2016; Magnan, 2015; Ouma, 2016; Sommerville & Magnan, 2015) appear in stark relief to growing mobilization around land and food issues (Alkon & Agyeman, 2011; Borras, Franco, & Suárez, 2015; Desmarais & Wittman, 2014). Indeed, food system industrialization has contributed to a number of social and ecological ills (see Appendix 1), including soil and water pollution (Kibblewhite, Ritz, & Swift, 2008; Matson, Parton, Power, & Swift, 1997), declining crop and habitat diversity (Lynch, 2009; Tilman et al., 2001), rising fossil fuel dependence and greenhouse gas (GHG) emissions (Camargo, Ryan, & Richard, 2013; Lynch, MacRae, & Martin, 2011), exploitative labour practices (Basok, Bélanger, & Rivas, 2013; Preibisch, 2010), dietary health and obesity issues (Barański et al., 2014; Guthman, 2011; Winson, 2013), land grabbing and dislocation (Akram-Lodhi, 2015; Li, 2011), and corporate concentration (Hendrickson & James, 2005; Howard, 2016). It is therefore no wonder that food has spurred such action around issues of social justice, ecological health, and political power.

While modern society has found itself in many crises before, the current crisis seems particularly terminal, as it is ‘increasingly difficult to get nature—including human nature—to yield its “free gifts” on the cheap’ (Moore, 2015, p. 8). Forces of capital are undoubtedly testing the limits of socio-ecological systems, and these forces are being met with diverse forms of resistance. Concerning food systems, decades of studies on the causes and effects of food system industrialization have contributed to the emergence of work on alternative food networks and movements (Friedland, Barton, & Thomas, 1981; Friedmann, 1982; Friedmann & McMichael, 1989; Winson, 1993). Critical scholarship ranging from political ecology and agroecology, to agrarian political economy, food
sovereignty, and food justice, has deeply impacted how food scholars and activists think about, and mobilize around food issues. Pragmatically, initiatives aimed at improving equitable access to ecologically diverse, sustainable, healthy, and culturally appropriate foods—and the land required to produce it—have surged across Canada over the past two decades.

In effect, the political tug-of-war occurring between forces of capital accumulation and movements for socio-ecological diversity, equity, and justice manifest clearly in food system scholarship and practice. But, of course, these capital and socio-ecological forces are surely not straightforward, and differ across food system spaces, scales, and networks. In light of this, how can we make sense of the larger state of the food system within which these tensions are occurring? Are such states measurable? If so, how should we assess them?

The aim of this research is to examine the ways in which social, cultural, economic, and political forces are differentially pressing on the food system at this moment; and, in turn, what specific impressions are being left behind. Using participant observation, surveys, interviews, content analysis and focus groups with farmers and food system actors, I explore the context-specific forces struggling for social and material dominance in Canadian agri-food, and how these forces may impact certain opportunities for food system diversification. To do so, my research investigates the nature and structure of so-called ‘conventional’ and/or ‘industrial’ agriculture as a socio-ecological system, with a focus on socio-ecological diversity. By providing a crosscutting analysis of the socio-ecological dimensions of food systems, my aim is to identify the barriers to advancing diversification within the system. In this introductory chapter, I provide an outline of the research and context, along with a summary of the dissertation.
1.2 Research

Broadly speaking, this research investigates dynamics of power within the dominant food and farming system. I investigate how these dynamics are linked to vital factors of socio-ecological diversity, primarily land (and those managing it) as well as production methods and inputs. For this reason, the research focuses mainly on farmers and those who interact with them (consultants, public staff, non-profits, etc.). I examine how ecological, socio-cultural and political-economic factors interact and shape the socio-ecology of the food system, with a specific focus on diversity. To achieve this aim, I have advanced four broad objectives: 1) To critically assess the impacts of industrialization on the socio-ecology of agriculture; 2) To analyze the role of political economic processes in the socio-ecology of agriculture; 3) To explore the role of socio-cultural processes in the socio-ecology of agriculture; 4) To explore social and political power relations in the socio-ecology of agriculture. I emphasize that my approach to these objectives is iterative, relational and crosscutting: while I do aim to advance understanding of these processes, the focus of this research is on how the objectives interact with one another.

In this dissertation, I argue that while we know a great deal about the ‘whats’ of the food system (such as food system trends and facts), the relational processes (the ‘whys’ and ‘hows’) are less understood. Yet, as this research will show, relational processes give us deeper insight into food system diversity, as they bring attention to how and why diversity is changing, rather than merely showing that it is changing. For instance, we know that larger areas of production per-farmer often reduce socio-ecological diversity. However, we know less about how different situated political-economic factors concerning land interact with one another to shape socio-ecological diversity over time, and how these factors benefit different food system actors. Similarly, socio-cultural factors surely impact food system diversity, but from where does their power originate, how are they reproduced, and for what ends? Finally, it is clear that language and discourse play a role in struggles for power within food systems. However, we are not so clear about the conditions through which language and discourse have
become valuable, how they are deployed, and for what purposes. In order to capture multi-scale forces (including both political-economic and social forces as well as behaviours, decisions, and interests), I use a mixed-methods approach for this study. Since I aim to assess the ‘dominant’ or ‘conventional’ elements of the food system, I focus on conventional grain farmers. This group of farmers make up the vast majority of the farm base, and own and manage the greater share of farmland in Ontario and Canada. So, while the demographic characteristics of my sample population closely align to the average farmer in Canada, it is important to consider the extent to which 107 samples are representative of the total population. I focus on Ontario for a few reasons. Primarily, in order to reach my desired depth of analysis, I needed to control for significant differences in provincial land policy. As well, reaching an adequate sample of farmers for surveys and in-depth interviews across multiple provinces (and doing it well) would not be logistically achievable. That said, many of my findings are observable at the national scale and/or can be compared across provinces. Overall, my aim is for balance; balance concerning both depth and breadth of analysis, as well as theoretical and empirical rigour.

I approach this study from a situated position, and understand that knowledge “is produced in specific circumstances and that those circumstances shape it in some way” (Rose, 1997, p. 305). The researcher holds a profound degree of interpretive power, and directs the methodological approach, the scope of questions asked, and the means through which data is analyzed, interpreted and presented. The researcher’s positionality will thus inevitably impact the research outcomes. In turn, no research is universally interpretable and applicable. My positionality as a white, settler, able-bodied woman, from a low to middle class socio-economic background comes to bare throughout this dissertation, and should thus be stated clearly at the outset. Indeed, stating one’s positionality acknowledges that the processes of knowledge construction are not value-neutral; the power relations therein are merely veiled and unseen. As Bourdieu elucidates, sciences are not distinguished according to those which are objective and those that are not, but between those which are aware of their subjectivity and those that ignore it (1996). I argue that, instead, this power needs to be made clear and visible through a reflexive process. “This reflexivity looks both ‘inward’ to the identity of the researcher, and
‘outward’ to her relation to her research and what is described as ‘the wider world’” (Rose, 1997, p. 309). In social science research specifically, “one cannot trust one’s own good faith, because various kinds of distortions are embedded in the very structure of the relationship. It is a question of understanding and mastering these distortions” (Bourdieu, 1996, p. 18). Articulating one’s positionality, and practicing reflexivity in research, and accepting that there is no one objective truth does not imply that research cannot be methodologically and ethically rigorous. As I show throughout this study, a mixed methods approach helps to capture larger social and political economic trends, while also developing a deeper understanding of various identities, languages, and cultures present in the research topic and subjects.

1.3 Context: Diversity in socio-ecological systems

Throughout this thesis, I will show how various agri-food actors, entities and interests are maintaining social and material power, and in turn, assembling a particular agri-food trajectory. A key feature of this trajectory is divestment from situated socio-ecological health and diversity. By situated diversity, I refer to diversification of what, and for whom? This trajectory is worrisome given that diversity is a central factor in achieving sustainability and resilience in SES’s (Altieri & Toledo, 2011). In agricultural systems, diversity plays a number of essential roles, which have multi-scalar effects, from the soil, crop, and livestock scale, to the landscape and watershed scale. Agroecological diversification is used to balance nutrients, mitigate pests, weeds and plant pathogens, stabilize yields, and manage resources. To do so, one must build soil health, fertility, and structure by adding biologically rich amendments such as green manures and compost (Altieri, 1995; Gliessman, 2007). This often requires diversifying cropping systems and crop-livestock interactions, as well as pollinator, insect, and microbe populations. The goal here is to facilitate habitat diversity by:

1. Providing alternative hosts/prey at times of pest host scarcity
2. Providing food (pollen and nectar) for adult parasitoids and predators
3. Providing refuges for overwintering, nesting, and so forth
4. Maintaining acceptable pest populations over extended periods to ensure continued survival of beneficial insects (from Altieri, 1995, p. 275)

Notably, agroecological diversity is also understood to positively contribute to climate change adaptation in agriculture. For instance, Seufert, Ramankutty, and Foley’s (2012) study on organic versus conventional farming systems shows that organic systems seem to depend more heavily on agronomic knowledge and management techniques than conventional systems. So, while high-input industrial methods mainly require consistent access to synthetic inputs, organic and agroecological systems demand that the grower pay attention to natural cycles. Ecologically, the agronomic knowledge gained by low-input producers (whether defined as organic, sustainable, or biodynamic) may make them better equipped to respond to ecological change over the long term. Common agroecological methods to naturally balance nutrient supplies and reduce pests—such as diverse and companion cropping, planting green manure and cover crops, and integrating forages and perennials—help to build soil organic matter, thus making the soil better able to perform in drought and excessive rain conditions (Lynch, 2009; MacRae, Lynch, & Martin, 2010). Strategically diversifying crops also hedges against pest infestation, as a single pest typically affects only certain crop varieties. In essence, achieving ‘functional diversity’\(^1\) at the farm-scale has been shown to build an agroecosystem that has a wider tolerance range to temperature and moisture variability, which is a system more resilient to climate change.

As Chapter 3 will show, agroecological diversification has a range of social impacts as well. Agroecological diversification works within a particular system of production (polycultural rather than monocultural), which is structured through social interactions, collectives and institutions (agricultural extension services, financial support, knowledge networks and communities, etc.). The extent to which social systems are set-up to support agroecologically diverse production systems will determine the ability for these systems to thrive and grow. As this research will show, our current food system is set-up in ways

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\(^1\) Replicating the functions of natural systems in their applicable ecological context: i.e. establishing “species and mixtures of species appropriate to specific environments” (Jackson, 2002, p. 115). Jackson highlights the ‘perennial polyculture’ as a functionally effective form of ‘natural systems agriculture’ in prairie ecosystems (Jackson, 2002).
that do not support diverse agroecosystems, but rather undermine and restrict their development. This structure directly affects who is able to access arable land, what kinds of agricultural resources are available to them, and why. Regarding diversification then, the social and the ecological are deeply interconnected and relational, and must be treated as such.

Broadly, socio-ecological systems (SESs) emerge through the relations within which “humans and natural systems co-evolve” (Iles & Montenegro de Wit, 2014, p. 12). Food systems are perhaps one of the most fundamental socio-ecological systems. A food system refers to the innumerable relations and processes involved in getting food from field to fork. This includes food production, distribution, processing, transport, retail, consumption, waste and decomposition. It also includes all of the ways in which social, cultural and political forces interact with food, such as food policy, governance, and economics. Moreover, how these forces interact with ecological dynamics, such as soil and water health and chemical/nutrient/biological composition, greenhouse gas emissions, and biodiversity: all of which are historically and geographically situated. The interaction between these relations and processes are dynamic and always in struggle. Hence, to see a food system as a linear chain does not reflect the complexity of interdependent relationships and connections that occur. Rather, food systems are complex webs of extended relations. Moreover, food systems evolve; their webs of relations are produced through situated histories and geographies, and shift along spatial and temporal trajectories. In thinking of food systems in this way, it becomes clear that trying to control for such complexity is impossible. Hence, instead of attempting to master a singular understanding of the system, it seems more useful to seek an understanding of how multiple processes move, evolve, and interact within systems. That being said, SES scholarship has pursued both the former and the latter approach to systems analysis.

One meaningful way that these two approaches differ is in their understanding of how and to what degree ‘humans’ are separated from ‘nature’. Much of the early work on SESs emerged from natural hazards studies and human ecology, which centered on
human adaptation and response to natural forces and change (e.g. equilibrium and carrying capacity). Questions typically focused on what kinds and quantities of human behaviour could be tolerated by ecological systems, and how these systems might react. In response, careful, field-scale studies emerged with a focus on integrating political-economic forces and relations of class, race, and gender into SES analyses (Blaikie & Brookfield, 1987; Peet & Watts, 2004; Rocheleau, 1995; Watts & Bohle, 1993). Through this work, the field of political ecology emerged. Within political ecology, there have been vibrant debates between structural and post-structural scholars as well as political theorists and ecologists (Forsyth, 2008; Galt, 2013; Robbins, 2012; Walker, 2005). While criticized for being overly theoretical at times (Friedland, 2003; Friedmann & McMichael, 1989; Winson, 1993), scholarship applying political ecology to food systems has been exemplary (Bryant & Goodman, 2004; Cadieux & Slocum, 2015; Eaton, 2013; Galt, 2013; Hovorka, 2006; Weis, 2012; Whatmore & Thorne, 1997). Specifically, this work excels at delineating relational processes within food systems. That is, how actors and forces interact, how they reproduce certain power relations, and how their effects are circulated. In doing so, this scholarship attends carefully to issues of power, seeing it as dynamic and contradictory, rather than static and rational. Since systems are far too complex to master, exploring their situated nuance and relationality may be the only way to grasp ‘truth’, because truth is, after all, embodied, contested and subject to that which is rendered ‘truthful’ (Rose, 1999). The research here aims to build on political ecological approaches in its study of agri-food systems in Canada.

Notably, much of SES scholarship is concerned with mapping change, which requires the use of conceptual tools for understanding system characteristics. For instance, concepts such as resilience, adaptability, diversity, persistence, wellbeing, and transformability have all been applied to SESs (Abson, Fraser, & Benton, 2013; Bell & Morse, 2008; Folke et al., 2004; Walker, Holling, Carpenter, & Kinzig, 2004). These concepts are often interlinked, and operate at various scales. For example, the latter four concepts have all, at different times, been used as components within a larger framework of resilience. Regardless, I want to emphasize how these concepts are applied. In abstraction, these concepts remain problematic and open to a range of interpretations—
which has been the topic of ongoing scholarly debate (Cote & Nightingale, 2011; Evans & Reid, 2013; Reid, 2013; Walker & Cooper, 2011). So, while this research integrates concepts of resilience, diversity and transformability in different ways, it uses these concepts cautiously. Following Cote & Nightingale, I agree that moving away from inferences of abstract criteria and “towards situated systems and the cultural and political categories of specific contexts, helps capture more realistically the scope of options available to specific SES to respond to change and variability” (2011, p. 484). In effect then, we must consider the conditions of knowledge production through which concepts such as diversity and resilience are measured and understood. My research hopes to achieve this by linking these concepts to situated processes and relations transpiring in the Ontario food system (which is, in many ways, difficult to parse from the Canadian food system). Specifically, I focus on situated relations of capital, class, settler colonialism, race and gender, and how they influence socio-ecological diversity in the food system. I hope to show how deeply these relations are woven together, and how profoundly they shape the food system we see today.

1.4 Chapter Outline

What follows is a manuscript style dissertation with 6 distinct chapters split into 3 separate parts (part and chapter one is comprised of this introduction). Part two outlines the conceptual analysis of the thesis, which includes chapters two and three. In Chapter 2, I compare two dominant conceptual approaches to socio-ecological systems analysis: resilience and sustainability indicators. Through this review, I consider the respective capacity of each concept to examine how power relations across scales are affecting socio-ecological diversity in Ontario agriculture. In this chapter I review the origins of these concepts, and contrast their function and utility for SES analysis. Each concept has evolved from a distinct scholarly and pragmatic history, thus carrying their own set of strengths and weaknesses. The primary goal of this chapter is to critically explore both the utility and limits of these concepts.
In Chapter 3, I address objective one by applying a resilience framework to explore political-economic and socio-ecological shifts in the food system. I begin with a brief overview of the socio-ecological systems literature. Next, I outline my approach to resilience, with respect to power and political-economic scales of analysis. I use the SES literature to posit that we can measure food system resilience by exploring three dimensions: (1) the diversity of the food system’s components, (2) the degree to which the components are connected, and (3) the degree of decision-making autonomy within the food system. I then explore the impacts of industrialization on these three factors within the North American context. Specifically, I illustrate how processes of corporate concentration, farm-scale intensification, mechanization, and the cost-price squeeze have led to a decrease in socio-ecological and economic diversity, a high degree of spatial and organizational connectivity, and a diminished decision-making capacity for farmers. By weaving political economy of agri-food literature with agroecology and socio-ecological systems scholarship, I show how our food system may be increasingly less resilient to external shocks, such as climate change. I separate each dimension into evidence of change, causes of change, and implications of change in order to allow for a multi-scalar analysis—ranging from the crop to global political economy—while maintaining analytical clarity. In the discussion section, I consider the implications of declining food system diversity and autonomy, alongside rising connectivity: First, forces of industrialized capitalism are increasing food system vulnerability; second (although the framework used to guide this analysis is based on three key components), I underscore how food system diversity, connectivity, and decision-making autonomy are all linked; third, the same forces of capital accumulation that led to farm consolidation and increased connectivity have also led to reduced socio-ecological diversity and decision-making autonomy. I conclude by highlighting that a more transformational shift is necessary in food system politics and practice. However, these changes will not be possible without fundamental shifts in power, access, and control in the food system. Within such a system, how should we apply SES concepts such as resilience, sustainability indicators (SIs), and diversity? Instead of simply ‘assessing resilience’, I argue that we should examine how SESs use relational processes to adapt, learn and evolve—whether or not the conditions are normatively ‘good’ or not. In other words, especially when systems are
seemingly dysfunctional, we need to understand how these systems continue to operate and fuel themselves.

Part three consists of the main empirical analysis, which includes chapters four through six. In Chapter 4, I address the second objective of this research. In this chapter, I explore the role of land—as an economic, social, and ecological entity, and how it functions in the food system. Specifically, the paper investigates how demographic changes alongside farm-scale capitalization and rising land values are generating unprecedented shifts in farmland relations, marked by increasing reliance on rental tenure and the growth of hybrid owner-renter consolidating farmers. This paper explores how these shifts are impacting various socio-ecological aspects of agriculture. It begins by reviewing the land/property relations and farmland and rural change literature, followed by a brief outline of relevant agroecological issues and concepts. Using empirical data (farmer surveys and in-depth interviews, expert interviews and soil samples) I argue that relatively new shifts in land tenure and use dynamics are producing an appealing set of conditions for financial investors, while restricting access to farmland for less capitalized and aspiring farmers—a key component of socio-ecological diversity. I then show how these shifts are divesting capital and attention from agroecological diversity and health at the farm-scale.

In Chapter 5, I examine the third main objective of this research, wherein I turn to the socio-cultural realm. This paper applies scholarship on settler colonialism, racial hierarchy and othering to connect ideological with material forces and show how material dominance in Canadian land and food systems is preserved through colonial logics and racially ordered narratives. Using in-depth interviews with grain farmers from across Ontario, this paper explores how white settler farmers perceive and construct two distinctly ‘othered’ groups: Indigenous peoples and migrant farmers and farm workers. Further, it shows the disparate role of land and labour in constructing each group, and specifically, the cultural and material benefits of these constructions for settler agricultural populations in Canada. Meanwhile, settler colonial structures and logics are always reciprocally coupled to political conditions. For instance, contemporary
neoliberalism in Canadian agriculture modifies settler colonial structures to be sure. I argue, however, that political ecological, and economic analyses of land and food production in Canada (such as corporate concentration, land grabbing, resource consolidation and agroecological health) ought to better integrate the systemic forces of settler colonialism that have conditioned land and food system access in the first place. Of course, determining who is able to access land—and thus, who is able to grow food and how—is a central determinant of socio-ecological diversity. In order to shift our current trajectory, we ought to examine how those with greatest access and control have acquired and maintained it.

In Chapter 6, I address the fourth objective by exploring conventional agri-food interests and identities, and specifically how conventional actors are making sense of their reality and responding to growing criticism and pressure from the alternative food movement (AFM). In this chapter, I ask: what is the discourse underpinning conventional agri-food actors and networks, how is identity being mobilized, and for what material ends? The themes described in this chapter emerged strongly and early on in this research, specifically during participant observation, farmer outreach, farmer and expert interviews, and content analysis. I use this data to reveal how constructions of identity and difference are deployed to build solidarity for conventional interests, while concurrently undermining and homogenizing AFM criticism, work, and voices. I argue that the constructions deployed by conventional networks are effective because they piggyback off and exploit enduring archetypes: First, beliefs concerning the conditions and cause of economic hardship in agriculture, and second, beliefs about the characteristics of certain identities (specifically female, non-farming, identities). As I show, these beliefs contribute directly to how the conventional identity both constructs itself as well as alternative identities. These discursive constructions have material impacts: They directly influence attention to and capacity for socio-ecological diversification in the food system. I argue that these discursive constructions are obstructing the possibility for inclusive, democratic decision-making processes, while encouraging a singular, top-down, corporate-led agri-food trajectory.
Part four consists of the concluding chapter, which provides a methodological reflection as well as the key findings from this research. I also consider some thoughts on future research directions.

References


Part Two: Conceptual Analysis
INTRODUCTION TO PART TWO

This research began with an intensive review of two dominant fields within the SES literature: Sustainability Indicators (SIs) and Resilience. Briefly, SIs are tools for measuring human impact on socio-ecological systems. Resilience, on the other hand, is a framework for analyzing the ability for a socio-ecological system to respond to and learn from diverse shocks and disturbances. The goal in the next two chapters is to review these concepts and examine how they may be useful in exploring the central theme of this thesis. Namely, how power relations across scales are affecting socio-ecological diversity in conventional agriculture. Therefore, section two proceeds in the following way. First is chapter 2, which compares and contrasts resilience and sustainability indicators, including their respective objectives, strengths, and limitations. What is clear is that while these concepts share similar characteristics, there is a qualitative difference between the two. Resilience focuses more on the analysis of system dynamics, while SIs focus on assessing and measuring selected components within a system.

I wonder, how do we examine characteristics of resilience or sustainability within systems that are fundamentally unsustainable or non-resilient? Further, is it useful to engage in such measurements when the system itself is dysfunctional? Before one is able to answer these questions, it is important to elucidate primary system conditions, dynamics and trajectories. This is where resilience thinking can be applied. We know that food system industrialization carries with it various costs and benefits, but this tells us little about how these different components interact with and affect each other: in turn, producing system dynamics and trajectories. For instance, while production efficiency may be seen as a clear benefit (since we can collectively produce more food), it interacts with other components within the system (such as economic markets, production inputs and landscapes) to generate problematic dynamics. Specifically, declines in socio-ecological diversity. Chapter 3 then aims to establish a cursory understanding of the state of the conventional food system, and dynamics therein, by applying resilience thinking. In doing so, I a) clarify the state of the food system within which this research takes place, and b) establish the analytic grounds necessary for the empirical research process.
in Part 3. In other words, with a clear understanding of key system conditions and dynamics, I am better able to determine the research aims and direct the empirical analysis.

Chapter 2: Approaching socio-ecological systems analysis

Publication details:


Abstract

This chapter compares and contrasts resilience and Sustainability Indicators (SI’s) and considers how each conceptual tool may build and enhance one another. The first section outlines the origins, utility, and constraints for both SI’s and resilience concepts. I begin by exploring how scholars have defined and applied each concept over time and reflect on the theoretical and methodological critiques of these definitions. I then show that both concepts struggle with specific, and at times intractable, issues of comparability, scale, and clarity. From here, I review scholarly attempts to address these critiques and assess the ways that SI’s and resilience can be effectively integrated into contemporary research. I end by emphasizing that concerns over political subjectivity still loom large for both concepts and thus consider the extent to which systems and programs that claim to improve sustainability and resilience are actually doing so, and on whose terms this is being done.
2.1 Introduction

In response to the complex global challenges facing socio-ecological systems, there has been rapid growth in the development and application of SES assessment tools, one of the most popular being sustainability indicators. Broadly speaking, sustainability indicators are collections of data gathering frameworks or tools aimed at holistically evaluating the social, environmental and economic impact of humanity’s behaviour on the planet. One of the first and most notable attempts to institutionalize SIs was the United Nations Programme on Sustainable Development Indicators established at the 1992 Rio Earth Summit (Bell & Morse, 2008). Since then, countless sustainability commissions, working groups, projects and reports have been developed. Just recently, over 20 years after Rio, the UN unveiled its Sustainable Development Goals.

A consistent challenge for these efforts has been determining the scope and breadth of indicators that can be included before the framework becomes un-interpretable (Barnett, Lambert, & Fry, 2008; Bell & Morse, 2008; Dahl, 2012). Another problem has to do with the general lack of theory and causal analysis in SI development (Bossel, 1999; Milman & Short, 2008). Generally, SIs are rather descriptive, and while they may reveal correlations, they provide little insight into the sort of causal relations that are amendable to political and policy intervention. For instance, Turner et al’s sustainability framework (2003) demonstrates how nested and spatially contextual sustainability operates, but does not offer any theoretical analysis of the social, political and economic dynamics at work—dynamics that often determine the nature and structure of ‘sustainability’ within the given context.

In light of this challenge, some have turned to resilience, which is defined in a number of ways including the capacity of a system to absorb stress before fundamentally changing states (Folke et al., 2010; Gunderson & Holling, 2002). Unfortunately, and as will be discussed below, problems have arisen as resilience has been proposed, developed and applied across various social and ecological systems. For instance, many resilient
systems are not desirable (e.g. economic systems that create poverty, are built on maximizing exploitation and/or imperial wealth production). This chapter briefly outlines these tensions and complexities, and points to specific conceptual and methodological challenges associated with both sustainability and resilience indicator frameworks. In doing so, I explore the strengths and weaknesses of these tools and consider the limits to their utility in my research.

2.2 Sustainability Indicators and Resilience

2.2.1 Sustainability Indicators

SIs are founded on a positivist approach to theory and methodology that argues singular, objective ‘truths’ can be derived through empirical quantitative data analysis (King, 2016). SIs have evolved as a means of codifying the complex and messy facets of environmental health and sustainability—a wicked problem to be sure (Frame, 2008). The purpose of SIs, therefore, is typically to determine whether systems, or components therein, are becoming more or less sustainable. Hence, measurement, standardization, and calculation are central to the design and implementation of SIs (Bell & Morse, 2008; Hsu et al., 2016; United Nations, 2007).

The mechanisms of quantification inherent to SIs have generated critique from post-structural and critical scholarship specifically (Darian-Smith, 2016; Rutherford, 2007; Rydin, 2007). More broadly, environmental and sustainability measures have received criticism on a range of epistemological, political, socio-cultural, economic and programmatic issues (Fiala, 2008; Ilcan & Phillips, 2010; Lautensach & Lautensach, 2013; Morse & Fraser, 2005). A common thread across critiques is that while it is crucial to monitor and assess environmental change, researchers and practitioners cannot assume that all means of tracking and analyzing such change are accurate or beneficial (Bulkeley, Jordan, Perkins, & Selin, 2013; Dahl, 2012; Linner & Selin, 2013).
A major challenge then becomes how to design, monitor and interpret SIs in a way that is robust, holistic and fair. As a number of cases show, ‘indicators are only as good as the data behind them’ (Dahl, 2012, p. 16). The scarcity, or inappropriate use, of data has led to interpretations that are irrelevant, inaccurate, exclusionary, and clumsy (Dahl, 2012; Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Morse & Fraser, 2005). Accordingly, another major challenge facing those who would like to use SIs is how to select, gather and interpret a vast array of—varyingly accurate—descriptive statistics. Decisions about which indicators to include and how to organize them, how to gather, manipulate and analyze data, as well as how data is scaled and weighted are all central in determining for whom the indicator set serves (Morse & Fraser, 2005). Such decisions are indeed power-laden. Hence, arguments for SIs on the grounds that they are ‘apolitical’, ‘objective’ and ‘value neutral’ must be considered very critically to say the least (e.g. see Morse and Fraser 2005 for an exploration of this issue as it pertains to one key SI initiative).

Another challenge for SIs is how to account for the subjective and political-economic forces that constrain action to improve sustainability. For instance, how do SIs effectively account for the offsetting of industrial activity from so-called Global North nations onto the Global South? We know that wealth accumulation (derived through capitalism, imperialism and colonialism) has created the conditions for such spatial and ecological fixes (Ekers & Prudham, 2015; Harvey, 2001), but should this political complexity be integrated into a model that was built for standardization? If so, how? Although still fraught with such concerns, the clear aim of SIs is to measure sustainability. What is less clear, however, is its ability to assess how society should act on these measures (the “software” of SIs) (Dahl, 2012). This raises the question of for whom does this data serve, and what does it mean for policy and practice?

This final point brings me to another key theme in the SI literature, which is focused on the ‘rolling-out’ of SIs, and is thus more process-based. A goal of SI discussions is to provide guidance on how to engage with different groups to define their own SIs, in turn allowing them to uncover the causes of unsustainability within their own context.
Scholars call this the ‘bottom-up’ approach to SIs, as opposed to the ‘top-down’ approach, which typically misses the qualitative nuance, and has too often failed communities in the past (Bell & Morse, 2008; Fraser et al., 2006). A key argument being that active and ongoing community ownership remains constrained by the quantifiable and comparative nature of SIs as well as inattention to various political dynamics of ‘inclusion’ (Fraser et al., 2006). SIs too often circulate within rather closed loops of ‘expert’ knowledge and information, which, in turn, produce simplistic conclusions about sustainability and fail ‘to align with community values’ and objectives (Fraser et al., 2006; Miller, 2007, p. 6; Morse & Fraser, 2005). At the same time, focusing on the stressors and state of sustainability, as many traditional models do, is insufficient for explaining the dynamics of the system and the relations between components (Bell & Morse, 2008; Turner et al., 2003).

For me, this debate also highlights the relative intractability concerning issues of comparability and scale. If SIs can effectively be scaled-down in a way that empowers communities to uncover contextually relevant, nuanced and comprehensive indicators, how do we use them to engage in a broader (e.g. national or global) discussion or analysis? In this case, a regional—and at times national—food system analysis.

2.2.2 Resilience

In some ways, more recent scholarship on resilience emerged out of critiques of SIs, particularly concerning analytical nuance and integration of system dynamics (Adger, 2006; Adger, Arnell, & Tompkins, 2005; Turner, 2010; Turner et al., 2003). Initially, resilience was defined by ecologists as the ability of an ecosystem to experience disturbance and maintain its basic structure and functions (Gunderson & Holling, 2002; Holling, 1973). Over time, the concept of socio-ecological resilience took shape, which integrates ecology with society, and highlights the need for social change by identifying indicators of persistence, adaptability, and transformation (Folke et al., 2010).
More recently, resilience has been taken up across the social sciences, such as economics, environmental policy and security, organizational strategy, development, social psychology, and international relations. As a result, numerous scholars argue that resilience has become methodologically and conceptually ambiguous, leading to a co-optation of sorts (Frerks, Warner, & Weijs, 2011; Reid, 2012; Walker & Cooper, 2011). Specifically, the conceptual expansion of resilience facilitated a redirection into neoliberal discourses of economic flexibility and adaptation, which claim to increase wealth and freedom while concurrently increasing “the prosperity and security of life itself.” (Reid, 2012, p. 77).

Additionally, inherent to resilience is the assumption that self or social preservation within a system is intrinsically positive. In other words, it is assumed that resilience is necessarily a good thing. Yet, resilience does not seem prudent under all cases such as systems of authoritarianism, systemic poverty, racism, colonialism or unfettered free-market capitalism (Anderies, Folke, Walker, & Ostrom, 2013; Cote & Nightingale, 2011). This has led scholars to problematize resilience by illustrating how feedback cycles can encourage and entrench prevailing states, thus increasing systemic connectivity and dependence on prevailing conditions, which reduces the system’s ability to adapt to change (e.g. see: Cote & Nightingale, 2011; Walker & Cooper, 2011). That said, resistance to change can be effective and beneficial under other kinds of systems and conditions, such as the ability for an ecosystem to withstand flood disturbance and remain intact. The question then becomes, for which kinds of systems is a resilience analysis relevant and useful, and for which is it not?

Finally, resilience has been critiqued for taking for granted—or completely ignoring—the systemic forces that produced the perturbation in the first place. In this way, some resilience scholarship seems focused on maintaining current systems of accumulation, and has thus become a “test of one’s right to survive in the global order of things” (Walker & Cooper, 2011; Watts, 2011). Critics argue that social dynamics cannot be naturalized through ecological principles like resilience, as it treats them as “inevitable rather than as objects of struggle” (Walsh-dilley, Wolford, & Mccarthy, 2016,
Without such nuance, resilience’s focus on ‘chaos’ divorces cause and effect, individualizes adaptive capacity building, and brushes systemic forces into the realm of the ‘unknown’ (Aradau, 2014).

Many of these critiques have been addressed by a range of scholars including Neil Adger, Katrina Brown (Adger, 2000; Adger & Brown, 2009) and members of the ‘Resilience Alliance’ who describe resilience as a framework for understanding processes of change by examining the ability of social and ecological systems to adapt, learn and evolve in ways that support better core functions. While this approach shows considerable promise, this broad definition puts us back into a similar position that has plagued SIs. Namely, and as will be discussed in the following section, that the definition may become so broad and holistic as to render it amenable to problematic political and social interventions.

2.2.3 Aligning SIs & Resilience?

To address the conceptual and methodological ambiguousness of both SIs and resilience, scholars have established indicators, which include, for instance: 1) capacity to absorb change, 2) self-organization, 3) adaptive capacity, and 4) diversity (Adger, 2006; Anderies et al., 2013; Engle et al., 2013; Milestad & Darnhofer, 2003 (Folke et al., 2004)). Similar to sustainability, therefore, resilience scholars argue that such a framework must be established in order to apply resilience effectively (Frerks et al., 2011). However, attempts to instrumentalize resilience bring us back, again, to concerns expressed with SIs. Specifically, how do we build indicators that are fair and comprehensive, how do we ‘roll them out’, and how do we assess who these indicators serve and what they mean for policy and practice? Moreover, such a framework does little to address the critique that resilience ignores structural causes, risks and dynamics.

This concern has been addressed by some recent resilience scholarship. Anderies et al. (2013), for instance, call for a careful alignment between the concepts of resilience, robustness, and sustainability, wherein sustainability is the distinguished goal, while the
process is developed around the concepts of resilience and robustness. Anderies et al. (2013) recognize that resilience is not normative, and thus ought to be used within a context of sustainability. Thus, system-level processes such as building skills, knowledge, and/or capacity can be considered from a resilience lens (i.e. to increase adaptive capacity), but these processes should be developed within the broader goal of improving sustainability. Resilience then gives us information about what might need to happen at the system-level for sustainability to improve. Meanwhile, having sustainability as the goal means that resilience does not always imply persistence or resistance to transformation, which, they argue, is where robustness becomes useful (Anderies et al., 2013).

Still, issues of both systemic risk and social justice do not seem inherent to an SI or resilience framework either. For instance, while the introduction of a new hydroelectric dam may allow regional energy needs to be met without the use of fossil fuels (a common indicator of improved sustainability), it may also produce new risks and issues around artificial stabilization, disaster management, water and food contamination (e.g. heavy metals accumulation), and community dislocation and land dispossession. Indeed, both sustainability and resilience continue to be flexibly adopted in ways that permit inequitable and exclusionary development projects (Reid, 2013). This highlights the aforementioned centrality of sustainability and resilience for and by whom? In other words, users must resist the de-politicization of sustainability and resilience that is working in the interests of institutional capital, timelines and strategies.

So, while sustainability and resilience may respectively help system actors understand where they want to go and how to get there, the issue of political subjectivity still looms large. The question then becomes whether systems and programs that claim to improve sustainability and resilience are actually doing so, and on whose terms this is being done. In turn, are such frameworks able to measure socio-ecological diversity and health in a way that attends to social and political issues if the system itself is fundamentally unsustainable or inequitable?
2.3 Conclusion

This opening chapter has introduced some of the main concepts and debates in the SES literature. I have aimed to show their strengths, weaknesses, applications, and critiques. Specifically, I want to note their value for socio-ecological analysis while underscoring their limits. In the research that follows, I focus on resilience (while acknowledging sustainability as a desired goal) since it is better able to capture systemic dynamics and more explicitly includes diversity in its framework. Indeed, one ought to be quite clear about system causes and dynamics before deciding whether and how to apply assessment tools. For instance, I argue that indicators are fairly useless for measuring a system such as the Alberta tar sands, as it functions through fundamentally unsustainable dynamics. By ‘fundamentally unsustainable’, I refer to a system whose incentives (typically short term economic, such as yield maximization) are longitudinally incompatible, and in fact work against, characteristics of socio-ecological sustainability (such as long-term soil organic health, biodiversity, and community-scale health and equity). In turn, prior to applying indicators, it is essential to study the ‘most significant driving forces and impacts and their causal relationships’ (Dahl, 2012, p. 17). As this review has shown, attempting to measure components when one has little understanding of system relations can lead to inaccurate and clumsy research. Hence, before considering the adoption of indicators for measuring diversity in this research, I must develop a deeper understanding of food system dynamics and trajectories. Therefore, in the following chapter I present a possible framework for understanding resilience broadly within the food system, which will help to determine if and how it may be applied to understand socio-ecological diversity in this research.

References


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Chapter 3: A Socio-Ecological Analysis of the Agri-Food System

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Abstract

The purpose of this chapter is to explore how socio-economic and technological shifts in Canadian and American food production, processing and distribution have influenced food system resilience. First, this chapter applies socio-ecological systems (SES) literature to define food system resilience as a function of that system’s ability to absorb external shocks while maintaining core functions, such as food production and distribution. Then, the literature is used to argue that food system resilience can be inferred by exploring three key dimensions: (1) the diversity of the food system’s components, (2) the degree to which the components are connected, and (3) the degree of decision-making autonomy within the food system. Next, the impacts of industrialization on these three factors within Canada and the US are discussed. Specifically, I show how processes of corporate concentration, farm-scale intensification, mechanization, and the ‘cost-price squeeze’ have led to a decrease in ecological and economic diversity, a high degree of spatial and organizational connectivity, and a diminished decision-making capacity for individual farmers. While this analysis is qualitative and heuristic, the evidence reviewed here leads me to postulate that our food system is becoming less resilient to external shocks such as climate change.
3.1 Introduction

The most recent Intergovernmental Panel on Climate Change report projects that between 2080 and 2100 we will likely experience, or exceed, a two-degree Celsius global warming, leading to more common and severe extreme weather events, shorter and warmer winters, longer summers, as well as greater variations in precipitation (Collins et al., 2013). These shifts will likely lead to changes in agricultural yields depending on region, latitude, and pest and disease dynamics (IPCC, 2014). However, much remains uncertain, as climate change is not exclusively a biophysical phenomenon. Rather, it is influenced by the social, political, and economic systems with which climate change interacts. For instance, when we consider food systems, it is vital to note that social and political factors significantly impact the capacity of those within the system to adapt to climatic changes. Understanding the ways in which industrialization has shaped contemporary agriculture, therefore, is vital if we hope to anticipate whether our food systems have the capacity to withstand the sorts of shocks and stresses already observed and predicted by climate models.

The purpose of this chapter is to explore the following question: how have recent social and political-economic shifts in the food system influenced the system’s capacity to adapt to shocks and stresses? To address this question, the chapter proceeds in the following way. I begin by reviewing the relevant literature on social ecological systems insofar as this body of work defines concepts of vulnerability, resilience, sensitivity, and adaptive capacity (Brown, 2014; Folke, 2006; Gunderson & Holling, 2002). Next, and using the conceptual tools from the socio-ecological systems literature, I explore ways that industrialization in Canadian and American food and farming are influencing the system’s resilience to shocks and stresses.

I want to note that this analysis of food system resilience is not intended to be exhaustive. Rather, the intention is to provide a preliminary and heuristic approach to analyze how social-economic and political factors interact with environmental and climatic dimensions within food systems. In this way, one of the goals is to build on the
strong interdisciplinary tradition of creating qualitative frameworks through which to explore food systems (see: Watts and Bohle 1993; Ericksen 2008; Hinrichs 2014), but this chapter also contributes to the field by applying evidence documenting recent changes in the nature of Canada and the USA’s food system to these conceptual tools.

3.2 Framework and theory

To begin, I review the relevant socio-ecological systems literature, and specifically, its definitions of resilience, vulnerability and adaptive capacity. As mentioned in the previous chapter, resilience has been defined and applied quite differently across disciplines. One way to define resilience through the SES body of work is, “the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.” (Engle, Bremond, Malone, & Moss, 2013, pp. 4–5). As applied to the food system, we can define ‘food system resilience’ as the ability of a food system (which itself is made up of actors who produce, process, transport and distribute food) to address stresses and disturbances while providing stable levels of consistent nutrition to the public. Notably, the simplicity of this definition is not intended to exclude attention to power, politics and normative goals of resilience—effectively explored through the transformation in resilience and adaptation literature for instance (Brown, 2014; O’Brien, 2012; Pelling, 2011)—but rather to apply it as a clear measure, thus allowing such exploration to occur through multiple lenses during analysis. An approach I hope to, at least partially, achieve in this chapter.

The SES literature is also useful as it provides conceptual and heuristic tools to evaluate system dynamics, and specifically, the extent to which resilience may be changing over time. In particular, this body of work has proposed the adaptive cycle as a way of observing whether social ecological systems are reaching tipping points, which are defined as conditions beyond which resilience may be quickly eroded (e.g. see: Gunderson and Holling 2002). The adaptive cycle is relevant in that it emerged from ecological studies to explain why some ecosystems seem stable for long periods of time.
but then collapse in a sudden reorganization. For instance, the boreal forest of northern Canada grows steadily for many decades until it reaches a threshold, at which point chance events, such as lightning strikes, cause massive fires. Of note, the adaptive cycle has subsequently been applied to various SESs (Adger & Brown, 2009; Adger, Hughes, Folke, Carpenter, & Rockstrom, 2005; Cote & Nightingale, 2011). Authors who have used the adaptive cycle as an analytic framework posit that the generic characteristics of systems on the verge of collapse (i.e. low resilience) include: low species diversity and high spatial connectivity amongst individuals (Gunderson & Holling, 2002). For this analysis, these two particular components—diversity and connectivity, along with a third—decision-making autonomy, will be adopted as they offer a clear yet comprehensive lens for analyzing relationships in a SES. Since these characteristics and their utility to the analysis of resilience have been defined many times by scholars (Berkes, Colding, & Folke, 2003; Gunderson, 2000; Peterson, Allen, & Holling, 1998), below I provide my own understanding of these terms and explain how these concepts will be used in this chapter.

3.2.1 Diversity

Diversity is understood here as a level of species richness that is functionally effective for the given system (Peterson et al., 1998). Analyzing functional diversity requires more than a species level assessment. For instance, in farming systems a three-crop rotation that has a grain (such as maize), a forage (such as clover), and a legume (such as soybean or alfalfa) would have more “functional diversity” than a four-crop rotation made up of cauliflower, cabbage, cress, and broccoli, as these four crops are all part of the brassica family and hence are vulnerable to similar pests. Maintaining functional diversity is particularly important because diversified crop systems have been shown to better withstand pest outbreaks, price instabilities (as the farmer has different kinds of crops to sell and eat), and weather perturbations than more specialized systems (Abson et al., 2013). Hence, the literature on “functional diversity” concludes that if, over time, there is a reduction in crop diversity, then that farming system will likely become more vulnerable to ecological, political and economic disturbances (Jackson, 2002).
3.2.2 Connectivity

A system that is tightly connected across the landscape allows “disturbances to pass quickly from one individual to the next and from one landscape scale to the next.” (Fraser, Mabee, & Figge, 2005, p. 9). Connectivity is important here because it forces us to consider how different scales may interact, since in tightly connected systems, processes that occur within one scale (such as the agroecosystem or field scale) may impact other scales (such as the watershed). For instance, the landscape of the Irish Potato Famine\(^2\) was one of continuous potatoes, with small tightly packed fields and minimal land left uncultivated (Fraser, 2003). If, however, these fields were separated by margins (buffer strips, wood lots, or windbreaks etc.) then the blight that infected potato crops would not have spread as far or as fast. A more recent illustration of the possible impacts of high connectivity can be seen in the ongoing Porcine Epidemic Diarrhea virus (PEDv) outbreak that has led to the death of roughly 10 percent of the U.S. pig population (Davis & Waters, 2014). Essentially, PEDv is contagious and has spread across 30 states in under a year, despite significant efforts to ensure sanitation and cleanliness along the supply chain. Although PEDv is extremely infectious (little more than a tablespoon of PEDv infected manure is enough to “infect the entire U.S. hog herd” (Davis & Waters, 2014)), it is important to note that cleaning and disinfecting production and distribution sites has done little to mitigate the fact that U.S. hog production is highly integrated and therefore vulnerable (Becton, 2014). In fact, it is the distributed network of thousands of independent growers across the country, and their physical separation, that is providing some measure of control at this time. The trend toward consolidation in the food system is clearly correlated to the trend toward spatial connectivity. Indeed, the rise in spatial connectivity is largely driven by economic forces, which will be explored in detail below. Thus, spatial connectivity must be understood in light of concentration and consolidation in the food system—defined here as economic connectivity.

\(^2\) Occurred between 1845 and 1850 and was caused by a potato blight that triggered a famine which killed or displaced 25% of the Irish population (Fraser 2003).
3.2.3 Decision-making autonomy

The third component of resilience applied in this paper is “decision making autonomy.” While not part of Gunderson and Holling’s original conceptualization of resilience or the adaptive cycle, this concept has emerged as an important element of SES research. Decision making autonomy is defined as the degree of control that producers have over production as well as their ability to observe and respond to feedback mechanisms (Folke, 2006; Hammond, Berardi, & Green, 2013). For example, a producer may be very keen to implement organic methods or become more ecologically adaptive. However, for a number of reasons, conditions may be such that they do not have the power or control over production to make those changes themselves.

Furthermore, decision-making autonomy is an important factor that determines the extent to which connectivity may exacerbate vulnerability. In particular, there are many situations where problems can quickly spread in tightly connected systems (such as PEDv). However, positive adaptations can also spread in connected systems (such as the adoption of innovative farming practices or better disease control measures). To a large extent, however, this depends on the ability of the individual farmer to change management practices. This, in turn, depends on decision-making autonomy (e.g. Fraser et al. 2005). Hence, the focus this paper places on decision-making autonomy builds on conclusions from the body of scholarship that defines adaptive systems as those with the ability to learn and change behavior (Adger, 2006).

3.2.4 Interconnectedness of diversity, connectivity and decision making autonomy

The three factors identified do not operate independently. Indeed, as diversity increases, and ecological or social niches fill-in, connectivity may also rise. Fraser (2007) addresses this point in a study on the factors that make livelihood systems vulnerable to famine, where he conceptualizes vulnerability as three interrelated factors that can be visualized as the axes of a cube (see Figure 3.1; see also Fraser et al. 2011). Drawing on this, it is proposed that the three factors identified in this paper may heuristically be displayed as the X, Y, and Z coordinates of the "resilience space" where changes along any of the
three axes may, albeit rarely, operate independently, or be affected by other factors. What is important in terms of resilience is the overall direction of the trajectory a food system takes over time. A food system moving toward the bottom, left, front corner of this space is one where decision-making autonomy is declining, diversity is decreasing, and connectivity is rising. I argue that such a food system is becoming more vulnerable to external perturbations and shocks than a food system that is moving toward the top, right, back corner.

Figure 3.1. ‘Resilience space’ conceptualization
3.3 Impacts of agricultural industrialization on food system vulnerability and resilience

In this section, the three components presented in section 1 are used to assess the ways in which socio-economic, policy and technological trends over the past 50 years have influenced the resilience of the North American farming sector.

3.3.1 Diversity

Evidence for changing diversity

Overall, a number of independent bodies of evidence suggest that functional diversity has declined on US and Canadian farms due to agricultural industrialization (Fragoso et al., 1997; Matson et al., 1997; Tilman et al., 2001; Tilman et al., 2002; Tscharntke et al. 2005). Given the rise of industrialization in Canadian and American agriculture (Lin, 2011; Vandermeer et al., 1998), understanding the effects of declining diversity is especially pertinent. Both globally and within the U.S. and Canada, the trend toward homogeneity is clear, with an average global rise in crop homogeneity of 16.7% between 1961 and 2009\(^3\) (Khoury et al., 2014). For example, in Illinois—which devotes 66 percent of total land to agriculture—maize and soybean crops rose from 45% of Illinois cropland in 1958, to 86% in 1997 (Liebman, Mohler, & Staver, 2001, p. 323). Similarly, by 1991, “production of the same crop in the same field for at least three consecutive years was found on 86% of the land used for wheat in Oklahoma, 82% of the land used for cotton in Louisiana, 57% of the land used for soybean in Mississippi, and 55% of the land used for maize in Nebraska”(Liebman et al., 2001). In the U.S. generally, acreage of corn and soy crops continue to rise (Bretting, Stoner, Widrlechner, & Williams, 2011). These trends, supported by analyses showing correlations between crop homogeneity and declining farm-scale biodiversity (Blackwell & Dolbeer, 2001; Hooper et al., 2005; Mutoko, Hein, & Shisanya, 2014; Potts et al., 2010), point to declining levels of on-farm diversity.

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\(^3\) Measured by the mean change in similarity between each country and the global standard composition.
In addition to declining diversity of crop types, evidence also shows increasing adoption of hybrid varieties and an overall reduction of varieties grown within crops. Commercially available varieties of peas, for instance, fell from 408 in 1903 to 25 in 1983; over the same period, sweet corn varieties fell from 307 to 12, cabbage from 544 to 28, and beets from 288 to 17 (Tomanio, 2014). In many ways, the process of industrialization has caused these declines. Specifically, the mechanization of harvesting has placed strict requirements on physical and genetic uniformity—mechanical tomato harvesting for instance requires highly uniform size, ripening pace, and a consistently thick fruit skin (Pritchard & Burch, 2003). As a result, only a small number of varieties are able to be cultivated under mechanized production systems. So, despite the kind of “pseudo diversity” (by which I mean a vast range of consumer products) seen in grocery store aisles, a significant drop in the richness of varieties for single crops has occurred. In Nova Scotia, for example, the number of apple varieties planted in orchards has gone from over 2000 varieties in 1916 to just six major varieties, four of which take up 70 percent of the continental market (Winson, 2013). The requirements of mechanization and economies of scale together have made the loss of varietal diversity especially prevalent in commodities produced via high density industrial farms and feedlots, or what Weis (2012) calls the *industrial grain-oilseed-livestock complex* that is made up of seven major commodities: maize, wheat, soybeans, canola, pork, poultry, and cattle.

On the supply side, varieties are now selected for their conformity to mechanization, their shelf life, and their ability to survive long shipping processes, rather than on taste, health (both human health and health of the agricultural product itself), or ecological quality (Bonanno, Busch, Friedland, Gouveia, & Mingione, 1994; Weis, 2010). In this way, industrial systems of production have been built around goals of capital accumulation and efficiency maximization, thus making it more logical to manipulate ecological factors in order to suit capital-intensive infrastructure and practices, rather than to build our food production, processing, and distribution infrastructure to benefit ecological diversity.
Causes of declining diversity

There are many factors that have led to declining diversity, and both Keynesian and neoliberal agricultural policy seem to have—in their own ways—led to a decline in diversity (McMichael, 2013). In the case of Keynesian policy, current price support programs in Canada and the U.S have encouraged fewer commodities, larger scale production, and higher use of inputs. This is because subsidizing and protecting specific crops means it is more expensive and difficult for farmers to switch crops or diversify production (Berardi, Green, & Hammond, 2011; Lin, 2011). Traditional crop insurance programs have also reduced farmer flexibility and willingness to adapt to changing conditions and climate variability (Bryant et al., 2000). At the same time, the more recent process of liberalizing markets and embracing free-trade mechanisms has not diversified agricultural production either. In fact, free-trade mechanisms have led to further farm-scale specialization (e.g. see the following two papers for an exploration of this argument: Bradshaw, 2004; Fraser, 2006). This is because factors such as the promotion of agrochemical use, single crop machinery, crop-based financial loans, and pressure from both governments and agribusinesses to achieve economies of scale, all directly influenced the trend toward specialization, and remain intact under market liberalization (Bradshaw, 2004).

Market concentration is also closely linked to the decline in on-farm diversity. The development of oligopolistic markets in the North American food system—wherein trade is now dominated by a small number of capital-rich transnational corporations (TNC’s) and retailers who are able to exert significant structural and market power—has produced new forms of corporate conglomerates that control product chains from farm to shelf. For example, the top ten seed companies control approximately 50 percent of the U.S. market in seeds, five companies control 90 percent of global grain trade, 30 of the largest retailers control one-third of world grocery sales, and four companies produce more than 60 percent of agrochemicals (Clapp & Fuchs, 2009; ETC Group, 2013; McMichael, 2010). Concurrently, private standards adopted collectively by this small set of powerful companies have strengthened transnational corporations’ structural power while also
pressuring participation from the smaller and/or weaker actors. For instance, when all major retailers enforce a production standard, many of the producers who sell to them have no choice but to accept the standard (whether or not the standard is applicable or beneficial to their method of production) (Clapp and Fuchs, 2009). In addition, the negotiation of standards such as Global G.A.P or USDA Organic consistently include the companies with the capital and resources to attend and influence the negotiations, which also increases the ability of these corporations to control the subsequent practices implemented in the food system (Jaffee & Howard, 2009). As such, agreed standards typically include technical requirements of production that suit these larger firms, but are unfeasible for smaller producers (Fulponi, 2006). Such standards may also become weakened and focus on methods of production that are already being employed by the agri-business actors. As a result, many smaller actors may become unable to uphold the standard and be forced to exit the sector (Fulponi, 2006, p. 11). For example, Fridell illustrates this process with regards to fair trade standards:

Starbucks is now among the largest fair trade roasters in North America—which promises to give TNCs immense influence on the future direction of the network. At the same time, TNCs may pose a significant threat to the viability of small-scale fair trade ATOS [Alternative Trade Organizations] (which generally sell 100% of their beans as fair trade), which lack the formers' financial and marketing resources. (Fridell, 2004)

Implications of declining diversity for resilience

Farmers across North America are experiencing the effects of declining system diversity in a variety of ways. For large-scale producers practicing conventional agriculture, continuous cropping or simple crop rotations result in the loss of soil fertility (Bennett, Bending, Chandler, Hilton, & Mills, 2012). A number of meta-analyses and field studies have shown that short rotations produce lower yields than longer, more complex rotations (Bullock, 1992; Challinor et al., 2014; A. S. Davis, Hill, Chase, Johanns, & Liebman, 2012; Liebman et al., 2001; Lynch, 2009). It is also clear that short crop rotations require higher pesticide and herbicide applications (Pimentel et al., 2008). Therefore, the trends
and forces outlined in the previous section are likely to be heightened as crop diversity declines. Indeed, increased commodity specialization has been shown to increase the producer’s vulnerability to economic and ecological risks (Smithers & Johnson, 2004).

For small and medium scale farmers, the effects of these trends on resilience have been more transformative in that declining market diversity via industrialization has forced many out of the farm industry entirely—evidenced through declining farm and farm operator numbers in both Canada and the U.S. (National Farmers Union, 2013a; Osteen, Gottlieb, & Vasavada, 2012). At the same time, declining market diversity has made it difficult for farmers to adopt ecologically beneficial practices. In the U.S. organic market for instance, establishing a label for organic produce actually “…made it easier for larger manufacturers and retailers to sell organic products, which in turn spurred the entry of larger organic farms and resulted in increasing concentration of the organic sector” (Cantor & Strochlic, 2009). While the organic market has been growing at approximately 20 percent per year, smaller farmers have been negatively impacted as they are “…increasingly unable to gain access to the mainstream buyers that represent an increasingly large portion of the growing market.” (Cantor & Strochlic, 2009). In fact, in Canada, the trajectory for farming over the next 20 years, as projected by the federal government, is that most of the remaining small farmers will be operating what the government terms ‘hobby farms’—which are not seen as economically contributing enterprises (Seccombe, 2007). Finally, these processes illustrate the dynamic relationship between factors (i.e. market barriers for small farmers, increasing concentration, and the exit of small farmers from the industry) in that each condition can further reinforce and reproduce the other. The implications of marginalizing small and medium scale farmers and eroding their capacity to subsist are increasingly clear. Socio-economically, it means that even fewer members of society would have the ability to produce food. While, in itself, this isn’t socially beneficial, having a low diversity of producers also allows food system disturbances to become amplified, both economically (consider food pricing controlled by few) and ecologically (contamination on a single farm can easily effect the entire country).
3.3.2 Connectivity

Evidence for rising connectivity

Evidence suggests that over the last fifty years, the North American food system has become increasingly spatially connected. Farm number statistics demonstrate this trend. In a matter of 25 years, the number of farms in the U.S. fell by half – from approximately 6 million in 1940, to just over 3 million in 1965 (NASS, 2009). In the U.S. tomato sector, for example, the number of growers dropped from roughly 4,000 to 597 between 1962 and 1973, while acreage and tonnage increased over the same period (Friedland et al., 1981). In Canada, farm numbers fell by 60 percent – from 732,832 farms in 1941, to 293,089 by 1986 (Winson, 1993). This trend continues today, with a loss of 23,643 farms (10.3 percent) in Canada between 2006 and 2011, along with a 10 percent reduction in the number of farm operators over this same period (Statistics Canada, 2011). Meanwhile, the total number of cultivated hectares of land has remained more or less constant. Hence, farm size has increased significantly, meaning that overall we have fewer, larger farms. This is what I refer to as greater spatial connectivity.

There has also been a trend toward consolidation and concentration in the food distribution and processing industry, a trend operating concurrently with increased trade in foodstuffs. These conditions are what I will refer to as economic connectivity. For instance, Canadian export values of agriculture and agri-food products increased from $10.9 billion in 1988 to $35.5 billion in 2010 (AAFC, 2012). In the U.S. as well, total agricultural exports rose from $35 billion in 1988 to $108.7 billion in 2010 (Hanrahan, Canada, & Banks, 2011). Trade in soybeans and soybean products, for example, rose from about 50 million metric tons to almost 200 million metric tons between 1990 and 2014. Additionally, many countries including Brazil, Russia, and Ukraine, along with areas of Africa and South America, are increasingly opening up their markets to trade and making substantial investments in agriculture. As a result of increasing trade, food commodities are gaining more and more “food-miles”; in the U.S., food has an average delivery distance of 1640 km and an average life-cycle supply chain distance of 6760 km (Weber & Matthews, 2008). Finally, not only is food travelling farther distances as a
result of international trade, but more food commodities are also travelling from certain concentrated production centers (such as California; the rising horticultural hub of the U.S.) throughout North America (Bonanno et al., 1994). For example, 73 percent of U.S. lettuce and 90 percent of U.S. tomatoes are now grown in California (Geisseler & Horwath, 2013). In fact, California alone accounts for about 35 percent of global tomato production (Hartz et al., 2008). Overall, these trends demonstrate the nature and degree of connectivity occurring in the food system.

_Causes of rising connectivity_

The aforementioned increases in connectivity have been driven by many of the same processes of industrialization that were explained with respect to declining diversity. Building on this, the following factors are particularly notable: rising capital intensiveness in farm production and rising input costs; market concentration in the processing and retail sectors; and declining commodity prices up to 2008. Taken together, these elements have dramatically changed structures and methods of production and resulted in a more tightly connected food system in Canada and the U.S.

Specifically, in the 1950’s, farm input and processing companies (bolstered mainly by U.S. capital) gained substantial power within the food system⁴. By 1962, the largest 50 processing firms in the U.S. controlled 70 percent of market sales (Winson, 1993). Concurrently, North American farmers became increasingly dependent on inputs of all kinds (machines, fertilizers, and pesticides), and consequently, the corporations that sold them. Without a dramatic increase in the price at which farmers could sell their commodities (in fact, given the market-power of buyers, the inflation-adjusted price of many crops has fallen), many farmers incurred significant debt in order to buy more land, more machinery, and other petroleum-derived inputs, and achieve greater economies of scale (Seccombe, 2007). Of course, not all farmers were able to adopt this model of intensification, which produced a differentiation of farm structure and a squeezing-out of

⁴ Although many scholars argue that concentration in the food system occurred long before the 1950’s, a number of concurrent shifts caused concentration in the post-war era of food production to be both more comprehensive and more structurally transformative (Winson, 1993).
many farmers from the industry. For farmers to stay in production, concentration has created incentives to capitalize and significantly intensify cropping. These processes have simultaneously diminished the power that small and medium scale producers have in setting prices for their commodities (Winson, 1993). In this way, the prices producers are receiving at the farm-gate for their commodities are not rising at a rate equivalent to the price of their inputs. Thus, farmer net-income has been declining over multiple decades.

This dynamic has contributed to the formation of highly oligopolistic markets. For instance, currently, the top three U.S. meat packers control 80 percent of the American beef market (Emel & Neo, 2011). A recent agreement between ConAgra Foods, Cargill, and CHS to combine their North American flour milling productions into a single conglomerate, Ardent Mills, will give these firms control over a third of the U.S. wheat flour market (Food and Water Watch). Indeed, the four largest flour producers (Horizon, ADM, ConAgra, and Cereal Food Processors) already mill more than half of the wheat flour in the U.S. today.

Implications of rising connectivity for resilience

Regarding resilience, rising connectivity primarily means that a smaller number of producers are providing a growing proportion of commodities along the food supply chain. Commodity concentration in particular can make the supply chain vulnerable to contamination and outbreaks in new ways. Additionally, concentrated production and supply systems demand that regulations are rigorous and reflect the scale and complexity of the process. However, such complex regulation is often not reflective of the conditions of small-scale production, or the resources and capital that small-scale producers have access to. Thus, concentration can often reinforce further concentration, making it very hard for small-scale producers to survive—even if they take great pride in farming, want to continue to farm, and want to gain fair access to down-stream markets. Concerning food system resilience, this trend means that while different food commodities certainly follow different chains and are hence not equally ‘globalized’, a growing quantity and proportion of food commodities are distributed along fewer, large-scale networks.
The impacts of a highly connected global food system on resilience is rather contextual, and dependent both on the region and threat in question. A dramatic example concerning the particular relationship between biophysical perturbations, vulnerability (in this case, food and political ‘security’), and global trade dependence occurred in 2010 and 2011. In the summer of 2010, drought and wildfires destroyed approximately 25 percent of Russia’s wheat crop (Kogan & Guo, 2014). Conceding to popular protests, the Russian government halted wheat exports, which caused panic in commodity markets and drove wheat prices to historic highs. As a result of conditions in Russia, countries in the Middle East—who were dependent on Russian wheat—began experiencing significant declines in wheat supplies and rising food insecurity. Subsequently, food protests commenced across the Arab world. Events quickly became political, and today the Russian droughts of 2010 are seen as an important contributor to the Arab spring (Johnstone & Mazo, 2011). This case shows that, for better or worse, recent history might have been quite different had the Middle East not been as dependent on Russian exports (Johnstone & Mazo, 2011; Kogan & Guo, 2014).

While the Russian example illustrates the global hazards associated with high connectivity, ongoing food safety concerns in the U.S. spinach and Canadian meat production industries illustrate the national-scale vulnerabilities produced through rising connectivity. A study conducted by Miewald, Ostry, and Hodgson (2013) on meat safety regulation and production scale in British Columbia provides insight into the ways in which monolithic federal policy and regulation concerning food production and distribution can contribute to rising connectivity in the food system. Over the past decade, the industry has been deeply impacted by Bovine Spongiform Encephalopathy (BSE) and E. coli 157:H7 outbreaks, leading to significant meat inspection regulation reform along with numerous large recalls. After the BSE crisis hit British Columbia, the Canadian Food Inspection Agency rushed to adopt a highly prescriptive food policy that required all meat slaughter to be conducted at centralized, publicly licensed plants. Predictably, this policy served to protect industrial, export oriented production against global fears of Canadian meat contamination, while enforcing impossibly onerous transport requirements on more rural, isolated, small-scale meat producers. The
subsequent rise in concentration of meat production, slaughter, and processing throughout western Canada led to vocal struggles over food safety standards and system vulnerability. On the one hand, alternative and small-scale producers and advocates contended that, given the large scale and broad distribution inherent in concentrated industrial production systems, the risk of a widespread outbreak was high (Miewald et al., 2013). Hence, they argued that the shorter geographic distance between farm-slaughter-customer, which small-scale production and direct to consumer marketing provided, reduced risk along the supply chain (ibid). As such, proponents of more local food systems concluded that small-scale producers and their applicable distribution networks should be valued and supported within British Columbia’s regulation. Industrial production proponents, on the other hand, argued that centralized production allowed for more efficient monitoring and surveillance. In the end, the Miewald et al. (2013) study found that by opening up the policy (and the definition of ‘risk’ within the policy in particular) to include an appreciation for diversity of scale and distribution, both producers and regulators could facilitate flexibility in enforcement and reduce systemic risk within the meat production system. In effect, these amendments helped to build a more nuanced meat inspection policy that appreciated the role that different scales and methods of production and distribution had to play in buffering systemic risk.

This example is supported by research examining the relationship between the scale of food outbreaks in the U.S., such as salmonella in eggs and E. coli in spinach, and high production and distribution connectivity in the industrial food system (DeLind & Howard, 2008). The spinach case study reveals that the scale of spinach production in the U.S., illustrated through the concentrated commodity chain that comprises the industry, is directly responsible for the spatial extent of the outbreak that affected over 26 states (DeLind & Howard, 2008). The authors argue that although local and regional scale food systems are unable to produce such an outbreak, the state’s role in capital accumulation and legitimation has caused a monolithic regulatory reaction that privileges the structure responsible—industrial-scale commodity chains, while harming alternative regional networks.
A second implication of rising connectivity is increased production risk. A number of studies conclude that corporate concentration and vertical integration have led to retailer preference for purchasing from large-scale, mechanized growers (Marsden, 1997; Winson, 1993). That is, there is a clear relationship between the size of processor and retailer, and the size and constitution of the farmer that they choose to form a contract relationship with. This has not only led to a number of concerns over food and ecosystem diversity, but it also entrenches producer dependence on fewer buyers. When oligopolistic markets and actors exist along the production and supply chain, the chain itself becomes highly vulnerable to perturbation: whether it is weather, price, producer mismanagement, or pestilence. For example, large, tightly packed monocrop systems—which facilitate easy access to thousands of a single variety of closely placed foods—are ideal conditions for pest and disease populations to develop. More specifically, a study by Winson (1993) uncovered that smaller processors found it unwise to purchase their entire product from a single grower within a single geographic region, and that while expanding suppliers may require slightly higher logistical and financial resources, it reduced the risk of losing their whole supply in the case of a perturbation. However, with increases in food system concentration and integration, the preference has been building for decades toward fewer, larger producers. The assumption here is that larger, mechanized producers have more access to synthetic inputs and technology to override perturbations, and still produce a decent seasonal yield. While this may be the case, it simultaneously produces a different set of production risks concerning connectivity and scale.

Third, highly consolidated food production and distribution systems hinge on access to relatively cheap and reliable fossil fuel energy. As the food system becomes increasingly globalized, distribution networks increase dramatically across geographic space. Within this system, the highly developed infrastructural, logistical, and technological resources of large transnational corporations make them well situated to move substantial quantities of commodities almost anywhere (Bonanno et al., 1994). The result of the globally connected food system is that it maximizes the spatial capabilities of distribution in a way that can be highly energy inefficient (MacRae et al., 2010; Pretty, 2008). While some argue that economies of scale can counter emissions produced during
long distance transport, there are many ways that local and regional distribution can also be made far more energy efficient (MacRae, Cuddeford, Young, & Matsubuchi-Shaw, 2013). Comparing distance itself, distribution connectivity contributes to what Van der Ploeg terms ‘the institutionalization of unsustainability’ (2006).

3.3.3 Decision-making autonomy

The third component of resilience that will be explored is decision-making autonomy. As noted in the first section, decision-making autonomy is relevant because it helps to identify the role of power and motivation in shaping socio-ecological systems. The causes of declining decision-making autonomy are rooted in elements of agricultural industrialization discussed in the previous two sections. Thus, to explore decision-making autonomy in more detail, this section will first present data demonstrating a decline in decision-making autonomy on the farm. Second, I will explore the implications of these changes for producers and the resilience of their production methods.

Evidence for declining decision-making autonomy

There are three key factors that illustrate that farmers today have far less decision-making authority than in the past. The first is what is known as the ‘cost-price squeeze’, which is defined as a process where agricultural production costs continue to increase while farm-gate prices remain stagnant. For instance, in 1960, the average price paid to U.S. farmers for a bushel of wheat was $1.74 USD (Farmdoc, 2014). Accounting for inflation, wheat should cost almost $14 dollars in 2014. However, prior to the 2007-08-food crisis, wheat was being sold by farmers for $3.42. Even after the crisis, wheat prices have hovered between $4.87 and $7.77 (ibid). This trend is common across many agricultural commodities, especially those intended for high volume production, such as soybeans and corn. As such, the viability of these crops can only be captured through economies of scale, which has drastically reorganized the size and scale of North American farms. As a result of scaling up and increasing inputs at rising per unit costs, the average cost of production in the U.S. has risen sixteen-fold since 1914 (USEPA, 2013). Even between
2007 and 2014, agricultural production expenses in the U.S. have risen steadily from $269.5 to $348.2 billion (Schnepf, 2014).

The second key factor relates to the direct consequences of the cost-price squeeze on farmers: we are seeing growing farm debt. In Canada, the average amount of farmer debt is twenty-three dollars for every dollar of net income (National Farmers Union, 2010). Although debt in the U.S. farm sector is less pronounced than in Canada, U.S. farm estate debt (inflation adjusted) has risen from $120 billion in 1970, to approximately $170 billion in 2014 (USDA, 2014).

Thirdly, small and medium scale producers are increasingly dependent on a small number of powerful corporate processors and retailers to sell their products. This dependence makes the producer less likely to act in a way that may jeopardize their access to that singular market. Additionally, producers become less able to voice concerns about unfair terms and prices, or change their on-farm practices, as larger processors have a great deal of market power to retaliate. In this way, much of the decision-making control has moved off the farm and into other areas of the food system.

For instance, in the U.S. egg production sector, through contracts, the processor often controls both the flock supply to the hen houses as well as egg purchasing. Numerous cases have been reported of threats by powerful processors that they will not supply hen houses with a new flock unless the hen house abides by—what might be unfair—contract changes (Woodall, Lynn, & Halverson, 2011). This has been examined, but not nearly resolved, in the recent Farm Bill. The impact of such relationships is dynamic in that a lack of viable alternative options further entrenches producer dependence on input, processing, and retail agribusiness.

Shifts in California tomato production help to illustrate the particular relationship between producer dependence and debt. As the California tomato sector became more concentrated, farmers were urged to scale-up and mechanize (Friedland et al., 1981). To pay for the necessary tomato harvesters, farmers went into debt. At the same time, these
substantial capital commitments locked the farmer into specializing in tomato production, which merely reinforced consolidation. Not only did mechanized harvesting demand a large quantity of tomatoes to be produced, but tomato harvesters could only operate successfully with a particular variety of tomato, which reinforced specialization. Not surprisingly, large agribusiness processors sped this trajectory along through long-term contracts, which stipulated that they would only purchase machine-harvested tomatoes (Friedland et al., 1981).

**Implications of reduced decision-making autonomy for resilience**

The implications of reduced on-farm decision-making autonomy are critical to consider regarding resilience. In particular, under these conditions it is extremely difficult for the producer to engage in long-term strategy such as shifting toward more ecologically adaptive production systems. Specifically, the processes outlined here have reduced the capacity and scope of opportunity for some producers to make independent decisions concerning what they produce, how they produce it, and why.

In the U.S., smaller farms in many sectors (including: hogs, broiler chickens, sugar, processing tomatoes) are typically contracted out to agri-business producers and processors. This will often allow the larger contractors to grow at the smaller firms’ expense, as poor contract negotiations and power imbalances lead to underpayment of producers (Emel & Neo, 2011). The constrained choices that smaller producers face from the contractor can manifest in forced efficiencies of scale, dependency on particular technology packages that make farmers “vulnerable to output and productivity manipulation by agribusiness firms”, as well as a loss of flexibility in enterprise choice (da Silva, 2005, p. 17). Regarding the first point, a hog producer, for instance, often has only two choices when securing a contract; they can either deliver a minimum of 10,000 pigs, or none at all. In this sense, some farmers have de facto been forced to ‘go big or get out’. While this has shown to be financially beneficial for a small number of producers who have sufficiently industrialized, the decisions themselves are not made because they are the best option for the ecological system, the community, or even the producer in
many cases, but rather for the actors with the control to demand such decisions. The result is the loss of capacity for small and medium sized producers to maintain their scale or make changes to production based on external stresses or perturbations; an essential element of resilience. In this sense, unequal contract relationships can bind farmers to a crop or livestock enterprise, where they are unable to adapt or diversify production to changing economic or ecological conditions.

For instance, while transitioning to a diverse organic system may be ecologically, economically, and socially desirable, the question is whether these producers can access the market under such concentrated power. In many cases, niche producers such as organic farmers can only reach a certain size before large corporations buy them up. For example, Cargill has purchased a significant portion of natural beef producers in the western U.S. through its collaboration with Meyer Foods and subsequent purchase of Dakota Beef (Cargill, 2010; Woodall et al., 2011). These oligopolistic and monopolistic conditions may be undermining producer capacity for, and attention to the implementation of ecologically sustainable practices. In fact, Burch & Lawrence (2009) argue that given the nature of finance, the growing integration of agri-business and finance capital in the food system may further reduce the possibility of ‘greening’ agricultural production in the future.

3.4 Resilience in the North American food system

Overall, three key results stand out from this synthesis. The first general conclusion I draw is that the North American food system is now, more than ever before, displaying certain characteristics of a vulnerable, and indeed unsustainable system. In particular, changes in the agricultural sector have led to a system that is less diverse, more connected, and one where farmers have less ability to innovate and make changes than in the past. So while we currently enjoy an extremely productive system that results in a large quantity of inexpensive food for consumers, these benefits have come at a cost. Namely, the overall food system is becoming much more rigid and thus vulnerable to external shocks such as those caused by bad weather or contamination. Given that the
literature on climate change projects weather-related shocks will become more intense and more frequent in the next generation, the increasing vulnerability of the industrial food system is a serious cause for concern.

The second general observation is that although the framework used to guide this analysis is based on three key components, I emphasize that food system diversity, connectivity, and decision-making autonomy are all deeply interlinked. These links can be illustrated by contrasting high-input methods of production with low-input agroecological methods. High input methods reduce the need for the grower to pay attention or respond to ecological feedback cycles in the agroecosystem. For example, instead of responding agroecologically to feedback cycles of soil erosion and excessive surface water runoff or leaching by increasing soil organic matter (and thus increasing crop diversity and incorporating forages and green manures), conventional producers are—both structurally and rhetorically—encouraged to simply change the Nitrogen-Phosphorous-Potassium balance of synthetic fertilizer application. The result is an agricultural system that is stabilized through significant investments in engineering, infrastructure, and policy, rather than agroecological system knowledge (Berardi et al., 2011).

As a result, the analysis presented here suggests that in many cases, producers may not have the same need or interest in encouraging agroecological diversity under the high-input system, since a few cash crops are what have been promoted to them. Relatedly, cash crops such as grains and oilseeds—which are mainly produced via industrial scale high-input systems in North America—are also the most heavily traded agricultural commodities (AAFC, 2012). These production systems are thus contributing to highly connected and uniform transnational distribution networks as opposed to what are, in many but certainly not all cases, more heterogeneous and reflexive regional and local distribution networks (Born & Purcell, 2006; Feagan, 2007). While there are financial benefits (for some) to participating in consolidated transnational trade networks, the drawback is a reduction in localized capacity to adapt to perturbations (as well as economic security for others). Finally, the relationships that both dictate and are created
by industrial food production methods are highly relational. If neither the producer nor
the agri-business input or processing firm need to autonomously adapt to perturbations,
these relationships may be lucrative and easy to manage. However, as our discussion on
decision-making autonomy has shown, these relationships can lead to systemic rigidity
and inequality between actors, especially when power and scale differentials are great.

More generally, the infrastructure required for high-input industrialized
production has created a system that operates beyond agroecological cycles. This is the
essence of the industrial food systems vulnerability: if its engineering, infrastructure, or
policy stabilizers were to be removed, the result would be far more devastating than that
of a system which never had those stabilizers to begin with. Hence, in order to avoid
widespread economic, political, and social catastrophe, many argue that those stabilizers
need to stay in place (Juma, Tabo, Wilson, & Conway, 2013). Indeed, the focus of
industrial agricultural production is productivity and efficiency, bolstered by these
aforementioned stabilizers. While the system has been effective from this perspective,
banking on engineered stabilization leaves the system significantly vulnerable to
perturbations that operate beyond the system’s own bounds of ontology, epistemology, or
control—i.e. unexpected or non-linear climate variability and feedbacks, extreme weather
events, or ecological consequences of ongoing input application (such as soil
degradation).

The third observation is that the same forces of capital accumulation that led to
farm consolidation and increased connectivity have also led to reduced diversity and
decision-making autonomy. At the root of my critique, therefore, is a concern that de-
regulated market forces (made possible through numerous re-regulations established to
benefit capital) have created incentives that trade short-term productivity against long-
term resilience. Indeed at the field-scale, the industrial food system shows evidence of
declining resilience, while as a whole, the system exhibits features of resilience—via a
steady supply of cheap food. Effectively, the types of production systems and methods
that qualify as ‘resilient’ depend on who we include as the beneficiaries of resilience, and
what the system ought to be resilient to. If we are measuring it through sustainability or
climate change mitigation measures, increasing our use of synthetic inputs, and technological and engineering fixes have allowed us to hold agro-ecosystems at a point that many ecologists would consider to be highly vulnerable (i.e. ‘an accident waiting to happen’). However, if we are measuring through efficiency, productivity, and stability measures, we might conclude that these same methods enhance resilience to economic inefficiencies or short-term production perturbations. The latter has been the goal of the vast majority of food production for the past 50 years, and the trajectory of this has resulted in a trade-off of long-term resilience for productivity and engineered stability. In the context of climate change, where perturbations are projected to be more severe and frequent, we must be critical of whether these fixes are able to effectively and justly meet the kinds of problems emerging today.

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Nation’s Hogs, Causing Spike In Pork Prices.


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Part Three: Empirical Analysis
INTRODUCTION TO PART THREE

The previous chapter addressed the first objective of this research by critically exploring the impacts of industrialization on the socio-ecology of the food system. I show that the North American food system is in a state of vulnerability, whose dynamics are fundamentally unresilient to future perturbations. Within such a system, how can resilience thinking be effectively applied? This question plagued me throughout the research process.

As posed in the previous chapter, ‘the question then becomes, for which kinds of systems is a resilience analysis relevant and useful, and for which is it not?’ As mentioned, I aim to assess the means or processes through which system trajectories move and evolve. To do so, I more loosely apply SES thinking to analyse how political-economic, social, and cultural processes work to establish and reproduce certain conditions, states, and trajectories in the food system, thus influencing possibilities for systemic transformation. As you will see, I move away from a strict application of resilience in the empirical analysis. Rather, what becomes clear through the analysis is the trajectory of declining socio-ecological diversity in the food system. As each manuscript will show, political-economic, socio-cultural, and ecological diversity are all of concern in Canada’s food system. But, again, the trajectory itself is not especially compelling. Rather I am interested in exploring the processes by which this trajectory operates. Thus, the bulk of the analysis aims to elucidate the complex, historically situated processes through which this trajectory functions. As I discuss further in the conclusion chapter, such an analysis requires going beyond a basic application of resilience to the data.

During data collection and analysis, three broad processes emerged, each of which aligned closely to my final three research objectives: political-economic processes of land tenure, access, and use; socio-cultural processes of identity construction and othering; and socio-political processes of identity production and empowerment. While each respective process is highlighted in the following three manuscripts, I stress that
they are deeply interlinked. For instance, in the first manuscript I show how political-economic shifts in land tenure determine who participates in farming, which has ecological and social implications as it limits land access to those who have been historically able to build capital in agriculture. As well, in manuscript two, my interest is to show that socio-cultural processes of identity construction are based on distinct political relations and histories, and have meaningful impacts on material conditions in agriculture. Primarily, who is able to be on the land and what kinds of agriculture they are able to participate in. Finally, manuscript three links these processes by exploring strategies for gaining social and political power in agri-food systems, which serves particular socio-cultural and material ends.

Chapter 4: Tenure, Capital and Finance in Farmland Relations: Implications for Socio-Ecological Health in Agriculture

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Abstract

Farmers in Canada are older and more capitalized than ever before. Meanwhile, farmland values continue to rise. These forces together are generating unprecedented shifts in farmland relations, marked by increasing reliance on rental tenure and the rise of hybrid owner-renter consolidating farmers. This paper explores these dynamics in Ontario and asks how they are impacting on-farm agro-ecological stewardship. To do so, we begin with a review of the land and property relations literature as well as farmland and
agricultural change in Ontario. We then briefly review agro-ecological issues and concepts that are important for linking on-farm agroecological health. From here, we use survey, interview, and soil sample data collected from grain farmers across to elucidate relatively new shifts in land tenure and use dynamics. We argue that this complex set of forces is interacting to produce an appealing set of conditions for financial investors, while restricting access to farmland for less capitalized farmers. We then show how these shifts are divesting capital and attention from agroecological health. We conclude with a reflection on how the state has been mediating and contributing to these dynamics and urgently call for land policy that prioritizes social and ecological principals.

4.1 Introduction

This paper explores dynamics of land consolidation and land tenure, and considers how they impact on-farm agro-ecological stewardship in Ontario. Specifically, we seek to better understand how the aging farm population—which is necessitating changes in land ownership—combines with rising land values to affect on-farm decision-making, succession, and investment in long-term sustainability.

This paper is underpinned by a number of key trends. First, Canadian farmers are getting older. Between 2001 and 2011, the average age of farmers rose from 49 to 54 years old (Statistics Canada, 2011). In turn, more farmers are looking for ways to exit the industry and retire. Meanwhile, these same farmers plan to fund their retirement through the sale of their farm. Second, these changes in ownership are coupled with significant increases in land values. In Ontario—Canada’s major corn-producing region—rural land values have risen by an average of 12% per year since 2008 (FCC, 2016). Third is the industrialization of agriculture more generally, which is partially driven by massive capital costs associated with modern farming. Farmers in Canada today carry a debt of 23 dollars for every dollar of income, which is largely fueled by both land and equipment purchases (Statistics Canada, 2011). The cumulative effect is a wave of farm consolidation alongside the rise of hybrid owner- and renter-operators. These farmers
both own a proportion of their land as well as farm large areas under multiple rental agreements.

This paper asks: how are these demographic, tenure and capital forces interacting, and what is their impact for agro-ecological stewardship? To do so, I examine how farmland tenure and capital dynamics are affecting conventional grain farmers and farmland in Ontario. In answering this question, this paper contributes to the growing literature linking farmland and finance. The analysis informs this literature in two ways. First, Ontario has received relatively little attention compared to prairie provinces. Yet, Ontario is important, as it is one of the largest food producing provinces with the highest number of farms in Canada (Statistics Canada, 2011). Meanwhile, Ontario is home to some of the highest priced farmland in the country, which is creating specific concerns for farm succession and sustainability. Second, this paper presents data from a mixed methods study based on surveys, soil analysis, and in-depth interviews with farmers and agricultural representatives. Accordingly, it focuses on the dynamics between structural political economy and social agency. I, in turn, move away from an overly structural analysis and ‘engage meaningfully with the actors involved’ by exploring real and perceived conditions and relations between farmers (Magnan, 2015, p. 3; Ouma, 2014).

The paper begins with a review of land and property systems literature, as well as farmland and agricultural change in Ontario. I then review key agro-ecological issues and concepts that are pertinent to the results and discussion. Next, the results present new tenure and use dynamics emerging, which are impacting on-farm agro-ecological health. The results present the structural issues farmers face and how these issues interact with farmer decision-making. The discussion explores how shifts in tenure are interacting with consolidation and considers their implications for financial investment, land access, and stewardship. I conclude with a reflection on how the state has been mediating some of these dynamics.
4.2 Context of land and property relations

Under the system of private property imposed through settler colonialism, Canadian farmland relations *typically* consist of individual farm owners, who either farm the land themselves or rent it out to another farmer (Harris, 2004). Secure tenure is widely understood to be important for effective land and soil stewardship (Fraser, 2004; Sklenicka et al., 2015). A main and longstanding argument is that farmers feel more comfortable investing in their land if they know they will obtain the long-term benefits (Bunce, 1998). Especially since long-term investments in soil fertility, conservation, biodiversity, and naturalization are not immediately observable, yet come with notable short-term costs (Carolan, 2006).

Of course, the private property system must be viewed critically (Ostrom, 2015). Notwithstanding its role in ongoing land and resource theft via imperialism and colonialism (Bakan & Dua, 2014; Wolfe, 2006), land privatization has had devastating effects on communities and ecosystems (Borras & Franco, 2010; Peluso & Lund, 2011). Still, a common argument maintains that, within this system, managing owned land is more secure than renting. First, the temporary nature of rental arguably offers little incentive to make long-term investments. Additionally, the landowner’s security of income might disincentivize them from making long-term investments, specifically because such changes don’t guarantee increased rental income. Finally, studies show that soil fertility and conservation tend to decline on rental land compared to owned land over time (Praneetvatakul, Janekarnkij, Potchanasin, & Prayoonwong, 2001; Sklenicka et al., 2015). Importantly, however, views on tenure, security and conservation remain contested (Varble, Secchi, & Druschke, 2015).

Meanwhile, the debate seems constrained to an either/or comparison between rental and ownership. The bounds of the debate take the private property system of ownership for granted. This also inherently neglects analysis into communal and collective ownership alternatives (Ostrom, 2015). As Desmarais et al. argue, consistent exclusion of communal approaches from land governance discussions is illustrative of the depth and breadth of settler colonialism (2016). The debate would thus benefit from
inquiry into how rental and ownership tenure interact within the private property system under neoliberal economic conditions—which is where this paper aims to contribute. Indeed, rental and ownership relations work in tandem: someone owns the land, they are just separated from the farmer via the rental relation.

Meanwhile, systems of property relations are comprised of more than tenure alone. Socio-ecological dynamics surrounding tenure are determined by historical relations through which a given system of ownership operates. Interconnected issues including access, withdrawal, and management make up the complex ‘bundle of rights and powers’ characterizing private, collective or communal property systems (Ostrom & Hess, 2007). Some scholars have used the concept of ‘assemblage’ as a way to understand this complex set of interactions (Li, 2014; Sassen, 2013). Within agri-food studies, issues include farmer characteristics and behaviours (Bryant et al., 2000; Burton, 2014; Lambert, Sullivan, Claassen, & Foreman, 2007); the role of social relations and identities in farmland management (Burton, 2004, 2012; Carolan, 2005); and market, capital and governance forces (Preibisch, 2007; Roppel, Desmarais, & Martz, 2006; Rotz & Fraser, 2015; Skogstad, 2008; Winson, 1993). Notably, institutions intervene on these bundles of rights and powers in spatially and temporally specific ways, producing political subjectivities in relation to land. In Canada, the (re)assemblage of land rights and powers must be understood in the context of ongoing and interlocking settler colonial dispossession and property privatization (Coulthard, 2014; Kepkiewicz et al., 2015).

4.3 Agricultural and farmland change: Industrialization, neoliberalism and financialization

In Canada, rental tenure has been rising for nearly 40 years (Statistics Canada, 2011). Between 2006 and 2011, rental land rose from 34.1 million acres to 36.8 million acres. During this time, owned land fell by 6.8 million acres (Statistics Canada, 2011). In turn, rental is now the second largest form of agricultural tenure in Canada, while crop sharing continues to decline (Statistics Canada, 2011). In Ontario, the trends are the same. Between 1986 and 2006, rental tenure increased by 20%, while ownership fell by
15% (Statistics Canada, 2006). Near urban centres in Ontario, rental tenure is closer to 50% (Bryan, Deaton, Weersink, & Meilke, 2011).

Tenure trends must be considered within the context of agricultural industrialization. Mechanization and capitalization have created sequential rounds of overproduction, eroding prices and farm incomes alongside rising farm debt (Smithers et. al. 2008; van der Ploeg 2006). The political economic response to overproduction has been farm consolidation and credit expansion (Fuller, 1985; Holtslander, 2015). This ‘cost-price squeeze’ is pernicious in that capitalization and corporatization are co-productive, driving agricultural input and production costs up while farm-gate prices and incomes remain fairly constant (Galt, 2013; Troughton, 1989). To manage growing debt, farmers must maximize economies of scale through land consolidation. These pernicious cycles have ‘resulted in farmers leasing an increasing portion of the land in their operations, frequently from farm descendants whose families left the sector in earlier rounds of restructuring’ or from economically strained or retiring farmers (Sommerville & Magnan, 2015, p. 125). In turn, Ontario farmland has been re-structured dramatically. It is not simply that all farms are becoming larger, but rather, that there is a long-standing structural stratification, marked by a social and economic erosion of less capitalized farming systems—commonly referred to as farm scale polarization, differentiation or the ‘disappearing middle’ (Akram-Lodhi, 2007; Kischenmann et al., 2004).

Furthermore, while farming systems were traditionally quite diverse, the productivity and capitalization demands of industrialization have facilitated crop standardization and specialization. Farmers are now growing fewer crop species (e.g. farmers who grew oats, buckwheat, beans and hay now have a simple corn-soy-wheat rotation), as well as specializing within sectors (e.g. farmers are producing only grains or only livestock, rather than grains, vegetable crops, and livestock). Outside of hay, corn, soy, and wheat are now the most dominant crops produced in Ontario and Canada (Statistics Canada, 2011). Grain and oilseed farmers make up over 30% of farms and
74% (97% if you include hay) of total cropland in Ontario (Statistics Canada, 2011). Industrial promotion of corn and soy production is fueling farm consolidation. For agribusiness, the financial logic behind the big three crops is quite obvious: corporate-led innovation spurs product consumption. Predictably, while corporate profits have risen steadily, the economic benefits remain unrealized for farmers caught in this pernicious cycle (National Farmers Union, 2010).

Agricultural industrialization has only intensified as neoliberalism has taken hold. In Ontario, nearly 30 years of ‘roll-back’ neoliberalism via privatization and deregulation has emboldened land consolidation and the corporatization of production and inputs (Peck & Tickell, 2002). Meanwhile, the more recent influx of financial investment into farmland (characteristic of ‘roll-out’ neoliberalism) and re-regulation is exacerbating consolidation even further (Sommerville & Magnan, 2015). Neoliberalism has contributed to further land and capital consolidation by transferring debt responsibility to indebted farmers (rising farm debt further), and entrenching finance in the agri-food sector (Clapp & Fuchs, 2009). As well, public administration and oversight has been downsized and radically reorganized toward private partnerships and larger, capitalized farmers (Ontario Ministry of Food and Rural Affairs (OMAFRA) and Agriculture and Agri-food Canada). These shifts have exacerbated the cost-price squeeze and the subsequent exodus of small/medium farmers from agriculture. For instance, between 2006 and 2011, Canada lost 23,643 farms (10.3 percent), along with a 10 percent reduction in the number of farm operators over this same period (Statistics Canada, 2011). Concurrently, more total farmland is dedicated to cropping than ever before, alongside a decrease in naturalized areas such as grasses, woodlands, and wetlands (Statistics Canada, 2011).

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5 The market dominance of the big three crops has been manufactured through public, private and university-led research, funding and extension projects into crop breeding (Reaman, 1970).

6 Desmarais et al. (2016) provide a background of neoliberalism and the financialization of agri-food in Canada. The following are most relevant to this article: government cuts/restructuring to agricultural spending/programming in 1990’s; signing of free trade agreements including NAFTA and the WTO Agreement on Agriculture, further weakening agricultural supports; (de) and (re)regulation of agricultural financing and lending (via shifts in Farm Credit Canada (Bergevin & Poschmann, 2013)); dismantling of farmer controlled marketing and price setting systems, such as the Canadian Wheat Board (Desmarais et al., 2016).
While complex and contextually contingent, neoliberalism has clearly deepened the incorporation of corporate and financial logics over food production and farmland relations (Desmarais, Qualman, Magnan, & Wiebe, 2015; Isakson, 2014; Sommerville & Magnan, 2015). The growth of financial investment in farmland together with consolidation and expanding industrial demand for corn and soy has driven land prices up dramatically in Ontario. Average Ontario farmland value rose ‘6.6% in 2015, following gains of 12.4% in 2014 and 15.9% in 2013’ (FCC, 2016, p. 7). Meanwhile, we can’t ignore lands concurrent productive value, made clear through the spike in land acquisitions following the 2007-2008 financial crisis (Zoomers, 2010). We therefore echo Fairbairn’s suggestion that growing investment in land is premised on ‘land’s profitability as both a productive and a financial asset’ (2014, p. 785). Finally, financialization’s role in farmland is not wholly structural or unidirectional, but is rather composed of ‘everyday actions and sociotechnical practices that invoke a wide range of intermediaries alongside financial actors and that are notably attentive to the specific materialities of these sectors, as well as the tricky relationships between the temporality of finance and the historical time of agriculture’ (Le Billon & Sommerville, 2016, p. 4).

4.4 Agroecological health and stewardship

Agroecology is an integrative concept underpinned by ecological, economic, social, and political components (Francis et al., 2003). While these interconnections will be developed further in the discussion, here we focus on ecological components and processes within agricultural systems. Throughout this research, I asked farmers about their adoption of a range of practices known to improve ecological health at the farm scale, such as improving soil organic matter, biodiversity, optimizing crop, forage, and livestock interactions, and balancing mineral, nutrient and chemical compounds (Altieri, 1995; Gliessman, 2007; Lynch, 2009; Pretty, 2008) The following specific agroecological components were pertinent, as they were impacted by political and economic factors, including specialization, consolidation and shifts on land tenure: (1) soil organic matter (SOM) and (2) on-farm biodiversity.
Soil organic matter is a well accepted property of overall soil health (Bélanger, Vanasse, Parent, Allard, & Pellerin, 2012; Wander & Drinkwater, 2000). There is relatively strong consensus about the impacts of different management practices on SOM levels, which ‘makes it possible for producers to identify practices that will improve or degrade soil quality over time’ (Wander & Drinkwater, 2000, p. 69). Organic farms have exhibited higher SOM than conventional systems in multiple studies (Lynch, 2009; Lynch et al., 2011). This is because organic systems often—but not necessarily—employ low-input practices that correspond to agroecological principles. Rather than relying on synthetic fertilization and pesticides, ‘sustainable organic’ (as opposed to ‘corporate commercial organic’) introduces various forms of biodiversification to balance nutrients and manage pests and weeds, while also adding biologically rich soil amendments such as green manures and compost (Gliessman, 2013). Diversification can occur within the crop rotation (by expanding the number and varieties of crops grown), between crop and livestock interactions (by encouraging a wider range of plant and animal interactions), and at the farm-scale (by encouraging interactions with native plant and animal life). Diversity enhances agroecological health by building SOM, balancing soil and plant minerals/nutrients, and enriching wildlife habitat. Hence, enhancing on-farm agroecological health works alongside SOM, shown to be most successfully achieved under farming systems that are biodiverse, which are coordinated most favorably within organic systems (Ponisio et al., 2015). Notably, the benefits of diversification are not limited to organic systems. Diversification has been shown to improve soil health, increase crop yields and stability, and mitigate pests and diseases in conventional systems also (Bennett et al., 2012; Davis et al., 2012; Gaudin et al., 2014).

4.5 Methods

For this research, I focus on farmers because they are among the most active participants in rural land relations and stewardship. I focus on conventional grain farmers for this same reason: they own and manage roughly 90% of Canada’s cropland (Statistics Canada, 2011). Demographically, research participants were aligned to national means. The average age of participants was 51 years old, slightly lower than the national farmer
average of 54. All identified as white (settler European decent), which is representative, as white settlers control much of Canadian farmland (Statistics Canada 2011). Average farm size for this sample was 703 acres (national average=778 acres), far higher than the Ontario average (244 acres). However, the average acreage for Ontario grain farms specifically is closer to our sample mean. Research participants rented 26% of the total land farmed, while the national average is 24% (Statistics Canada, 2011).

To capture political economic dynamics as well as farmer experiences and decisions, data collection occurred in multiple phases. The first phase was a survey conducted between January and April of 2015. Farmer outreach was done by attending farm shows, conferences and annual meetings, posting listings in farming newsletters and media, and connecting with relevant organizations. In turn, a total of 107 grain farmers (the control was that they must have grain corn in their crop rotation) completed the 90 question survey (45 to 90 minutes). The survey had six main sections: 1) Demographics; 2) On-farm economics including net/gross income, income change (used together to determine farm financial health), on-farm employment, production costs, buyers, and crop use; 3) Resource use including feed, fertilizer, pesticides, fuel, and manure; 4) Crop and agriculture analysis which detailed crop rotation, soil texture, livestock, organic practices, cover crops, forages, and pest and weed control; 5) Climate and environmental conditions including ecological buffering, protection, and enhancement, soil health, and responses to extreme weather and climate change; 6) Organizational and community relationships such as knowledge gathering, local involvement, interest in localizing production and participating in environmental programming, succession, and community dynamics. Participants who completed the survey received a 20-dollar gift card. The vast majority of respondents were located in Southern (54%) and Western (30%) counties, with only 9%, 6% and 1% residing in Central, Eastern, and Northern Ontario respectively. Statistical analysis of survey data was completed using SPSS v.22 and 23 software.

Once survey analysis was complete, 40 respondents were selected for in-depth interviews based on their responses to the following components: acreage, organic
practice/certification, income, yields, crop rotation, cover crop/forage integration, livestock, local production, community openness, on-farm diversification, and interest in ecological enhancement and land sharing. I was looking for a range of farm characteristics: sizes, incomes, and practices. Based on response rates, 24 in-depth 20-question interviews (1-3 hours) were completed between July and August 2015. Questions included how they settled on the land; farm change; relationship to the land; economics; agronomy and adaptation; perceptions of food movements; thoughts about producing ‘industrial foods’; and community openness, including racism, identity, and colonization. Interview data was analyzed using NVivo v.10 software. Data was coded into 27 parent codes, and 12 sub-codes. Thematic analysis occurred relationally between trends in the data and research objectives.

Lastly, three in-depth policy/practitioner interviews were conducted with OMAFRA staff and an agricultural organization to triangulate data, gain understanding of different positions, and acquire details concerning policy and programming.

4.6 Results

4.6.1 Political Economic Trends: Farm scale, tenure, and consolidation

Survey data show a significant shift in tenure as farm acreage rose. Farms under 200 acres owned 91% of their land, whereas farms over 700 acres owned 61% of their land. Farms that increased acreage over the past 10 years rented 30%-40% of their land, while farms whose acreage either stayed constant or decreased, rented 8%-18% of their land. Together, there were strong correlations between tenure, size and income. Regarding tenure and income, the relationship between land rental and gross income (2013) was significantly positive (p= .00), but there was no significant relation between rental and net income, suggesting farmers who rent more land have proportionally higher expenses. This was mirrored between farm size and income: gross income and farm size were significantly positive (p= .00), but less so for net income (p= .028). Thus, as farmers grow, so do their expense ratios—suggesting an increase in investment income (rent and
Small and medium sized farms reported lower financial income across sizes (<=500 acres, n=58, mean acreage of pool=220 acres) when isolated and tested against their larger counterparts (+700 acres, n=34, mean acreage of pool=1590). Small and medium farms also had increased rates of declining income over the past 10 years. Yet, mean yield and yield standard deviation were very similar between very small (<100 acres) and very large farms (+1000 acres). A multiple regression analysis also shows a significant relationship between corn yield and net income, but not corn yield and farm size.

These results offer four takeaways: 1) Owned land is more common on smaller farms; 2) Increases in farm size are largely driven by rental tenure; 3) Farms with a lot of rented land have more gross but not more net income, suggesting greater expansion activity; 4) Although yields are fairly consistent across farm sizes, small and medium sized farmers experience greater financial stress.

The following concerns also emerged in the survey and interview data: rising farm size and changing tenure; financial concentration and 'corporate farms'; and rising land prices. Together they show that farmers are worried farming is becoming inaccessible, and that the scale of farming today will not be viable in the future.

Regarding farm size and tenure, 17 interviewees managed farms less than 700 acres. These farmers commonly felt that (whether they desired to grow or not) rental land was inaccessible to their size and asset pool. 18 interviewees highlighted that rental rates and land access was a significant concern, and increasingly restricted to expanding farmers (consolidators) and/or investors. As one respondent explains:

The guy with the greenhouse operation that makes x number of dollars off of it is able to walk out and buy a farm every year, good for them, congratulations. But they pay two or three times what it’s worth, […] it’s an investment. They get to write it off as part of their business plan. (35)
Farmers expand on this point when talking about the *rise of corporate farming*. The same farmer describes that this process is indicative of agriculture’s ‘consolidation into a corporate environment’. Land, whether rented or owned, was seen to be least accessible for new or aspiring farmers. This is further evidenced in the survey results regarding the three greatest concerns for the future of farmland: 67% selected ‘the inaccessibility of farmland for new farmers’, while 58% selected ‘farmland conversion for non-farm purposes’, and 55% chose ‘land-grabbing/purchase of farmland by foreign buyers’.

Regarding *rising land prices*, interviewees sensed a growing precariness as prices increased. 16 interviewees noted they felt less secure on their rental land as market competition rises, especially under short-term agreements. Respondents felt their rental agreements could be easily reneged, as contracts are often verbal. The effects of which connect directly to agricultural stewardship:

We have one contract that is three years. The other two are basically year-to-year. That’s another reason why you don’t want to put any extra [fertilization inputs] into it, because we asked for a long term. But, around here it is dog-eat-dog to be honest with you. And if I don’t pay the high rent there is a lineup gonna take it. (84)

You have farmers bidding against farmers, crazy numbers. This land, at $200 an acre is about the right rent. But $300, $325? Sorry, if you have any kind of weather stress your crop is not going to cover your inputs. So there’s only one way to make money, either cut your inputs or find a way to maximize your profits on that farm. So squeeze every drop of everything you can because you don’t own it, and you may not have a chance to. If I were renting that farm and I put as much money into it as I did, next year a guy says to me ‘sorry somebody else offered me $20 more an acre.’ What do you do? Ownership, it used to be honourable. You would go to your neighbour to rent, and you’d say, ‘let me know first’. Fair enough. But its just cutthroat now, and you can’t blame some of the older farmers. They’ve been living near poverty their whole life. Somebody comes up and offers them twice what they ever imagined the high-end would be.’(35)

Consequently, 22 interviewees (of all sizes) worried that their *farm size would not remain economically viable* for the next generation. Many were concerned a consolidating farmer, non-farm developer, or farm investor would purchase their land,
rather than a new farmer: ‘a bigger farm will buy it, or someone who has a lot of money and wants to have a little lifestyle farm. You can’t buy these places today unless you have a good chunk of cash.’ (56); ‘To get this younger generation of farmers, when they start looking at $20,000 an acre […] How can you gather your assets if you don’t have a big income?’ (95). Meanwhile, few survey respondents expressed interest in selling their land to a developer: 56% not at all interested, 31% somewhat uninterested or unsure, 13% somewhat interested, and no respondents were very interested. Hence, many farmers, smaller ones in particular, lack autonomy regarding tenure and sale arrangements. Interviewees noted their concerns with sale specifically: ‘The only reason they [landlords] sell out is because they get offered too much money. They can’t afford not to sell.’ (29)

I have a friend […] it has been the worst experience of his life. His parents actually sold the farm, he had to watch them bulldoze it. It was a hundred acre wood lot that him and his grandfather had tapped trees in and everything. All nice rolling hills. Just levelled everything. And it took him years, he was like a lost soul, he just couldn't get his grounding with it all.’ (25)

Concerning financialization, anecdotal evidence for ‘own-lease out’ investment arrangements was consistent during interviews, but empirical evidence shows that farmers continue to own 65% of Ontario farmland, while about 70% of rental land is owned by retired farmers and farm families (Bryan, Deaton, & Weersink, 2011). So, while investors play a growing role in re-structuring, relations between farmers remain significant. Farmers themselves are a main source of consolidation, and the data show that this is being achieved, partially, through rental relations. OMAFRA staff and farmers noted a sort of ‘casting system’ wherein asset-rich farmers are currently buying land to rent it out to expanding farmers. Staff confirmed that, currently, many of the land-buying farmers are in supply-managed commodities (poultry and dairy), ‘because they have the market hold and dedicated funds, so it is easy for them to get funding from the bank’. The banks are confident in lending, and farmers are confident investing in land and renting it out. Importantly, such changes in land tenure and consolidation are incredibly difficult to measure and track in Ontario, and across Canada.
4.6.2 Linking political economic trends to stewardship and agroecological health

The next step is to link the aforementioned trends with farmers’ capacity to engage in environmental stewardship. Survey data show that larger more economically secure farmers felt more financially capable of removing land from production for ecological purposes. However, smaller farmers were more interested in this same practice (Figure 4.1). Meanwhile, farmers who diversified and added naturalization areas to their farm were smaller (517 acres) and owned a larger percentage of their land (89%; p= .009).

Connecting practices to tenure, farmers with more owned land felt that their adaptation practices have been more successful than those with a higher proportion of rented land. Those who adopted agroecological and organic methods to improve their SOM were smaller (400 acres) and had significantly less rental land (12 acres of rental versus 300 for those who did not choose this practice). Further, farmers who have not invested in ecological buffers had more rental land (330 acres) than those who have (272 acres). Conversely, farmers who adapted by changing their pesticide application were larger (912 acres) with lower proportions of owned land (58% versus 77%). Interviewees explained this to be an easier fix on rental land, especially for large, heavily capitalized farmers.

Interview data also revealed agroecological constraints regarding rental tenure. Respondents of all farm sizes expressed interest in treating rental equal to owned land. However, lack of tenure security, increased land price and demand, and the per-acre model has made them less able to manage rental land according to long-term health or biodiversity. The general hesitation to invest in rental land is demonstrated by the finding that 82% of owned land and only 53% of rental land had tile drainage present. Respondents did not feel comfortable seeking longer-term agreements, or asking to negotiate conditions, such as tile drainage, naturalization, or on-farm diversification. Farmers referred to the current political economic climate of land competition as well as

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7 Similarly, a study by Uzea and Sparling showed that propensity to invest in environmental sustainability ‘increased for small farms, remained unchanged for medium farms, and increased slightly or dropped for large farms’ (2013, p. 29).
social norms of land rental negotiation (informal, often verbal rather than written agreements with few conditions) as the main reasons for their discomfort.

The soil data were subsequently assessed to link aforementioned on-farm practices with agroecological health. While statistical testing was not possible due to the small sample size (n=16), large differences in SOM levels were found for the following practices. Mean SOM levels were higher on the eight farms with livestock present (livestock=4.4%, non-livestock=3.3%), linking to the role of livestock integration in agroecological health (Figure 4.2). Second, average SOM was higher on certified organic farms (certified=4.5%, non-organic=3.7%) and farms that used organic practices (organic=4.3%, non-organic=3.7%) (Figure 4.3). These farms applied biological amendments to the soil along with more complex crop rotations rather than using synthetic fertilizer. This corresponds with the finding that SOM increased as farm-scale crop species complexity increased (Figure 4.4): a well understood means of balancing soil nutrient levels and alleviating pestilence. This further corresponds with the use of genetically modified seeds, since crop complexity was far higher on farms that did not use GMO seeds (13.8 crops per year versus 5.78 on farms that used GMO seeds). In turn, SOM levels were lower on farms that used GM seeds (GMO=3.7%, non-GMO=4.3%) (Figure 4.5). The data suggests that increases in on-farm crop and livestock specialization negatively impacts soil health. If such results were collaborated during a larger study, they would be particularly relevant by clarifying the link between on-farm practices and soil health. While all fields tested were owned, the specific link to be made is between forces driving on-farm specialization and overall soil health.
Figure 4.1. Interest in farm ecological enhancement and farm size. The average farm size of those who were ‘very interested’ was 444 acres, while the average for those who were ‘not interested’ was 712 acres (p= .00).

Figure 4.2. SOM levels and livestock presence on farm

Figure 4.3. SOM levels and organic certification on farm

Figure 4.4. SOM levels and farm crop complexity
4.7 Discussion

The results suggest three key dynamics. The first pertains to the ways in which finance is interacting with changes in tenure. These dynamics hinge around the fact that current land relations are turning land into an investment opportunity rather than an asset for growing food. As the farm-base ages and owners begin to sell, conditions are becoming ripe for own-lease out financial investment models. The second is that land relations have implications for both tenure security and on-farm cost management, making it more difficult for farmers to act in the interest of agroecological health. In effect, current land relations may be assembling land for investability, while divesting capacity for on-farm health. These points will be expanded on below.

4.7.1 Rental markets, land relations and finance

As highlighted earlier, historical relations have produced conditions wherein farmers are receiving a declining percentage of global agri-food profits, and land consolidation is a response to that (Clapp & Fuchs, 2009; Howard, 2016). The results show continued farm scale differentiation. What is made newly clear is that the rental

Figure 4.5. SOM levels and GMO seed use on farm
market is an increasingly important tool for consolidation. These conditions together are producing a welcoming environment for financial investment models.

This is significant because, while farmers are still the dominant players, farmland investment by companies, pension funds, and other non-farm investors now comprises approximately 20% of the Ontario farmland rental market (Bryan, Deaton, Weersink, et al., 2011; Holtslander, 2015). This is because own-lease out models of farmland investment rely directly on rental. Meanwhile, rental is useful for land developers, since rental provides an intermediate income strategy until the land is converted for non-farm purposes. The surplus prospects of this model drive wealthy investors and developers to offer more for land than farmers can afford, which manipulates land price and supply. To maximize surplus, investors are directly and indirectly encouraged to lease to large, ‘efficient’ farmers looking to reinvest through further land consolidation.

For farmers themselves, rental is an effective tool for consolidation. Competitive land prices make purchasing land financially restrictive and risky for farmers. Rental provides an opportunity to expand acreage without accepting all of the risk and responsibility for the land over space and time. Under shifting commodity market conditions in particular, farmers feel uncomfortable permanently expanding their land-base. Renting also mitigates financial restrictions to expansion, as farmers aren’t forced to tie up their assets in the land. Not only are assets not tied into ownership, but renters are not responsible for any non-commodity or long-term activity on the land. Farmers, therefore, do not need to invest capital into long-term projects that typically offer limited short-term financial gain. Unfortunately, these same long-term investments are crucial to ensuring the ecological health of the land.

The role of tenants specifically is crucial. Many large farmers are not interested in buying land due to both the price and the aforementioned risk. As OMAFRA staff and large farmers alike noted, without assets tied up in land, tenants now have large funds available, which, if go unused, become taxable. Given the scale of some operations, this could be hundreds of thousands of dollars. To offset both the risks of long term
ownership and tax expenses, ‘they are going to rent land, and so they offer ridiculous prices’ because it pencils out in their overall operation—propelling consolidation activity further (key informant interviewee). Once they expand through rental, farmers then reinvest their assets in technologies for production, which typically involves large-scale planting, harvesting and tillage equipment. A key informant reflects in how this trend of rental tenancy promotes buying bigger ‘toys’, ‘and thus more degradation’, which ‘is exactly the opposite that small-scale Ontario needs to go’. The interviewee notes that it is not as though farmers are unaware of the environmental impacts, ‘but it is either that or they take a 25-30% hit on income. There is the trade-off.’ Currently, growth is incentivized through tax benefits, and larger farmers now have the land and resources to afford another few hundred acres. Corporatization along the supply chain intensifies this cycle. As a large farmer explains:

Having as many acres as we do we are able to buy the latest technology. For the most part all of our equipment has all the gizmos and gadgets. And we found that has made a huge difference in fuel costs, crop protection costs, fertilizer, seeds and things like that. And of course, we have the volume in all those inputs, our suppliers are willing to give us a better price because of the volume. (54)

Farmer respondents confirmed that shorter-term, more flexible forms of land access reduce risk when working among more powerful downstream buyers (large processors, distributors, and retailers). One respondent explains how neighboring farmers have spent significant capital converting to carrot production to obtain a contract with large carrot buyers looking for more acres; ‘some guys never grew carrots before, but they spent the money […] they went and bought the equipment and everything, and next year they didn’t have a contract.’ (84) Buyers commonly acquire and terminate contracts annually, leaving producers in an insecure position. In this context, the rental market gives expanding farmers the agility to grow or shrink their acreage in response to precarious land and production relationships.

Meanwhile, these conditions may be encouraging struggling owners to engage in opportunistic behaviour also, resulting in shorter-term rentals. Interviewees observed that rental relations have become especially precarious as land prices have risen over the past
five years, and referred to the increasingly ‘aggressive’, ‘cutthroat’ and ‘dog-eat-dog’ nature of rental relations to explain their observations. A government interviewee explains a recent trend where landowners engaged in long-term leases are offered ($20-100) more per acre by someone else, and tenants ‘lost contracts and were pretty upset’. She notes, ‘everybody I talked to said that the high price of rental being offered is not sustainable. Even if corn stayed at eight bucks, it is still not going to pencil out’.

These shorter-term, precarious land relations are particularly opportunistic right now as they enable asset rich farmers to grow their enterprise before older, struggling farmers finally sell permanently. Meanwhile, older farmers are trying to capitalize on market conditions and maximize the value on their land. Selling land can be quite costly (taxes, legal, insurance costs), which could be deferred if alternative income options are available. Under current conditions, rental markets are achieving this. In participating in rental relations, land is being used as both a productive (agricultural income) and financial (speculative gains) asset. In turn, landowning and the act of farming are becoming increasingly separated: this shift is of central concern when considering the role of financial investors. We can see how relations formed through a strong, competitive rental market may be an important precondition for financialization. Notably, these dynamics embolden farm-scale differentiation and the subsequent expulsion of small and medium scale farmers.

Specifically, small and medium sized farmers felt as though they had missed the opportunity to expand before land prices became restrictive. As land prices increased over the past five to 10 years, farmers felt ‘trapped’ within their current scale of production, which, for many, marks the beginning of the end for their farm enterprise. Struggling farmers observe that renting can now be more profitable than farming the land themselves, especially if they have older equipment. In other words, as wellbeing and financial security erode for smaller landowners, they also tap into the competitiveness of the rental market, although for a different reason—as a stopgap.
Of course, land is not the only means to gain capital. Instead, land consolidation is both a goal of the industrial model and a crucial investment stream. Hence, the relationship between tenure, consolidation and capital accumulation is not unidirectional. For example, the concurrent rise of exploitative farm labour plays a role in land consolidation. Namely, land consolidation is partly made possible—because labour cannot be fully replaced by capital—by increasing the exploitation of labour (low wages, long working hours, no social benefits etc.). In Canada, this is achieved partially through the Seasonal Agricultural Workers Program (SAWP) (Preibisch, 2010; Weiler, Otero, & Wittman, 2016). As confirmed by the former UN Special Rapporteur in their report on the right to food, ‘a marginalized category has been created […] to compensate for the increased concentration in the farming sector and for the failure to ensure that farming remains attractive to Canadians.’ (De Schutter, 2012, p. 9) In accruing the capital from labour exploitation, these farmers then use the rental market to aggressively accumulate land. Farmers in Chatham and Essex County were overwhelmed by the land competition created by large vegetable farmers in aggressively accumulating rental land, made possible through (the surplus capital from) their reliance on migrant labour. As a nearby farmer reflects:

If you go another five miles in that direction it is all greenhouses. I mean, it’s nuts. These are guys that are huge operations, like multimillion-dollar operations is an understatement. There are a few smaller guys, but I don’t know, their days are numbered (26).

A common story is repeated here in the role of cheap, precarious and relatively unfree labour in the consolidation of a workforce and the accumulation of capital. This example demonstrates how the subsequent surplus capital then gets put to work through rental markets, which, in turn, re-shapes landscapes.

While there is no strong empirical data confirming that rental periods are getting shorter in Ontario, the data reveal a sense of tenure precarity. If the observation that rental tenure is shortening as competition rises holds true, the political economic reasons may go back to Marx, Lenin and the agrarian question. Rent seeking is a competitive industry. As land becomes scarcer, those able to access it gain economic power. Rental
markets offer value potential and ‘surplus profits will accrue to those capitals producing more value than the sectoral average’ (Fine & Saad-Filho, 2010, p. 136). Landowners benefit from renting to ‘efficient’ growers as they have more surplus capital to offer. Landowners can thus ‘appropriate a share of the added surplus’ (Fine & Saad-Filho, 2010, p. 138). Competition will inherently rise since—under the current production model—‘efficiency’ means spreading resources, capital and technology across more land, thus increasing rental rates landowners can seek. Landowners are empowered through the opportunity of rental income, while capital-intensive farmers are empowered through the land expansion opportunity of rental tenure. If competition continues to rise, landowners may seek the potential to increase surplus, encouraging them to turnover land more frequently. Negotiating short rental periods is costly, which could offset the economic benefits of increasing rent. However, while leases are negotiated annually (often with little more than a handshake), agricultural rental periods tend to be long term in practice, typically 10-20 years. So while the trend may be shortening to around 5-10 years, it is reasonable to argue that, under current market conditions, this is long enough for economic benefits to be captured.

Meanwhile, the value of rent is premised on restriction to access, which operates according to access to capital and fertile land. For the declining number of farmers able to participate, the transitory land and profit accumulation facilitated through rental may allow them to accumulate capital more quickly. Currently, the participants are largely capitalist farmers and landowners, but investors may increasingly capture these opportunities through own-lease out approaches. Investors such as Bonnefield Inc. and Agcapita are already purchasing land from struggling farmers and leasing it out to ‘efficient’, expanding farmers (Bonnefield, 2010). Investors like Bonnefield act as alternative financing for farmers looking to expand or retire by ‘allowing farmers to exchange land ownership for operating capital, which they can then deploy to expand their (rented) land base, or to purchase inputs or machinery’ (Sommerville & Magnan, 2015, p. 128). Investors argue they are ‘injecting needed capital into agriculture’ and maintaining ‘farmland for farming’ while tapping into a ‘new’ and ‘stable’ ‘investment asset class in Canada’(Bonnefield 2010, 2016). While new in structure, this intervention
of finance capital mimics preceding dynamics of hyper-commodification that expels under-capitalized, small-scale farmers from the land. Profit seems to operate together with obliteration, operationalized through land consolidation alongside livelihood and agroecological degradation: dynamics I will now link together more directly.

4.7.2 Linking land dynamics to stewardship and agroecological health

The data suggest that aforementioned relations between farmers are making it difficult to adopt agroecologically beneficial on-farm practices. Concerning the rise in tenure precarity and land competition, a number of interviewees directly linked tenure precarity to stewardship. Under current conditions, farmers remained reluctant to invest in the land and soil. A key issue is at work: this model of tenure and management is divesting production of long-term, ecologically driven behaviour. For different reasons, both farmers operating on owned and rental land are having a harder time attending to ecological health. While the results show that small farmers on owned land are more interested in adopting ecological practices (specifically around land naturalization), they are less able to do so in practice due to financial constraints. In other words, industrialization and corporatization has made small-scale farming economically unfeasible, which overrides other factors that, theoretically, motivate farmers to treat owned land better. For instance, the idea that farmers who own the land might have greater social and economic interest in preserving agroecological health is valid, however, these farmers are unable to implement such behaviours under current conditions.

For landowners, a degree of separation may arise via the guarantee of consistent rental income. Interview data suggests that within the current rental model of yield maximization and yield-per-acre accounting, landlords and renters alike more readily turned to synthetic fertilization as a solution to infertility. As well, a common reason given for treating rental land similarly to owned land was crop productivity: ‘if you don’t treat it as your own, you are not going to have a crop. I might not put any extra in it, but I make sure that there is enough fertilizer and everything for everything to grow…we’re
not going to tile it, but we tile our own. We pay, some of our farms, very high rent.’ (84)
Tenants mentioned they would progressively reduce fertilization leading up to the end of
the agreement: ‘Most tenants with a short-term lease are interested only in practices
which will show results during the term of the lease’ (Ministry of Agriculture, 2015). If
tenants are insecure about how long they will be managing land, they will have less
incentive to prioritize agroecological health. Soil conservation is a long-term investment,
and ‘it’s really difficult to talk about longer term practices when you’re dealing with
multiple actors [tenants] over a number of years’ (OMAFRA interviewee).

Additionally, high rental rates within commodity corn and soy—alongside the
acreage model of rental payment—drives renters to crop on every possible inch. Thirty
years ago, hilly, eroded, flood prone areas would not be cropped since productivity is
typically low. Today, they are being brought into production. Respondents described the
inconsistencies of this for both the soil and their economic return. Nevertheless, tenants
feel some yield is better than nothing if they are paying for the acre anyway. Landowners
also play a role, as rental income drives them to obtain tenants willing to pay for full
acreage, regardless of whether certain areas should be cropped or not. Consolidation is
also a significant driver, as it is very difficult to operate large equipment on small pieces
of land. This is another reason why ‘you see a lot of people taking out hedgerows and
extending field lengths and changing field dimensions and perhaps cropping in places
that shouldn’t be cropped’ (OMAFRA interviewee). Accordingly, drivers behind the
reduction of waterways, buffers, and naturalized spaces—which contribute to farm and
landscape scale agroecological health—become more apparent.

The data also show that owning livestock was one of the only management tools
to produce good financial outcomes across farm size while also building SOM.
Controlling for yields, farmers with livestock performed well financially despite having
smaller acreage. Notably, organic farmers with livestock showed the most significant
financial benefits. Unfortunately, specialization has driven farmers to rid themselves of a
financially and ecologically valuable strategy. Interviewees explained political economic
conditions, and capitalization specifically, has disincentivized crop and livestock
diversification. Farmers cannot physically or financially manage the technology and equipment expected of them. Meanwhile, the increasingly short-term nature of land rental makes diversification unfeasible. For one, land expansion through rental tenure takes economic and managerial attention away from farm-scale diversification practices. Moreover, the longstanding turn toward specialization has left effectively no public or private resources for farmers to diversify. As one farmer explains, the agricultural system has now become structured around crop, livestock, and input specialization,

If I’ve got a problem with my corn seed, I’ve got a seed guy. If I’ve got a problem with my sprayer, I got a spray guy. If I’ve got a problem with the fertilizer, I’ve got a fertilizer guy. It’s all in a little silo. (15)

Finally, land relations are impacting on-farm and non-point ecologies. The data show that farmers feel less capable of engaging in non-commodity activities on rental land. Yet, engaging in non-commodity stewardship is crucial for agroecological health. As the production model continues to prioritize commodification activities, the system becomes increasingly disinterested in uncommodifiable elements of nature. This was revealed through respondents’ overwhelming preference for ecological payments followed by arguments that if the acre is costing them, they simply cannot conserve it in any non-commodifiable form, especially under tight margins. These ecological trends clearly work in opposition to what many argue ought to happen at the farm and landscape scale: landscape mosaics and multifunctional agroecology (Friedmann, 2015; Harden, Ashwood, Bland, & Bell, 2013; Pretty, 2008). To be fair, some have argued that investment firms are more interested in long-term land ownership, which may improve tenure security (Desmarais et al., 2016). However, this is by no means inevitable. Without any institutionalized direction, it would be up to each individual company to, hopefully, act in the best interest of the land.

4.8 The role of the State

Public institutions have enabled these conditions in multiple ways, a few of which stand out for this research. First, interview data reveal the role of government in farmland consolidation and agricultural industrialization. Ontario has no intention to intervene on
consolidation and tenure dynamics. While bureaucrats acknowledge the negative impacts of these dynamics for agroecological health and rural livelihoods, they argue that a regulatory approach is unfeasible within the current political and cultural climate. Meanwhile, provincial and federal programs incentivize consolidation and specialization. For instance, crop insurance is structured toward yield maximization and crop standardization, driving farmers to produce as much yield as possible annually.

Concerning rental tenure, interviewees noted that there is no legislated designation of land management responsibility between owners and renters: thus, zero accountability for agroecological stewardship. Interviewees also noted growing tenure insecurity as rental markets evolve, but remarked on a broader institutional unease with using public policy to address it: ‘government is stepping back because they don’t know how to regulate it, they don’t know how to get involved, they don’t know how to even program and incentivize it, never mind regulate it’. In turn, the hope is that ‘the market is going to regulate’ land relations and agricultural practices by ‘consumers holding processors accountable, and the processor holding the farmer accountable’.

Regarding consolidation, the province argues consolidation is a zoning issue, and is thus a municipal problem. Yet, OMAFRA has fueled consolidation through subsidies and preferencing for large, capital-rich farmers. Impact-based programming specifically is inherently partial toward large-scale farmers, as they ostensibly have greater impact on land, ecosystems, and communities. Financial and educational programming is similarly partial. As a public staff person explains:

I am not smack talking people with smaller acreages, but if you had a workshop with thirty people that had 100 acres, it will be very successful. But if you had 30 people in your workshop that all had 5000 acres and you could talk them into changing their practices, your impact would be much greater. So the performance measures really got me thinking about, who are the farmers that are coming to our workshop, and how can we make the most for our effort?

Fewer farmers are logistically easier for a trim government to manage and track, rather than many small farmers with a relatively low individual footprint. Such partiality is
reflected at the federal scale also, significantly impacting monetary distribution. A review of *Growing Forward 2 (GF2)*, Canada’s main agricultural policy framework, reveals how goals of competitiveness and export market expansion are filtering funds toward land consolidation, while incentivizing on-farm capitalization and corporatization.

Concurrently, there is a contradiction between federal claims to support small, medium, and aspiring farmers and ‘local growers’ and their mandate and programming (e.g. Canadian Agricultural Loans, Agri Invest, Advanced Payments Program (APP), and AgriInsurance). These programs are largely just sources of credit, and since the policy framework doesn’t prioritize small and aspiring farmers, administrators distribute credit via directives of competitiveness, growth and innovation, as well as (as with most lenders) asset and capital security. Without intentional directives that prioritize support for small and aspiring farmers, these programs facilitate consolidation and land turnover by capital-rich actors. Further, APP specifically allows farmland investment companies to access the program, which reduces their costs of financing, thus freeing up assets for land re-investment (Holtslander, 2015). Security requirements create further preferences for asset-rich farmers—a concern echoed by farmer and OMAFRA interviewees alike.

Additionally, expert informant data corroborate the finding that rental market consolidation is creating a preference for operational technology over land investments. As mentioned earlier, rental tenancy disincentivizes investment in land stewardship relative to production operations. OMAFRA’s putatively ‘hand’s off’, ‘apolitical’ approach is, nevertheless, deeply political. Their focus on integrating minimal ‘best management practices’ into the current market and policy landscape reinforces consolidation and capitalization. Of course, alternative interventions (i.e. land reform/de-consolidation) are no more or no less political. Rather, they don’t benefit those with a—direct or indirect—interest in consolidation. The only reprieve one government interviewee saw was in the rise of automation and robotics, enabling larger farms with fewer operators. In response to government inaction, a number of non-profit organizations have sprung up (e.g. Ontario Farmland Trust and FarmStart). While they are doing essential work to get new farmers onto land, they do not have the capacity,
power, or reach to counter the degree of consolidation fueled by interlocking public and private interests.

4.9 Conclusion

This paper has documented a few critical dynamics occurring within Ontario farmland relations. First, growing rental tenure alongside rising land prices and farm capitalization has emboldened farmland consolidation and restricted market access to capital-rich actors. These forces are making farmland more appealing as an economic investment and a productive asset for landowners and consolidators. As the aging and struggling farm-base look to sell their land, this established set of relations—which now relies heavily on the rental economy—may be setting the stage for own lease-out financial investment models.

Second, these same dynamics may have serious implications for agro-environmental stewardship at the farm scale in this context. The research indicates that rental tenure, especially short term and precarious arrangements, disincentivize long-term investment into land and agroecological health. Also, these dynamics are deterring farmers from engaging in on-farm diversification practices—practices that we know have positive impacts on soil health. Ontario grain farmers are cropping land more intensively than in previous years, and much of this activity can be attributed to the economics of rental tenure along with political and economic incentives toward yield maximization and capitalization.

Third, the state has and continues to play a crucial role in farmland relations. Specifically, provincial and federal governments have evaded all forms of land policy, while promoting forces of consolidation and capitalization. Moreover, the state continues to throw their hands up regarding agroecological accountability. The state’s exclusion of agroecological programing has meant many lost opportunities to develop communal forms of stewardship, such as watershed-scale regeneration, buffering, and habitat rehabilitation. Instead, the state has been complicit in a ‘brutal sorting of winners and
losers’, and an ‘expulsion’ of under-capitalized actors and non-commodified activities from the Ontario agricultural system (Sassen, 2016).

That said, the current chapter does not tell the entire story. In the second manuscript that follows, I explore the role of socio-cultural processes—specifically settler-colonial and racialized constructions and othering—in shaping the food system. I highlight that social and cultural processes are always interacting with material conditions. In turn, the current chapter should provide insight into how political-economic dynamics overlay with the socio-cultural processes explored in the following chapter to shape land access, use and food system participation more broadly—which, I argue are central determinants of socio-ecological diversity in the food system.

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Chapter 5: Settler Colonial Logics and Racial Hierarchies in Agriculture: Linking Socio-Cultural Processes to Material Dominance

This chapter takes a socio-cultural turn by exploring the role of subjectivity in reproducing and maintaining current conditions of production in Ontario agriculture. Specifically, I consider the role of settler colonialism and racial hierarchies in shaping how farmers in Canada make sense of themselves and their social identities as farmers, and, further, how this identity has helped to determine who is on the land and what kinds of agricultural practices they adopt. Hence, social processes of identity construction are not entirely separate from factors of agro-ecological health and diversity. While the connections are seemingly less direct, the system of agricultural production that I have detailed in this dissertation thus far is based on, and has been constructed through, particular historical conditions. In this chapter, I outline these conditions, and delineate their role in the farmer identity here and now, which in turn helps to justify the conventional system of agriculture, and models of private property and land accumulation that underpin it.

Publication Details:

Abstract

Canada is in a liminal space, with renewed struggles for and commitments to Indigenous land and food sovereignty on one hand, and growing capital interest in land governance and agriculture on the other. While neoliberal capital increasingly accumulates land-based control, settler-farming communities still manage much of Canada’s arable land. This research draws on studies of settler colonialism, racial hierarchy and othering to connect the ideological with the material forces of settler colonialism and show how material dominance is maintained through colonial logics and racially ordered narratives. Through in-depth interviews, I investigate how white settler farmers perceive and construct two distinctly ‘othered’ groups: Indigenous peoples and migrant farmers and farm workers. Further, I show the disparate role of land and labour in constructing each group, and specifically, the cultural and material benefits of these constructions for land-based settler populations. At the same time, settler colonial structures and logics remain reciprocally coupled to political conditions. For instance, contemporary neoliberalism in Canadian agriculture modifies settler colonial structures to be sure. I argue, however, that political economic analyses of land and food production in Canada (such as corporate concentration, land grabbing and farm consolidation) ought to better integrate the systemic forces of settler colonialism that have conditioned land access in the first place. Of course, determining who is able to access land—and thus, who is able to grow food—continues to be a territorial struggle. Thus, in order to shift these conditions we ought to examine how those with access and control have acquired and maintained it.

5.1 Introduction

In light of growing calls for Indigenous sovereignty, reconciliation, and a renewed relationship between the recently elected federal administration and Indigenous Peoples in Canada, there continues to be a counter force toward capital intensive, neoliberal forms of land ownership, access and governance (Holtslander, 2015; Magnan, 2012; Sommerville, 2013). This juxtaposition between recent commitments to a ‘nation-to-nation relationship’ (Liberal Party of Canada, 2017) alongside the reality of private land
grabs and forceful government approvals of land-based projects (including the Site C Dam, the Pacific NorthWest LNG as well as several pipelines) seems especially stark. It should also illustrate how settler colonial patterns and logics are sustained today, and done so to maintain white settler (social and material) domination. Indeed, the defining ‘here to stay-ness’ of settler colonialism is foundational to how this stark reality has materialized. If we acknowledge settler colonialism as an enduring structure and not an event (Wolfe, 2006), then the centrality of land—and its ongoing dispossession—in maintaining settler colonialism becomes clear. Meanwhile, scholarship has revealed why settler colonialism must be analyzed as a distinct ideological and material force that continues to shape Canada. Hence, while concomitant, analytical distinction should be made between settler colonialism and colonialism broadly, as well as structures of racism and white supremacy (Lawrence & Dua, 2005; Morgensen, 2011; Smith, 2010; Wolfe, 2013).

As many scholars have shown, food systems are a product of socio-historic forces, and while they do not start or end with settler colonial forces, they are deeply shaped by them (Burnett, Hay, & Chambers, 2015; Daschuk, 2013; Desmarais & Wittman, 2014; Simpson, 2003). The Canadian agri-food production system encompasses millions of acres of land, and is composed of and governed by, largely, (male) farmers with white settler European ancestry. By investigating white settler (national) farmer subjectivities, this paper aims to link the ideological and material forces of settler colonialism to explain its enduring legacy in land-based populations in Canada. ‘White settlers’ are cultural members—and remnants—of the founding political order, who ‘carry with them a distinct sovereign capacity’ (Cavanagh & Veracini, 2013). I aim to show how material dominance is maintained through ideological and cultural strategies that shape settlers’ perceived relation to two distinctly ‘othered’ groups: Indigenous peoples and migrant farmers/farm workers. I ask, how are these groups interpolated through the ideologies and narratives of archetypal national subjects, and what fields of power are involved in producing and maintaining these narratives? Here I analyze the

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8 This is not to say that some white male farmers don’t experience oppression under the agri-food production system as well. Increasing numbers of farmers are feeling deeply oppressed by the structure of export-oriented commodity agriculture.
relations between social construction and material condition to demonstrate how each group is distinct (in nature and function) for the national subject, determined by particular socio-cultural histories, proximities and relations to land and resources. This study isn’t intended to ‘blame the farmer’, but rather to illustrate the social and cultural persistence of racially hierarchical narratives that often operate beyond individual agency. Accordingly, the following two sections lay the groundwork, first, by reviewing settler colonialism and agricultural industrialization in Canada, and second, by outlining racialized subject formation and othering as my conceptual approach to the analysis. The remainder of the paper is dedicated to the methods, results and discussion, the latter of which is subdivided by group for analytical clarity.

5.2 Settler colonialism and agricultural industrialization in Canada

Racial domination is reproduced differently based on relations of inequality over time (Wolfe, 2013). For instance, the logic of labour exploitation of African American slaves is profoundly different from the Indigenous context in Canada wherein logics of assimilation and extermination were coded through institutional structures, like the Indian Act (e.g. through blood quantum discourse, any non-native ancestry compromises ones indigeneity (Lawrence, 2008)). Without such distinctions, their reproduction often gets lumped into general analyses of racism (Lawrence & Dua, 2005)—thus continually neglecting how these logics (of elimination on one hand, and exploitation on the other) shape the variegated racial formations we see today. In the Canadian case, land, resources, and people were seized by force to accrue capital and construct a society of settler colonial patriarchal domination specifically. In turn, settler colonial relations are distinct from but interrelated to (with different core logics than) other racial formations, and ought to be analyzed as such.

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9 Which led to systems and procedures for maximizing slave ‘property’ (e.g. ‘enslavement’ was transmitted to descendants rather easily through ‘the “one-drop rule,” whereby any amount of African ancestry, no matter how remote, and regardless of phenotypical appearance, makes a person Black’) (Wolfe, 2006, pp. 387–388).
The idea of the ‘frontier’—carried out by (largely male) ‘unlicensed mavericks’ and ‘explorers’ (fur traders, bounty hunters, gold-seekers, ranchers and farmers) rather than formal state procedures—was foundational for settler colonialism (Wolfe, 2013). Farmers have played a specific role: the land and freedom their communities gained in the ‘new world’ resulted directly from the dispossession of Indigenous peoples. Maintaining that freedom and all its entitlements involves ongoing possession of native land as well as retaining a landless, dislocated labour population—queue racialized migrant farm workers. These processes don’t look or feel like they did during initial seizure: they are bureaucratic, culturally and politically insidious, and not necessarily physically violent. Of course, many current farm families were not affiliated with initial seizure. In fact, many were fleeing their own hardships in Europe. However, they, like many of us, have privileged from this founding culture, which derives from land specifically.

The political-economic implications of settler colonialism are expressed in Canadian landholding. Historical accounts of dispossession reveal how English common law and private property rights buttressed land seizure. ‘When a settler preempted land and met the terms of preemption, he (almost invariably, he) acquired title to the land in fee simple’ (Harris, 2004, p. 177). This system of estate production ‘embodied a perpetual and indestructible right to the land potentially forever, and gradually became normative’ (ibid). Only through these conditions, wherein land rights were unilaterally seized from Indigenous peoples and distributed to incoming white European families, was the patriarchally structured ‘family farm’ able to emerge (Friedmann, 1978, 2005). Alternatives to wage labour were made available to large numbers of settlers in Ontario through the ‘gift’ of large plots of land, tools, and seeds, through which the household unit would supply labour so as to recreate its productive and personal consumption—demonstrating the centrality of patriarchy for settler colonial agriculture (Government of Ontario, 2006). In fact, household (kinship) labour was central to the emergence and success of simple commodity production during the late nineteenth and early twentieth century (Friedmann, 1978). The household simple commodity structure was competitively superior to capitalist agriculture due to the interacting forces of kinship
labour production, the availability of land, and technological adoption. Indeed, ‘the importance of the machinery lay not in its absolute reduction of costs of production, but in its reduction in the amount of labor required per acre harvested’ (Friedmann, 1978, p. 566). While acreage expansion needed the other two factors in order to be viable in North America, such expansion was nearly impossible for the average farmer in Europe at that time. The magnitude of land expansion in Canada was made possible through the settler colonial relation specifically, and was central to the success of the agricultural production system over the twentieth century. Moreover, much of the early success of commodity production in North America was due to 'soil mining,' ‘in which colonists brought forth crops from the fertile virgin soil without replenishing it, and then moved on to new homesteads’ (Friedmann, 1978, p. 568). This was possible because of both a) the breadth of settler colonial land seizure, and b) the ways in which Indigenous peoples lived on and cared for the land prior to contact. Meanwhile, Indigenous peoples were largely restricted from practicing agriculture (particularly communal reserve production) and participating freely and autonomously in the colonial economy (Carter, 1990; Daschuk, 2013). As settlement proceeded, industry and commerce advanced, which was backed by extensive government support and credit extension to the settler farm base (Friedmann, 2005; Nelson, 2014). Effectively, European settlement on Indigenous land was tethered to colonial (and patriarchal) economic investment—a relationship that has only evolved and strengthened over time.

Today’s agricultural production system has been shaped by these conditions. Over the century that followed, industrialization took hold, marked by aggressive mechanization and capitalization across the food system. As production increased and corporate intervention rose, farm-gate prices declined alongside rising farm debt (Qualman, 2001). This ‘cost-price squeeze’ has occurred cyclically, only emboldened by government support for land consolidation, capitalization and corporate integration (Holtslander, 2015; Troughton, 1989). Over this time, family farms have been driven to expand, where today the average farm in Canada is 778 acres, about 500 acres larger than in 1930 (Statistics Canada, 2011). At its root, this trajectory of agricultural production is built on and advanced by features specific to settler colonial domination. Colonial land
settlement conditioned capitalization, and specifically, the collaborative deployment of public and private capital in agri-food industrialization. The colonial state had a vested interest in supporting distinctly colonial capital backed by colonial companies who developed the infrastructure and equipment—both on and off farm—that necessitated the prosperity of the settler economy (which hinged on the success of agriculture specifically). For instance, governments and universities across Canada have played a central role in extension research since the nineteenth century, supporting research and development for crop breeding and pesticide innovation to facilitate monocrop production (Reaman, 1970). Since settlement, government has worked alongside private colonial capital to facilitate cross-border trade and encourage increases in efficiency. Notably, these colonial dynamics are further tethered to the emergence of racist labour policies in agriculture, most notably, the Canadian Seasonal Agricultural Workers Program (SAWP), deployed to address labour shortages within the context of a growing economic squeeze on farmers (Binford, 2009; Perry, 2012; Preibisch, 2007; Walia, 2010). While these relationships have been bolstered by more recent modes of neoliberalization, they are not new. Since the nineteenth century, farmers have been concerned over, and organizing around, corporate concentration and ‘excessive profits captured by middlemen’ (Winson, 1993, p. 16). Neoliberalization is, however, adding fuel to a long-standing set of concerns for farmers: now more than ever before, private capital is siphoning off larger portions of profit and control along the production chain (Akram-Lodhi, 2007; Guthman, 2008; McMichael, 2009; National Farmers Union, 2013a). To survive, then, farmers are managing greater and greater areas of land, far larger than their ancestors were ‘granted’ seven or eight generations ago (see Figure 1).
Government promotional material to encourage emigration to Canada from the United Kingdom and the United States with the promise of 100 acres of ‘free land’, labour opportunities, and ‘better circumstances’.

Current farm demographics reveal this history to be sure. Nearly all farmland today is managed by people with white settler ancestry\(^\text{10}\) (Statistics Canada, 2011). Furthermore, while immigrants represent 21% of the Canadian population, they only comprise 7% of the farm population (Statistics Canada, 2011). Concurrently, the most common birthplaces of immigrants who have access to farmland are the Netherlands, the United Kingdom, the United States, Germany, and India, which affirms deeper racial and economic barriers to access. Additionally, a larger proportion of the immigrant farm community migrated to Canada prior to 1971 (34%) than the general immigrant population (19%). The reasons for these conditions are complex, ranging from socio-cultural exclusion, language barriers and legislative restrictions to economic disparities. However, it is clear that farmland access in Canada—and the capital to acquire it—operates along racial and settler colonial lines. Notably, census data doesn’t consider Indigenous land title and ownership issues. In fact, data concerning relationships between Indigenous peoples and farmland tenure is seemingly absent. What we know is that about 0.2% of Canadian land is designated to Indigenous peoples through the reserve system (directed through the Indian Act) and another 398.82 million hectares is under Comprehensive Land Claims negotiations\(^\text{11}\) (AANDC, 2016). While the latter is argued by the state to provide ‘certainty with respect to Indigenous land rights in approximately 40 per cent of Canada's land mass’ (AANDC, 2016), comprehensive land claims remain colonial in nature and are wrought with epistemic and programmatic conflict (Alcantara, 2008; Manuel & Derrickson, 2015; McCrossan, 2015; Rossiter & Wood, 2005). Immigration politics become more deeply problematized from a settler colonial lens, as it reveals how ‘colonialism and imperialism domestically and abroad often coerces […] racial minorities, and immigrants into complicity with settler colonialism’ (Byrd, 2011, p.

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\(^{10}\) White settler refers to those of European ancestry who identify as white and are born in Canada. The average farm generation of interviewees was four generations on the farm they currently operate. This does not imply that all arrived in Canada at any particular time in settler colonial history. Immigrant is used to refer to any ‘newcomer’ to Canada, that being someone not born in Canada. Further distinction ought to be made between an immigrant of colour, or racialized immigrant and a white immigrant. As Thobani notes, the ‘category immigrant subsumes these differences by imposing a homogeneity onto them’ (2007, 263). Indigenous peoples refers to the Aboriginal peoples of Canada (Turtle Island), encompassing First Nations, Métis and Inuit peoples: the original inhabitants of what is now defined as North America.

\(^{11}\) According to INAC, ‘comprehensive land claims deal with the unfinished business of treaty-making in Canada.’ Claims arise where ‘Aboriginal land rights have not been dealt with by treaty or through other legal means. In these areas, forward-looking agreements (also called "modern treaties") are negotiated between the Aboriginal group, Canada and the province or territory’ (INAC, 2016).
xvii). Indeed, ‘different voluntary and forced arrivals and departures of nonwhites are intrinsic and systemic to the settlement of different and differential people of colour on Indigenous lands’ (Dhamoon, 2015). In this context, how might immigration politics bear on Indigenous action and struggles for the repatriation of land (Tuck & Yang, 2012)?

5.3 Racialized subject formation and othering: A conceptual approach

For white settlers, our stories are echoed—and hence our ‘selves’ affirmed—in ‘our’ schools, courts, parliaments, public spaces, books, films, and families. White identity and interest is shared and celebrated in the people, through a ‘state as formed by “the people”, who see their best interests reflected in its workings’ (Thobani, 2007, p. 19). Taken together under a structure of patriarchy and hegemonic masculinity, these conditions produce significant constraints to critical self-reflexivity for white settler culture (Connell, 2001; DiAngelo, 2011; Tuck & Yang, 2012). Through the national narrative, colonial and imperial violence is seen as ‘in the national interest’, in turn undergoing erasure, while being implicitly celebrated through national rites, rituals and stories. Thobani (2007) describes the white national subject as being at the centre of a triangulated racial structure of subject formation in Canada, while the immigrant subject occupies a space of conditional inclusion12, and the Indigenous subject remains marked by dispossession and extermination.

As scholars have elucidated (Ahmed, 2000; Lawrence & Dua, 2005; Veracini, 2011; Wolfe, 2001, 2006), the colonial state has intervened in the lives of Indigenous peoples and racialized immigrants in different ways (consider the Immigration Act’s focus on credentials and economic exploitability versus the Indian Act’s focus on spatial and resource control), for rather different ends (the exploitation of labour versus the appropriation of land/resources). Thus, how we identify and narrativize others is not static or in direct and equal opposition to national selves, but contingent on history,

12 The inclusion of immigrants is contingent and conflicted in that, while immigration provided a important source of exploitable labour in Canada, narratives constructing immigrants—particularly racialized immigrants—as threatening and burdensome have continued unabated.
proximity and relations to land and resources, as well as more specific and unstable relations (conditioned through variegated intersectionalities) between interactants. Put simply, how we see/frame an immigrant, refugee, or Indigenous other is conditioned by systemic hierarchies and is brought to life in the spaces between actants. Specifically, the strangeness of the ‘other’ is a function of their relative distance to our self (as a bundle of narratives, ideologies, and characteristics). Extending Said’s (1979) analysis of Orientalizing discourses: the other is made to exist as we know it, and our ‘knowing it’ is conditioned by intersecting forces of white supremacy and colonialism. Ideally, this framework emphasizes structures and relations beyond our own agency, while still acknowledging the capacity to resist these structures.

Drawing from Thobani’s triangulation of racial subject formation within a settler colonial lens, three emergent identity relations are distinguished in the research: the white farmer self, the Indigenous other, and the migrant other. To analyze the data, the interactions between three elements are considered: socio-symbolic distance, proximity, and self-motivations\textsuperscript{13}, as these elements determine how one recognizes an ‘other’. Socio-symbolic distance involves the perceived socio-symbolic distance/difference between the self and other by reference to identity, ideologies, customs, rituals, rites, etc. As Alexander (1992) argues, such codes and symbols help supply structured categories into each member of civil society, such as ‘pure’ and ‘impure’. This socio-symbolic space provides meaning and justification for inclusion and exclusion from ‘civil society’. Of course, ‘this distinction is not “real.” Actors are not intrinsically either worthy or moral: they are determined to be so by being placed in certain positions on the grid of civil culture’, drawn from ‘a systematic, highly elaborated symbolic code’ (Alexander, 1992, p. 291). Identification of others is further conditioned through proximity between selves and others over space and time. Proximity underpins the materiality of social relations, extending identity beyond mere constructivism. Considering race specifically, its construction is tethered to material causes and effects, producing what Saldanha describes

\textsuperscript{13} Extending from aforementioned hegemonic foundations, how, or rather where we identify ‘the other’ depends on their relative distance to the self in symbolic and social space. The result of this process of identification—that is, the final fixing of the other in social space—is going to depend on the others’ social, spatial and temporal proximity to the self, as well as the self’s motivations. Each of which can affect and be affected by one another.
as a ‘viscosity’, revealed through ‘the stickiness of racial segregation’ (Saldanha, 2006, p. 10). Indeed, the effects of proximity are variegated, and cannot be essentialized as they depend on interacting modes of (class, gender and racial) oppression alongside the spatial dimensions of its reproduction and resistance. Finally, where selves fix others will depend on their own motivations and interests. Of course, othering often serves to justify the self’s privilege (whether consciously or not). Hence, identification varies depending on the self’s interests in land, capital, and employment, and how the other might impact those interests. The remaining analysis explores how, to what degree, and to what effect, white settler culture employs these strategies.

5.4 Methods

The objective of this study is to shed light on white settler processes of othering, how specific ‘others’ are assembled by national subjects, and with what effect. This is useful because racial hierarchies are typically least understood by those at the top—which includes much of white settler-led scholarship, and mainstream society broadly. What seems especially lacking is critical scholarship on how white settler domination in specific spaces is maintained, here and now (Morgensen, 2011). Robin DiAngelo’s work on white fragility (2011) has provided valuable insight into whiteness specifically, and the ways in which critical self-reflection is culturally and materially constrained. Hence, expanding on and contextualizing such work through the use of data and case study analysis is especially useful for addressing issues of settler colonialism and systemic racism in rural agricultural communities specifically.

As someone with white settler ancestry, I approach this research with a deep hesitancy. At the outset of this research, I was unsure how I would address my interest in

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14 Consider here the spatio-material differences between, on the one hand, the role of mining and fossil fuel extraction in Canadian settler colonial expansion and its ongoing resistance through land defense, blockades and occupations (such as Unist'ot'en); On the other hand, the logics of racialized labour exploitation in the temporary migrant farm worker program and ongoing resistance through worker solidarity and immigration status campaigns.

15 The insolation from racial stress that white people live within is what indeed perpetuates and reinforces racial perspectives and hierarchies. These material impacts are why we cannot simply do away with the concept of ‘race’ (Guthman, 2012; Saldanha, 2011; Steckley, 2016).
the links between settler colonialism, patriarchy, systemic racism, and agriculture. However, during initial discussions with farmers, the influence of my race and gender on the researcher-participant interaction became clear: my identification as ‘female’ seemed to produce a sense of openness for male farmer participants, a letting down of their guard so they could ‘speak their mind’. And while unfair, I’m quite sure that my whiteness created the conditions for candid racial narratives to be expressed. Through these revelations, my research interests began to focus more clearly on white farmer selves, communities and culture.

Data collection occurred between fall 2014 and spring 2016 and included participant observation, surveys, and in-depth interviews with conventional grain farmers across Ontario. To begin, I attended numerous agricultural conferences and general meetings where I undertook participant observation, in-person survey outreach and communicated directly with farmers. 107 grain farmers completed the survey, which gathered broad scale data to inform interview selection. Survey questions were asked about community openness to newcomers and interest in having newcomers purchase or rent land. Additionally, data concerning farm economics, agronomy, and adaptation were gathered. This data played a role in linking broader political economic trajectories to on-farm management and conditions of social domination in conventional agriculture.

Based on an analysis of survey responses as well as farmer availability, 24 in-depth interviews were conducted (one to three hours each). All interview participants identified as male and white (although four interviews included partners and/or children), with an average settlement history of four generations (some participants thought it may be over eight or nine generations). All interviews were recorded and transcribed. The respondents were asked to speak on topics including: family land settlement history, past and future farm change, relationship to land, as well as economic, agronomic, and adaptation questions, followed by a set of social questions regarding colonization and perspectives toward Indigenous communities, migrant farmers and farm workers. Interview data was coded using NVivo v.10. I established codes and sub-codes by comparatively reviewing the interview transcripts, observational notes, survey data, and
background literature. Using the NVivo results, I developed broader themes from which much of the analysis will be drawn.

5.5 Results and Discussion

As will be discussed further through the data below, profound differences were observed between how interview respondents perceived and affixed Indigenous peoples and migrant farmers. The construction of Indigenous identities by interviewees was deeply fixed, singular, and based primarily on the dispossession of land over centuries. In turn, interviewees constructed rather general and consistent narratives of Indigenous ‘incompetence’ and ‘dependence’. On the other hand, constructions of migrant farmers and farm workers were more present, far more variegated, and premised on issues of labour exploitation and economic competition. That said, when discussing immigrant farmers with prospects of owning land, the role of land versus labour was muddied. Interviewees constructed migrant farmer identities according to a hierarchical structure, with narratives ranging from ‘the good worker’ to ‘self-interested’ and ‘closed off’ depending on the social position of the migrant in question. I will now focus on each group in turn.

5.5.1 White settler farmer constructions of Indigenous peoples

‘I can disagree with you, it [land] wasn’t taken’ (15)

Socio-symbolic distance

The process of conquest and dispossession has been deeply complex, requiring ideological strategies and organizational tools ranging from language, violence, and coercion, to English law, maps, and numbers (Harris, 2004). The impacts of conquest
have not only seeped into the contemporary context, but have produced it. Both seizing land and justifying the seizure has required ongoing deployment of these tools and strategies, producing a persistent culture of settler domination alongside indigenous dehumanization (Thobani, 2007). Yet, analyses of colonization (and othering more generally) show that symbolic subject categories don’t operate so simply as us = good, them = bad (Baumann & Gingrich, 2004; Brons, 2015; Thobani, 2007). Hence, while indigenous peoples have been defined in Canada as primitive, uncivilized and doomed for extinction, they are concurrently ‘valorized as sacred in the western imagination’ (Thobani, 2007, p. 39). Life for European settler culture is defined as civilized life, which relegates Indigenous peoples to the cultural past: a tool of everyday violence essential to maintaining colonial relations. The specifics of this historical and ongoing relation has shaped the relative socio-symbolic distance between Indigenous peoples’ and the white farmer self. In the data, arrival and hardship are integral to the construction of the settler farmer self. As one farmer reflects, ‘they brought my dad over here with the shirt on his back, and they got down to work and they built something.’ (35)

There is a strong sense of pride in settler endurance, which influences their understanding of colonization. For instance, when asked specifically about colonization and his farm’s history, one farmer responded, ‘I’m proud to be fifth generation on this farm. I think very few farms can say that they’re fifth. 1893, so we’re 122 years old, that’s saying something.’ (29) In several interviews, farmers described themselves and their ancestors as tenacious and willing to make extreme sacrifices:

If I was a European that had an opportunity […] to better my life in the food production system, and I’m making major sacrifices: family, leaving family, or cousins or something. There may be a language barrier initially […] you’re taking quite a gamble. I respect that. I’d likely do the same thing.” (37)

Numerous interviewees reflected on the strong work ethic they observed or ascribed to their ancestors: ‘My dad came here and farmed with a hired man when he was 11 with no other siblings or family members.’ He goes on to discuss the struggles his

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16 I may at different points emphasize historically specific conditions of colonialism, but nowhere should this be read as only historical.

17 Bracketed numbers correspond to interviewees.
father endured, who ‘was responsible for cleaning up the farm and cleaning dead animals out of the barn and getting the manure out of the barn and ploughing the acres that were workable and repairing fences when he was 11’ (67). Through such stories, uncomplicated (and uncritical) values and symbols of ‘the good farmer’ were clearly represented—that is, the identity of the masculine, self-sufficient, autonomous land steward and ‘man of service’ (Burton, 2004; Stock & Forney, 2014; Sutherland & Burton, 2011), which illustrates the intersecting role of patriarchy and hegemonic masculinity in settler colonialism (Connell, 1998). I now place these stories in relative distance to their constructions of Indigenous peoples, to consider their role in the subject formation process.

Within the bundle of colonial strategies, a particularly useful tool was the notion that Indigenous peoples were incompetent, lazy and unable to cultivate their land, making it open for—indeed requiring—seizure. These strategies justified land dispossession and repossession, which Coulthard (2014) argues, set the stage for the emergence and reproduction of capitalist accumulation and relations ‘by tearing Indigenous societies, peasants, and other small-scale, self-sufficient agricultural producers from the source of their livelihood—the land.’ Coulthard pushes us to rethink traditional political-economic theories of capitalist transition in North America by shifting to ‘the subject position of the colonized vis-à-vis the effects of colonial dispossession’ (Coulthard, 2014). This shift offers an alternative means of understanding how capitalism and colonialism interlock: while the relationship is complex and mutually reinforcing, settler colonialism emerged via a distinct set of causal mechanisms and effects, motivated chiefly by land dispossession, and over time, the maintenance of land-based control. The data bare this theory out, indeed, there seems to be a process of moving the Indigenous other across socio-symbolic space in service of the settler self—revealing how constraints to critical reflection manifest. When asked to reflect on their perspectives toward Indigenous peoples, their constructions of Indigenous peoples were oppositional to—or placed far away from—their own identity. However, when discussing issues of treatment, themes of assimilation and encompassment came out strongly, thus joining these two groups back together in the grammar of identity (Baumann & Gingrich, 2004). At first, there is a
common construction of difference: Settler selves, on one hand, occupying socio-symbolic spaces of perseverance, resilience, resourcefulness, and self-reliance; while, on the other hand, constructing Indigenous peoples in uncomplicated spaces of dependence, irresponsibility, irrationality and violence. As one respondent states, ‘if I am a young native child today, I have access to a full education, all I have to do is get off my ass and do it, there’s money there to pay for it.’ (35) Numerous respondents made inaccurate assumptions about school and tax incentives to impute characteristics of dependency onto Indigenous communities. In turn, as one farmer argued, Indigenous communities make it difficult for ‘the rest of us’ to compete:

It obviously doesn’t apply overall, but there are issues with what they’re doing that inflicts pain on the rest of us. And there are ways to solve that, and it is through taxes […] when you take property out and no taxes go back in to support the infrastructure, everything goes down […] they bought up industrial land in south London, and the companies are saying “well we just can’t compete because we don’t have the tax base anymore.”’ (4)

Constructions of the ‘irrational’ and ‘unrealistic’ Native were elicited most powerfully when interviewees spoke about land claims and treaties. During these discussions, there was not only a questioning of colonial dominance during treaty negotiations, but skepticism (and often a rejection) of Indigenous rights to the land in the first place. Tactics were used to argue that Indigenous peoples’ presence on the land prior to colonization doesn’t imply they have claim to the land. As one farmer states, ‘it [land] keeps transitioning. What is the big deal about taking this land away from them? You were just here first, there were a lot of people that were here first that lost their land to people from another country’ (95). This assumption (however inaccurate) was an important step taken by many interviewees before constructing Indigenous peoples as irrational, thus leading them to reject the validity of arguments for Indigenous

18 Notice the simultaneous qualification against the homogenization followed by the total homogenization i.e. “what they’re doing”. Moreover, there are assumptions being made concerning tax exemptions that are then conflated with poverty. The assumption that all Indigenous people receive tax exemptions is enduring yet inaccurate—specifically for those living off-reserve. But the speaker seems to also be referring to the low purchasing power of Indigenous peoples, without acknowledging their economically disadvantaged position.
sovereignty, recognition and repatriation. For example, one farmer argued, ‘yeah, there was first squatters rights, if you go back further than the natives, who we classify as our first citizens, you might find out it was actually Vikings.’ (35) The validity of ancestral rights was also undermined by rooting Indigenous peoples’ historical identities in nomadic violence, ‘The Neutral Indians were here at some point, they were overrun by the Iroquois and the Mohawks. Does that mean we don’t have to listen to the Iroquois or the Mohawks, and that we only talk to the Neutrals? The Inuit up north were overrun, what, four hundred years ago by a different ethnic group that came and killed them off […] one flaw of Six Nations is that they’re not from here anyway, but they joined the best country in the world’ (15) Construction of Indigenous peoples as ‘violent’ and ‘transient’—particularly in contrast to their valorization of the nation-state—allowed the interviewee to subsequently validate settler colonial logics:

If you can draw the line in the sand for me to tell me what the starting point is. As far as I understand, the law of this entire world goes back to King Ferdinand’s rulings in the 1600’s: that you can either have the land and all that belongs to it by conquest, or by negotiation and by treaty. And I don’t know any part of Canada that is not part of Canada by means other than what was justified for the last five hundred years. (15) (author’s emphasis)

The construction of pre-colonial Canada as empty, or terra nullius, was startlingly consistent. More interestingly though was how this perspective was deployed in their construction of Indigenous others as irrational and unrealistic, and thus in the service of settler colonial justifications. Indeed, settler colonial societies involve permanent occupation, thus, the logic is of dispossession and extermination—to replace Indigenous peoples on the land (Wolfe, 2006). As interviewee 15 argues, ‘in eastern Ontario, they are negotiating whether we give Algonquin Park to a bunch of Native groups. Their last treaty was in 1923, so you can’t tell me that it was some naive group […] everything was settled and they got paid a bunch of money […] everybody agreed to it.’ From here, he constructs Algonquin peoples as unreasonable and irrational:

but they don’t want to talk about that treaty, they only want to talk about the original treaty in 1812. Well just because it has been changed six times in between, you can’t go back to the beginning now and say, “we’re starting
over again”. It’s sort of like me going back to Holland and saying, “you know what, my grandfather used to own this farm and he sold it in 1964 but I don’t think he got enough money for it in 1964 so now it’s my farm again, and if you want it you have to buy it back from me because grandpa made a mistake.” Well, you and I can’t do that.’(15)

In the context of the preceding assumptions made about colonial history, the respondent found it reasonable to equate his history to settler colonialism and to argue in his final remark that Indigenous peoples are in fact treated better than white settlers.

As illustrated above, affixing Indigenous peoples apart from the white self in socio-symbolic space is made possible through specific historical assumptions. These assumptions create the conditions for settlers to argue that Indigenous peoples are treated better:

There are discriminatory hiring practices out there that were supposed to be done for the right reasons, so I can’t check that box off on an application: Yes, I’m a native so I get preferential hiring. (15)

If an Indian band bought my parcel of land, they would no longer pay taxes but still get their roads ploughed by the municipality, which basically gets no revenue from the province, from the feds, or the landowner. Now that’s unfair, it is patently unfair. (4)

Further, they imply that fair treatment means equal treatment, which assumes an historically ‘level playing field’ and necessitates a re-joining of settler and Native in the imaginary of the farmer self. In effect, a tactic of universalization via encompassment is employed (Baumann & Gingrich, 2004):

We are today, all of us breathing the same air, walking on the same dirt, and living in the same society in 2015 […] Today, what do we want to achieve? What is that long-term strategic plan? What do you actually want to achieve for your society and for us in agriculture? (35)

This final move serves multiple purposes. Primarily, it reinforces the erasure of settler colonial violence, effectively subsuming settler colonization into the category of oppression. To do so, the self readily universalizes their experience as the human experience. Essential here is the aforementioned construction of their ancestral identity as
one of hardship, struggle and resilience—understandably evoking their own suffering and oppression. Subsequently, they affirm that, ‘we’ve all been through tough stuff, we’ve gotten over ours, and so you ought to get over yours’; thus obscuring the settler-colonized relation under the broader lens of oppression (Tuck & Yang, 2012). One respondent illustrates this move when he states, ‘maybe our ancestors will look back and say, “you stole it from us” when somebody else takes it.’ (30). Only by conflating deeply disparate experiences (thus subsuming the Indigenous experience into the settler experience) can they unify settler and Indigenous (whom are now suddenly in this together) as quo human. Accordingly, these two groups become united for the settler in socio-symbolic space, and thus consolidated into the universal—white settler—experience. Which, according to Tuck and Yang (2012), is one way that settler innocence is established. Such moves to consolidate different identities are similar to diversity, multicultural, and inclusivity politics in settler colonial liberal societies: all allow settler society to evade accountability.

Proximity

As Sara Ahmed describes, it is through the self’s encounter with and proximity to the other, that the self’s ‘sense of being “at home”’ in the national space is reiterated’(Thobani, 2007, p. 15). I also argue that, beyond the encounter itself, how and where one is encountered—or indeed not encountered—in social and material space affects the relation and subject formation therein. How then might proximity affect settler farmers’ construction of Indigenous peoples?

Broadly, there is a spatial and temporal distance between settler and Indigenous peoples in Canada, which constrains settler reflection on understanding of settler-Indigenous relations. As mentioned earlier, Indigenous peoples were not associated with labour in the same way as migrant farmers and farm workers. In fact, no associations were observed in the data between Indigenous peoples and labour—confirming a colonial
pattern of ascribing laziness and ‘savage opulence’ onto Indigenous peoples\(^{19}\)\cite{Carter1990}. Further, operating alongside spatial segregation, these associations continue to govern contemporary constructions of Indigenous peoples—most notably as ‘dependant’ and ‘irresponsible’. As respondent 26 describes, ‘I have driven through reservations, there are some not far from here and they are dumps […] If you have something given to you, for heavens sakes, do something with it.’

The spatial distancing between many settlers and Indigenous peoples established through the reserve system (and the prolonged monitoring and restriction of Indigenous movement, and the silencing of Indigenous presence) has affixed Indigenous peoples to a specific form of (non)encounter with the non-Indigenous ‘us’ and ‘here’. That is, the spatiality of settler colonialism situates Indigenous people simultaneously far away and close by, such that, more often than not, the encounter is only with the imaginary Indian, and when an encounter does occur, it tends to be of the drive-thru variety. As this same farmer (who lives nearby the Caldwell First Nation) considers, ‘I have no real experience with the Caldwell First Nation, I don’t know what a Caldwell Indian is to tell you the truth.’ \cite{26} As another farmer reflects, ‘I’m trying to think if I know anybody that is Native […] I just can’t think of anybody right now.’ \cite{98} While some farmers lived closer to reserves than others, only one interviewee noted any ongoing personal interaction with First Nations individuals or communities, which occurred through their previous employment in a government ministry. Through these interactions, the respondent was informed about the particular financial hurdles that reserve communities face in agriculture along with broader ‘limitations, unfortunately, that the rest of us don’t realize’ \cite{82}.

This settler colonial \textit{spatial} separation also interlocks with a \textit{temporal} separation: specifically, the relegation of Indigenous peoples into a monocultural past,

I guess it just happened so long ago, I just don’t really think about it too much. I don’t like the thought of anybody getting screwed, but I guess it happened so

\(^{19}\) See Sarah Carter’s ‘Lost Harvests’ for a good discussion of this historical pattern (1990).
many years ago. I go through the reserve, some places there are some good crops. Other places are not so good, you know, where they ended up. But I guess it’s just really that it just happened so long ago, I just don’t know if they can go back and fix that really. (98)

Both spatial and temporal distancing facilitates the ongoing naturalization of settler colonialism. Specifically, distancing makes it more difficult for the white settler farmer to critically reflect and empathize. Even in cases where these feelings are expressed, it remains very difficult to make direct links to the land they are farming on. Illustrated here through one farmer’s reflection on the relationship between his land and colonization:

[We] really have let our First Nations down in the way we have dealt with them since the beginning of Canada […] we have a long way to go to make it right with them […] But I never really have related it back to our farm and how we took it, how the crown took it from the Natives, because we don’t really have a Native community close to us.’ (73)

Conversely, one farmer argues that changes in proximity do in fact influence subject formation, ‘a lot of farmers probably think “I don’t think about them”, but close to First Nations I know that there are strong, strong opinions.’ (73) Another respondent living nearby the Six Nations reserve illustrates the complex role of proximity in settler narratives when he rearticulates the spatial violence inflicted on Indigenous peoples under the aforementioned constructions of nomadism to produce apologist narratives of colonialism based on ‘gradual change’ and land sharing:

They came here willingly, we shared things … if you read some of the treaties […] the original grant from the crown was, what, six miles on either side of the Grand, but a bunch of that was sold off […] After a while, the government stepped in and said “no”, we gave that for you to live on, you can’t sell it off. So they ended up selling some more off and using it to buy back the missing pieces […] and that happened three times and the end result is the Six Nations reserve as it is today […] It’s only a quarter or a tenth of what it used to be. It’s not the fault of the evil government or the evil white man, it was the gradual changes in needs and requirements and funding models over the last 200 years. (15)
These comments are connected to discourses of ‘recognition’ and ‘inclusion’ in that they obscure settler colonial relations, and facilitate the state’s maintenance of power. By ‘narrowly situating the abuses of settler colonization firmly in the past’, reconciliation ‘becomes temporally framed as the process of individually and collectively overcoming the harmful “legacy” left in the wake of this past abuse, while leaving the present structure of colonial rule largely unscathed.’ (Coulthard, 2014, p. 22).

As well, the ‘nomadic violence’ construction was employed to undermine Six Nations’ claims to land, and subsequently, to interpret the spatial violence of colonialism through a colonial logic centered on borders and Lockean property rights (wherein cultivation labour was a requisite to being ‘here’ on the land):

The natives that are here, weren’t here, they were nomads that went through this part of the country. If they met another tribe they killed them and they would move on. They burned the land to sustain themselves, which made sense […] I’m not against that, but they moved on, they weren’t residents here […] the Six Nations that we have here now are imports from the US, even though they claim to have been here for 20,000 years (67)

The respondent then uses this logic to vindicate the lived histories, realities—and accumulated privileges—of settler farmers,

So, did we move somebody off the land when we came here? Not necessarily. They may have gone through here, but they were nomads […] The deals that have been made, have been made. I think they were good deals, they were just misinterpreted.

In this context, consideration of current and future relations becomes spatially and temporally determined, manifesting in arguments to simply reconcile things and ‘move on’. When asked about their thoughts on colonization and land theft, the relationship was consistently historicized. For instance, respondent 56 claims, ‘they took our beads, it was a fair trade, get over it. At the time they thought they were getting a real treasure. That is business, get over it’. Another farmer (who identified his granddaughter as First Nations moments before) responds, ‘First Nations are a defeated race […] that’s the reality of it. I’m not being derogatory, it is what has transpired, it is what has happened.’ (37) A third
farmer expresses that, ‘as a farmer, simple, the natives got screwed years ago. The people that screwed them are dead, the people that got screwed are dead.’ He then reiterates this perspective when speaking about current relations, ‘I’m disgusted that today the only excuse for poverty and for failures in the native system is because of what happened 200 years ago.’ (35) Another farmer historicizes relations as a means for understanding reparations and reconciliation,

I don’t believe in reparations for slavery. I didn’t own any slaves and conversely, I didn’t take any land from a First Nations person. So if you want to help these people get back on their feet, that is fine, but don’t keep coming back to me because that experiment didn’t work. (26)

The spatial dimensions of settler colonization not only erase ongoing Indigenous experiences, actions and resistance—rendering them spatially and temporally ‘away’ or ‘vanished’, but they also construct Indigenous peoples in a way that asserts assimilation as the only solution:

It seems to be that the only ones that amount to anything are the ones that get away, get out into the general public. I’ve been to school with guys and I’ve done business with people, and the last thing they do is go back to it. It’s just like someone that’s just perpetually on welfare, “I don’t have to work, I can get paid if I want to live at the level”, and they seem to be happy doing it. (28) [author’s emphasis]

Consequently, not only are identities, histories and experiences obscured (only to be repackaged and homogenized as a collective ‘other’), but ‘reconciliation’ gets steeped in discourses of ‘we’. It becomes a ‘common interest’ for our future. Strategies of obfuscation and historicization help maintain power and domination in the context of changing indigenous politics. Indeed, the use of assimilation has a long history of moving Indigenous people into closer proximity to the dominant white norm. As Coulthard notes (2015), the spatial dispossession, marginalization and isolation of Indigenous peoples through the reservation system has become increasingly obstructive to assimilation. Urban space was traditionally considered non-native ‘civilized’ space, resulting in longstanding efforts to eradicate Indigenous people from it. In fact, well into the 1900’s,
reserves located nearby urban spaces could legally be re-located, as they were considered a nuisance, and ‘uncultivated wastelands’ (Coulthard, 2015). Increasingly however, this system of isolation and marginalization was seen as a failure because it distanced Natives from the ‘civilizational influence’ of white spaces like cities (Coulthard, 2015). This spatial conflict continues, but the interviews illustrate how arguments for abolishing Indigenous spaces altogether might reconcile this conflict for settler culture. As a farmer remarked, ‘Yup, the reserve system sucks, they’re not condemned, it’s not like there’s a chain holding their foot to the ground there.’ (35) Such remarks demonstrate a common form these narratives come to bare in the white settler imaginary. This argument—to get out of their ‘primitive spaces’ and ‘into civilized society’—overcomes the spatial conflict, and facilitates assimilation ‘in its absolute sense’ (Belmessous, 2013): to fully dispossess Indigenous peoples of their traditional land and culture.

**Self-motivations**

While motivations and justifications are surely present throughout the previous two sections, some specific considerations require further elaboration. When farmers were asked to reflect on the role of their land and farm in colonization, respondents turned immediately toward constructing the other (thus separating themselves from the system of oppression), as opposed to engaging in self-reflexivity. Distraction and deflection are common strategies for white people when feeling threatened about racial privilege (DiAngelo, 2011). White fragility then—as a set of behaviours—comes to have material force: these deflections are crucial to maintaining and reproducing socio-symbolic and material power. The nature of these deflections constructs Indigeneity in a way that justifies settler land ownership. ‘If actors are passive and dependent, irrational and hysterical, excitable, passionate, unrealistic, or mad, they cannot be allowed the freedom that democracy allows.’ (Alexander, 2000). As I’ve described, numerous interviewees employed narratives of terra nullius and the violent, nomadic native to justify their ownership of land,
As far as I can tell, the land that I farm on, nobody actually took it from anybody at any point in the past. I’m fairly comfortable with my ownership of it. It’s been taken from someone so often, the original owner is, I don’t think anybody currently alive has any right to argue their ancestral rights to it. (43)

Another technique for both defending and validating land ownership is the narrative of the level playing field—which follows from the aforementioned step of conflating oppressions. Once all oppressions are seen as equally constraining, one can argue that, ‘so long as we are an accepting community, there are no real barriers to access’. As farmer 30 describes, ‘yes we are the owners of land but if you own your land and don’t have a mortgage on it, it basically just means you got the rent paid, so there’s a time period that you’re there. I’m not opposed to other cultures coming in and farming our land’. These comments were made repeatedly in ways that resolved any sense of territorialisation and privileged access that white settler farmers might have over land and resources. In other words, ‘not being opposed’ to or being ‘tolerant’ of other cultures is all that is required, in their mind, to materially produce equal access.

Meanwhile, these narratives conceal a deeply historical land-based struggle—a territorialisation that has evolved alongside settler colonization. Farmers maintain a direct interest in land-based ownership—interests that need to be defended and vindicated. Land-based ownership here includes the land as well as the capital, networks and technologies that sustain the system of conventional agriculture on which they rely; that is, the relations of production. Control of which is being increasingly consolidated as capital further embeds itself into agriculture. Hence, territorialisation not only remains central to the settler colonial ego and relation, but its voraciousness grows under neoliberal regimes.
5.5.2 White settler farmer constructions of migrant farmers and farm workers

‘They accept them as workers, migrant workers, but never as landowners, and not as a neighbour.’ (84)

Socio-symbolic distance

The legalisation of exploitative racialized labour in Canada evolves from the settler colonial foundations that built the Canadian nation-state. As Goldberg describes, ‘[i]t is not that racism is reducible only to some narrow connection to colonial subjection and repression, ordering and governmentality.’ Rather that,

colonial outlooks, interests, dispositions and arrangements set the tone and terms, its frameworks for conceiving and thinking about, the horizons of possibility for engaging and distancing, exploiting and governing, admitting and administering those conceived as racially distinct and different—and relatedly for elevating and privileging those deemed racially to belong to the dominant. (Goldberg, 2009, p. 1273)

In considering the relations between white settlers and ‘others’, settler colonial power is maintained by constructing specific others in specific ways. In other words, it is maintained *through* that relation, which is always in motion, evolving alongside political economic, social, legal, and technological struggles for power. Regarding migrant farmers and farm workers, their subject formation is affected by (among other things) the maintenance of settler privilege and domination over both the division of labour and land access within the context of agriculture. Notably, when speaking about ‘immigrants’, interviewees often moved fluidly between different groups, making references to temporary farm workers and Mexican Mennonites in the same breath. The main distinctions made were between general labourers (including both seasonal agricultural workers from Mexico and Jamaica as well as migrant Mennonite workers) and land owners (ranging from Dutch, Mennonite and German immigrants, to Chinese and Egyptian land investors).
Similar to the socio-symbolic fluctuation between settlers and Indigenous peoples, while racialized immigrants are commonly coded as threatening, their exploitability has generated a concurrent discourse of ‘the hard worker’—so long as they remain relegated to political-economic spaces of exploitability. Regarding temporary migrant workers, the structure of the Canadian temporary foreign worker program has eliminated any opportunities for racialized farm workers to access land. In turn, settler farmers understand them as workers, who are only deemed threatening by fears of domestic labour displacement. Migrant workers are constructed primarily as ‘hard working’, and necessary to the political economic advancement of Canadian agriculture (i.e. exploitable for the production of surplus value). However, migrant farm workers are also affixed hierarchically along racial and cultural lines, depending on the nature and degree of difference between self and other. When asked whether there are many migrant workers in the community, one Leamington farmer observes such hierarchies in stating, ‘yes, the Jamaicans […] but then the Mennonite people, they feel that they are higher than the Jamaican people. So there is a hierarchy’ (84). However, the initial position here seems different than the self-other construction observed with Indigenous peoples. While respondents maintained a sense of efficiency, reliability, and resourcefulness regarding themselves as farmers, they constructed migrant farm workers as generally ‘harder working’ than typical white Canadians: ‘Anybody that is into market gardening, if they didn’t have them, we wouldn’t have the crops. Because the average white Caucasian, anybody that’s been here any length of time doesn’t want to do manual labour’ (28).

At first glance, the degree to which migrants are constructed as ‘hard workers’ seems to depend on perceived racial and cultural characteristics. As one farmer notes, ‘of course the Mexicans are welcome, they are liked better than the Jamaicans’ (4). An observation echoed in Binford’s research (2009). Given that bodies are marked by race, this is true, but it requires greater investigation. These racial and cultural characters operate within the political economic context of the SAWP, and agri-food neoliberalization more broadly—which requires the surplus value of labour to increase if capital cannot replace it. Hence, the hierarchy of acceptance is partially conditioned by how well different races are perceived to tolerate exploitation. In reality, of course, it is
not cultural or racial characters that determine worker efficiency, reliability, and desire to please, but rather racially structured worker precarity and disposability institutionalized into the SAWP. Conditions of unfree labour (e.g. extensive employer power, no safe employee grievance procedures, worker deportability, dangerous working conditions, and worker dependence on a single employer) command efficiency and reliability from the workforce. That said, farmers consistently attribute worker behaviour to cultural and racial characteristics. In doing so, farmers ‘engage in a convenient form of social amnesia involving the erasure of their coercive power over workers and the consequences of that power for workforce compliance’ (Binford, 2009). The acceptance of migrant workers is then contingent on both their material exploitability and the farmers’ racial construction of their exploitability. As one farmer states, in reference to Mexican workers, ‘they learn English, they’re different but not different. They’re fairly new […] everyone is learning about them. They’re filling a spot in the community that we probably need: They’re good workers, they aren’t afraid to work.’ (29)

Lastly, references to immigrant farmers who own land took a rather different tone. In speaking about Dutch and Mexican Mennonite farmers specifically (whom are notably not racialized, but are culturally quite different from conventional farming communities), subject formation was focused on these communities being ‘self-interested’, ‘closed’ and not ‘community minded’. In reference to Mexican Mennonites, a farmer remarks:

They’re better for us than the actual Mennonites because the Mennonites are in their own little group […] they [Mexican Mennonites] dress a little different, but they’re good workers […] I’m not saying that there’s anything wrong with the actual Mennonites in the area but they go to their church and they do their own thing. I get along with them, but they do business within themselves before they do business with us. (29)

Notably, interviewee’s concerns centred on economic interests. Farmers felt as though they did not have adequate or ‘fair’ access to Dutch and Mennonite markets, and felt threatened by that:
The Dutch guys that have come, they only want to do business with other Dutch people [...] that really starts to rub people the wrong way, it starts to become a closed business loop where, yeah, ‘we want to do business with you, we want your money, but we’re certainly not going to give you any of our money.’ And I can feel the tension building in this community. (25)

Indeed, the general sentiment was that ‘foreign’ economic and land-based competition (i.e. non-racialized immigrant farmers with access to capital) threatened to undermine white settler dominance in the agri-food production system. Thus far, I have complicated Thobani’s tranngulation (2007) by highlighting the entangled, roles of race, culture, and economic security in shaping social constructions and hierarchies. Indeed, each factor plays an overlapping and co-producing role in maintaining social and material dominance.

Proximity

How white settler farmers construct Indigenous peoples in contrast to migrant farmers and farm workers is partially conditioned by the nature and degree of interaction between subjects. Interviewees typically perceived themselves as closer in social and spatial proximity to migrant farmers and farmworkers than Indigenous communities. It was rare for interviewees to note any farming related relations with Indigenous peoples, whereas many stories were told about migrant farmers and farmworkers in their communities and on their farms specifically. This is not to say that rural farm communities can be considered diverse. Indeed, one farmer responds to a question about their community’s openness to newcomers by saying:

No, there is the hired help and that’s it…I’ve seen it myself before, sitting in church…a black family comes in, everybody turns and looks. I’ve got to admit, in our area, it’s rare. I don’t mean it in a bad way. There’s just not hardly any coloured people in this area, and hardly any on the farms. Well there are some…very few. I mean, they’re dying out. (84)
Notably, they seem to be referring to those that own farms specifically: that fewer and fewer people of colour own farms, as the respondent goes on to observe the increase in temporary migrant workers in many farm communities.

As mentioned, there are significant differences between how migrant farmers and migrant farm workers are situated in proximity to the settler farmer. Migrant farm workers are forced into a subjugated social and spatial proximity to farmers and the farm community. Migrant farmers are here and near to facilitate the owners’ accumulation of surplus capital. As a farmer employing migrant workers describes:

> with our guest workers it’s a win-win, it’s a win for us, they do good work. And hopefully when they go home they’re moving up into the middle class in their home country. My life is better because of the Jamaican and Trinidadian workers that are a part of our operation. I would probably be spending more time and have more angst if we employed all local people. (96)

Interviewees not employing migrant workers nor living near areas with migrant farm workers also shared these perspectives, indicating a rather hegemonic ideology at work (made even more durable through the tight-knit nature of farmer knowledge networks). One farmer shares his perspectives on employment and treatment of migrant farm workers in Leamington, over two hundred kilometres away from him:

> they all brought in migrant workers from the Caribbean and Mexico every year, and quite frankly they treated them quite well. You may hear stories, but they want good workers. They [farmers] would complain about the Canadian workers who couldn’t handle horticultural crop work for tobacco.’ (82)

However, a grain farmer in Leamington, who doesn’t employ migrant workers but is directly impacted by the expanding vegetable production industry (made possible by their use of migrant workers), shares a different perspective. When asked whether migrant farm workers were accepted in the community, they responded that acceptance is ‘not good’. ‘They accept them as workers, migrant workers, but never as landowners, and not as a neighbour.’ (84) These reflections illustrate the causal link between hierarchies of labour and territoriality, and how they interact to reproduce power and accumulate capital.
for white settler farmers. For instance, the same farmer reflects on the motivations of nearby white farmers concerning land in saying,

They just don’t want anybody on their territory […] My one neighbour down here […] he wants to make sure that he would get the land before the Mennonite would […] it’s just the way they talk, “oh why are you renting to them, they’re just the helpers”. But then there’s a hierarchy in that too […] This particular man said he would rather leave it empty or burn it down than rent it to a Mennonite. (84)

Maintaining socio-spatial hierarchies is crucial to advancing the interests of conventional agriculture. As mentioned earlier, fairly contrary assumptions were again made around fairness and access. Many interviewees criticized immigrant farmers of different cultures and/or races for entering rural spaces in ways that remained ‘closed off’ and ‘absent’. In reference to a nearby ‘absentee’ ‘ethnic’ farmer, an interviewee explains, ‘people would welcome it if he would actually build a house there and live there but…he’s an absentee landlord.’ The interviewee states that he, ‘only shows up to collect the rent or do…very little maintenance on the property.’ He then argues that if ‘ethnic’ people ‘moved into’ (and better integrated within) the community, ‘they would be reasonably well welcomed.’ (43) This final point highlights the—often unacknowledged—role of race in spatial dynamics. As white farmers who are always ‘at home’ in rural spaces, there is no need to reflect on why another might feel ‘strange’ (Ahmed, 2000). For instance, critiques were consistently directed toward the community in question, without considering how such constructions produce spaces of estrangement. As one farmer remarks, ‘these Mexican Mennonites are different […] They have their purpose, but they’re not community oriented like we are […] they try to become socially with us, but they still keep in their own little gang.’ (29) Here, farmers practice the very narratives and behaviours that create a sense of strangeness for others: not only discriminatory economic behaviour (such as refusing to sell to a person of colour), but the social performance of othering also. These constructions contribute to a narrative, and behavioural set, which upholds a mistaken notion that ‘we are fair, open and welcoming’. This strategy distracts from the persistent racial hierarchies that produce and order spatial relations. As one farmer notes, ‘I’ve never witnessed an incident of un-acceptance. I think locally…a lot of people would
tell you, “I don’t care if you’re black, white, green, or come from the moon”’. He proceeds, however, by pointing us to the ideologies underpinning racial and colonial dominance: “but everybody lives by the same standard, don’t expect special treatment and just do what normal people do.” (15) Again, immigrant others become subsumed under the universalized white self. Another farmer working within the ministry reflected on their efforts to find work for immigrant farmers with doctorates in agriculture. Indeed, many of these immigrant farmers felt they could not leave Toronto given the lack of social and cultural infrastructure in rural farming communities. This insight confirms how racialized and colonial spatiality gets reproduced, more specifically, through the work of settler ‘agri-cultures’.

_Self-motivations_

Simply comparing the arrangement and style of racial relations is not enough (Goldberg, 2009). We must also illustrate how these relations are linked politically, economically, and historically. In this study, the arrangement and style of relations between white settlers and immigrants should be considered in light of how natural resource and labour exploitation maintain settler colonial wealth and territory. State wealth relies on ensuring that domestic land and resources remain under its ownership, wherein it can distribute those rights in its interest (e.g. mining, oil and gas extraction). However, the state must also turn outside its own borders to maintain its wealth. Resource industries operating elsewhere contribute significantly to Canadian wealth. In fact, 75 percent of the world’s mining companies are Canadian-based (PDAC, 2010). Accordingly, consider the colonial and imperial relations that have contributed to the conditions for immigrant exploitability relevant to this study: migrant workers in the Seasonal Agricultural Workers Program (Basok et al., 2013; Grez, 2006; Preibisch, 2010). Many countries participating in SAWP—like Mexico, Jamaica, the Philippines, and Guatemala—endure relations of accumulation by dispossession and imperial resource extraction (Harvey, 2004) by Canadian governments and companies—thus enriching Canadian interests (ranging from mining and fossil fuels, to real estate and tourism). This is occurring alongside western and domestic efforts to liberalize agri-food
and resource trade in these very same countries, which has had numerous direct and indirect impacts on agri-food production and farming communities in these aforementioned countries, from violent dispossession of farmland to the dislocation and replacement of small-scale farming with industrial corn and soy production (Friedmann, 2005; Hall, 2013; Peluso & Lund, 2011). Without access to land, resources and a viable livelihood in their home country, many see migrant farm work as their only option. Here, the reproduction of colonial conditions—accumulation by some through the dispossession of others—is revealed as a driving force behind seemingly disconnected forms of subject formation: migrant farm workers on one hand (through economic subjugation and restricted access to land), Indigenous peoples on the other. Highlighting such linkages allows ‘one to see how the colonial shaped the contemporary, planted racisms’ roots in place, designed their social conditions and cemented its structural arrangements’ (Goldberg, 2009, pp. 1279–1280). These links reveal the mechanisms for ongoing colonial and racial relations, and help to strip them of their past tense. Specifically, they show how—and for what material purposes—this triangulated racial hierarchy has been configured within the settler colonial context of contemporary Canada. That is, ongoing (white) colonial control over resources of value, over who is able to access them, and in whose benefit.

While not explicitly expressed, interviewees reveal internal motivations for maintaining settler colonial relations of production. Put simply, they want to retain what they have and remain comfortable. This sentiment was demonstrated in the interviews through explanations as plain as: ‘I maintain my lifestyle because I have my farm and the income from it.’ (28) This maintenance, however, requires more complex structures than this statement implies. Hierarchies of access and power (racialized, settler colonial reproductions of labour hierarchies and land/capital access networks) are maintained by and for those most ‘at home’ in settler colonial states.

At the same time, the deepening of land and resource competition produced through agricultural neoliberalization intensifies these hierarchies, and again, emboldens territorialisation. The social and economic compulsion to grow was ever-present for
farmers. As a 250-acre grain farmer describes, ‘5000 acres will get you enough to buy groceries. And by the way, your combine broke down, that’s $500,000. And your tractor broke down, that’s $250,000. And where does all that money have to come from? (15) Further, he links this precariousness with the need to accumulate land: ‘and if you have a hundred and something odd acres, you just get kicked to the curb and don’t count anymore.’ As one might expect then, the prevailing priority for interviewees was land accumulation, which is mediated through migrant farmer relations, specifically, their exploitation and qualified inclusion alongside strategies of exclusion.

This context, however, is filtered through structures of settler colonial capitalism, which adhere power to settler interests. In settler colonial states, maintaining power involves evoking an implied ‘us’ that is limited to those most materially and socio-culturally ‘at home’. These logics remain essential under less overtly violent phases of settler colonialism. Here, for instance, the ‘sustained disavowal’ of violence is crucial for ‘a seamless process of territorialisation’—inclusive of indigenous deterritorialisation alongside migrant exploitation (Veracini, 2008, p. 367). Indeed, settlers living in contemporary contexts like Canada often acknowledge and arrange such conditions quite naturally. The persistent suppression of migrant farm workers into the role of exploitable worker, or the strategic exclusion of migrant farmers and landowners were tacitly taken for granted for the sake of the farmer’s survival. Such tacit justifications take a neo-colonial air in their maintenance of settler colonial circulations of capital, and hence, the continued legitimization of the dis- and re-possession of land.

5.6 Conclusion

Canada seems to be in a liminal space: commitments to and calls for Indigenous sovereignty are mounting, yet they still exist within a structure created and maintained through settler colonialism and the complex racial hierarchies that maintain settler domination. Meanwhile, settler colonialism structures societies and its members in enduring and elusive ways. Ideologies and narratives have a material stickiness, they
condition (socially and spatially) our daily lives and simultaneously cover their tracks, making self-reflexivity especially tricky. Those living in certain social fields, like conventional agriculture, are marked by particular forms of power and domination (whiteness, maleness). But these inhabitants do not necessarily experience it as such, especially when that social field is constituted by its own set of oppressive experiences (corporate concentration and bleak economic competition) and cultural constraints to reflexivity (e.g. hegemonic and managerial masculinities (Connell, 2001; Pini, 2004)). These economic pressures and cultural constraints—though distinct from the oppressions faced by Indigenous and migrant others—have emerged through the same interconnected forces of settler colonialism, patriarchy and capitalism.

Meanwhile, settler colonial structures and logics are not static. They remain reciprocally coupled to political conditions. This paper has sought to understand how—and to what material ends—these structures are socially and culturally reproduced within a settler colonial context. Within the agricultural sector, the link between industrialization and neoliberalism in the food system (marked by forces of capitalization, consolidation and corporate integration) and settler colonialism is clearly demonstrated through the demographics of farmland access and management. I have shown how constructions of Indigenous and immigrant others get put to work in particular ways for settler (cultural and material) interests: land accumulation on one hand and labour exploitation on the other.

The aim of this chapter was to elucidate the ways in which certain socio-cultural processes underpin the state and trajectory of food systems—and their socio-ecological diversity. Indeed, land access is a key factor in determining the extent to which our food system can be socially and ecologically transformed. Diversifying what we grow, how we grow it, and for whom, also requires diversifying who gets access to arable land in the first place—a territorial struggle to be sure. Shifting these conditions is no easy task. I argue it requires both a cultural and material—and hence deeply political—transformation. A first step, which this paper has aimed to take, requires identifying the
logics and practices involved in maintaining cultural and material domination within the system.

The final empirical chapter that follows analyses the ways that different actors and interests in the food system struggle for social and political power, specifically, the power to govern the system’s trajectory. Through an analysis of the conventional agri-food network’s response to growing alternative food movements, I reveal the role of discourse in shaping the food system and the path that it leads.

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Chapter 6: Social Power in Agriculture: Discourse and Identity Construction across Conventional Agri-Food Networks

This chapter considers how factors of social and political power help to shape (and maintain) the agricultural production system that I have described thus far. I specifically show the role of discourse and identity construction in governing the trajectory the system, and how this relates to sustainability and resilience. I show that these forms of power are contributing to a rather singular and technocratic vision of food production in Ontario, and Canada more broadly. This vision is based on a capital intensive model of ‘sustainable intensification’ that might not be viable for all kinds of farmers. In turn, I consider: how might we encourage a range of production models that are both ecologically and socially resilient?

Publication details:

Abstract

As momentum builds toward a national food policy, diverse—often-conflicting—agri-food actors, identities, and interests are working to not only shape material conditions, but also how we talk about and understand our food system. In this chapter, I analyze discourse and identity relations within so-called ‘conventional’ agri-food networks as well as how the conventional sphere perceives, constructs and responds to alternative food movements in Canada. This chapter is structured around three primary research questions: 1) How are conventional actors understanding conditions, changes, and challenges within conventional networks? 2) How do conventional actors apply this understanding in advancing conventional interests and discourses, and defending conventional networks 3) How do conventional actors and discourse construct AFMs? For this chapter, I draw from survey, focus group, and in-depth interview data alongside
text analysis from online sources. I elucidate the interests and motivations behind the identities, stories and messages emerging from the conventional sphere. I conclude that relationship building and communication between diverse agri-food actors may help to expand the range of agricultural knowledge, philosophies and solutions available to farmers, especially those whom are currently quite divided.

6.1 Introduction

The Canadian food system is at a definitive political moment: alternative food movements are gaining traction, and a national food policy is finally on the political table. This momentum comes with a carving out of political positions. Different interests and fractions of agri-food capital have coalesced, in this case, into competing camps or identities: ‘conventional’ on one hand, and ‘alternative’ on the other. Of considerable weight is the ‘cut of positioning’ of conventional agri-food interests exemplified by the industry’s ‘license to farm’ and ‘agvocacy’ communication strategies. These public relations maneuvers are directed at farmers, activists and consumers, and work to re-build the ‘social license’ of conventional agriculture while discouraging political support for non-conventional agri-food approaches.

Substantial research has been done on the nature and function of alternative food movements (AFMs)\(^\text{20}\), as well as how neoliberal orthodoxy has shaped alternative food work, and constructed and mobilized alternative food consumers (Andrée et al., 2014; Dixon and Richards, 2016; Guthman, 2008; Guthman and Brown, 2015; Levkoe, 2014; Lockie, 2009; Sbicca, 2015). However, less research has focused on relations between

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\(^{20}\) I use the term alternative food ‘movements’ and ‘networks’ interchangeably (Alkon and Agyeman, 2011; Cadieux and Slocum, 2015). Both terms ‘refer to a constellation of individuals, NGOs, alliances, initiatives, companies, and government entities arranged in affiliations of different intensities and scales’ (Cadieux and Slocum, 2015: 2; Levkoe, 2006). ‘Networks’ are defined more specifically as a set of interactions and relations of power encompassing ‘economic and institutional forms’ situated beyond the binaries of state and market (Lockie, 2006; Murdoch, 2000). Networks evolve through the efforts of government and non-governmental organizations as well as corporate firms to provide capital and material resources, ‘training, networking and support services in order to facilitate self-help, entrepreneurialism and capacity building’ in accordance with shared beliefs, customs and practices (Lockie, 2006: 23). In doing so, and perhaps most importantly, networks promote and perpetuate these (social, cultural, and political-economic) beliefs, customs and practices.
conventional and alternative identities, and specifically, how conventional interests and identities make sense of themselves and AFMs in the context of growing AFM pressure. This paper aims to contribute to such gaps by asking three questions: 1) How are conventional actors understanding conditions, changes, and challenges within conventional networks? 2) How do conventional actors apply this understanding in advancing conventional interests and discourses, and defending conventional networks 3) How do conventional actors and discourse construct AFMs? In answering these questions, the objective of this paper is to reveal how power, voice, and composition condition ‘conventional’ identities as they make sense of their experiences and respond to the perception of increasing momentum in alternative food movements. For clarity, the results and discussion are both broken down by these three research questions.

To move forward, this paper defines ‘conventional’ as the mode of agri-food production and identity that dominates the Canadian agricultural industry. In conventional systems, inputs are typically external to the agroecosystem, and include synthetic fertilization and chemical crop protection. Importantly, the actors and institutions providing these products and services benefit from this production system. ‘Alternative’ refers broadly to organic, biodynamic and agroecological methods of production, marked by lower-input practices, such as: promoting beneficial biological interactions; introducing organic amendments and green manure; recycling nutrients and energy within the farm; diversifying crop rotation and plant varieties; optimizing crop, forage, and livestock interactions; and rigorous water re-use and management (Altieri, 1995; Altieri and Toledo, 2011; Gliessman, 2007; Lynch et al., 2011). Alternative also includes the farmer identities and philosophies that commonly underlie this method of agriculture.

That said, I use the terms ‘conventional’ and ‘alternative’ cautiously since the political struggle is not just between two identities (conventional vs. alternative), it is also over those identities. Admittedly, this dichotomy bundles together diverse sets of conflicting actors, interests and worldviews into distinct so-called ‘networks’. Thus, as I emphasize, a distinction must be made between networks and identities. Networks are
comprised of a diverse, often conflicting, agglomeration of actors. However, it is in the interest of certain powerful actors (aligned with one ‘network’ or another) to produce a unified network identity – or at the very least, the perception of one.

To begin, I outline the development of and interaction between conventional and alternative agri-food networks and identities in Canada. From here, I use data from surveys, interviews, focus groups, and text analysis to reveal how ‘conventional’ networks make sense of their conditions, advance their interests, and construct AFMs.

6.2 Agricultural industrialization and the rise of AFMs

Over the past century, Canada’s food system has undergone a process of industrialization, underpinned by advancing mechanization and capitalization across the food chain. Agribusiness firms and farm organizations have been central actors within this process. It is well understood that corporations have siphoned off larger portions of capital within the food system, while injecting themselves more deeply into agri-food production, distribution, and retail. So while farmers are typically producing more food on their land, this isn’t reflected in their pocketbooks. Rather, farmers are clamoring over diminishing farm-gate profits as input costs continue their upward trend. To stay afloat, farmers have expanded their land-base and standardized their production. Of course, this hasn’t worked for everyone. Over the past thirty years the number of farms in Canada has fallen by 81,503 (Statistics Canada, 2011). For those who have survived, new technological promises lie on the horizon – the most prominent being precision agriculture. This system focuses on measuring ‘intra-field variability’ through yield mapping, using ‘smart algorithms for crops, automated equipment, working from a central control room using GPS guided autonomous drones and GPS guided equipment with precision that sometimes goes even to the level of an individual plant’ (Vogt, 2016). The goal is to more precisely apply inputs on land by not over-applying resources on less productive ‘zones’, or under-applying on highly productive areas. In turn, this should maximize yield productivity. Similar technologies are being developed for the livestock industry such as robotic milkers that track dairy cows’ health and welfare in real time.
Coupled with advances in ‘big data’ and decision support systems (DSS), proponents tout that ‘sustainable intensification’ via precision agriculture is the best way to feed a growing population while using fewer inputs, mitigating environmental harm, and delivering higher on-farm profits (Farms.com, 2017; Garnett et al., 2013).

Meanwhile, the serious social and environmental problems associated with industrial food production have propelled the rise of alternative food movements.21 The AFM reflects a panoply of political, commercial, and philosophical origins, standpoints, and agendas, as well as different resources, priorities, and tactics. It is also connected to other broad mobilizations concerning health, natural foods, ecology, animal welfare, labor rights, biodiversity, trade, peasant rights, and anti-corporatism. Despite its diversity, the AFM is being rapidly colonized by corporate actors, marked by similar trends of corporate concentration and integration long characterizing the conventional system (Howard, 2009a, 2009b; Jaffee & Howard, 2009). The ‘corporatization’ of alternative food is impacting (primarily by homogenizing) alternative food messaging and discourse—and thus, the ‘alternative’ identity itself (Howard, 2009a). Specifically, AFM discourse is increasingly focused on the consumer-citizen (‘voting with your fork’), rather than transforming foodways to become more socially and environmentally just (Bryant and Goodman, 2004; Guthman and Brown, 2015; Lockie, 2009). This consumption-driven discourse carries numerous criticisms. Most obviously, it individualizes structural social and economic problems in the food system (Alkon and Agyeman, 2011). By centering attention on the consumer-as-solution, this discourse distracts from various non-consumptive work being done across the AFM22.

Meanwhile, conventional agri-food is mobilizing its own messaging campaigns. In North America, the most popular is the ‘agvocate movement’; self-defined as a

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21 See the following for further insight into the impacts of industrial production on greenhouse gas emissions and climate change (Camargo et al., 2013; Higgins et al., 2015; MacRae et al., 2010), socio-ecological resilience (Rotz and Fraser, 2015), soil and water pollution (Matson et al., 1997), animal welfare (Schneider, 2015; Weis, 2013), and the rise of ‘pseudo foods’ and obesity (Guthman, 2011; Winson, 2004, 2013), to name a few.

22 The non—or not so—consumptive work I refer to includes, but is not limited to, sustainable food production (improving land access for aspiring farmers/food gatherers, building Indigenous food systems and supporting farm transitioning), alternative food infrastructure (community food centres and community-based food storage and transport), and food justice (improving access to healthy food for marginalized communities and fighting for the rights of farm and food workers).
community of like-minded people who actively promote ‘agriculture by adding their voice to the food conversation in meaningful and respectful ways’ (Agriculture More Than Ever, 2017a). In Canada specifically, a key player in the movement is “Agriculture More Than Ever”, an ‘industry driven cause...committed to improving perceptions, dispelling myths and creating positive dialogue about Canadian ag.’(Agriculture More Than Ever, 2017a). Agriculture More Than Ever is partially funded by the Canadian Government with an aim to support industry to ‘reach its full potential and attract the people, investment and consumer confidence needed for future success.’ A second key partner is Farm Credit Canada (FCC), Canada’s primary financial lender to farmers, agri-food operations and agribusiness (a federal Crown corporation reporting to the Minister of Agriculture). Another partner is Agriculture in the Classroom, a not for profit, also partially funded by the Government, with foundational sponsorship from: Agrium, Bayer, Cargill, Dow, Syngenta and Farm Credit Canada. Finally, there is Farm & Food Care: a national charity also funded by the Canadian Government and heavily supported by Canadian Canola Growers, Alberta Canola Producers and SaskCanola along with FCC, John Deere and Dow. Farm & Food Care recently launched its Canadian Centre for Food Integrity, which is working to build ‘public trust and confidence in today’s food system in Canada’. Founding members include, Monsanto, A&W, Dow, FCC, John Deere, Maple Leaf, Tim Hortons, SeCan and Shur-Gain. As well, a number of companies have partnered directly with the agvocate program such as Bayer, DuPont and John Deere.

As this paper will show, ‘agvocacy’ is an attempt by aforementioned actors in conventional chains to convince other conventional actors (specifically farmers) of the nature of their reality. In this sense, unified messaging does not imply shared socio-material conditions. Rather, networks and their discourses are comprised of intertwined economies, actors and identities. Commercial capital interests often shift between ‘conventional’ and ‘alternative’, and ‘obscure the boundaries between the worlds of food’ (Andrée et al., 2010; Jarosz, 2000; O’Neill, 2014: 114). For instance, Cargill and Tyson have both acquired organic firms and introduced organic products alongside their conventional lines. Perhaps more importantly though, network identities have their own set of political economic and cultural tensions: Network identities bundle together,
‘differing economic, social, technical and natural resources’ within food chains (Murdoch, 2000: 412). Despite real internal tensions, a unified ‘conventional’ identity allows actors to discursively engage the ‘alternative’ identity in a cross-network struggle for social license and consumer trust. As Sonnino & Marsden see it, this dichotomy ‘can be represented as a “battlefield of knowledge, authority and regulation” fought around different levels of embeddedness and socio-technical definitions’ (2006: 194). The result ‘of this ongoing battle is to empower or disempower particular sets of supply chain actors’ (Sonnino and Marsden, 2006: 194). The critical player here is the farmer: Agri-business desperately wants farmers on their side, since farmers are relatively well trusted by the public, while consumer trust in agri-business leaves much to be desired.

Identity refers to self and social image (‘identification’; Hall & Du Gay, 1996), including customs and beliefs as well as cultural, physical and discursive markers and expressions, all of which interact (although not at all neatly) with one’s gender, class, and racial location. Identity is crucial to building solidarity—despite socio-material tensions—and defining a group or network against others. Identity also influences whether and to what degree actors experience affinity with a given social, cultural, or agri-cultural ‘network’ (Lockie, 2006), while powerful actors mobilize identity to encourage affiliation. In what follows, I use qualitative data to explore ‘conventional’ identity, specifically, how conventional actors understand the ‘conventional’ networks with which they identify, how this understanding is mobilized by conventional actors and discourse, and how conventional networks see and make sense of so-called ‘alternative’ movements and actors. First, I analyze the multiple origins and competing constructions of the conventional identity, as well as the variety of lived conditions and experiences of conventionally identified farmers. Second, I show that ‘conventional’ actors and discourse often justify and make sense of these conditions by shifting blame onto external sources. Third, I show how conventional discourse uses identity to exploit cultural and social differences between networks, subsequently undermining AFM voice and complexity.
6.3 Context and Methods

This research is situated in Ontario, Canada. Ontario was selected as the study site because it is home to the largest number of farms in Canada, has a large population of conventional grain farmers (approx. 28,000 (Statistics Canada, 2011)), and is an important sight of input-intensive field crop and livestock production. Ontario’s proximity to U.S. markets and trade specifically encourage export-oriented agri-food production systems. In turn, Ontario has developed an integrated industrial agri-food system. Meanwhile, Ontario’s rising urban population is contributing to growing interest and action around food and farming issues province-wide. In fact, through the work of provincial organizations like Sustain Ontario, there is now an expanding and diverse network of alternative food and farming related initiatives (Levkoe et al., 2012).

It is important to clarify that when referring to conventional actors, I refer principally to self-ascribed conventional farmers who were interviewed for this research. Their opinions and processes of meaning making were accessed primarily through surveys and in-depth interviews. I also investigate the broader discursive positioning of conventional agriculture as an industry. To access this discourse, I perform a content analysis of the online ‘agvocate’ campaign and community. The distinction between farmer and agvocate is muddy and overlapping (i.e. some farmers are agvocates, some agvocates are farmers, but not all farmers are agvocates). While it is important to make this analytic distinction at the outset, both are intricately linked, and are therefore required for a full understanding of conventional farming conditions, challenges, identities and discourses. Finally, focus groups were necessary in accessing collective perceptions of the relations between alternative and conventional networks.

Data collection for this research occurred in multiple phases. The first phase occurred between January and April 2015, wherein 107 surveys were conducted with grain farmers across Ontario. During this time, selective farmer outreach was done by attending farm shows, agricultural conferences, annual general meetings, and connecting

23 The control was that they grew grain corn within the past five rotations.
with farmer organizations and staff. To develop a deeper understanding of conventional identities, language, and cultures, I attended various workshops and presentations held during conferences and general meetings, and recorded detailed notes. Once the target survey sample size was reached (100), data analysis began using SPSS 22 and 23 software. Using the survey data, 40 respondents were selected for in-depth interviews. Selection was based on their responses to the following survey components: acreage, income and income change, yields, crop rotation, cover crop/forage integration, livestock, local production, community acceptance of newcomers, on-farm diversification, and interest in ecological enhancement and land sharing programming. Specifically, I aimed for a diversity of farm practices and characteristics. I selected for those who ranged in farm size (ensuring that I had a fairly equal population of small and large farmers), agroecological practices, livestock integration, and crop rotation. 24 of the 40 respondents were able to participate in the interviews (1-3 hours each), which were conducted between June and August 2015. From here, three interviews were completed with policy experts from the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and a non-profit agricultural organization. Subsequently, three focus groups were conducted during the fall of 2016 with a total of 15 agri-food actors, consisting of activists, community organizers, academics, students and OMAFRA affiliated staff (coop and contract). Participants were selected through snowball sampling (primarily through direct emails as well as outreach during the 2016 Food Secure Canada conference). The purpose of the focus groups was to explore how AFM actors collectively perceive conventional discourses and reactions to social movement pressure, as well as what linkages, interests, and connections they have observed between conventional and alternative networks. During the focus groups I used seven core questions to probe participants about: their work and perceived role and position within alternative food movements; how they feel alternative food movements are perceived by conventional farm communities; how they perceive the role of food movements with respect to agribusiness and conventional farmers; their perceived connection (or lack thereof) to conventional farm communities; possible aspects of their social position that may influence their interest and/or ability to connect with conventional farm networks and communities; the perceived role of gender in producing/maintaining social dynamics
within and between networks. Interview and focus group data was audio-recorded, transcribed and analyzed using NVivo v.10 software. The data was coded into 27 parent codes (with 12 sub-codes). The analysis proceeded relationally between trends in the data and the research objectives. Focus group data was combined into the existing interview codes, while also separated into additional codes where necessary. The analysis was coded with Flick’s (2009) questions in mind. I was especially interested in who was involved, how often the issue was emphasized, and what reasons were provided or constructed (Flick, 2009; Liamputtong, 2012). Additionally, I performed a content analysis of conventional messaging online. I focused attention on the discursive spaces that self-identify with the ‘agvocate’ campaign (websites, blogs, webinars, Twitter feeds, etc.). The results that follow are broken down by the three aforementioned research questions.

6.4 Results

Question 1: Conventional conditions

Farmer survey and interview respondents recognized and confirmed rising class differentiation and structural inequities across the conventional farm population. This trend toward fewer, larger, more heavily capitalized farms in Canada affects small-scale, alternative, and aspiring producers acutely. However, conventional farmers are recognizing and experiencing this pressure also. Small and medium sized conventional farmers specifically experience increased economic stress alongside declining income over time (Rotz et. al. 2017). Meanwhile, yields-per-acre across farm scale are not significantly different, illustrating that income differentials are often not a product of greater efficiency on the part of larger farmers.

Nevertheless, small farmers are struggling to remain financially and socially viable in conventional agriculture. As one farmer explains, ‘we can’t afford to keep buying bigger and bigger equipment, the bigger the equipment the more sophisticated it is…When the big farmers are getting new, that’s when we buy their used stuff. We just can’t afford it.’
They go on to explain why they feel alienated by the industry, ‘I think we’re too small…I think they [both government and corporations] deal too much with the big guys, there is nothing for us small guys.’ His wife elaborates,

He will go to a combine clinic and he would say “oh my god I wasted that session, because it was a combine that was the newest combine going”, he said “it is almost depressing, you can’t even ever hope to have something like that”. And anybody that buys a $500,000 combine, you know damn well the dealers are going to all be on his doorstep every morning helping him get that combine going, whereas me with that 15 or 20-year-old combine, there’s nothing out there for us. You’re almost wasting your time…they like the guy with 5000 acres, they will bend over backwards for him. (84)24

Over 80% of farmers interviewed express serious doubts about their ability to reproduce their farm enterprise and do not think their farm will last into the next generation – or even the next 15 years in some cases. In addition to the cost of land and labour, nearly all farmer interviewees point to the effect of rising input costs (tools, seeds, fertilizer, and machinery) on their production and farm viability. 85% of survey respondents report that their input costs have risen ‘a little’ or ‘a lot’ over the past 10 years (44% and 40% respectively). Survey respondents rank seeds (67%), fertilizer (82%), and pesticides (51%) as their three largest financial costs (of 16 choices).

The data show that access to knowledge and resources are also being differentiated by farm scale. For instance, farmers who primarily receive their agricultural information from a private consultant have an average acreage of 1021, while the average acreage of those who do not is 559. Conversely, those who primarily receive information from other farmers manage 620 acres on average, while the average acreage of those who do not is 873. Farmer and expert interviews confirm this trend. As an expert interviewee observes, large conventional farmers avoid sharing information in order to maintain a competitive edge. The interviewee explains that large farmers are also less willing to participate in government programs or workshops. Instead, they invest in information technology, which typically entails companies partnering to optimize machinery and collect and

24 The numbers attached to farmer interview quotes refer to the farm number anonymized in the data. Focus group and expert interview quotes are not numbered.
interpret big data. Large farmers are found to be far more interested in private funding mechanisms and amassing technocratic forms of knowledge than they are, for instance, in accessing public grants or resources. Hence, the data show that there is not only a growing disjunct between the economic capital of different sized farmers, but social and cultural (knowledge) capital also.25

**Question 2: Conventional Networks and the Blame Game**

This section reveals how conventional farmers engage with two pressing questions: ‘why is this happening?’ and ‘what are we going to do about it?’ Specifically, it explores the stories farmers tell about who/what is responsible for the challenges they face. While farmers were not always in *unanimous* agreement concerning the exact sources of their economic hardship, they seemed to agree that the government and/or consumers played a role. On one hand, the regulatory force of a corrupt and lumbering government bureaucracy is felt to smother farmer innovation, syphon off profit, and limit growth. On the other hand, farmers feel that the fickle habits of consumers combined with consumer ‘misinformation’ make it difficult to identify or respond to market demands. Despite this assertion, farmers also feel that very little communication or understanding exists between themselves and consumers (not to mention alternative food activists). This communicative distance is the space in which farmers create and project their own narratives, and, once filled with these narratives, makes it difficult for farmers to empathize with consumers and the challenges of food related decision-making within the industrial food system.

Online content analysis confirms these narratives, but also reveals the discursive strategies deployed in response. The following are some of the most common phrases that emerged: farmers need to ‘agvocate’ and ‘speak up for agriculture’, modern agriculture needs to ‘build trust’, and farmers are the ‘credible voice’ for the industry. Broadly, the most consistent messaging of the agvocacy discourse encourages farmers to stand together with each other and industry in the face of burdensome government and

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25 This finding has been observed elsewhere (Burton, 2004, 2012).
capricious consumers. The ultimate goal of this call to action is to defend modern agricultural methods and preserve the ‘social license’ of conventional agriculture.

In addition to government and consumers, climate change was identified across the data as another significant source of farmer hardship. When asked about climate change, 18 of 24 farmers noted weather to be more extreme, and a common concern was how to manage such volatility. The following farmer expressed a commonly held sentiment, ‘farmers are talking about it. The extremes are more extreme and more difficult to time things in a reasonable way. It seems like you got hours and half-days instead of days to do things.’ In turn, he says, ‘I’ve got to have good equipment now, because when I go, I got to go. I can’t be fixin’. ’ (29) Another large farmer responds similarly to climate change and the shrinking window for field work: ‘I think we have adapted in that we have larger more efficient machinery so that when those windows are there for getting field work done we can work very quickly, far more quickly than we could have five or 10 years ago. I think that will be even more important going forward: efficiency’ (54).

The content analysis reveals a similar narrative concerning climate change. Specifically, climate change is presented as a threat or problem to be ‘managed’ through precision agriculture, ‘smart farming’ and big data (Practical Pathways to Drive Real Results, 2015). This was observed most commonly on industry websites, in industry news articles and during participant observation of industry presentations and workshops (e.g. Monsanto, Bayer and DuPont).

**Question 3: Constructing alternative food others**

The third question investigates the processes through which alternative food identities, actors and networks are constructed (and then treated) in the conventional sphere. Specifically, the data reveal the importance of space and gender during these processes of construction. During farmer interviews, some respondents associated gender with a
particular set of characteristics. Connections are commonly made between femininity, non-farm/urban identity, and left political views. As one farmer states,

In a grade twelve World Issues class, three quarters of the participants will be female, and most of those, and maybe you’re one of them, are ultra-socialist. I’m not being derogatory here, way over strong, strong NDP. Take care of the fellow people, local food only, anti-pesticide. And they say, “Mr. Smith you grow GMO crops!” [I say] “yeah”, and they want to know why and all this. And I can spend time talking about it, but it’s the usual female […] polite kids, but mostly the gals. So, that trend, I said urban earlier, it’s not just urban, I’m in the science office and one of the gals is a science teacher and she is totally anti-GMO. (37) (author’s emphasis)

During the focus groups, it became clear that these constructions are neither subtle nor hidden. Instead, these constructions are painfully evident to those who are characterized as part of the ‘feminine urban left’ when attempting to engage with the conventional network. In other words, these, often pejorative constructions are felt most strongly by those to whom they are made to apply: primarily young females from non-farming backgrounds. Indeed, this experience bares out in my own interaction with farmers. A female respondent speaks to the assumptions made about her identity when reflecting on her experience with farmers:

I’m not sure if it is because I am a young woman or because I have these political opinions. When working with farmers I was often asked if I was a vegetarian before anything else came up in conversation […] they were very mistrustful of vegetarians, and I guess I look like they imagine a vegetarian looks like. I also am not from a farming background and so I think both because of that and because I am a young woman I often felt like people were treating me like their daughter, like they were kind of protecting me or guiding me along on the farm. Babying me […] It was like, “is this your first time on a farm?” (author’s emphasis)

Content analysis of the agvocacy sphere confirmed the ubiquity of these affiliations. Figure 6.1 depicts a common set of qualities placed upon those who are critical of modern agriculture. The most prevalent affiliations that emerged from the content analysis were between urban/non-farming people, higher wealth (and purchasing power), lack of information and understanding of agriculture and ‘science’, distrust of agriculture,
and vegetarian, natural, and organic food preferences. Specifically, ‘modern agriculture critics’ were often presented as non-rural (suburban, urban), female consumers (Food Babe being an emblematic scapegoat), and mothers in particular (Bowman, 2014; SaskCanola, 2016).

Moreover, numerous gendered connotations were made less directly. We know that women are often coded as closer to nature (Ortner, 1974), thus preferring ‘natural’ and ‘organic’ products (Caplan, 2013; Ruby and Heine, 2011). We also know that women are coded more broadly with counterdemocratic tendencies: irrational, passionate, excitable, and unrealistic (Alexander, 1992). Content analysis and farmer interviews revealed that ‘organic’, with its feminine connotations, is also coded as counterdemocratic. For instance, in reference to organic production, the following codes were most common: organic as inefficient, backwards, unscientific (‘anti-science’), untested, unrealistic, misinformed, irrational, and deceitful—codes which were also attributed strongly to female ‘critics’ and consumers. Illustrative quotes include, “To me it is like stepping backwards […] Agriculture has a job to do. The world does not know how to stop having babies: 9 billion by 2050” (26), “What are the odds of it being
organic? They don’t test.” (28), “It’s [organic] a crock of shit! Most organic farmers are poor farmers because they don’t control their weeds and their crops aren’t as good as they should be. They’re in for money, and they’re getting a lot more then they should be. Because their harvesting crap, there is some crap, and I wouldn’t eat their crap if they gave it to me.” (29) “I don’t see organic farming as a viable way of going […] the organic industry has a credibility problem, they may have all of their paperwork in place, but does the paperwork really mean much? I don’t think so.” (30), “The founder of the organic movement […] lot of the things he is quoted saying are just completely irrelevant […] I thought [he] was a crackpot” (4) “That market [organic] is largely driven by misinformation” (54).

Finally, conventional actors and discourses consistently conflated alternative food actors and movements with urban consumers. Few farmers were aware of the alternative food movements’ complexity. The alternative food movement is concerned with ‘food justice’ and ‘food sovereignty’. It is engaged in activities to get diverse new/aspiring farmers onto land. It includes entities such as food co-ops and community food centres and organizations like Black Creek Community Farm, Everdale, Ontario Farmland Trust, FarmStart, and Just Food Ottawa, among many others. Nearly all farmers, however, were unaware of this work. Instead, conventional actors and discourses refer almost exclusively to urban food consumers/consumer activists.

6.5 Discussion

The discussion expands on the above data to examine how conventional interests are responding to alternative food movement discourse, and for what possible ends. The following three sections address each research question in turn. The first section shows how conventional interests conceal internal differentiation. The second section shows how conventional interests externalize systemic problems, and the third section examines how conventional interests construct food movements in particular ways; specifically by exploiting enduring beliefs, which in turn, restricts, undermines and ignores the voices of non-consumptive identities.
6.5.1 Question 1: Concealing differentiation

Social license. That is exactly what it was about […] how we need to fight this movement because they are undermining our ability to feed the world because they don’t understand the science […] they have started using this language around social license and the fact that the food movement is threatening them. I actually think recently, in the last two years, that there has become this very antagonistic us versus them language in conventional farming. (AFM affiliated respondent)

Content analysis of agvocate messaging shows that the goal of the network is to re-build the ‘social license’ of conventional agriculture. Farmers are being trained through webinars, workshops and presentations to deploy well-crafted agvocate messaging against consumers directly. In much of the content, farmers are presented as selfless, caring, land stewards who ‘know best’. As the experts, farmers are placed into the role of defending their practices and decisions. Farmers are directed to ‘work together’ with industry and ‘speak for the industry’ to reach consumers and ‘help consumers draw a closer connection to where their food comes from and the people who produce it’ (Agriculture More Than Ever, 2017c). Farmers become the spokespeople for ‘modern agriculture’ who then must share the ‘truth’ about agriculture, dispel misconceptions and change perceptions (Agriculture More Than Ever, 2017a). In this sense, a common identity is generated by building a unified defense of production across the farm-base.

To do so, network messaging conceals significant internal tensions observed in the data. In the context of ongoing economic differentiation, farmers consistently expressed a feeling of helplessness. However, this helplessness exists alongside a deep-rooted sense of social, cultural, and economic affiliation, resulting in a state of dissonance. Effectively, the promotion of a unified defense of conventional production doesn’t sit neatly with the lived experiences of many farmers—small and medium sized farmers specifically. Indeed, economic differentiation has fed off of the incentivization of consolidation and capitalization, driven by many of the same firms involved in the agvocacy movement.
The data also show rising social/cultural differentiation, which is—at least partially—rooted in a growing aversion to knowledge sharing between different sized farmers. Concurrently, there is a rise in knowledge sharing between large farmers and private suppliers and consultants, which has been articulated elsewhere (Carolan, 2005; Morgan and Murdoch, 2000). As the interview data show, OMAFRA has seen similar trends toward knowledge fragmentation between farmers. These findings demonstrate the disparate kinds of relationships being encouraged and built between farmers and agribusiness in practice. Small and medium sized farmers are experiencing significant economic grief, and have little social capital to leverage. However, conventional discourse and messaging remains silent about these issues. Indeed, rising input costs and farm scale differentiation are not at all present in the messaging.

Economic differentiation is discursively concealed in the Ministry also. Interviewees working within the ministry felt as though it often overlooked, or actively ignored the issue of farm scale differentiation. Interviewees reflected on how OMAFRA views and promotes agriculture as ‘idyllic’ ‘family farms’. One respondent explained that all sized farms were treated as small family farms, ‘just raising their vegetables and sending them off to the market…But a lot of the growers had very large operations with very sophisticated equipment. We actually went to some greenhouses, which are huge, massive places, run basically without any agricultural knowledge. It is just business inputs…but there was never any talk about whether that was good or bad. They were just like, “this is great because they are small family living”’. In effect, silence works to conceal the presence and importance of farm scale differentiation, while concurrently building social identity through the use of unifying moral representations as independent, proud, family-oriented, resourceful, stewards and protectors of the land (Agriculture More Than Ever, 2017b).

Subsequently, this network (and the identity it constructs) discourages reflection into political economic forces—and how they have, and continue to impact farmers and rural communities. What is made clear is a commitment to a fairly singular future, rather
than a focus on cultivating new possibilities based on multiple futures. This is evidenced by interactions between actors. For instance, one respondent engaged in alternative networks describes attending a conventional industry presentation focused on why ‘farmers need to wage war on urban people’, an observation echoed by many engaged in AFMs (and observed first-hand). Indeed, for some conventional interests, the solution has already been realized through corporate-led precision agriculture via big data, it merely needs to be liberated from the shackles of corporate distrust (Vogt, 2016). Carolan’s findings bare out here in that such strategies coerce ‘actors into certain forms of ‘communication’’, wherein ‘the data’ in these assemblages seem to do the speaking for themselves’ while ‘those impacted by ‘it’ have little (if anything) to say about what and whom they should be or become.’ (2016: 12) This strategy has little to do with bringing together politically, economically and socially disparate voices to listen and collectively envision (multiple) possible agricultural futures, but rather, to direct a solution (and its most lucrative components) and foster trust therein. In turn, not only are there no meaningful spaces for alternative visions and multiple futures to be conceived, but there is no space to reflect on the longstanding social and economic consequences of this trajectory for farmers themselves.

6.5.2 Question 2: Naming the problem

According to advocates (and numerous interviewees), modern agriculture is changing for the good and is essential to feeding ‘9 billion by 2050’. The problem, they say, is that the benefits of modern agriculture are not well understood by critics. Their ultimate food solution then, is simply to educate ‘those that have a misunderstanding of agriculture’ (Vogt, 2016).

Interestingly, while the network claims to be strong and unified it must nevertheless acknowledge that farmers are facing unprecedented challenges. In effect, the network acknowledges that the industry is struggling, but they attribute the problem to external forces, which all farmers are encouraged to rally against. Namely, the network motivates farmers to correct problematic’ trends in consumer food purchasing. This is the singular function of Farm & Food Care and the agvocate network: to train farmers to
become ‘confidant agricultural communicators’. That is, they offer agricultural advocacy training to build farmer confidence in speaking to consumers (Daynard, 2015). The ultimate goal is to change consumer perspectives, interests, and activities. Yet, as Communications Manager for Farm & Food Care, Kelly Daynard says, it is ‘hard to find farmers that are confident and eager to speak on behalf of agriculture’ given the ‘economic issues’ they have faced over the past 20 years or so. Importantly however, network discourse overlooks corporate concentration and industrialization as possible reasons why farmers are reluctant to ‘speak up’ for a system that has left so many behind.

Indeed, farmers do have a keen sense of industrializations’ force in modern agriculture. Many acknowledge they operate at the whims of an international market wherein processors, distributors and retailers siphon off the vast majority of profits. As a farmer noted, ‘we’re not here because we want to be here, it’s just the way that the world has pushed us to go, we’re like everybody else. Even a carmaker, if they can’t do it efficiently, they come and go, we’ve been pushed the same way’ (28). Yet, the findings illustrate that farmer and network discourse consistently shift the blame onto consumers and their desire for cheap food. Similarly, in response to perceived public backlash against pesticide-treated seeds, farmer interviewees and network messaging targeted governments and disgruntled consumers rather than the companies who produced and marketed those seeds (consistent with the findings of Bain et al. (2017)). Accordingly, antagonism has deepened between farmers and consumers – not surprisingly, the two least powerful actors in the chain.

As the results show, climate change is emerging as a prominent threat for farmers. Conventional interests present organic as the ‘unproductive’ agriculture of ‘yesteryear’ (SaskCanola, 2016), and argue that only ‘smart farming’, can simultaneously ‘feed the world, tackle climate change and protect nature.’ (Crop Life, 2017). Agvocates then, do not deny climate change but rather, present it as a threat or problem that can only be ‘managed’ with science, innovation, big data and precision agriculture (Practical Pathways to Drive Real Results, 2015).
The threat of climate change is being used across the network to advance new modes of on-farm mechanization, specifically big data collection (mining), analysis, and re-sale. As a Monsanto representative explains, the only way to know your soil and your farm’s vulnerability to climate change is through data, ‘if you can't measure it, you can't manage it’ (Wright, 2015). In turn, farmers are entrusting intricate on-farm soil, weather, input, yield and profit data to agricultural data development firms like Monsanto’s Climate Corp. in exchange for personalized farm action-plans (Carbonell, 2016). Firms such as Monsanto, Tyson, and John Deere however, prevent farmers from owning, accessing or modifying on-farm software and data, while at the same time, sharing and manipulating that data for profit. (Carbonell, 2016; Janzen, 2017) Further, many big data programs operate like a treadmill. Once farmers are invested in the new set of data-driven technologies, they quickly become dependent when they discover that the data output can only be accessed through progressive pay-walls. (Carolan, 2016: 14). The underlying logic of this trajectory is that, in order to have scientific innovation in agriculture, farmers (and other users) must relinquish ownership to the private realm, while also conceding to the scientific (R&D) interests of corporate innovators. In effect, ‘science’ has come to stand in for changing modes of mechanization (e.g. big data, GPS monitoring and remote sensing) that work to intensify capital, exacerbate scale economies, and ‘contribute to the concentration of agricultural production in fewer hands’ (Wolf and Buttell, 1996: 1270). In other words, farmers are conflating the mechanization and privatization of on-farm information and data with the advancement of science more broadly.

What qualifies as ‘science’ is central to the struggle between conventional and alternative networks. As one farmer noted, ‘everyone is trying to claim science on their side.’ (73) For instance, in response to the recent neonicitinoid pesticide regulation, many farmers argued strongly against the regulation on the grounds that ‘there was no science behind it’ (29). Such views were expressed regarding the direction of agricultural policy more broadly, ‘we have seen the government alter policy based on the voice of the urban population, so that is affecting all farmers, and a lot of it isn’t based on good science, and

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26 The broader political economic and ethical implications of big data in agriculture have been discussed—although rather scarcely—in academia and the popular media (Bronson and Knezevic, 2016; Carbonell, 2016; Carolan, 2016; Russ Banham, 2014).
I think that is a problem.’ (54) This statement illustrates how urban governance, expansion, and consumption are interpreted as external threats to modern agricultural, and rendered antithetical to science, the moral life of rural farming, and farmer solidarity.

6.5.3 Question 3: Constructing alternative identities

Conventional interests and identities are assembling a particular representation of alternative food movements, and those who are critical of conventional agriculture more generally. Figure 6.1 presents a snapshot of common themes for constructing critics of agriculture. Or rather, the features with which critics are associated. Below, I focus on a number of intersecting themes observed, and show how they are used to undermine the rationality, knowledge, and experiences of alternative food actors and identities.

*Gendered & spatial constructions*

Gender and space work to shape broader cultural class distinctions for the rural, conventional network (Leach, 2011). It is not ‘feminine’ or urban symbolic/material representation alone that is operating, but rather their intersecting political force, which stands in as an archetypal cultural and material threat to the conventional network and their way of life. Gender and space are both reproductive in their effects, in that it is only because of their particular socio-history and relation to material and discursive power within conventional agriculture that they are able to stand in for such a threat to begin with (see how masculinities, on the other hand, are represented and manipulated; Bell et al., 2015). The data reveal a common construction of the feminine-urbanite-consumer as the archetypal alternative food activist and critic of modern agriculture, which juxtapose strongly against rural agrarian masculinities (Bell et al., 2015; Bye, 2009; Coldwell, 2007; Connell, 2001; Liepins, 2000; Pini, 2004). Space and gender play a crucial, intersecting role to produce an archetypal cultural class distinction between those who
support’ and ‘oppose’ conventional agriculture. A female focus group respondent revealed this intersection when reflecting on her employment experience with OMAFRA,

I think that this urban thing was a huge part of my summer, and trying to fight to be listened to because I was from an urban place. As I reflect on the summer and why I so often had to defend myself. I think it is because I am a young woman and also because I am from the city and also because my background is in the environment, and those three things tie into the conventional agricultural discussion because my background makes me weary of conventional agriculture.

The conflation of young, non-rural, feminine identity with vegetarian, natural and organic consumption often accompanied arguments that critics might mean well and merely ‘want the best for their family’ but simply ‘don’t know any better’ and are ‘misinformed about agriculture’. These constructions uphold the legitimacy of conventional farming identities by coding critics as unrealistic, naïve, irrational and overcome by passion (Alexander, 1992). Indeed, these master codes can be applied to any ‘Other’ existing social identity that threatens the security and material comfort of the farmer self. In this case, the identity ‘young urban woman’ is codified in the white male farmer imaginary according to counterdemocratic motives. This observation is echoed in the quote where farmer 37 uses my identity presentation alone to assume I am one of the ‘ultra-socialists’ he speaks of (see Question 3 in results). Put simply, this is not only a battle of worldviews, but a battle of identity.

This is not to imply that farmers and other conventional actors express and share such archetypes explicitly (i.e. that all farmers engage in overtly sexist commentary). It isn’t (necessarily) the case that farmer X is saying to farmer Y, ‘hey, can you believe those urban woman these days?’ Rather, as their social, cultural and economic capital is increasingly threatened, they (like nearly all other affiliated groups in society) apply these counterdemocratic codes to the identities they perceive as being the source of that threat.

27 Notably, rural farmwomen within the conventional network occupy a rather different space. However, it is also underpinned by its own social, political and economic structures of patriarchy. For example, a farmer explains, ‘when the guys come in from farming in the morning and they sit at a table they want to talk their own talk, they don’t want some woman talking to them.’
Beyond farmers’ security and material comfort, I argue that their identity as the archetypal rugged individualist is also under threat—not only by ‘critics’ but industrial actors as well (Bell et al., 2015). A central argument for critics is that the most successful farmers are instead cooperating with and benefitting from agri-food industrialization and corporatization. According to critics then, the rugged frontiersman is a historical myth. Farmers respond by then doubling down on the identity of rugged individualism—and increasingly ‘business entrepreneur’—and placing that identity in opposition to the aforementioned counterdemocratic codes. These binary codes are thus a discursive tool, which are equally effective for conventional industry interests, as they coopt and manipulate the farmer identity, and present it as their own.

While this observation should not be new, its implications may prove far-reaching. Such constructions have material impacts. They are reproduced throughout the agricultural network and endured by many young women working within it. Young female focus group participants concurred that their interactions with farmers were often mired in condescension and scrutiny, but they focused more so on the complex ways in which identity impacted their professional work in the industry. One female focus group member expressed that, with colleagues, ‘sometimes it felt like being bullied, because of my opinions’. When asked to expand, she explained that ‘they were not really that happy’ if she asked a question. ‘They kind of thought it was dumb and they made that pretty clear. Sometimes I saw things on livestock farms that I didn’t know happened or I was uncomfortable with, and if I asked a question about that then I was “animal rights, animal welfare.”’ In turn, ‘I was pretty quickly shutdown and told to keep my emotions in check.’ As if they were asking, “‘why are you applying emotions to this topic of business?” Certainly, it does not matter whether coded ‘emotionality’ (excitable, hysterical, irrational, passionate; Alexander 1992) is ever truly embodied by the female speaker. Rather, her gender always already marks any and all expression as inherently emotional. Notably, it is because women have so long been excluded from these spaces that entering them is perceived to be threatening.
When considering knowledge and identity, the role of place becomes increasingly important. Focus group respondents agreed that since they were not from a farm, they did not feel qualified to make suggestions. An OMAFRA respondent reflects on how those in the industry “hold their farm knowledge so special, it’s the best knowledge and I didn’t have that. Even among other students like me.” Many of these students did not feel that she could possibly understand cows because she didn’t grow up on a farm. Notably, she felt that this lack of appreciation was augmented by her environmental studies background, which associated her, in their minds, with a distrust of agriculture.

Linking identity to spatiality directly, ‘farm cred’ was noted to be of particular importance: ‘I always feel like, if I’m entering into a conventional space, I have to say “I grew up dairy farming”. To get farm cred.’ This was not only true when connecting with farmers directly, but when interacting with colleagues in government and farm organizations also, ‘I would constantly be asked, where are you from? Where is your farm?’ Her (male) boss, who ‘particularly fought for people to appreciate my knowledge despite not being from a farm’, would say “yeah she knows a lot about this kind of stuff. You should ask her about that” and I really appreciated that. Maybe I should have fought for that myself. Maybe that’s something kind of profound. Maybe they didn’t believe me, and they needed him to say it.’ Her non-farm identity connected with her gender in ways that made it very difficult to interact equally with colleagues, to ask questions and have a voice throughout the project. In this way, an identity of place is at work, which is meant to keep non-farm identities out of place. One cannot gain acceptance, access, and legitimacy through knowledge alone—they must have experienced and express a specific identity of place.

Urbanity played a particular role in how conventional network interests were upheld. For instance, OMAFRA affiliated participants agreed that urban populations and interests were particularly disparaged in the conventional network, which links directly to hierarchies of knowledge: ‘I find a lot, in policy discussions, it’ll be like “the folks from Toronto think you shouldn’t do anything. They’re completely unrealistic and idealistic and they don’t appreciate where our food comes from.”’ The sense was thus that many in
the conventional network performed an attitude that, as the same respondent phrased it, ‘there are some sensitive people out there and they have never stepped foot on a farm and they are letting their emotions run the show’, an attitude that pervades the institutional culture. In this way, urbanity takes on feminine coding, thus standing in for the identity itself.

This sentiment shaped many of the opinions of farmers directly. For instance, when asked their opinions on the recent neonicitinoid pesticide regulations following growing evidence of pollinator toxicity, farmers overwhelmingly felt that the regulation was a ‘political response’ to ‘urban special interest groups’ and ‘that crazy broad’ [Premier Kathleen Wynne] trying to ‘leave a green legacy’ (26). While some farmers were critical of the industries over promotion and use of the pesticide, the blame and opposition consistently fell onto urban populations who ‘have misinformation’ and ‘don’t know anything about agriculture’ or ‘science’ for that matter. Interestingly, this line of reasoning was often employed to argue that the regulation was blaming farmers (as opposed to production of the product, and the availability of alternatives), and was unworkable because the only alternative within the conventional system was to revert to older, ‘less safe’ pesticides.

Accordingly—and over time—articulations get drawn along magnetic ‘lines of tendential force’, which are the tendencies that go along in the constructions of social or cultural formations (Grossberg, 1986). Put differently, social and cultural formations (such as conventional agriculture) are historically embedded and bound up within ideologies that reflect particular social, economic and cultural structures, thus making the formation itself difficult to disrupt (Grossberg, 1986). Interrupting these tendential connections entails ‘moving against the grain of historical formations’, thus ‘you are going to come across all the grooves that have articulated it already’ (Grossberg, 1986: 54). It is not to say that more recent conventional discourse (such as the agvocate campaign) is producing the aforementioned cultural constructions and symbols, but rather that the discourse is piggybacking off of them. Specifically, by applying a set of master codes to ‘feminine’, non-farming identities (as these identities are seen as the source of
their threat), conventional identities get validated. This is not immaterial, however. By constructing critics in this way, conventional networks maintain longstanding gendered and spatialized relations of power. Indeed, they are only able to do so because of the deeply historical and relational force of both gender and space.

Leaving out the land: constructing a consumer movement

A lot of farmers have this picture of these really wealthy urbanites willing to spend crazy amounts of money on organic food. (73)

Farmer and industry discourse alike was strongly consumer-centric, which works to both discredit and homogenize AFMs. AFMs were consistently presented as ‘urban consumers’ who ‘may not know what an acre is’ and ‘have little agricultural language’ (Cherilyn Nagel, 2015): summoning aforementioned codes of unrealistic naivety. Most farmers understood AFMs simply as consumer advocacy for local and organic food (‘vote with your fork’ sort of discourse), which isn’t surprising given how alternative food consumers are mobilized and constructed in neoliberal times (Lockie, 2009). Meanwhile, there was a broad consensus across farming, industry and alternative actors that communication and understanding was very poor between conventional and alternative networks. As someone engaged in alternative networks explained, ‘when I talk about a food movement, farmers make an assumption that that food movement is a bunch of urban wealthy people going to farmers’ markets. That is part of the movement, but by no means is that the [entire] movement.’

For conventional interests, consumer-centrism deflects from deeper, structural questions including, who is able to access rural lands and spaces in the first place, and what factors determine land access and restriction. Such questions point to trends of consolidation facilitated by the increasing immersion of capitalism in agriculture premised on settler colonial settlement, which has—and continues to—allocate the ownership and control of arable land to white settlers. In turn, there is no meaningful consideration of the political, economic and cultural barriers to land access in Canada for
those from a non-agricultural background. Farmer and industry discourse alike doesn’t acknowledge the political economic and social forces behind peoples’ separation from agriculture. Rather, their separation is simply used to argue that they do not know farming, therefore, we must defend the people who do: those already on the land (Bufkin, 2015). As a result, there is no mention of how to broaden and diversify access to agriculture, rather, the focus remains on defending the system as it is: one that must continue to expand to survive, because fewer people are inevitably going to be on the land. The ways forward are thus centered on growth and the accumulation of technology, capital, data, and, of course, land.

*Alternative as ‘anti-science’*

A final trend observed is the way in which critics are constructed as ‘anti-science’—directly linked to aforementioned claims over science. Consumers, whom are now akin to ‘alternative food activists’ or ‘modern agriculture critics’, are placed in opposition to science. As a farmer argues, ‘nowadays people are even questioning science […] they don’t seem to want science involved in their food production. And what they don’t understand is it always has been. From the first hybridization of corn, for instance, that is genetic modification.’ (26). Another farmer argues against those in favour of recent neonicitinoid pesticide regulations by saying, ‘as a society, science has benefited us far more than it hasn’t […] to all of the sudden go from science-based conclusions to go the other way, is, in my opinion, a big step in the wrong direction.’ (54) These constructions then get utilized to argue that such forces are eroding farmer autonomy. As an agvocate blogger writes, ‘with every added regulation or policy that gets put into place based on consumer concerns as opposed to scientific concerns, it’s not necessarily going to be the farmers choice on how they operate.’ (Lyndsey Smith, 2016) (author’s emphasis).

Concurrently, conventional interests are recruiting scientifically ‘trustworthy’ figures (such as dieticians and nutritionists) to build trust with consumers. As an alternative affiliated participant notes, their strategy is to say, “hey dietitians, you’re thought leaders, people trust you to know about nutrition and because you’re a qualified
scientist […] let us talk to you about the science of what we’re doing.” It is a very subtle thing’, which serves to ‘endorse what farmers are doing’, as another participant notes. They explain that, in effect, the public can say, ‘look, I trust dietitians, I trust scientists […] So these dreaded, barefoot people running around screaming must be full of shit.’

By constructing critics as wholly anti-science, critics become hypocrites in that they are understood to embrace technology and innovation in their own lives, but reject its application in agriculture: thus effectively mobilizing the code of irrationality. ‘A lot of people want their lives to change, but they don’t want farmers’ lives to change. A lot of people would be really insulted if you told them they have to put away their iPhone, but their idea is that farmers will continue to use the technology that was around when the phone was a crank phone’ (Dale Leftwich, License to Farm, 2016). The assumption here is that critics reject technology outright. However, many in the alternative movement explain that they are not anti-technology nor anti-science (Bronson and Knezevic, 2016; Carolan, 2016). Rather, their critiques are directed at how science and technology is advanced, applied, and held. The central concern is interest and effect: who produces and owns it, and for what possible ends. When embedded within proprietary assemblages, technology can ‘evoke feelings of being in “a straightjacket”’ (Carolan, 2016: 17). This is especially so for less powerful actors in the system, primarily farmers.

Interview, focus group and content analysis confirm a common tactic of conflating science with experience. Science is central to defending conventional methods (neonicitinoid use and no-till especially) by concluding that critics are simply without science, and therefore, out of touch with experiences of farmers. The most common argument was that nearly all Canadians are at least two generations removed from agriculture, and thus, do not understand the lived experiences of farmers. This was followed by the argument that consumers do not have access to accurate scientific evidence upon which to form an opinion. In other words, they are ‘misinformed’. As a self-identified ‘city girl’ who married a farmer confesses in License to Farm (2016), ‘I have had questions about the safety of chemicals’, and after learning ‘what farming is all about’, she found that a lot of the things ‘coming up on social media are not really based
on science, and have no basis in fact’. The assumption then becomes that because consumers are not from a farm and ‘don’t know any different’ (54), they are not capable of gathering information or engaging in informed analysis: yet another means of encoding critics as irrational, naïve, and driven by passion rather than reason. Meanwhile, this strategy is one of trust building, and specifically, convincing consumers that farmers are ‘just like you and I’; we all want the best for our loved ones, and ourselves, which isn’t a bad thing in itself. However, it does so while, ironically, further polarizing farmers and consumers, and deflecting attention from the deeper interests and effects of corporatized science and technology advancing conventional agriculture.

6.6 Conclusion: manoeuvrability & ways forward

This paper investigates how conventional interests are responding to AFMs, how discourse and identity are being mobilized, and for what material ends. I have shown the real and perceived threats experienced by conventional actors and how these threats are being re-deployed through the use of master codes. I emphasize that, as much as this is a battle for material power and interest, it is also a battle of identity. A unified conventional identity conceals very real tensions between farmers, while delimiting the range of agroecological tools and practices available to them. Of course, it is not just farmer identity politics that constrain the horizon of possible solutions, but there are significant political and cultural barriers as well.

At the same time, I have observed opportunities for resistance and manoeuvrability within these same spaces. First, through practices of open data sharing, farmers are using capital and technology to push back against corporate control in agri-food. Specifically, farmers are using online forums and social media—most commonly Twitter—to freely share real-time, on-farm crop and pest information and seek on-farm solutions. Indeed, such open, non-commercialized data sharing between different kinds of farmers (conventional and organic) could be cultivated and supported by AFMs in ways that encourage cross-network knowledge circulation and skill sharing, and offer viable alternatives to intensification. More broadly, rather than trying to perfect a monolithic
agricultural model, we ought to support farming communities in designing and implementing production systems that work for them according to the specific variables of their unique farm.

Second, these themes point clearly to rising individualism and economic competition between farmers. Nevertheless, to endure capitalization (and resist farm expulsion), farmers are participating in land and equipment sharing practices when possible. While farmers reflected on how difficult collectivized forms of production (land, tool and equipment sharing) and organizing has become, some nonetheless supported it. As one farmer reflects, ‘I wish more farmers would do that.’ Because, ‘500 acres is nothing for these combines today.’ (84) He went on to question why each farm had their own combine, and argued for equipment sharing as a stopgap to capitalization. He notes that land swapping is another means of adapting to capitalization in regions of large-scale, concentrated production: “I deal with another farmer here a bit, and he wants carrots and I want seed corn. So a lot of times he will take that farm and I will take his farm. We trade.” The hope here is that such practices could be leveraged to promote collective production and organizing, although, to do so, far more support would be required from public and non-profit entities. This form of organizing evokes a politics of the possible, and does not reduce initiatives to that which reinforce conventional and/or neoliberal logics, tendencies and visions (McInnes et al., 2017).

Third, numerous farmers highlighted the role that one-on-one, direct communication (between farmers and consumers/food activists) can play in building understanding and empathy across identities. One farmer reflects on a recent conversation with ‘five urban girls’: ‘I thought, “I’m going to have to defend agriculture here.” And I didn’t have to! They asked very good questions.’ They ‘genuinely wanted to know how food was being produced and if we were using good stewardship practices.’ (30) Another farmer expresses his frustration with social media (people ‘don’t have to provide proof’ when they make claims online), favouring in-person dialogue, ‘most people, you can engage’. Even in Toronto, ‘everybody was pretty receptive’ (26).
Those engaged in alternative networks highlighted similar themes of communication when reflecting on building their movement and better understanding farmer experiences. AFM’s are revising their communication approaches to focus on farmer’s needs and realities before expanding to related systemic issues. As one respondent puts it, ‘Maybe it is starting with an idea of ‘what is the problem for you [farmers] this year? Then maybe we can discuss why these issues are happening.’ Another respondent argues for greater trust and solidarity between AFMs and farmers nurtured through long-term relationship building—both political and socio-cultural. Tangibly speaking, ‘if we want to change these agricultural communities and make them more sustainable, we need people to move there and be exemplary of those new practices that we want.’ Another argues for more (formal and informal) collective spaces that deliberately bring together different perspectives to ‘share voices’, experiences and concerns. They caution that such spaces must balance rural and urban voices, ‘so no one is telling anyone else, or assuming what anyone else’s problems are, or that they know the solutions’.

Overall, in this paper I have shown how conventional agri-food identities, interests and spaces are being built and reproduced. Important components of this process concern the way in which conventional actors make sense of their reality as well as how the industry constructs some of its most vocal critics: specifically, AFM networks and actors. Together, the findings reveal a great deal about the dynamics and motivations that underpin the conventional sphere. They should also elucidate the ways in which identity and culture operate beyond the scale of the individual. Indeed, systemic problems are complex and difficult to address because the dynamics therein cannot be attributed to any one actor or scale: solutions must, likewise, be both collective and multiple.

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Part Four: Tying it up
**INTRODUCTION TO PART FOUR**

In this dissertation, I have examined the variegated social, cultural, economic, and political forces driving the industrial food system in Ontario. In this concluding chapter I want to first reflect on some methodological considerations for this research, and similar research moving forward. I hope to show that this study provides methodological insight into SES studies. Beyond these methodological insights, this research reveals some foundational barriers to meaningful food system diversification in Ontario, and Canada more broadly. With these barriers in mind, I then elucidate some ways in which we may diversify land relations, farming systems, and agricultural networks and relationships. I close by reflecting on possible research directions moving forward.

**Chapter 7: Conclusion**

Publication details (primarily section 7.2):


**7.1 Methodological Reflections**

7.1.1 Lessons from the research: Defining SIs and Resilience in this study

At the outset of the research, socio-ecological systems frameworks were deployed to analyze the context of industrial agriculture. Initially, I found SIs and resilience to be useful heuristic guides for identifying problems within this social-ecological system (Ostrom, 2009). For instance, SI frameworks inevitably focus on landscape changes that affect ecosystem services, such as diversity and habitat. Resilience frameworks similarly focus on diversity, as they assume that landscapes rich in biodiversity are better able to adapt to environmental perturbations. In turn, the evaluation of sustainability and
resilience in agriculture revealed the obvious conclusion that crop pattern homogenization had negative consequences for both ecological resilience and sustainability. Similarly, integrating socio-ecological resilience and sustainability into the review revealed that the race to accumulate land, rising farmer debt, price volatility and declines in farm numbers and farmer power were eroding social diversity, and were thus deeply problematic for the socio-ecological system.

That said, this research project also ran into conceptual and methodological challenges. Principally, in attempting to assess resilience empirically, I found few significant differences in farm characteristics and practices across the survey population. For instance, the data did not show that smaller farmers who were assumed to be less embedded in capitalist systems necessarily had more complex rotations, used fewer inputs per acre, or adopted more agroecologically diverse practices generally (Table 1 & 2). In fact, it was found that, because large farmers were more financially secure, they tended to integrate cover crops more regularly and were better able to introduce new crops into their rotation. And while I did find that smaller farmers were more interested in diversifying their farm and setting land aside for ecological preservation, they were not significantly more likely to do so in practice due to financial and structural constraints. In other words, the indicators (SIs and resilience) revealed nothing about the important underlying forces that led towards (or away from) greater socio-ecological diversity.

<table>
<thead>
<tr>
<th>Number of crop species typically grown per year</th>
<th>Farm Size (acres)</th>
<th>Do you grow cover crops or forages?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3</td>
<td>333 (n = 12)</td>
<td>Farm Size (acres)</td>
<td>791</td>
<td>469</td>
</tr>
<tr>
<td>&gt;= 3</td>
<td>769 (n = 89)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 4</td>
<td>556 (n = 40)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;= 4</td>
<td>823 (n = 61)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10</td>
<td>685 (n = 94)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;= 10</td>
<td>1160 (n = 7)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1. Number of crops grown and farm size

Table 7.2. Cover crop and forage integration by farm size
Moreover, for the few farmers who did choose to adopt the more deeply agro-ecological practices (on-farm diversification and organic production alongside livestock integration), few financial benefits were observed. In fact, organic farmers—who were also comparatively small in acreage—had a significantly lower income change (a proxy for economic resilience) over the past ten years than conventional respondents. Generally, there was no correlation between rotation, yield and income or income change at all. Rather, the most significant financial differences were correlated with farm size. Larger farmers had significantly higher (gross and net) incomes than small and medium sized farmers. And since many farmers defined resilience through yield and cost/debt/income measures, they tended to focus on growth and land accumulation.

Other indicators that should have signified resilience or sustainability displayed a similar trend. For instance, in collecting data on “adaptation strategies”, I aimed to specify whether farms of different sizes or organizational structures used adaptation strategies that were more or less resilient or sustainable. Again, there were no differences. Indeed, all types of farmers expressed similar adoption levels of: drought resistant seeds, change in crop rotation, the purchase of irrigation, introduction of cover crops, and the construction of water catchment reservoirs (Table 3). Meanwhile, the disparities that were observed are likely a result of resource and economic factors. For instance, larger farmers were more likely to adopt technology and equipment, increase crop insurance and add organic material to their soil as adaptation strategies. These strategies each have significant financial implications, which is possibly why we see large farmers more likely to adopt them. Yet larger farmers (912 and 900 acres respectively) were also more likely to change their pesticide application and increase crop residue and mulching than smaller farmers (671 and 568 acres respectively), which is less easily explained by economic factors. At the same time, very few farmers overall adopted the most agroecologically healthy practices, such as on-farm diversification (5 out of 104 respondents), transitioning to organic (3), and introducing shrubs and trees onto their farm (0), and the farm size of adoptees was not significantly smaller. In fact, the only adaptation strategy that was adopted by small farmers specifically (253 acre average
between 2 respondents) was to reduce livestock on their farm, which again is likely due to financial constraints.

<table>
<thead>
<tr>
<th>Adaptation Strategy</th>
<th>Mean Farm Size Adopted</th>
<th>Mean Farm Size Not Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bought drought resistant seeds</td>
<td>704</td>
<td>712</td>
</tr>
<tr>
<td>Changed crop rotation</td>
<td>639</td>
<td>735</td>
</tr>
<tr>
<td>Purchased irrigation</td>
<td>797</td>
<td>705</td>
</tr>
<tr>
<td>Introduced cover crops</td>
<td>757</td>
<td>682</td>
</tr>
<tr>
<td>Built water reservoirs</td>
<td>662</td>
<td>715</td>
</tr>
</tbody>
</table>

Table 7.3. Mean farm size of farmers who did and did not choose the listed adaptation strategies

Overall, there were few meaningful differences in on-farm practices across farm size. Hence, in this context, small acreage did not imply superior agroecological health and diversity, as observed elsewhere (Rudel et al., 2016; Woodhouse, 2010). Instead, small acreage predicted greater financial insecurity, which seemed to hinder their capacity for environmental stewardship. At the same time, while small farmers did show greater interest in setting aside land for ecological conservation and diversification, and less interest in selling their land to corporate developers, non-economic attachments and anti-corporate political views were not clearly divided along farm size (Flinn & Buttel, 1980). And again, there was no indication that such sociological and political perspectives resulted in better agroecological stewardship in practice.

So, how do we make sense of these findings? Taken at face value, the results of this analysis may suggest that there are no real differences in the sustainability of larger or smaller farms (in fact, some may take this data to suggest that larger farmers are more resilient and sustainable). Nevertheless, much of the literature on sustainable farming systems would disagree and point to the significant issues that large-scale production produces, including excessive input use, the loss of the rural infrastructure and rising farmer debt. Is the data, then, showing that large-scale farms, driven by economies of
scale, are indeed more sustainable than small-scale operations? When I examine the broader context of the system, the data does not support any such conclusion. Rather, the findings should make clear that ecological issues are merely symptoms of much deeper phenomena that must be examined before a substantive transition to sustainable agriculture can occur. Hence, in this case, downloading notions of resilience and sustainability onto the farm-scale served to individualize systemic issues and naturalize what is in fact an unprecedented environmental and climate crisis. Meanwhile, these notions told me little about how socio-ecological diversity is changing across scales. In turn, the empirical analysis of this research moved toward the factors creating and perpetuating this trajectory away from socio-ecological diversification. After all, the dynamics of this system are deeply complicated, with variegated social, political, economic and cultural aspects operating at multiple scales. In reflecting on this research, it seems that SES frameworks such as sustainability and resilience could only take me so far. I now briefly outline these reflections.

7.1.2 Reflecting on the Framework

One of the most significant issues uncovered by this research was that respondents did not share my understanding of resilience or sustainability. Hence, the very ‘rights based resilience framework grounded in goals of sustainability were not ‘relevant to local struggles and policies’ in the same way (Blesh & Wittman, 2015, p. 532). Respondents viewed resilience from a lens of economic sustainability, which was strongly linked to farm size under this system as opposed to agroecological diversity. For farmers, the logical result—to accumulate land—was their path toward farm-scale resilience. Of course, this was creating deeply unsustainable conditions at the system-scale (see Chapter 4). It is largely the case that feigning farmers see wellbeing, health and resilience through a lens of economic improvement. To become more resilient and adaptive under this paradigm, many farmers are now focusing their efforts on new ways
to understand and manage the ‘unknowns’ (Chandler, 2014). This is specifically linked to the growing adoption of ‘big data’ methods for ‘managing’ and adapting to weather fluctuations and climate change. Resilience is working here to move farmers “fairly swiftly from thinking about the dynamics of systems to emphasizing individual responsibility, adaptability and preparedness.” (Joseph, 2013, p. 40). Moreover, it is working directly for agri-business capital accumulation. The disparity in definitions together with the trends observed in on-farm practices made it challenging to move ahead with the development of indicators, and, in particular, to adopt participatory development methods (Bélanger et al., 2012). Hence, I was not confident that an ecologically rigorous indicator set could be developed under these conditions, as indicators that were—for me—fundamental would likely be rejected during the process (As occurred with ‘energy use’ for Bélanger et al. (2012)). While I do not entirely disagree with Bélanger et al. that ‘farm sustainability must start with farmers’ (2012, p. 428), we must also be clear about how different kinds of alternatives become made available to farmers. In this case, what needed more attention was, instead, why farmers are being directed to ‘manage the unknowns’ via big data by articulated forces of neoliberal agri-food in the name of resilience, and how this shapes the way farmers see and make sense of their conditions (See Chapter 6).

It seems clear that ‘neoliberal doctrines of economy’ can easily appropriate any model or framework of sustainability and resilience (Reid, 2013). As should now be clear, farmer representatives, organizations and agri-business are focused on constructing a kind of sustainability and resilience that works in their interests. In practice, activities are not judged by the degree to which they improve sustainability and socio-ecological diversity. Rather, potential activities are limited to those that improve economic outcomes for system actors, as long as they can be claimed to have any sort of ecological benefit, however marginal or controversial. In this context, conversations intended to centre on sustainability resulted in debates over the economic and yield benefits of

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28 E.g., focusing efforts on carbon sequestration is not an effective means to nurture system resilience. First, because we don’t know how it will interact within the larger system, and we likely can’t know this. But also, it is not working to address the host of other practices that are producing the erosion of health and wellbeing in the climate system: biotic and abiotic health, which includes but is not limited to ocean and air currents, and vegetative health, soil and water health etc., which contribute to the functioning of the global carbon cycle.
practices like no-till and genetically modified soy or corn seed. It seems that ‘sustainability’ and ‘resilience’ as concepts or indicators have done little to widen or challenge that conversation. Hence, holding tightly onto a sustainability-resilience framework seemed to distract attention from the critical work of naming the systemic causes and forces in ways that are theoretically specific and robust, and linked to socio-ecological diversity more directly. The attention thus moved toward investigating why and how resilience and sustainability were being so profoundly coopted for particular socio-cultural and political-economic interests.

To clarify, the issue became whether a sustainability-resilience framework could provide the theoretical and conceptual depth needed to adequately investigate how these conditions (declining diversity specifically) are shaped, maintained and reproduced within the system. In effect, the Ontario agricultural system does not fit with many of the successful applications of resilience in other agri-food systems, such as Blesh and Wittman’s (2015) study. I wanted to understand trade-offs and synergies in the system, but socio-cultural, political, and economic stabilizations (Berardi et al., 2011; Howarth, 2010) created systemic distortions in power and social domination. This in turn limited the effectiveness and relevance of such assessment tools. Indeed, without performing a broader analysis of systemic drivers and the entrenched and long-standing functions of systemic bias, one cannot measure the system effectively.

Additionally, as I turned toward the deeper factors contributing to unsustainability, I found that each needed a distinct conceptual framework, none of which could be attended to through a broad resilience or sustainability lens. Specifically, there were far more analytically relevant methods for examining farmland capitalization and tenure (Chapter 4), the socio-cultural materialities of settler colonialism and racial hierarchy (Chapter 5), and the socio-political tensions (Chapter 6) occurring within the agri-food system than resilience and sustainability.
7.1.3 Considering the Limits of Resilience and Sustainability Frameworks

The purpose of this discussion is to provide some practical reflections for those interested in SES tools such as SIs or resilience. First, one ought to be quite clear about the sources and dynamics of ‘unsustainability’ before applying assessment tools. In other words, prior to identifying indicators of sustainability or resilience, it is essential to study the ‘most significant driving forces and impacts and their causal relationships.’ (Dahl, 2012, p. 17) In effect, I wanted to understand the behaviour of eroding socio-ecological diversity in the system, which took me conceptually well outside the realm of sustainability and resilience. I see this as a good thing, especially if one aims for critical analysis. In this sense, I find that while indicators can be a useful measure of the state of things, they are descriptive in nature, which places significant limits on their utility for critical analysis.

Second, practitioners need to ask: ‘what exactly is the system to which we are ascribing some notion of quality?’ The main issue in this study was that the system had divested itself from any attention to socio-ecological diversity, yet it still understood itself as ‘sustainable’. Larger factors created the conditions wherein ecological diversity was not—and frankly could not—factor into decision-making, never mind become prioritized. As a result, many practices that may have met standards of sustainability were arbitrary, and told me little about how diversity could be improved at the farm-scale or systemically. There were little to no clear determining factors for high social and ecological diversity, as the two rarely coincided, if at all. If I was to simply apply a framework similar to Turner et al. (Turner et al., 2003), many of the more complex issues of social, economic, and racial domination may have been undetected or ignored. However, these turned out to be the key drivers of declining diversity in the system, even though they seemed disconnected at the outset. Moreover, adequate time and space needs to be made to theorize these drivers, as they are deeply complex and historically constituted. Hence, in many cases, resilience and SIs may only be useful at the outset—to identify the state of things (see Chapter 3)—or after a certain degree of systemic
transformation has occurred. Understanding when it is applicable, and when it is not, seems most useful then.

Finally, one’s ability to locate sustainability or resilience is deeply context specific. This point has been made repeatedly, and does not need to be detailed again (Barnett et al., 2008; Beroya-Eitner, 2016; Ericksen, 2008; Fraser et al., 2006; Pupphachai & Zuidema, 2017). It is important to add, however, that context-specific does not only imply how and at what scale indicators are to be designed, developed, implemented and monitored, but whether they ought to be adopted at all. In this case, addressing some of the key systemic drivers of declining diversity are necessary before attempting to apply assessment tools. Foundational shifts must be made before one can see this system as moving toward any state of meaningful socio-ecological resilience or sustainability. At that point, an SI-resilience assessment may be useful for measuring the conditions of the transition. Of course, the reasons for abandoning SIs are also context specific. For instance, I argue that SIs are fairly useless for measuring a system such as the Alberta tar sands for many of the same reasons observed in our example. But, they may also need to be abandoned in communities that, for instance, may choose a more culturally appropriate methodology, which ought to be respected on those grounds alone.

The work being done to identify and carve a path toward a more sustainable future is laudable, necessary and crucial. Given the profound environmental crises we are facing, tracking our progress is essential. Yet, this research illustrates that building tools and frameworks to measure, quantify and monitor only take us so far. I argue that measuring progress is fraught with challenges, which often re-creates (although in different ways) the concerns with SIs and resilience explored in Chapter 2. Moreover, assuming that these tools are ‘solutions’ in themselves risks distracting us from the deeper forces at work within systems. Indeed, we must remain focused on understanding the conditions within which sustainability and resilience get manipulated in the interests of political-economic and social empowerment and capital accumulation. How are these concepts deployed by different groups, and for what possible ends? For this study, certain systemic conditions prevented me from applying these concepts instrumentally, and with
confidence. Indeed, they told me little about the trajectory of socio-ecological diversity in the system. Instead of trying to ‘make things fit’, I refocused my analysis onto the structural forces at work. Of course, this will often take researchers and practitioners well outside of the sustainability and resilience scholarship, but I see this as a strength.

Therefore, from a methodological and operational perspective, two key problems need to be highlighted. First, we must acknowledge the limits of sustainability and resilience both as concepts and tools. Knowing when and how they should and should not be applied was a key takeaway from this research. The research process revealed that the conceptual and instrumental challenges that arose were in fact deeply linked. Conceptual confusion, appropriation and legitimization made it impossible (and rather pointless) to strictly instrumentalize these tools.

Second, if they can be appropriately applied, indicators need to be nested in a broader analysis that helps to make sense of context specific dynamics. This is a real challenge since it forces us to be attentive to multiple spatial and institutional scales. Meanwhile, the effectiveness of both SIs and resilience depends not only on the dynamics of each scale, but the relations between scales (Rydin, 2007). In this study, institutional (corporate and provincial/federal government and agency) scales were impacting the landscape and farm scale in ways that categorically limited political, economic and social definitions, behaviours and imaginaries. Alternatives were restricted to ideas and activities that facilitated persistence in the system. The evidence of this was clear, but could not be sufficiently understood through these concepts and tools alone. Indeed, there was little sense in trying to understand what farm-scale resilience meant when farmers were operating within a system that is structurally disinterested in sustainability. This hurdle was even clearer at the landscape scale, wherein even when farmers were interested in agroecological diversification, they were deeply sceptical that others would participate or support such efforts.

For others, these concepts may be of more sustained utility. I only hope that they are perceived as one of many tools, as opposed to ‘the’ solution. A great deal of well-
intentioned environmental and climate research and work has had deeply negative impacts due to assumptions about ‘the solution’, often already framed within what is deemed ‘do-able’ and ‘appropriate’ for global conditions and actors (Evans & Reid, 2015, p. 155). While ‘bottom-up’ community-led research has worked to address many of these issues, the problem is by no means solved—after all, much of the problem continues to be found in our own assumptions as researchers. In turn, it seems that knowing when to listen and be open to change, even in cases that require you to set aside your long-studied tools and frameworks, is essential for moving research from a state of good intention to constructive impact. That is, by directing it to where the power lies.

7.2 Key Findings

Beyond these methodological insights, my research has revealed some foundational barriers to meaningful food system diversification in Ontario, and Canada more broadly. First, Chapter 4 revealed how land relations and finance are driving changes in tenure arrangements between different actors. I explored the specific relationships between rising farmer retirement, farmland consolidation and increasing land values. I have shown that, through the use of the land rental market, these forces are turning land into an investment opportunity for certain farming and non-farming interests. Specifically, these dynamics may be creating conditions ripe for own-lease out financial investment models. While research has explored the broader nature, function and drivers of farmland investment models, few studies have detailed the ways in which different models are interacting with situated political economic and socio-ecological dynamics. As well, much of the land investment literature has focused on the Global South, while research on farmland investment in Canada, and Ontario specifically, remains scarce. To fill this gap, I used qualitative and quantitative data to detail how land relations are changing in Ontario, and in whose interests. It is clear that, under current political economic conditions, the rental market has become an effective (and lower risk) tool for some consolidating farmers. As well, the rental market provides lucrative opportunities for non-farming actors. I have shown how these interactions are producing a welcoming environment for own-lease out land investment models specifically. I also illustrated how
these relations impact both tenure security and on-farm cost management, which is making it more difficult for farmers to act in the interest of agroecological health. Further, to fill the gap in understanding of the government’s role in land relations, I closed by reflecting on the state’s conflicting and often contradictory approach to these processes. In turn, I demonstrated that economy and ecology are interlinked in ways that produce profound barriers to socio-ecological diversity in agriculture. Namely, that the rising investment value of farmland is working to restrict land access to capital rich actors while divesting resources and attention from farm-scale agroecological health.

Second, investigating the settler colonial and racialized logics deployed by settler farmers, this research illustrated specific ways in which settler colonialism and racism have shaped the agri-food system we see today. By connecting the rich theoretical areas of settler colonialism, critical race studies, othering, discourse and symbolic coding, and political economies of land and labour, I explored how land-based settlers understand and make sense of themselves and racialized others. I applied abstract settler colonial and racial logics and strategies to the data to show how they get taken up in the interests of settler farmers, here and now. Moreover, I have shown the distinction between how Indigenous and immigrant others are constructed by settler farmers, based on their particular history and relation to land, labour and the settler agri-food system broadly. Settler farmers performed a common tactic of degradation, separation and erasure when constructing Indigenous others, with a focus on justifying settler land ownership. For migrant others, the focus became labour: specifically, the value of their labour to Ontario food production—so long as immigrants stay within settler-assigned spaces of socio-economic marginalization. Using this data, I have argued that these logics and tactics help to preserve agricultural land and resource control for white settler populations. I have shown how socio-cultural forces can have material implications in that they are important barriers to diversifying who gets to be on the land, grow food, and how. I emphasized that these logics are not intended to be malicious or, as many farmers stated, intentionally racist or derogatory. Indeed, here lies the value of such work. Racial forces shape culture, and Canadian culture is derived from settler colonialism. Whether we like it or not, we are all cultural remnants of that process. This chapter aimed to shed light on
how symbolic and ideological processes get put to work within this culture. This research remains scarce. Moving forward then, analyses of land and agri-food capital in Canada ought to integrate frameworks of settler colonialism in new and novel ways.

Third, this research revealed how conventional agri-food interests are responding to growing alternative food movement pressure at this political moment. My research found that discourse emerging from conventional interests is working to generate solidarity across the conventional sector, despite significant internal tensions. I revealed the discursive strategies and tactics being deployed throughout conventional networks to empower and unify the conventional identity, while concurrently suppressing alternative food movement voice and diversity. I identified the role of class, gender and spatiality specifically in these discursive strategies and tactics, each of which get deployed through distinct processes, and for distinct ends. Through this analysis, we see how these factors (class, gender and spatiality) are—whether intentionally or not—used to uphold existing power structures and political positions in the food system. I suggested that the conventional discourses mode of unification externalizes internal tensions, while advancing a singular, technocentric and corporatized agri-food future. At the same time, alternative actors were constructed in ways that undermined their voice as well as the diversity of their work and critiques. Specifically, actors were coded as irrational, uninformed and overcome by passion. Moreover, land-based elements of alternative food were consistently ignored, which plays a vital role in conventional logics. Namely, the premise is that farming is about those already on the land, and since this population will continue to decline, sustainable intensification is the only solution. In this chapter, I used discourse analysis to demonstrate the ways in which conventional interests are responding to growing pressure and criticism, and are creating a particularly undiversified and singular agri-food future. In order to resist the conventional narrative, and its material effects, alternative food movements need to build solidarity with small and medium scale farmers more directly. Furthermore, alternative actors ought to focus attention on land policy and the political institutions that shape it (specifically OMAFRA), while building deep and enduring relationships with (and in) communities, and of course, with the land itself.
These findings provide important methodological and analytical contributions to our understanding of processes of power and control in food systems, and how they are linked to socio-ecological diversity. In this research, I used a mixed methods approach to investigate the multi-scalar dynamics at work in this agri-food context. Through this approach, I tied together broad political economic, cultural and behavioral trajectories with rich qualitative analysis. As well, by critically reflecting on the conceptual approach throughout this research, I remained flexible and untethered to a singular framework. As I have shown, the purpose was not to merely apply a framework to a system, but rather, to critically explore whether and to what degree such frameworks are applicable to different SESs, and how scholars can adopt them with care. In doing so, I was thus able to integrate different theoretical concepts as themes emerged in the data. Overall, this approach benefitted the quality of the research and the creativity of analysis.

7.3 Lessons & Ways Forward: Toward socio-ecological diversification

In this section I discuss the lessons of this research and suggest some ways to move forward, particularly toward greater socio-ecological diversity in the food system. This research has shown how food production systems evolve and change, and how they maintain momentum in particular directions.

First, I have revealed how political economic and socio-cultural dynamics condition food systems over time, and determine who has access to land, resources and (economic, social and cultural) capital. These political economic and socio-cultural dynamics produce limits and barriers to participation for an array of actors and identities, and for distinct reasons. However, these dynamics are often only discussed in certain ways in food systems scholarship. For instance, settler colonial and racial dynamics are often applied to migrant farm workers, and issues of food access, consumer health, and alternative food work, such as food justice and sovereignty. Little research has investigated the role of settler colonial and racial dynamics in the agri-food spaces where these identities are most profoundly marginalized and oppressed: spaces where white,
male, settler identities dominate. The point here is to shed light onto the ‘hows’ of this socio-ecological system, so as to better understand the ways that non-dominant identities, actors, and practices continue to be marginalized. I argue that this approach gets us closer to the root causes of declining socio-ecological diversity, because it reveals how and why social and ecological specialization is being enabled and sustained.

While the motives are quite clearly power and control, this research has shown that these motives do not have to be outwardly malicious to retain their utility. This research does not argue that white settler male conventional food actors are all racist, self-interested people who are only concerned with keeping others oppressed. Rather, that the political economic and socio-cultural structures that have shaped the white-settler-rural-male identity and lived reality make it very difficult for these actors to behave differently. These political economic and socio-cultural structures (namely settler colonial capitalism and patriarchy) produce truths that work for and reflect this dominant identity (and its interests, dreams, goals and ideologies). I argue that we must acknowledge these conditions before we can move toward meaningful, transformative change. Recent work being done around the Truth and Reconciliation Commission (TRC) recommendations, Indigenous treaty, land and sovereignty reclamation (not only through law, but through Indigenous resurgence and occupation also), and immigration and migrant farm worker policy are an important start. Although, for the state’s part, many initial promises regarding these issues have sorely been broken. From here, I identify some more specific ways forward:

1. Diversifying land relations

“Colonization is an agricultural act. It is also an agricultural idea.”

(Knobloch, 1996)

If we start with the understanding that land in Canada has been taken from one group of people by another through colonization, we then must acknowledge that the
current state of land ownership is structurally unjust. Discussions around land should begin from here. By closely examining who has benefitted and who has lost, the ethical concern with encouraging further land consolidation becomes patently clear. Re-imagining land relations is fundamental to addressing consolidation and supporting diversity, particularly by facilitating the participation of those who are driven by social more so than economic incentives (since this group is currently structurally excluded from participating). Without meaningful changes in land relations, only those with access to significant capital and a large land-base will be able to participate in agriculture. New and aspiring farmers will continue to be barred from practicing due to unaffordable land prices and a lack of alternative ownership structures (such as public trust or cooperative models). Meanwhile, agroecological health will increasingly be neglected in farmland relations. Placing farmland ownership in the hands of financial investors will only embolden this trajectory, as investors seek capital-rich consolidating tenants to drive their profits. Notably, while succession and access are raised as concerns in OMAFRA’s new ‘Farms Forever’ discussion paper (2017), land relations remain unaddressed. Instead, the focus remains on educational tools for new and aspiring farmers, and while these tools are necessary, they are not sufficient for overcoming the significant economic barriers to land access. Meanwhile, the ‘supporting local food’ objective lacks attention to how OMAFRA will address the land-based barriers to production localization and diversification that impede goals of ‘sufficient local supply’.

Concerning land policy, I argue for policy that prioritizes social and ecological principals of diversification, critically examines property rights and tenure (whether through tenure reform, rental controls, or the promotion of collective forms of ownership), and re-prioritizes who gains rights to control and use farmland, and why. As well, currently, there is little support for non-commercial, co-operative forms of land ownership and use, especially if the person(s) are not already involved in agriculture. Thus, the scope of ownership and use needs to be re-framed entirely. Effectively undertaking this transformation would require a shift toward community designed and led processes, as, I argue, processes shape outcomes (see Appendix 2 for a deeper discussion of the role of process in food policy). Such structures should prioritize land access for
marginalized peoples in particular. This would require radical reform to the seasonal agricultural workers program and immigration policy more generally. If done effectively alongside training and extension services, democratizing land access will get more farmers/farming collectives onto land, ideally helping to reduce the rise of farm consolidation. This might look like placing a cap on landholding, but this cap would have to be implemented concurrently with restrictions on development, and policy that encourages socio-ecological interests and priorities. In effect, land access should not be determined merely by one’s ability to pay. Land consolidation/grabbing is driven by class and capital access. In turn, I argue that the increasing adoption of foreign ownership restrictions (as Australia, Saskatchewan, and PEI have done) does not address the crux of the issue: the issue is with the rising investment potential of farmland. We know that local actors play a prominent role in land consolidation and rising land prices. Indeed, if a wealthy local farmer or speculator makes a large-scale land acquisition, does it not have the same effects? Therefore, restrictions should focus on one’s income, access to capital, number of properties owned, and acreage—and, of course, interest in farming.

At this point, I want to emphasize the inherent difficulty with implementing such land reform within the current phase of neoliberal capitalism. The drive for capital accumulation is more ubiquitous and voracious than ever before. For example, in British Columbia, local and foreign speculators and investors are exploiting loopholes in agricultural land policy, while receiving huge tax breaks. In turn, policy aimed at protecting farmland is now facilitating the rise of large residential estates (20,000+ square feet) that have managed to pass as ‘agricultural properties’. In this way, within the current system of private property ownership, I wonder whether we can ever structure taxation and tenure to encourage meaningful and socio-ecologically diverse farming activity.

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29 This could be phased in. Starting with maximums like PEI has implemented (1000 acres for farmers), and then gradually reduced over time.

30 They have met minimum requirements (annual sales of $2,500 worth of farm products) by keeping a small number of berry bushes, Christmas or fruit trees, or retaining an area for hay production.
At the same time, addressing issues of consolidation, agroecological health—and declining diversification more generally—does not necessarily shift land policy toward spaces of decolonization. In fact, land reform could indeed reinforce settler control over Indigenous land. Decolonizing land policy is deeply contingent on the nature of the relationship between nations themselves. The question then becomes, can land policy ever be other-than-colonial under ongoing colonial relations? I am doubtful. Decolonizing land relations is about more than policy, and it cannot evolve from settler-defined boundaries of recognition and comfort. As chapter 5 has shown, settler colonial culture (comprised of formal and informal education systems) has had devastating effects on settler thoughts, feelings and knowledge regarding Indigenous peoples and issues in Canada. This is where my doubt rests most strongly. Namely, that settler culture has a ways to go before arriving at any strong, collective sense of what settler accountability would mean in practice. As many have argued, decolonization is not about Indigenous inclusion, voice or involvement in settler spaces (Byrd, 2011; Coulthard, 2014; Lawrence & Dua, 2005). This is just as important when considering agriculture, given that Indigenous food systems have undergone a long process of erasure in the interest of settler food systems.

Instead, decolonization is grounded in Indigenous resurgence alongside settler reckoning (Wildcat et al., 2014). As Wildcat et al. argue, “if colonization is fundamentally about dispossessing Indigenous peoples from land, decolonization must involve forms of education that reconnect Indigenous peoples to land and the social relations, knowledges and languages that arise from the land” (2014, p. I). As a result of Indigenous cultural and political resurgence and movement building, “settler society would be forced into reckoning with its colonial past and present and undertake in its own decolonizing journey.” (Wildcat et al., 2014, p. IV)

More pragmatically, many Indigenous scholars are discussing how funding and support could be transferred from settler coffers to Indigenous land-based education

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31 I have developed these thoughts more thoroughly in a perspectives piece written with Lauren Kepkiewicz, a PhD Candidate from the University of Toronto. This piece is being published in Canadian Food Studies (CFS), and has been attached in Appendix 2.
programs, and food and farming initiatives. Of course, settlers then should focus on how to make that money available while refraining from settler compulsions to define program guidelines and delineate what a ‘successful’ Indigenous land-based education project might mean. In effect, communities need support (that is not tied to any stipulations) for community-based processes to design and implement the food system solutions that are relevant and appropriate for them.

2. Diversifying farming systems

Regarding on-farm diversification, it is clear that agroecological diversification is not easy to transition into under current economic and political conditions. Farmers may ignore good agroecological knowledge if they lack the autonomy and power to implement the practices. Thus, cultural, policy and market changes are necessary to support farmers in applying this knowledge. Agroecological diversification requires not only a democratization of access to land, but a democratization of access to relevant and culturally appropriate markets and support systems as well. Access to relevant markets implies both a political and cultural shift. Supporting diverse produce, grains, and pulses from agroecological growers requires a divestment from many of the industrial scale chains currently subsidized, and a re-investment in a host of new farmers, most of which will be small to medium scale. In doing so, it has been argued that greater economies of scale in regional distribution could be achieved, pushing prices of fresh, local products down over time. These choices need to be culturally appropriate and thus directed by communities themselves—and supports should be provided to make such choices. Culturally, there is still a barrier at the institutional scale, however, since racialized communities are underrepresented both on the land and in OMAFRA.

Possible steps forward include taxation schemes to incentivize small farming and ownership by those farming the land, as well as better supports for farm transfers to new and aspiring farmers. Moreover, our system needs significantly better technical assistance and financial support for marginalized growers (racialized, Indigenous, and migrant
farmers) and aspiring farmers. As of now, the vast majority of agricultural support is targeted toward expanding and commercializing conventional farming enterprises for those who are already settled on the land (National Farmers Union, 2013b). Here, I want to comment on the role of big data, sustainable intensification and ‘climate smart’ farming specifically. The rise of big data in agriculture is not inherently bad, nor will it necessarily produce greater inequities. However, under current political economic conditions—and with a lack of public oversight and governance—big data will likely be further integrated into agriculture in ways that benefit private capital. If, on the other hand, thoughtful deliberation and action were taken (via a participatory process) in the interest of the least powerful voices (e.g. farmers, Indigenous communities, low income communities, immigrant communities (and workers), and aspiring farmers), emerging agricultural technologies could develop in ways that benefit everyone. This could look like a public commission or working group to develop a big data governance model or plan. By keeping much of this data and technology in the public realm, one can imagine how new agricultural technologies (e.g. small-scale, affordable equipment, software, or apps) could help farmers of all sizes diversify their cropping systems, build organic matter, maximize their profits on the acreage available to them (rather than feeling forced to expand acreage), and determine which areas of their farm they could effectively naturalize.

Meanwhile, marginalized growers would benefit from greater support with navigating provincial and federal agri-food legislation. Concerning revenue and crop supports, while they are important for producers, there are opportunities to focus this support on ecological practice and crop diversification, which exists in only a few small, underfunded, and relatively weak ways under the current system. Canada must begin to include non-commodity, non-individualized, and biodiverse products and systems in agricultural insurance coverage. Additionally, effective alliances between the food production and health sectors is already underway in North America, and ought to be expanded (Desjardins, MacRae, & Schumilas, 2009; MacRae et al., 2013). To support soil health, differential taxation based on SOM (if done comprehensively and rigorously)
alongside supports for agroecological practice could be beneficial. Within any program like this, building soil organic matter should be a main goal.

A shift also needs to happen in how funding is prioritized and allocated. Currently, OMAFRA relies significantly on the interests of current farmers (and the more powerful voices therein) and farm organizations. Very little attention, interest, collaboration, and funding is going toward diversifying who they consult and interact with, and meaningfully support. For instance, FarmStart, Ontario’s only organization focused on getting new, immigrant, and aspiring farmers on to land, has been operating on a shoestring for years, with little interest or support from the government.

Finally, a ‘multifunctional’ approach to food production policy could help to encourage farm-scale diversification (Boody et al., 2005; Buttel, 2003). A public multifunctional policy may provide incentives to farmers for adopting practices that generate a range of ecological and social goods and services on their farms. Seccombe (Seccombe, 2007) argues that linking to health promotion programming would strengthen a multifunctional approach even further as it would encourage demand for fresh local products, thus supporting markets that are relevant to agroecological farmers. However, again, the focus should be on supporting communities in defining and building the systems and solutions that work for, and are relevant to them. In addition to sustainability incentives, a tax or elimination of subsidies on chemical inputs would dissuade dependence and over-use (David Tilman et al., 2002). Finally, independent regulatory oversight is necessary to help reduce the ecological damage caused by industrial agriculture such as the nutrient runoff from intensive livestock production. Tracking the cause of non-point source pollution is very difficult. However, if monitoring and tracking were done at a landscape or watershed scale, important insights could be made regarding the off-farm impacts of conventional agriculture. As a result, farmers and planners could work together at a landscape scale to restore ecosystems and develop buffer zones where most effective.
3. Diversifying (agri)cultural networks & relationships

As this thesis has shown, relationships are fundamental to the food system. At the heart of this research is an analysis of the nature and function of various relationships within the food system: including farmer relationships with each other as well as consumers, buyers, input providers and financial entities; Indigenous-settler relationships; migrant-farmer relationships; and alternative food movement relationships with conventional farming networks. Through this analysis, I have shown that many of these relationships are not working in the interest of socio-ecological health and diversity. Instead, they are increasingly commoditized, exploitative (of each other as well as the land) and manipulative, manifesting in symptoms of systemic dysfunction: rising farmer debt, rapid land consolidation, agroecological specialization, ongoing marginalization of diverse communities from land-based sustenance, and increasing reliance on private capital to keep producers and governments afloat. Healing and transforming these relationships seems daunting. For instance, values of collective (human and ecological) wellbeing are not equally shared, and even in cases where they are, groups differ dramatically in their opinions on how to achieve wellbeing.

Healing is a relational process, which requires the intentional work and dedication of all parties (Wildcat et al., 2014). Concerning the settler-Indigenous relation, throughout Canada’s history, settlers have defended and justified their ongoing occupation of Indigenous land. To begin to heal this relationship, settlers must collectively undergo serious, critical reflection into the colonial project and the depth of its roots. Specifically, how colonialism shapes our society and has conditioned our understanding of land, property, and relationships. As Radu, House, & Pashagumskum argue, “healing fosters decolonization by empowering individuals and communities to engage in transforming the Indigenous-State relationship” (2014, p. 97). To do so, settlers must 1) educate each other about settler privilege and its relationship to land, 2) participate in acts of land-based Indigenous solidarity/support alongside resistance to
settler privilege, and 3) fund and support spaces for Indigenous resurgence and knowledge circulation. Of course, this list is not exhaustive—there is much more to be done.

Additionally, I want to consider how non-consumptive relationships can be fostered throughout the food system: namely, between farmers, the public sector, and the alternative food movement. I argue that the public sector is currently doing a significant disservice to farmers and the food system in Ontario, and across Canada. As I have shown, OMAFRA’s mandate to continue with the ‘Growing Forward’ policy (which promotes industrial, high-input production) alongside their promotion of local, low-carbon, and sustainable agriculture is paradoxical. It is no wonder why farmers repeatedly expressed a sense of confused frustration about OMAFRA’s role, mandate and interests. Similarly, Agriculture and Agri-food Canada’s strong focus on market-based growth, competition, and commercialization has contributed directly to the conditions of socio-ecological specialization we see today. The three main investment programs under Growing Forward 2—AgriInnovation, AgriMarketing and AgriCompetitiveness—are directed toward industry-led commercialization, modernization and market expansion. Meanwhile, support for small and medium sized enterprises is targeted toward their expansion into export markets. Of course, there is no support for (or stated interest in supporting) on-farm, watershed-scale, or sector-wide efforts to enhance socio-ecological diversity. Yet, the role of provincial and federal public agri-food policy should be to enhance social and ecological health, as these aspects are continually externalized by economic markets.

Instead, government should support farmer access to high quality information that is produced by a range of interests. The key here is that a diversity of viable (and sustainability focused) alternatives to intensification should be made available for farmers. Comprehensive farmer education and skill building for diverse agroecological practices is possible through publicly and community supported workshops, mentorship programs, and farmer-to-farmer training. Indeed, great hands-on work is already
underway across North America\textsuperscript{32}. However, commercial interests consistently dominate the political and discursive space, which leaves the few surviving public entities left struggling to remain relevant for producers, and thus following the lead of the dominant informational sources. As a result, most producers now receive their production information and build their agricultural knowledge through private, commercial interests. Through this research, it is clear that agricultural knowledge and information has long been politicized for commercial interests. Therefore, strategies to repoliticize this knowledge toward producer, labour, and consumer interests, ought to be prioritized, as is being done through the food sovereignty movement. The challenges and complexities of building an inclusive and comprehensive food sovereignty movement are significant, but excellent work is already being done to confront and address these challenges (Alonso-Fradejas, Borras, Holmes, Holt-Giménez, & Robbins, 2015; Brent, Schiavoni, & Alonso-Fradejas, 2015; Kim Burnett & Murphy, 2014).

For their part, alternative food networks have an opportunity to build closer, more enduring relationships with marginalized actors in the food system, while concurrently pressing for public policy action. During this research, I came across little work to build relationships between AFN’s and small and medium sized farmers in rural spaces. As this thesis has shown, numerous social, cultural, political and economic forces make relationship building between these groups incredibly difficult. However, this research also clarifies that focusing solely on alternative networks and actors ignores a significant and influential segment of the land-based population driving food system change. Thus, entering into and connecting with conventional rural spaces and cultures might be an important first step. Opportunities for cultural and ideological connection might arise as progressive farmers and farm organizations become more visible on the land and in communities. Moreover, looking for ways that those with access to arable land can offer their land (intermittently or permanently) in the service of land education activities is another essential starting place. This includes activities directed by Indigenous communities (so long as long-term, accountable relationships are built), and/or in the interest of agroecological knowledge development in the community. Finally, throughout

\textsuperscript{32} Especially through non-governmental organizations (NGOs), community groups, and neighborhood initiatives.
this research I heard many accusations made toward different actors and groups. It seems as though an important step in resisting this tendency is to begin asking more questions about each other. Indeed, farmers do not feel heard by ‘the public’. The extent to which this feeling is ‘true’ or not is beside the point: The point is that we can only begin to understand one another if both parties feel listened to and understood. Rather than permitting organized (corporate and public) interests to mediate food system conversations, farmers, activists and consumers ought to speak to one another directly. Those who are marginalized within the food system would do well to broaden and strengthen non-commodified relationships, build coalition, and act in solidarity with one another. As Lugones asks, “How do we learn from each other? How do we do it without harming each other but with the courage to take up a weaving of the everyday that may reveal deep betrayals? (2010, p. 377) In this sense, these relationships ought to be exposed to government in ways that reveal the restrictive nature of agriculture in its present form. In other words, these coalitions need to help governments gain a deeper understanding of the structural injustice of current land relations, and how agricultural policy has shaped these relations.

7.4 Future Research

For this research, I focused on farmers and those who interact with them. In focusing my analysis here, I aimed to fill a significant gap in the research: critical analysis of conventional production within the Ontario food system. Little research thus far has critically examined the role of political economic, social and cultural dynamics in shaping the socio-ecology—at the production end—of Ontario’s food system. Hence why critical research into land tenure and land grabbing, settler colonialism and racism, and identity construction and social power in Ontario farming remains scarce. However, I wish I could have spoken to other pertinent actors in more detail, specifically, individuals from relevant companies (Monsanto, DuPont, Bayer, etc.), land investment firms, and the municipal farmland property assessment corporation. While this breadth of data collection was beyond the scope and capacity of my research, future research could explore the perceptions, motivations, mandates and activities of these individuals and
entities in detail. In doing so, we may develop a more comprehensive picture of land relations and trajectories in Ontario, and how these actors are participating. As well, they may offer additional insight into the direction and utility of industry discourse, and how it interacts with the individual goals of different companies.

Second, this research focused on conventional producers for a number of important reasons. However, it may also be interesting to focus on specific tensions arising between conventional and alternative actors at the farm and community scale. I did hear about some of this tension in my interviews, but building on this data with further inquiry into the perspectives of alternative farmers would be very interesting. As well, examining how, and to what degree, different landscape and watershed scale initiatives could mitigate these tensions would be useful.

Third, there seems to be a significant gap in research on settler colonial farmland relations in Canada. Specifically, how are these relations perpetuated between settler and Indigenous farmland owners and managers, and how do political economic conditions influence these relations? Also, how does culture and knowledge production influence the behaviours and decisions of settler and Indigenous farmland owners, stewards, managers, etc.? As well, to what degree could Ontario farmland relations ever be decolonized under current structural conditions?

Finally, future research could examine more thoroughly how different actors and interests are strategically included or excluded from conventional and alternative food system spaces and conversations. It would be especially interesting to focus on marginalized and racialized actors in this analysis.
7.5 Conclusion

This thesis has provided a detailed analysis of the multi-scalar constraints to socio-ecological diversification in the food system. My exploration into how political economic, cultural, and social dynamics of power are assembling these constraints offers rich and nuanced insight into the possibilities for food system transformation. Specifically, my findings show that focusing solely on alternative food networks to transform the system ignores the central role of conventional agri-food actors in food system change. In turn, a key question to take away from this research is, how can marginalized actors in the food system begin to build coalition across networks while opening up alternative decision-making spaces and processes? This research has shown that focusing on alternative networks in their current form might miss important opportunities for collaboration between farmers, activists, consumers, and farm workers.

This research also offers important methodological contributions. Through a critical and reflexive application of SES concepts, this research has demonstrated how research can mobilize concepts without becoming shackled to them. Researchers must reflect on why concepts may or may not be of use to their research, and remain honest with themselves about the goals and objectives of their work.

It is clear that the food system is in a definitive moment, as agriculture finally has the ear of the federal government. Strategic collaboration between a wide range of marginalized actors, including small and medium conventional farmers, may be the only way to challenge further land consolidation and agroecological specialization at this point. Nevertheless, a central question still remains for our collective future, and for research moving forward: to what degree can agricultural land relations become other-than-colonial within the current structure of settler colonialism in Canada.
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APPENDIX I: AGRI-FOOD INDUSTRIALIZATION AND CHANGE

Through the rise of industrial capitalism, agriculture has undergone incredible transformation. Throughout the 20th century, political-economic and social forces drove the preference for capital over labour in North American agriculture. As capitalization rose, processes of standardization, mass production, and specialization were applied to agricultural production (Hendrickson & James, 2005). As industrial principals and practices spread throughout the food system, the most industrially adaptable and flexible crops were promoted to farmers. Accordingly, the grain industry has expanded into one of the largest commercial agricultural sectors in North America, with crops like corn, soy, and wheat contributing to an endless range of industrial sectors and products, including livestock feed, processed foods, fuel, chemical products, solvents (such as windshield washer fluid), and weapons and ammunition (Dorff, 2007).

As industrialization has advanced, farmers have become increasingly dependent on inputs of all kinds (machines, fertilizers, pesticides), as well as the corporations that produce them. The application of such inputs has undoubtedly allowed farmers to cultivate more land with less human labour, leading to an approximate 300% increase in annual crop production per acre since the mid 1950’s (Cagliarini & Rush, 2011). Indeed, as farms grow larger, they are able to spread fixed costs over more acres, while often benefiting from bulk input purchases (Duffy, 2009). Moreover, farmers have experienced significant improvements to their quality of life through the adoption of technologies. For instance, mechanized seeding, harvesting, and milking have markedly reduced both the physical demands and time requirements placed on farmers. At the same time, however, the industrial model has created conditions of increased debt dependence. Increased productivity has led to overproduction and thus low market prices, making economies of scale production the only viable way forward for many farmers—requiring the farmer to buy more land, more machinery, and more chemical inputs, thus incurring more debt (Winson, 1993). As we see today, for instance, the average amount of farmer debt in Canada is twenty-three dollars for every dollar of net income (National Farmers Union, 2010). At the same time, not all farmers have been able to industrialize to the same
degree, which has produced a differentiation of farm structure and a squeezing out of small and medium sized (and hence under-capitalized) farmers from the industry. In this sense, the industrial model has created not only socio-economic polarities, but polarities in farmland access and use as well. For instance, since 1921 Ontario agricultural land has fallen by 42%, while the average farm size nearly doubled from 114 to 233 acres (National Farmers Union, 2013a). This trend continues today, with a loss of 23,643 farms (10.3 percent) in Canada between 2006 and 2011, along with a 10 percent reduction in the number of farm operators over this same period (Statistics Canada, 2011).

Agricultural industrialization has also facilitated an export-oriented, trade-based food distribution system. For instance, Canadian export values of agriculture and agri-food products increased from $10.9 billion in 1988 to $35.5 billion in 2010 (AAFC, 2012). Concurrently, Ontario consumers increasingly rely on imported food products, both fresh and processed (Desjardins et al., 2009; National Farmers Union, 2013a). Export-oriented models only exacerbate consolidation of processing, distribution and retailing operations—reducing producer power and facilitating further farm consolidation. If current trends continue, small farmers will be pushed out of the agricultural market entirely, thereby either selling their land to consolidating farms, or, if they have the means, downscale into ‘hobby’ or ‘lifestyle’ farms. Moreover, sustained increases in farm specialization and export-oriented production are expected to further disconnect cities from surrounding food production (Desmarais & Wittman, 2014). Finally, as farm incomes continue to decline, the market value of land will rise due to the growing potential for new residential developments, malls, and industrial parks. Under the current model of neoliberal agricultural governance, the small percentage of arable land that does remain will be left open to non-agricultural development (Seccombe 2007).

In addition to the direct impacts of industrial agriculture on farmers and farmland, it has also produced a host of broader social consequences. Studies show that the industrial food system has created further inequities regarding food access and labour. Despite the fact that we are now producing more food than needed to feed the global
population, over 10% of the global population continues to suffer from hunger and malnutrition (FAO, 2015). In the Canadian context, approximately 4 million people, including 1.15 million children, struggled with food insecurity in 2012 (Tarasuk, Mitchell, & Dachner, 2012). With regards to labour, increases in farm-scale have led to deep labour shortages in the food system. Low profit margins have restricted the capacity for growers to invest meaningfully in labour, especially in labour intensive commodity sectors, such as tomatoes, grapes, and fruits (Preibisch, 2007). The introduction of migrant labour through the seasonal agricultural worker program (SAWP) has allowed growers and processors to flexibly and cheaply fill those labour gaps (Basok, 2002; Preibisch, 2007). To maintain stability and efficiency within such a precarious labour model, the SAWP program ostensibly institutionalized worker vulnerability and exploitation by restricting wage negotiation, union formation, the ability to protest working conditions, and the quelling of worker solidarity (socially, linguistically, and culturally) through strategic and discriminatory hiring.

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APPENDIX 2: TOWARD ANTI-COLONIAL FOOD POLICY IN CANADA? A REFLECTION ON THE PEOPLE’S FOOD POLICY PROJECT

Publication details:


Abstract

In this perspectives piece, we tease out some of the tensions between the development of a national food policy—which has gained significant traction in Canada over the past few years, and Indigenous food sovereignty—which long predates Canadian governmental policy and has a rich history and current practice of organizing. Drawing from our observations and discussions at conferences, workshops, and events, we reflect on how efforts to “include”, “give voice to” and “involve” Indigenous peoples in developing food policy may reify rather than dismantle colonial relationships and outcomes. We attempt to expand on these discussions by highlighting the ongoing tensions and struggles within Indigenous-settler relations as they pertain to food policy issues. In doing so, we emphasize the importance of process and the ability for settlers to accept discomfort and incommensurability if we/they are to move towards spaces that embody solidarity, respect, and resistance.

Introduction

The concept of a national food policy has gained significant traction in Canada over the past few years, developing alongside a proliferation of research and movement-building on food issues. Along the way, the food policy concept has prompted discussions and workshops that often share common themes, demonstrating the problems of policy development within a settler colonial context. Often discussions about national food policies take place in isolation from settler colonialism, decolonization, and Indigenous
food sovereignty; meanwhile, opportunities for conversations about decolonization focus on the concerns and priorities of settlers (i.e. about what decolonization might look like which, as Tuck and Yang argue, acts to reify colonization). For example, this past year during a roundtable discussion about a Canadian food policy led by a panel of settler academics and community organizers, a settler audience member noted the need to consider how food policy frameworks are often rooted in colonial assumptions and discourses (a point that has been raised by Indigenous folks many times before). This prompted comments from other settler audience members about the need to “include”, “give voice to” and “involve” Indigenous peoples in developing a national food policy. As the conversation wrapped up, one of the panellists asked, “how can we use conflict as a tool in the process?” Another asked, “what are the conversations we want to have as Canadians about food?”

This article examines how these comments are representative of broader themes and exchanges we have observed in both our activist and academic work. First, we consider the ways in which the conversations that took place between the opening and closing comments make visible some of the tensions within Indigenous-settler relations. In particular, we underscore the problematics of settler discourses that aim to include, give voice to, and involve Indigenous peoples in the development of a national food policy. Second, we examine how these opening and closing remarks might offer some possibilities for settlers to move forward – for example, by emphasizing the importance of process, conflict, and discomfort, and recognizing the colonial narratives underpinning non-Indigenous frameworks. Overall, we aim to question the possibility of a national food policy as a space to rebuild Indigenous-settlers relationships and instead suggest such a policy may work to reify colonial structures and relationships. At the same time, we want to highlight and encourage some of the uncomfortable conversations that have arisen in relation to a national food policy that provide potential space for settlers to question Canadian state policies and structures as well as to turn this questioning into concrete actions that support Indigenous resurgence and resistance.
Inclusion

Anti-colonial and anti-racist scholars and activists have shown that the language of inclusion must be used with caution (e.g. Jodi Byrd, Kimberlé Crenshaw, bell hooks, Bonita Lawrence, and Lee Maracle, to name a few). On one hand, this language often implies welcoming and working together. On the other hand, dominant groups, such as those the two of us occupy (i.e. white, settler, able-bodied), often use “inclusion” to call for the participation of marginalized, colonized, and racialized groups, without engaging with the ways such invitations require the transformation of underlying social, economic, and political power structures that preclude meaningful and equitable participation. Significantly, the language of inclusivity often reinforces certain norms and centers certain bodies. For example, in a recent policy brief that calls “for a focus on farm renewal, business development and labour in the next agriculture policy framework,” one of the recommendations is to “expand the definition of ‘beginning and young farmer’ to encompass all new entrants, including those not from farming backgrounds, second careerists, Indigenous Peoples and New Canadians” (A Call, 2016). The discourse of inclusion here is meant to broaden who is considered a farmer, but in doing so it positions communities such as New Canadians and Indigenous peoples in relation to an unnamed but assumed norm (see Lorde, 2007). The assumed norm in this case is young white Canadian citizens (usually men) from a rural background.

This positioning centers white bodies as farmers, while failing to engage with the history and continuing agrarianism of Indigenous nations, such as the Haudenosaunee, who began farming long before European settlers arrived. It fails to appreciate the ways in which the colonial government (the same government posed to establish a national food policy) has, and continues to, suppress Indigenous agrarianism as well as other forms of food provisioning. For instance, since European contact, nearly all forms of Indigenous food growing, gathering, and trading have been banned (Carter, 1990). Concurrently, Indigenous peoples have been prohibited from practicing colonial forms of farming and have been restricted from accessing the land and resources it requires, which, together with resource exploitation and legislated famine, amounted to a “state-
sponsored attack on indigenous communities” (Carter, 1990; Daschuk, 2013, p. 114). Meanwhile, this same Indigenous land theft enabled the establishment of the white, male-centered system of “conventional” agriculture—land that was not the Crown’s to give away to white-European immigrants in the first place. Together with colonial institutions, policies and discourses that constructed Indigenous peoples as immigrants and outsiders who must “adopt dominant middle-class Canadian social and moral codes and pro-capitalist values”, these forces aimed to eradicate Indigenous peoples and transcend colonialism by naturalizing white male settlers as “Indigenous”, exalted national subjects (Bohaker & Iacovetta, 2009, p. 427; Thobani, 2000, 2007).

In this context, settler people such as ourselves need to consider more carefully the ways that inclusion has continually been used to co-opt Indigenous peoples into the Canadian colonial project. Lee Maracle explains that “constitutional inclusion [of Indigenous peoples] has only served to maintain the colonial history and practice of dismantling Indigenous national governments by sanctioning colonial rule” (2003, 310). Jodi Byrd further explains that “as indigenous scholars have argued, inclusion into the multicultural cosmopole, built on top of indigenous lands, does not solve colonialism: that inclusion is the very site of the colonization that feeds U.S. empire” (2011, 10). In relation to food, settler governments have long sought to “include” Indigenous communities in settler foodways in order to gain and maintain control over Indigenous lands and peoples. In this context, it is necessary to ask how a national food policy will ensure that it does not do the same, while also understanding how it has done so in the past through policies and programs like the Indigenous version of Canada’s food guide (Kristin Burnett et al., 2015).

It is also important to highlight the problematics of asking for Indigenous involvement in a consultation process for which the frames of reference have already been set and which is led by a government engaged in ongoing settler colonialism. For instance, news, analysis, and promotional materials show that the federal Agricultural Minister is expected to lead the policy, which would be implemented through a “collaborative style of leadership within the federal government and with other levels of
government” while at the same time committing to “a renewed, respectful and inclusive Nation-to-Nation process to advance progress on priorities identified by First Nations” (FSC, 2016). A recent interview with Prime Minister Trudeau echoes these assumptions, mandating the creation of a Canadian food policy solely to the Ministry of Agriculture and Agri-Food Canada (FSC, 2015). It is clear that the structure, process, and boundaries of a national food policy have been predetermined by the federal government, thus excluding the opportunity for meaningful influence on the part of Indigenous peoples. In maintaining a colonial structure and process, the policy will produce colonial (and in turn racist, and sexist) outcomes, as Canada’s immigration policies have done repeatedly (Thobani, 2000). For example, as Thobani argues, “racialized immigration policies enabled the settlement of these lands” by white Europeans, who were explicitly distinguished from fellow immigrants of colour (from Asia, the Caribbean and Africa) as the “preferred races”, “immigration policies worked to racialize the nation and access to citizenship until the 1960s and 1970s” (2000, p. 36). Racialized immigration policy continues under the re-structured program of the 1990s, which is centered on defining “immigrants in general, and immigrant women in particular, as one of the most potent threats to the nation’s prosperity and well-being” (2000, p. 35). Simultaneously, the program unites white Canadians as “members of the nation” who must now measure the “benefits” of culturally and socially diverse immigrants (ibid). The result of “tying immigrants to ‘cultural and ‘social’ diversity”, is that people of colour now get constructed as ‘immigrants’, and white folks as ‘Canadians’ (2000, p. 39).

Going back to the colonial relation, is a true nation-to-nation relationship possible if the process is directed, controlled, and organized by only one nation? Particularly when one nation-state continues to enforce its own legal and political systems over all nations within this relationship? While settler recognition of nation-to-nation relationships is a change in discourse from earlier government rhetoric of assimilation, the political structures and decision-making processes (that continue to disempower and dispossess Indigenous nations) remain the same. Glen Coulthard (2014) raises these concerns in his argument that the Canadian state’s shift from discourses of exclusion and assimilation to recognition and accommodation continue to reproduce “configurations of colonialis
racist, patriarchal state power” (2014, 3). Following Fanon, Coulthard explains that “in situations where colonial rule does not depend solely on the exercise of state violence, its reproduction instead rests on the ability to entice Indigenous peoples to *identify*, either implicitly or explicitly, with the profoundly *asymmetrical* and *nonreciprocal* forms of recognition either imposed on or granted to them by the settler state and society” (2014, 25).

For example, while many assume that the government’s implementation of the comprehensive land claims policy is a step in the right direction for Indigenous rights and title, the “inherently colonial nature of the land ‘claims’ process” has reduced it to an act of municipalisation for First Nations, wherein monetary settlements are offered for Indigenous compliance while the state maintains control over Indigenous lands (Lawrence & Dua, 2005, p. 125). Nor is this issue limited to bureaucratic government or corporate projects. Well intentioned scholarship, activism, and programming that supports issues of environmental justice, for instance, may slip into what Paperson describes as “settler environmentalism” without careful attention to how and for whose identities environmentalism is carried out (Paperson, 2014). In turn, the implications of certain “solutions”, such as renewable energy and local food, get taken for granted or naturalized by non-Indigenous folks. The role of the government often goes unproblematicized, which violently erases Indigenous people’s historical and ongoing experiences and relations with the state, which range from planning and urban redevelopment to land conservation and agri-food governance.

Our concern is that a national food policy has the potential to become another tool to subsume Indigenous peoples within the colonial state system and undermine Indigenous resurgence and self-determination. For instance, governments at all levels have long ignored Indigenous calls for ways forward, such as to honour original nation-to-nation agreements by returning land to Indigenous peoples and to take direction from affected Indigenous communities in supporting the protection, conservation, and restoration of land and food systems. It seems unclear then how a national food policy that follows the same colonial structure (as policies and procedures related to, for
instance, land claims, family and children services, planning and development, and minerals and energy) would offer significantly different conditions and outcomes than what Indigenous folks continue to encounter. Too often decision-makers and bureaucrats lack an understanding of the nature and extent of settler colonization, while at the same time, insidious political and corporate lobbying works to maintain settler control over lands and resources. Thus, leading to decisions and reinforcing structures that ignore Indigenous perspectives and maintain settler power and control. Much of which is made possible because the state uses notions of “inclusion” to consistently build policies and programs about Indigenous peoples that are created and informed by settlers, for settlers.

The question here becomes, how will a national food policy structure itself and its processes differently? From our perspective, food justice work is not about including those who are marginalized in nation-state projects spearheaded by primarily white settler people. Rather, it is about engaging in ways that support the work and resistance already happening within these communities for over 500 years while dismantling settler governmental structures and radically reimagining politics and political relationships in order to better engage in nation-to-nation relationships. Moreover, we suggest that it is necessary for settlers to understand how everyday actions make us complicit in—and help reproduce—the structures and institutions that marginalize certain communities in the first place.

**Giving Voice**

Next, we want to address the frequent use of the phrase “giving voice” when referring to the ‘inclusion’ of marginalized groups. For us, this phrase is disingenuous as it fails to recognize the obvious truth that marginalized communities have their own voices and have continually articulated the most important and complex understandings of oppression. The phrase also fails to recognize that dominant groups are often the root of the problem: that it is settler ears who have refused (or are unable) to listen due to their/our positionality within structures of colonialism, capitalism, and patriarchy. “Giving voice” suggests that dominant groups are the ones with the power to produce
liberatory politics, rather than focusing on the ways that marginalized communities continue to struggle for their own liberation. In this context, we suggest discarding the move to “give voice” and instead underline the possibilities of breaking down structures that deafen ears in the first place, while taking action that is directed by the struggles and voices of marginalized communities.

Indigenous activists and knowledge holders have very clearly articulated how Indigenous food systems are the basis of all people’s food systems on Turtle Island, emphasizing the ways that food is sacred and “that Indigenous peoples speak for ourselves” (PFPP, 2011, 10). Indigenous peoples have also clearly underlined how colonialism has undermined Indigenous food provisioning through “the creation of land reserves, national parks, private lands, etc” as well as colonial economic development projects and policies including “forest management planning; hydro development that prevents the migration of fish species; and roads, industrial and housing developments” (PFPP, 2011, 10). In spite of the colonial policies and practices that undermine Indigenous access to hunting, gathering, fishing, and farming, Indigenous communities continue their food provisioning practices. For example, in the Kawartha Lakes region of so-called Ontario, the Nishnaabeg continue to harvest and process Manoomin (wild rice) despite difficulties related to access, water pollution, private property, changing water levels, and settler entitlement to waterways (Simpson, 2016). Similarly, after succeeding in negotiating their Treaty hunting rights, which is limited to six days per year in Short Hills Provincial Park, the Haudenosaunee’s annual harvest continues to be met with sharp criticism and protest from the white settler community (D. Fraser, 2016). Meanwhile, the Haudenosaunee continue to articulate the role that the traditional hunt plays in Indigenous food sovereignty, self-determination, and resurgence.

In these ways and many more, Indigenous nations have continually articulated and engaged with Indigenous food systems, identified issues and challenges within food systems from coast to coast, and developed ways to build more equitable and sustainable food systems. Why then does the discourse of “giving voice” to Indigenous peoples persist within discussions about a national food policy? Why are so many settlers
unaware of the rich and varied discussions about these issues by Indigenous peoples? Following numerous critical Indigenous scholars, we suggest that settler colonialism is based on the logic that “Indigenous peoples ultimately disappear as peoples”, which in turn enables settler colonial structures to deafen settler ears (Lawrence & Dua, 2005, 123). For settler colonialism to prevail, Indigenous peoples “must be erased, must be made into ghosts” (Tuck & Yang, 2012, 6 citing Tuck and Ree, forthcoming). Thus, settler moves to “give voice” to Indigenous peoples are simultaneously: 1. Based in structural logics that attempt to erase Indigenous presence, resistance, and knowledge; 2. Contribute to these same colonial logics that rely on settler perceptions of Indigenous engagement with food systems as a thing of the past or, at best, emphasize the affects of colonialism on Indigenous peoples but not the 500 years of Indigenous peoples resistance and resurgence.

Settlers remain blind to the fact that colonialism has imposed settler food systems onto Indigenous peoples. Meanwhile, settlers use various means to undermine Indigenous struggles to maintain their traditional food systems, including settler protests over traditional hunting and the destruction of land and habitat on which Indigenous food systems rely. At the same time, settler institutions and discourses demand that Indigenous peoples access their foods through the same ecologically unsustainable industrial food system that settlers built and benefit from. For a food policy to meaningfully shift this irony in ways that prioritize Indigenous resurgence, the structure of the policy development process would have to be deconstructed in order to be Indigenous-centred, no matter how uncomfortable ceding power may feel for the colonial state. Additionally, we underline the problematics of scaling a policy at the nation-state level as it reifies Canadian state power over Indigenous nations who have developed diverse food provisioning practices and protocols over many centuries that are specific to place and community.
Involvement

Third, we want to tease out some of the tensions around settler calls to involve Indigenous peoples in developing governmental policies, such as a national food policy. In one sense, it would be ideal for settlers to develop policy in collaboration with Indigenous nations. However, when settlers ask for (and increasingly expect) this kind of involvement, we need to be clear about the context and relation within which we are asking for Indigenous involvement. The Canadian government’s relationship to Indigenous nations continues to be one of violence, which is disproportionately experienced by Indigenous communities. As mentioned above, this relationship is based on the logic of Indigenous elimination: settler colonialism “destroys to replace” with the primary goal of obtaining land and denying Indigenous self-determination (Wolfe, 2006). Indeed, settler colonial logics allow settlers to feel “at home” (Morgensen 2011), as though we/they have rightful claim to land and resources. This entitlement is operationalized and made material through mechanisms such as settler legal systems, property regimes, and education systems that reinforce the belief that Turtle Island was vacant and the Canadian state is legitimate. In these ways, settler colonial processes use “policies of direct extermination, displacement, or assimilation” to erase Indigenous nationhood and sovereignty “so that settler nations can seamlessly take their place” (Lawrence and Dua, 2005, 123). For example, in a context where Indigenous peoples are only recently considered to be “included” in the category of new farmers and within a nation-state that considers agriculture to be “king” (We Grow, 2015), the seemingly innocuous claims that “new farmers” and “youth and young farmers” are “the future of Canada's agriculture and agri-food sector” (Youth, 2016; New Farmers, 20) positions white settler farmers as “the future” while erasing non-agrarian food provisioning practices of Indigenous peoples and the futures they hold.

Therefore it is important for settlers to understand the long history of how state calls for the involvement of Indigenous peoples in white western society are often violently enforced through policies of assimilation. Effectively, these calls ask Indigenous people to be complicit in their own assimilation and oppression, which has
often surrounded issues of food and agriculture. As noted earlier, while government attempts to involve Indigenous peoples in agriculture programs designed to “civilize” and control, governmental policies actively prevented and eroded the viability of Indigenous agriculture while simultaneously blaming Indigenous peoples for their failure to succeed at farming (Carter, 1990). Policies of assimilation with the goal of elimination continue today, “couched in the language of development, opportunity, and incorporation, which is characterised by a preoccupation with inclusion rather than a logic of separation” (Burnett et al., 2015, 3). Kristin Burnett, Travis Hay, and Lori Chambers (2015) explain how this elimination is apparent in government health and nutrition programs that attempt to maintain control over Indigenous foodways, while at the same time blaming Indigenous communities for their inability to choose the “right” foods and participate in food systems based on the industrial market economy.

Within this context, it is crucial to consider what it means to ask for Indigenous involvement in the development of government policies and strategies. For settlers, inclusion/involvement might feel like a step toward reconciliation. However, are settlers actually giving up power if we enter into the development process with pre-formed frameworks, scales, and limits in place? Additionally, how might these pre-formed frameworks, scales, and limits impact Indigenous work towards a decolonization that involves the repatriation of Indigenous land and ways of life? How might this involvement take essential time away from Indigenous communities’ own projects of resurgence? Regarding Indigenous involvement in national food policy development, it is essential for settlers to ask: a national strategy for what and for whom? It is so often assumed that national policies address everyone’s needs, when in reality, that would be impossible without, for instance, demanding equal rights and citizenship for migrant food workers and repatriating lands to Indigenous peoples: demands that may feel indeterminate and uncomfortable for many white settlers.

Settlers need to also ask: what is the purpose of Indigenous involvement? Is it to reaffirm settler ideas and ways forward? Does Indigenous involvement open settlers to challenging the legitimacy of the settler state and settler entitlement to lands and “rights”
to determine food systems? Or does Indigenous involvement merely allow settlers to feel better about processes they control, lending legitimacy while soothing settler conscious? If in the process of developing a national food strategy, settlers are looking for affirmation or are unwilling to challenge their “right” to define food systems in Canada, they/we risk performing what Eve Tuck and Wayne Yang (2012) call “settler moves to innocence”. These moves “are those strategies or positionings that attempt to relieve the settler of feelings of guilt or responsibility without giving up land or power or privilege, without having to change much at all” (2012, 14). Instead, settlers are often credited “for being so sensitive or self-aware”, thus increasing their own credibility, professional standing and ability to work with marginalized groups (ibid). Yet, as Eve Tuck and Wayne Yang explain “settler moves to innocence are hollow, they only serve the settler” (ibid).

**Possible Ways Forward**

So what does this mean for those of us interested in developing food policy in Canada while working within current colonial structures? In this paper we suggest critically engaging with settler desires and discourses that move to include, give voice to, and involve Indigenous peoples. We also echo Indigenous activists and academics who emphasize that *process is vital*. For example, the First Principles Protocol for Building Cross-Cultural Relationships (FPP) emphasizes the importance of establishing principles for “guid[ing] the work of individuals and organizations involved in the People’s Food Policy Project” (2010). These principles are meant to establish a process – a way for people to work together and build relationships. This protocol is a “living document” with the possibility for continued revisions, demonstrating the importance of figuring out how we will relate to one another before even beginning to speak about policy or policy-related issues.

Questions that might be helpful to consider when thinking about establishing protocol and process may include: How do we work in a way that respects nation-to-nation relationships between Indigenous and settler peoples on this land? And perhaps
more uncomfortably, how do settlers build meaningful relationships with Indigenous nations and lands, especially when decolonization becomes, as Eve Tuck and Wayne Yang describe (2012), incommensurable with settler processes and objectives, requiring white settlers to cede power, land, and privilege? In thinking through these questions, the FPP emphasizes that “history matters” and recognizes “Indigenous peoples as the original inhabitants of this land,” while acknowledging that colonial injustices are ongoing alongside continuing Indigenous self-determination and resurgence (2010). The FPP also states that “the relationship between governments and Indigenous people is colonial in nature” and that colonialism is a global phenomenon related to neoliberal economies and trade policies. In this context the protocol commits to changing these institutions and engaging in “activities and policy creation that is not ‘about’ Indigenous peoples’ food systems but learns from and is informed by the experiences and expertise gained through a multi-millennia of practice.” From our perspective, this means that moving food work forward is premised on the actions and resistance of Indigenous nations, and directed by their visions of liberation and decolonization. This might mean creating a “national” policy for Canada that works together but separate from Indigenous nations and their frameworks for food sovereignty or it may mean multiple policies developed (or already developed) by different Indigenous nations. The key point is moving forward in ways that respect and center Indigenous autonomy and nation-to-nation relationships.

As the People’s Food Policy Project stresses, Indigenous peoples speak for themselves, an assertion that applies to all aspects of the discussion. Significantly, the addition of a 7th pillar of food sovereignty – food is sacred – can guide our work through its emphasis on the ways that “food, water, soil, and air are not viewed as ‘resources’ but as sources of life itself” (PFPP, 9). This pillar demands that settlers reimagine relationships to land and food, particularly in relation to regimes that require these to be treated as commodities with monetary value to be extracted, including private property regimes, production-based food systems, and market economies. To advance these recommendations, settler peoples have a particular responsibility to “deepen our understanding and work towards respectful relationships”—as identified in the FPP (2010). Pragmatically, this necessitates a process that identifies and moves away from
colonial assumptions around policy structure and governance, which must start by asking hard questions about what ceding colonial power requires, both on paper and in practice.

Documents such as the PFPP Discussion Paper on Indigenous Food Sovereignty (2011) and the FPP (2010) provide space to consider how these conversations have developed, and offer insight into moving forward. The difficult matter concerns how we, as people who are non-Indigenous to this land, resist the structures of settler colonialism that condition and benefit us in various (and often deceiving) ways. Settlers have a responsibility to have uncomfortable conversations and consider painful options, and further, to remain reflexive about how deeply and unconsciously privilege can permeate within us. Our hope is that through these personal and collective actions, settlers can move (and often stumble) towards spaces that not only look and sound like, but embody, for Indigenous nations and peoples especially, solidarity, respect and resistance.

References


Montreal: McGill-Queen’s University Press.


APPENDIX 3: FARMER SURVEY QUESTIONS

Thank you for considering this invitation to participate in a research project investigating the role of the agricultural environment, farm-household economics, and institutional relationships in shaping adaptation to extreme weather and climate change on Ontario grain corn farms. The main investigator is Sarah Rotz, a PhD candidate in the Department of Geography at the University of Guelph. The academic advisor for the study is Dr. Evan Fraser. Results will contribute to the completion of the student researcher’s PhD thesis. This research project has been sponsored by the Vanier Canada Graduate Scholarship. If you agree to participate in this study, you will be asked to: Complete a one-time survey (approx. 45 min) detailing your farm enterprise operations, your methods of production, organizational relations, and motivations. Some willing and interested participants may also be invited to participate in a follow-up interview at a later date to discuss their practices and motivations more deeply. Such follow up, like the survey, is entirely voluntary. It is now normal practice at the University of Guelph to inform all study participants of their rights and our obligations. Please note the following items: There are no risks or discomforts associated with this research. You must be an Ontario-based farmer to complete this study. Those who fully and ethically fill out the survey will receive a $20 gift card as a thank you for your time and participation. Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study. All answers connected with the surveys and follow-up interviews will be will be used solely for the research purpose and your name will not be associated with your responses or released at any time. Your participation in the study is entirely voluntary and you may withdraw at any time without consequences of any kind. You may request to have your answers removed from the study. You may refuse to answer any question and still remain in the study. The researcher reserves the right to disregard your data should circumstances arise which require this. Rights of Study Participants: You may withdraw your consent at any time and discontinue your participation. You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board.

By clicking "yes" below, I acknowledge that have read the information provided, any questions have been answered to my satisfaction and I agree to participate in the study.

Q1.2 I acknowledge that I have read the information provided, any questions have been answered to my satisfaction and I agree to participate in the study.
   ✔ Yes (4)
   ✔ No (5)
   If No Is Selected, Then Skip To End of Survey

Q142 Survey Code (If you have not yet been provided the code, please email: srotz@uoguelph.ca)

Q139 I grow grain corn at some point in my crop rotation
   ✔ Yes (1)
   ✔ No (2)
   If No Is Selected, Then Skip To End of Survey

Q2.1 Demographic Questions:

Q2.2 Name

Q2.3 Please identify the county you farm in:

Q2.4 Age
Q2.5 Gender
- Male (1)
- Female (2)
- Other (3)

Q2.6 Which of the following best describes your highest level of education?
- Some high school (13)
- Completed high school (14)
- Some college/university (15)
- Apprenticeship training and trades (16)
- Completed college/university (17)
- Some graduate education (18)
- Completed graduate education (19)
- Professional degrees (20)

Q2.7 Which of the following best describes your ethnic background? Please select all that apply.
- Aboriginal/First Nations/Métis (7)
- White/European (8)
- Black/Africa/Caribbean (9)
- Southeast Asian (e.g., Chinese, Japanese, Korean, Vietnamese, Cambodian, (10)
- Filipino, etc) (11)
- Arab (Saudi Arabian, Palestinian, Iraqi, etc) (12)
- South Asian (East Indian, Sri Lankan, etc) (13)
- Latin American (Costa Rican, Guatemalan, Brazilian, Columbian, etc) (14)
- West Asian (Iranian, Afghani, etc) (15)
- Other (please specify) (16) ____________________

Q2.8 Farm Socio-Economics:

Q2.9 What is your role/position on the farm? Please select all that apply
- Farm Owner (1)
- Farm/Operations Manager (2)
- Farm renter (4)
- Other (5) ____________________

Q2.10 How many years have you been managing your farm enterprise?

Q2.11 How many years have you been farming generally?

Q2.12 Choose one that applies to you
- I am a 1st generation farmer (1)
- I am a 2nd generation farmer (2)
- I am a 3rd generation farmer (3)
- I am a 4th generation farmer (4)
- I am a 5th generation farmer (5)
- I am a 6th generation farmer (6)
- I am a 7th generation farmer (7)
- I am a 8th generation farmer (8)
- Other (9) ____________________
Q2.13 What is your land ownership structure? (please click on the relevant proportion)
   _____ I rent the following percent of my total land (1)
   _____ I own the following percent of my total land (2)

Q2.14 What is the structure of your farm?
   ☐ Family farm: Sole proprietor/Partnership with family member(s) (2)
   ☐ Partnership with non-family, or incorporated farm (3)
   ☐ Other (4) ______________________

Q2.15 What are your main reasons for choosing to farm? (Please rank your top 3 reasons: 1 = most important, 2 = second most important etc.)
   _____ I inherited this land and feel obliged to continue my parents’ work (1)
   _____ It is economically secure (2)
   _____ I love farming and the farming lifestyle (connection with land, working independently, a great place to raise kids, etc.) (3)
   _____ It is all I have ever known/Farming is a skill I am most confident in (4)
   _____ I am contributing to the food economy (5)
   _____ I am feeding people/contributing to food security in Ontario (6)
   _____ I am helping to keep land dedicated to agricultural production (7)
   _____ I am providing ecological benefits to the land (8)
   _____ Other (10)

Q2.16 Has your farm changed in any of the following ways over the past 10 years?

<table>
<thead>
<tr>
<th></th>
<th>Decreased a lot (1)</th>
<th>Decreased a little (2)</th>
<th>No change (3)</th>
<th>Increased a little (9)</th>
<th>Increased a lot (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of employees (5)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Number of crops produced (diversity of plants) (6)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Number of acres under production (7)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Percentage of total expenses in machinery (purchase, maintenance, repair, and fuel costs) (8)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Input costs (e.g. pesticides, labour, fertilizer) (9)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Q2.17 Do you have a succession plan for your farm?
   ☐ Yes (1)
   ☐ No (2)
Q2.18 What is your farm GROSS operating revenue for 2013?
- 0-50,000 (1)
- 50,000-100,000 (2)
- 100,000-200,000 (3)
- 200,000-300,000 (4)
- 300,000-400,000 (5)
- 400,000-500,000 (6)
- 500,000+ (7)

Q2.19 What is your NET farm operating income for 2013? (Net Farm Income From Operations, excluding gains or losses from disposal of farm capital assets)
- 0-10,000 (1)
- 10,000-20,000 (2)
- 20,000-30,000 (3)
- 30,000-40,000 (4)
- 40,000-50,000 (5)
- 50,000-60,000 (6)
- 60,000-70,000 (7)
- 70,000-80,000 (8)
- +80,000 (9)

Q2.20 What is the percent change in net farm operating income over the past 10 years (or as long as you have data for)?
- Decrease by more than 50% (1)
- Decrease between 1 and 50% (2)
- 0% change (3)
- Increase between 1 and 10% (4)
- Increase between 11 and 20% (5)
- Increase between 21 and 30% (6)
- More than 30% increase (7)

Q2.21 What are the largest financial costs on your farm? (Rank your top 5 costs, 1 = largest cost, 2 = second largest cost etc.)
- Pesticides/herbicides (1)
- Fertilizer (2)
- Harvesting and seeding machinery for field-use (combine, harvester, seeder etc.) (3)
- Equipment for storage and processing (i.e. grain dryers, milk coolers, grain bins, machine sheds etc.) (4)
- Fuel (5)
- Animal feed (6)
- Seeds (7)
- Interest on liabilities (loans, mortgages) (8)
- Building maintenance (9)
- Machine and equipment maintenance/repairs (10)
- Livestock purchases (11)
- Farm labour (12)
- Property taxes (13)
- Rent (14)
- Electricity/Energy utilities (15)
- Water (16)
- Other (17)
Q2.22 What percentage of your total farm/household income (include spouse or other significant business partners) comes from off-farm income, if any?

_____ Off-farm income as a percent of total income (1)

If Off-farm income as a percent... Is Equal to 0, Then Skip To Who do you sell your products to? (Se...

Q2.23 What is the source of your farm/households' off-farm income? (if there are multiple, select all sources)

☐ Non-farm related investment income (1)
☐ Custom work (e.g. planting, combining) (14)
☐ Mechanics (3)
☐ Education (teaching, workshop design and facilitation) (4)
☐ Consulting (10)
☐ Manufacturing (5)
☐ Sales (9)
☐ Other (8) ____________________

Q2.24 How has your off-farm income changed your agricultural practices or your capacity to respond to issues on your farm? (Choose all that apply most to you)

☐ No changes observed (1)
☐ Increased my control over farm production (2)
☐ Increased income for my family (3)
☐ Increased investment in my farm (4)
☐ Increased my market diversity (5)
☐ Has caused me to reduce the size and/or diversity of my farm (8)
☐ Time required to earn off-farm income limits my ability to farm (9)
☐ Increased my use of agricultural innovations to save time (10)
☐ Allowed me to manage debt (11)
☐ Allowed me to remain economically viable and avoid selling land (12)
☐ Allowed me to expand my farm production (13)
☐ Allowed me to add/diversify crops (15)
☐ Allowed me to switch to organic practices (16)
☐ Allowed me to introduce livestock (17)
☐ Allowed me to improve the environmental health of my farm (19)
☐ Other (20) ____________________

Q140 How many buyers do you have for all of the crops grown on your farm?

Q2.25 Who more specifically do you sell your crops to? (Select all that apply to you by recording the percent of your total product that you sell to each buyer)

_____ Other farmers (1)
_____ grain to biofuel or bio-products plant (2)
_____ Corn stover to biofuel or bio-products plant or other farmer (3)
_____ Local/Ontario processor (4)
_____ Out of province/country processor (5)
_____ Corporate grocer or Independent grocer (6)
_____ U.S. export elevator (7)
_____ Elevator outside Ontario (8)
_____ Elevator in Ontario (9)
_____ Farmers’ market/Direct to consumer (e.g. Food box program)/through my CSA (10)
_____ % Other (11)
Q2.26 Why have you chosen to sell through these methods as opposed to possible alternatives? (Select up to 3)
☐ Easy to manage (e.g. buyer is nearby, buyer has capacity to take my crop) (1)
☐ More security of profits when weather is poor (2)
☐ More security of price per unit of product (3)
☐ High profit margins (4)
☐ More security of sales in the short-term (5)
☐ More security of sales in the long-term (6)
☐ It is well-supported and encouraged by government and industry (14)
☐ Contributes to the local food economy (7)
☐ Provides social/consumer benefits (9)
☐ Helps to improve the food system in Ontario (11)
☐ Helps to improve the food system globally (12)
☐ Other (13) ____________________

Q2.27 Resource-use:

Q2.28 What percentage of your fields have a tile drainage system?
_____ Percentage on owned land (1)
_____ Percentage on rented land (2)

Display This Question:
If What percentage of your fields have a tile drainage system? Percentage on <strong>owned</strong> land Is Greater Than  0
Or What percentage of your fields have a tile drainage system? Percentage on <strong>rented</strong> land Is Greater Than  0

Q2.29 What is your average tile spacing?
☐ (1)
☐ 30-50 feet (2)
☐ 51-70 feet (3)
☐ +70 feet (4)

Q2.30 How frequently do you record the following information:

<table>
<thead>
<tr>
<th></th>
<th>Never (1)</th>
<th>Once every 3+ years (2)</th>
<th>Once a year (3)</th>
<th>Multiple times a year (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil organic matter</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Soil nutrient levels</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Input use (i.e. fertilizer, fuel, manure)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Water use for irrigation</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>
Q2.31 Please provide approximate amounts used on your farm of the following products, average per year:

_____ Feed produced on-farm (in tonnes) (1)
_____ Feed purchased off-farm (in tonnes) (2)
_____ Synthetic Fertilizer (in tonnes) (3)
_____ Pesticides/herbicides (a.i.) (in gallons) (4)
_____ Manure produced on-farm (in gallons) (6)
_____ Manure and other organic amendments purchased off-farm (in gallons) (7)

Q2.32 Approximately how many litres of fuel (gas or diesel) do you purchase per year in total on your farm?

Q2.33 Crop and Agriculture Analysis:

Q2.34 How many acres is your farm in total?

_____ Owned land (1)
_____ Rented land (2)

Q2.35 How many different crop species do you typically grow on your farm per year? (Typical of past 5 years)

_____ Average number of species (1)

Q2.36 Please list any livestock you manage in total, and the numbers of each: For example: Cattle: 50 Chickens: 500

Q2.37 Please provide the crop rotation for the given years (2011-2014). If you have more than one farm, please provide a rotation for up to 3 of your farms/fields. INCLUDE FORAGE AND COVER CROPS

<table>
<thead>
<tr>
<th>Farm/Field 1 (1)</th>
<th>Crops grown in 2011 (e.g., corn) (3)</th>
<th>Crops grown in 2012 (e.g., soy) (4)</th>
<th>Crops grown in 2013 (e.g., wheat +(red clover)) (5)</th>
<th>Crops grown in 2014 (e.g., corn +(hairy vetch)) (6)</th>
<th>Identify any years where you intentionally left significant CROP RESIDUE on this field (e.g. 2011, 2013, 2014) (7)</th>
<th>Is this land rented or owned? (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm/Field 2 (2)</td>
<td></td>
<td></td>
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<tr>
<td>Farm/Field 3 (3)</td>
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</tbody>
</table>

239
Q2.38 Please provide the approximate yield for these same years for the SAME ROTATIONS IN THE SAME ORDER along with the soil texture on each farm (silt, loam, clay):

<table>
<thead>
<tr>
<th></th>
<th>Yield in 2011 (e.g.150 bu) (3)</th>
<th>Yield in 2012 (e.g.120 bu) (4)</th>
<th>Yield in 2013 (e.g.145 bu) (5)</th>
<th>Yield in 2014 (e.g.155 bu) (6)</th>
<th>Soil texture (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm/Field 1</td>
<td></td>
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<td>(1)</td>
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<td>Farm/Field 2</td>
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<td>Farm/Field 3</td>
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<td>(3)</td>
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Q2.39 What are the main reasons you grow the number and types of crops that you do (Rank up to 5, 1=most important reason, 2 = second most important reason, etc.):

- Greater profits due to high volumes of production (1)
- Consistent profitability (18)
- Maximizes crop quality (2)
- Most suitable for the soil and climate (5)
- Minimizes input costs (e.g. pesticides, equipment, energy, fertilizer, water) (3)
- Maximizes my ability to work off-farm (4)
- Government and insurance providers support these crops (21)
- Farmers/farm community encourage this rotation (22)
- My crop/agricultural advisor encourages this rotation (25)
- Reduces labour needs (20)
- Builds soil organic matter (6)
- Improves soil mineral balance/Fix nitrogen into the soil (9)
- Produces forage for livestock (10)
- Benefits the natural environment of my farm (i.e. water and soil quality, pollination, conservation of nature) (12)
- Contributes to the local food economy/food security (16)
- Other (24)

Q2.40 Do you use synthetic pesticides?

- Yes (1)
- No (2)

Q2.41 Do you use synthetic fertilizers?

- Yes (1)
- No (2)

Q2.42 Do you use genetically modified seeds?

- Yes (1)
- No (2)

Q2.43 Do you use organic practices?

- Yes (1)
- No (2)

Q2.44 Are you certified organic?

- Yes (1)
- No (2)
Q2.45 What are your main constraints to transitioning to organic? (Rank up to 5, 1=greatest constraint)

- Decrease in crop yields (1)
- I am heavily invested in current production methods (e.g. machinery and inputs) (2)
- High cost of organic certification (3)
- High financial cost of switching production methods (4)
- Too much labour required (24)
- Would have to stop no-till methods (14)
- Not interested/Don’t care (5)
- Lack of knowledge about organic practices (6)
- Lack of financial support for switching to organic methods (7)
- Lack of education support for switching to organic methods (8)
- Do not foresee any market potential (9)
- Organic methods are perceived negatively in my community (10)
- Nearby non-organic farms would negatively impact my farm (11)
- Reduced ability to take advantage of off-farm employment opportunities (12)
- Other (13)

Q2.46 What type of manure do you use on your farm?

- Poultry (1)
- Cattle (2)
- Hog (3)
- Horse (4)
- Sheep (5)
- Liquid manure (6)
- Solid manure (7)
- None (8)
- Other (9)

Q2.47 Where is your manure sourced? (by percentage)

- Produced by on-farm livestock (2)
- Purchased off-farm (1)
- Other (3)

Q2.48 Do you grow cover crops or forages?

- Yes (1)
- No (2)
Q2.49 In thinking about your integration of cover crops or forages, what have you observed? (Choose all that apply)

- Improved soil cover/reduction in soil erosion (2)
- Increase in soil organic matter (3)
- Increase in subsequent crop yields (4)
- Reduction in soil compaction (5)
- Decrease in N fertilizer applied to subsequent crop (6)
- Reduction in P, K fertilizer use (7)
- Increased forages for livestock (8)
- Provides additional sales/profits (9)
- Reduction in costs (10)
- Increase in costs (11)
- Interference with production crops (12)
- Increase in water use (13)
- Increased pest problems (14)
- No benefits have been observed (15)
- Other (16) ____________________

Q2.50 Do you use physical methods (inter-row/within-row cultivation, mulching, hand weeding) of weed or biological pest control in order to replace/minimize herbicide and pesticide use?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)
- All of the Time (5)

Q2.51 Which methods of biological or physical weed control have been most successful/effective for you? (Select all that apply)

- Inter-row cultivation (1)
- Within-row cultivation (2)
- Tillage in the spring or fall (12)
- Mulching (3)
- Crop rotations (4)
- Hand weeding (5)
- Closer row spacing/higher crop density (7)
- Planting competitive cover crops (8)
- Timed compost applications (9)
- Other (10) ____________________
- Other (11) ____________________

Q2.52 Climate and Environmental Conditions:
Q2.53 To what degree do you base your decisions about your agricultural methods (e.g. crop rotation management, methods of weed and pest control, equipment use, fertilization) on your knowledge and understanding of adaptation to extreme weather and climate?
- None (22)
- Some (23)
- Quite a Bit (24)
- Very much (25)

Q2.54 Have you invested in any ecological buffer areas on your farm? (e.g. wind reduction areas, tree separation, stream run-off protection, vegetation to protect soil erosion, woody perennial areas)
- Wind reduction areas (tree windbreaks) (1)
- Stream protection from run-off (3)
- Vegetation to protect soil erosion (e.g. agroforestry and woody perennial areas) (4)
- Other (7) ____________________
- No I have not (8)

Q2.55 How interested are you in the idea of setting aside parts of your land for ecological enhancement? (e.g. naturalized breeding areas for wildlife; buffer zones; woodland, wetland and stream preservation)
- Not interested (1)
- Somewhat interested (3)
- Very interested (4)
- I have already achieved a high level of compliance (5)
- Don't know (7)

Q2.56 Do you find that the soil fertility or texture on your farm constrains your productivity/yield?
- Yes (1)
- No (2)

Q2.57 How have you dealt with any soil problems (low fertility, mineral imbalance, low organic matter, erosion, leaching etc.) in the past 5 to 10 years? (select all that you have adopted)
- Applied more fertilizers (1)
- Changed how and when I apply fertilizer/Improved precision of application (2)
- Reduced tillage or adopted no-till (5)
- Reduced fertilizer application (3)
- Reduced impact of heavy machinery use (e.g. axil weights, tire pressure) (4)
- Added legumes/nitrogen fixers into rotation (6)
- Added other ‘cover crops’ into rotation (7)
- Added woody perennials (8)
- Added livestock onto farm (9)
- Changed livestock grazing methods (10)
- Introduced buffer/agroforestry areas (11)
- Kept higher proportion of crop residue on my soil (12)
- Increased manure application (13)
- Changed and/or diversified crop rotation (14)
- Adopted organic/agroecological methods to improve soil organic matter (15)
- Other (16) ____________________
- Other (17) ____________________
Q2.58 What have been the most significant environmental issues on your farm over the past 5 years? (Rank up to 5, 1=most significant issue)

- Poor water access (27)
- Poor water quality (1)
- Drought (15)
- Excessive rain (16)
- Low soil organic matter (2)
- Soil mineral imbalance (4)
- High soil leaching/agricultural run-off (5)
- High soil erosion (6)
- Lack of pollinators/low biodiversity (7)
- Crop disease(s) (9)
- The ecological environment surrounding my farm is poor (10)
- Encroaching development near my farm (11)
- Animal disturbance (deer, rabbits) (13)
- Other (12)

Q2.59 How much precipitation did you receive in the following growing seasons on your farm?

<table>
<thead>
<tr>
<th>Year</th>
<th>Far too Little (14)</th>
<th>Too Little (15)</th>
<th>About Right (16)</th>
<th>Too Much (17)</th>
<th>Far too Much (18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
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<tr>
<td>2011</td>
<td>☒</td>
<td>☒</td>
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<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>2012</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>2013</td>
<td>☒</td>
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<td>☒</td>
</tr>
<tr>
<td>2014</td>
<td>☒</td>
<td>☒</td>
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<td>☒</td>
</tr>
</tbody>
</table>

Q2.60 Have you changed your management practices at all in response to any weather extremes (e.g. too much precipitation or drought) over the past five years?

- ☒ Yes (1)
- ☒ No (2)
Q2.61 How have you adapted to/responded to significant changes in weather conditions? (select all that apply)
- Purchased irrigation equipment/expanded irrigation (1)
- Changed pesticide applications (46)
- Purchased/increased crop insurance (16)
- Adopted technologies/purchased equipment (31)
- Began purchasing animal feed off-farm or expanded the number of sellers I purchased animal feed from (2)
- Changed my crop rotation or the species of crops I grow (3)
- Diversified my farm in multiple ways (intercropping, biodiversity, sun/shade space etc.) (12)
- Added large amounts of organic material to increase soil organic matter (14)
- Increased crop residue/mulching on fields (6)
- Adopted no-till (15)
- Began/increased use of drought resistant seeds (4)
- Introduced shrubs, trees and other grasses into grazing (13)
- Reduced livestock on farm (5)
- Began to transition to organic methods (7)
- Introduced cover crops (10)
- Built/expanded water catchment reservoirs on the farm (i.e. berms, ponds) (11)
- Other (8) ____________________
- Other (9) ____________________

Q2.62 Why did you choose these methods of adaptation? (select 1-2 that most apply to you)
- Environmental reasons (1)
- Economic reasons (5)
- I had the suitable infrastructure (2)
- My farm community encourages these methods (3)
- Government/Industry supports these methods (4)
- My agricultural advisor/consultant encourages these methods (7)
- Other (6) ____________________

Q2.63 Do you think that your methods of responding to these extreme weather conditions have been successful?
- Very Unsuccessful (9)
- Unsuccessful (10)
- Successful (14)
- Very successful (15)
- Other (16) ____________________

Q2.64 Extreme weather conditions are expected to increase in the future, do you think that the methods you adopted in response to previous weather conditions will make your farm more adapted to change over the long term?
- No, I am still not at all adapted (9)
- I am somewhat adapted, but more needs to be done on my farm (10)
- I am fairly adapted due to the actions taken over the past five years (11)
- I am very well adapted due to actions taken from, and beyond, my response extreme weather over the past five years (13)
- Other (14) ____________________
Q2.65 What do you think are the greatest indicators of health on your farm? (Rank up to 5, 1=the term that resonates most with you)
   _____ I have consistent/stable yields in both good and bad weather years (1)
   _____ I have high yields (2)
   _____ I have high profits (3)
   _____ I have a consistent, secure buyer (4)
   _____ I have access to the tools and resources I need at all times of production (5)
   _____ I feel secure and confident in the future of my farm (6)
   _____ My farm is ecologically healthy (7)
   _____ I have a diversity of crops to rely on each year (8)
   _____ I have a diverse customer base (9)
   _____ I can respond quickly to change (e.g. weather, policy, prices etc.) on my farm (10)
   _____ I have off-farm income to reduce risk (11)
   _____ I do not think my farm is resilient/there is a lot more I could do to improve resilience (12)
   _____ Other (13)

Q2.66 How would you rate the overall environmental health of your farm?
   ☑ Very Bad (1)
   ☑ Bad (2)
   ☑ Fair (3)
   ☑ Good (4)
   ☑ Very Good (5)

Q2.67 Organizational and Community Relationships:

Q2.68 Are you enrolled in production crop insurance?
   ☑ Yes (1)
   ☑ No (2)

Q2.69 How often have you had to claim production insurance over the past 10 years (or life of your farm if in operation less than 10 years)?
   ☑ 0 years (6)
   ☑ 1 year (1)
   ☑ 2 or 3 years (2)
   ☑ 4 or 5 years (3)
   ☑ 6 or 7 years (4)
   ☑ 7+ years (5)

Q2.70 How similar or different do you feel that your farming practices (i.e. general crops grown, methods used for weed and pest management) are from farmers that are nearby/within your geographic community?

<table>
<thead>
<tr>
<th>Farming practices</th>
<th>Very similar (1)</th>
<th>Somewhat similar (2)</th>
<th>Somewhat different (3)</th>
<th>Very different (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>
Q2.71 How do you typically find out about new agricultural practices, innovations, and insights related to extreme weather and climate adaptation?
- Talking to other farmers (1)
- OMAFRA farmer meetings and workshops (2)
- Farmer meetings and workshops led by farm organizations (3)
- Demonstrations at local farms put on by OMAFRA or other commodity groups (4)
- An agricultural consultant/advisor (5)
- Experimenting on my farm (6)
- Researching online or through magazines, books and articles (7)
- Farm shows (8)

Q2.72 Are you a member of, or do you participate in any of the following? (Select all that apply)
- Canadian Organic Growers/Organic Council of Ontario (1)
- Christian Farmers Federation of Ontario (CFFO) (2)
- Community Supported Agriculture (CSA) programming (3)
- Ecological Farmers of Ontario (EFO) (4)
- Farmers Markets (5)
- FarmON Alliance (6)
- Food Box Programming (7)
- Grain Farmers of Ontario (GFO) (32)
- Greenbelt Fund (21)
- Growing your Farm Profits (GYFP) program (9)
- National Farmers Union (NFU) (10)
- Ontario Environmental Farm Plan (EFP) (11)
- Ontario Federation of Agriculture (OFA) (12)
- Ontario Farmland Trust (14)
- The Ontario Co-operative Association (16)
- The Ontario Soil and Crop Improvement Association (OSCIA) (17)
- Young Agrarians (18)
- Other (19) ____________________
- Other (20) ____________________

Q2.73 How involved in the local farm community are you?
- Not at all, I often feel isolated from the local farm community (1)
- Barely/I have different views toward farming compared to nearby farmers (2)
- Sometimes/I attend special events or make donations (3)
- I volunteer sometimes and I know the issues/I have some friends nearby (4)
- I am quite engaged in my community/I participate regularly (5)
- I am very active with numerous groups/I have many friendships in the community (6)

Q2.74 Would you be interested in localizing your food production (e.g. changing some of your acreage to grow crops suitable for local fresh or minimally processed consumption)?
- Yes (1)
- No (2)
- I already sell some crops locally (3)
Q2.75 Please select any constraints to localizing production that you perceive or have experienced (select those that most apply)
- I do not foresee any financial benefits (1)
- I do not understand the possible benefits (3)
- My colleagues and community discourage me from localizing production (10)
- Not enough government support for localizing production (11)
- I do not currently have the knowledge to make such changes (5)
- I own a large amount of single crop/use depreciable equipment (19)
- I am already invested (capital and/or debt) in current crop production methods (8)
- Too much labour would be required (13)
- Extra crops could increase my time to plant, manage and harvest crops (14)
- Extra crops could increase my risk of managing poorly (15)
- Reduced ability to take advantage of off-farm employment opportunities (16)
- I am constrained by my contract with my buyer (17)
- Other (18) ____________________

Q2.76 Would you support a program that financially compensated you and nearby farmers for any environmentally beneficial practices (e.g. naturalizing areas, reducing run-off, conserving wetlands) that you initiate on and around your farm? (choose one that most applies to you)
- No, I am not interested (1)
- No, nearby farmers would not support it, and their practices may impact my farm (2)
- Yes, but I am concerned nearby farmers would not support this (3)
- Yes, and I am confident that nearby farmers would also support this (4)
- I am confident that I have already achieved high compliance/no need for further work (6)
- Other (5) ____________________

Q2.77 Do you agree or disagree with the following statement: The government (e.g. OMAFRA) supports the methods and practices used on farms like mine
- Strongly Disagree (9)
- Disagree (10)
- Neither Agree nor Disagree (11)
- Agree (12)
- Strongly Agree (13)
Q2.78 If you had no farm successors, how interested would you be to the following options?

<table>
<thead>
<tr>
<th>Option</th>
<th>Not at all interested (4)</th>
<th>Somewhat uninterested (9)</th>
<th>Unsure/Neutral (6)</th>
<th>Somewhat interested (7)</th>
<th>Very interested (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling your land to a developer (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participating in a conservation easement for agricultural land use or land donation agreement (e.g. through the Ontario Farmland Trust) (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participating in a land donation or conservation agreement with a person or group that does not currently have access to arable land (first nations community or new farmer who is unable to purchase land) (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q2.79 How willing do you think that your local geographic farm community is to accepting newcomers of different ethnic backgrounds?
- Not at all willing (1)
- Somewhat willing (2)
- Very willing (3)
Q2.80 Please select your most significant 3-4 concerns with the future of Ontario farmland ownership in the next 10 to 30 years:

- Young farmers will not replace older farmers (1)
- Farmland will be increasingly contaminated/degraded (11)
- Farmland is not accessible enough for new farmers (2)
- Farmland is not accessible enough for immigrant farmers (3)
- Farmland will be reduced/converted for non-farm purposes (i.e. residential or commercial) (4)
- Farmland will be purchased by foreign land buyers (5)
- Farmland will be purchased by immigrant farmers (6)
- New farmers are using poor methods and will degrade the land (7)
- New farmers will not succeed in the farming economy (8)
- Immigrant farmers are using poor methods and will degrade the land (9)
- Other (10) ____________________

Q2.81 Are there any unique features or issues concerning your farm that you would like to mention?

Q2.82 Please provide your email address to receive your gift card:

Q2.83 Do you agree with being contacted at a later date for a possible follow-up interview?

- Yes (1)
- No (2)

Q2.84 Please provide your preferred method of contact:

- Phone: (1)
- Email: (2)
APPENDIX 4: INTERVIEW GUIDES

Farmer Interview Guide

1. Describe why and how your family began farming. What drives you to be a farmer?

2. What is the structure of your farm
   a) How many staff? Family owned and run?

3. How has your farm changed over time?

4. What have been the most difficult changes to adapt to on your farm?

5. Are there things that you want to change in the near or medium future on your farm? What are your barriers to making such changes?

6. Do you feel you have a particular relationship with/toward your land? If so, could you describe it? Is it different for owned land and rented/leased land?

7. Describe your understanding of, or your interest in, social movements such as local food, heritage food, or food sovereignty. What do these movements mean to you as a farmer?

8. You responded in the survey that you would/would not be interested in downscaling your production or shifting your production toward local, fresh markets (pulses, grains, or horticultural crops). Why?

9. What does ‘organic farming’ mean to you as a farmer? What is your perspective toward organic practices and certification?

10. Who do you confide in most frequently, concerning farming and related methods, issues, questions, and concerns?
   a. How do your family, friends, and farm community inform and influence your practices?

11. What are your perspectives toward climate change and its possible impacts for your farm?
   a. What, or who, do you think has helped to shape these perspectives? How have they been shaped?

12. What are the greatest economic obstacles for you as a grain farmer?

13. Economically, what have been the least and most viable crops for you to produce over time? Why?

14. What, in your view, has been the cause of the (increase/decrease) in income over the past 10 years on your farm?

15. Has the size of your farm impacted what you produce, how you produce it, or any other economic or social characteristics of your farm?

16. Are there other factors, beyond economics, that are influential to your farming practices but hasn’t been mentioned yet?

17. As a grain farmer a lot of the crops you produce are used for livestock, fuel, and other processed products, how do you feel about that?
   a) For instance, that they are not directly feeding people?

18. Dependent on their response to the question:
    Are you interested in participating in a conservation easement for agricultural land use or land donation agreement (e.g. through the Ontario Farmland Trust)
    Could you elaborate on why you selected _________
19. Dependent on their response to the question:
   Are you interested in any alternative/collective forms of land ownership/sharing with communities who
   have been/are marginalized and/or do not have access to land (newcomers to Canada, aspiring young
   farmers without land, indigenous communities, etc.)
   Could you elaborate on why you selected ______

20. Dependent on their response to the question:
   Is your community open to newcomers
   of different ethnicities? If possible, provide examples, without
   naming individuals.
   Could you elaborate on why you selected ______

   a. Why is this the case? For instance what are the benefits of this perspective
   What are the costs/pitfalls?

21. How do you feel about the fact that this land was made available to farmers like yourself through
   colonization-or the taking of land from another group of people?

22. If not mentioned, what is your perspective toward the current neonicitinoid issue? Do you support the
   ban, why or why not?

**Policy Expert Interview Guide**

1. Could you describe your role/position at _____?

2. What are your thoughts concerning trends in farmland ownership and rental in Ontario agriculture? How
   has it changed over time?

3. Do you see any relationships between land ownership and ecological sustainability, or soil health
   specifically?

4. Cover crops and rotation complexity are argued to be important for soil health and resilience, could you
   speak to any barriers for adoption that you have observed?
   - Do you see any connections here with changes in land ownership and competition for land?
   - Consolidation?

5. Do you see any relationships between land ownership and farm economic sustainability, or farmer
   livelihoods specifically?

6. Do you see any struggles or conflicts over assets and land occurring in conventional agriculture based on
   certain farm characteristics? Such as farm size, assets, practices, or location etc.
   - What do they look like?

7. Do you see any differences in agricultural knowledge acquisition occurring between any of these same
   characteristics?

8. What are your thoughts on trends toward farmland consolidation in Ontario agriculture specifically?
   How is this impacting farmers and land?

9. What are your thoughts concerning the role of the government in farmland politics in Ontario?

10. How have you seen the role of OMAFRA change over time?
    - Some farmers have said that OMAFRA’s support for farmers has declined over the past 10
      to 20 years, what are your thoughts on this?
• Has OMAFRA, or yourself personally, observed any changes to working with farmers as the influence of private companies in the farm community has increased?

11. Describe your thoughts on the role of improving access to agricultural land ownership compared to increasing access to short-term labour markets in Ontario agriculture?

12. What role do you see agri-business corporations playing in environmental sustainability on Ontario agriculture?
   • What about social sustainability, or farmer livelihoods rather?

13. What role do you see food movements playing? –Local food and food sovereignty specifically.

14. What role do you see policy playing in improving land access and soil health?

15. Are there trends toward intergenerational consolidation occurring? Does this pose issues for new farmers?

16. How have you seen conventional producers respond to the government’s promotion of local food production?

17. What have been the most effective/successful environmental programs and practices at the farm scale? Why have they been successful? How do you measure success?

18. Describe your thoughts concerning the social and cultural barriers to transitioning to more sustainable/organic methods in Ontario agriculture.

19. Describe your thoughts concerning the political barriers to transitioning to more sustainable/organic methods in Ontario agriculture.

Gender Focus Group Guide

Background and research interest:

The reason I wanted to hold this focus group is because in my in-depth interviews with male farmers and OMAFRA staff, themes emerged around both issues of gender and relationship building. Specifically, that the conventional agricultural culture is a gendered one. And the relationships between farmers and agricultural institutions are masculine, or male dominant. I’ve observed that not only are there very few women present at various agricultural meetings, conferences and forums, but their roles seem to be marginalized. Today, I wanted to explore this theme further by discussing the experiences of women working in OMAFRA. So, hopefully we can discuss what your sense and experience is of the role of gender in OMAFRA institutional culture, and between OMAFRA and the farming community.

1. Describe your role(s) in OMAFRA.

2. Describe your experiences at OMAFRA related to your role and interactions with colleagues (specifically concerning gender).

3. Please describe some main social and cultural trends that you have observed in the institution. Are they related to gender? How would you describe the culture of the institution?
4. Have you attempted to propose or implement any changes, however small or large within the institution? This could be policy, practices, language, or behaviors. If so, did you experience any barriers to such proposals? If not, can you identify a reason why you have not?
   a) Describe your thoughts concerning social, political or gender barriers to having your voice heard in the institution.
   b) Describe your thoughts concerning social, political or gender barriers to affecting change in the institution.

5. What do you think would need to change for these barriers to be overcome?

6. How have you seen this institutional culture play out in OMAFRA’s work and relations with the farming community? 
   So how does gender play out when doing actual fieldwork in the farm community?

7. In terms of relationship building across communities in the food system, how have you observed that alternative food movements (such as groups advocating for organic, sustainable, or food sovereignty agendas), how are being perceived by conventional farmers and farm communities? Why?

---

**Food Movement Focus Group Guide**

**Background and research interest:**

The reason I wanted to hold this focus group is because during my in-depth interviews with conventional farmers and OMAFRA staff, themes emerged around relationships and connectivity. Specifically, that conventional agriculture has a strong, and rather insular set of networks between farmers, OMAFRA and agribusiness. This is despite the fact that many small and medium sized farmers are losing out, and feeling hopeless within the conventional system. On one hand, I see a strong opportunity for the food movement to build connections with these ailing farmers. But through my interviews, I found that farmers felt very alienated and disconnected from the food movement, while still remaining strongly connected to agribusiness. I am not assuming fault here on either party, I am more interested to know how food movement actors understand and experience these relationships. Today I want to explore this further by discussing your perspectives toward and experiences with farming communities and networks as people working within the food movement. This of course doesn’t have to be just, experiences with, but also the lack thereof, or challenges with making connections and building bridges. As well as, how do you feel you, and the food movement more broadly, are being perceived by conventional farmers and farm communities?

---

1. Describe the work that you do, and what you see your role to be in the food movement.

2. How do you feel you, and the food movement more broadly, are being perceived by conventional farmers and farm communities?

3. What do you think is the role of the food movement with respect to agribusiness?

4. What do you think is the role of the food movement with respect to conventional farmers?

5. Have you or your organization attempted to make connections with the conventional farm community? If you have, identify some challenges/barriers. If not, can you identify some reason why you haven’t?
   If they don’t understand: For instance, it could be that you think its completely pointless, or you may have heard of prior instances where it didn’t go well?
6. Have any aspects of your social position, such as age, gender, race, income, education, political views, language, culture, etc. influenced your interest or ability to connect with conventional farmers and farm communities?

7. Within the context of these goals and this network of relationships that we just discussed between farmers, agribusiness and the food movement, have you observed or experienced gender, as in your gender or the gender of another person, playing a role in this overall dynamic and network? Example of my experience.
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