

**Farmer Knowledge in Alternative Agriculture: Community Learning and the Politics of Knowledge**

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## **Abstract**

This research examines the obstacles and opportunities experienced by new alternative and agroecological farmers as they seek out farming knowledge in Canada and how this contributes to the shaping of farmer subjectivities. Canada is facing a looming farm and food crisis; the barriers of accessing land and capital are becoming more significant for new entrants as well as disrupting the tradition of intergenerational knowledge transfer. Canada needs food and farming systems that not only tackle environmental problems, but which also address systemic oppressions and inequalities, while emphasizing local, grassroots knowledge and community-based economies. The goal of this research is to understand how knowledge and power determine farmer subjectivities, particularly for the new generation of alternative farmers in Canada. This research considers how new alternative farmers are shaping their own narratives, attitudes, and behaviours by cultivating their own subjectivities through collaborative learning initiatives. This process and its implications for the Canadian food system build on the theories of governmentality and environmentality, power/knowledge, learning communities, and social networks and assemblages. Primary data was collected through a national online survey of new and aspiring farmers and interviews conducted with new farmers and mentors in Manitoba and Ontario. This research explored the findings from multiple theoretical and methodological angles and includes an examination of the influence of the state in the historic formation of settler-farmer identities on the Canadian Prairies, the interactions between capitalist state and civil society actors in the establishment of food safety regulations in Canada and the US, and new farmer knowledge and learning in Canada. The findings indicate a tension between the ‘common sense’ definitions of farming as productivist or agroecological, and neoliberal or non-capitalist. New alternative farmers in this research rely on informal learning communities and social

assemblages to overcome the challenges created by a lack of institutional support for training in alternative agriculture. The farmers studied demonstrated how these networks are helping them learn about agroecological practices while also providing a supportive culture that redefined ‘good’ farming beyond productivism. Together, this dissertation explores the transformational potential of new farmers in the Canadian food and farming systems.

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## **Contributions of Author**

*Chapter 5: Governments, Grassroots, and the Struggle for Local Food Systems* is a co-authored paper that has been published with *Agriculture and Human Values*. I participated in the collection of case study data and led the data analysis and writing of this paper and determined the theoretical direction of the paper. I was also the primary contact with the journal. However, I was not involved in the initial data collection and the co-authors (Anderson and McLachlan) contributed revisions and recommendations. I took the lead on the research design, data collection and analysis, theoretical orientation, and writing of the chapter-articles in Chapter 4, 6 and 7.

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## **Chapter 1: Planting the seed**

This research encounters the many conflicting views of what an ideal farmer ought to be, how this identity or subjectivity is governed and how farmers and other citizens resist and circumvent those pressures both through collective action and individual agency in the complex process of subject-making. In the context of an increasingly industrial, productivist, and neoliberal food and farming system that is environmentally dangerous in terms of pollution, degradation, and climate change (Altieri 2010, Miller 2008, Cushon 2003, Hecht 1995), exploitative of farmers, farm workers, and interns (Weiler et al. 2016, Diaz and Stirling 2003, Gouveia and Juska 2002), contributes to poor health and food insecurity (Weiler et al. 2015, Wiebe and Wipf 2011, Koc et al. 2008), and intensifies the decline of rural communities (Qualman 2011, Pawlick 2009), the problems can appear overwhelming and thus difficult to imagine radical non-capitalist, just, healthy, and sustainable ways to feed communities (Healy 2014). Even the so-called local, organic, or natural food production practices that were promoted as a way to address these problems continue to struggle with the injustices and oppressions that are inherent to capitalist economies built on colonial legacies (Busa and Garder 2015, McMahon 2013, Goodman et al. 2012, Mares and Alkon 2011, Tovey 2009, Guthman 2008, Allen 2008, Slocum 2007). Rebuilding food systems, and their associated economies, communities, and institutions, requires careful reflexivity, empathy and compassion, and patience in order to address the systemic and deep-rooted oppressions (Sbicca 2015, Goodman et al. 2012, Gibson-Graham 2008). Collective and individual action ought to be grounded in the assemblages of intersectional justice work that challenges everything from the everyday injustices and micro-aggressions to the acute and terrible violence of the contemporary food and farming system (Sbicca 2015, Trauger 2009).

Farmer knowledge, both as the practical skills of farming and the rationales behind these decisions and actions, provides a unique opportunity to understand the relationship between individual farmer agency, collective action, and institutional influence as these relate to farmer subjectivities. Farmer knowledge also presents an opportunity to explore the origins and roots of food systems change as farmers work to rebuild lost skills and knowledge and work with eaters to build sustainable food systems by shifting attitudes and behaviours and thus subjectivities themselves (Sachs et al. 2016, Hassanein 1999). Knowledge, whether in the form of local traditional farmer knowledge or institutional knowledge, is both influenced by and shapes subjectivities as these relate to culturally and socially accepted norms and ‘common sense’ understandings (Burton 2004, Hassanein 1999).

Meanwhile, the politics of farming knowledge reflect a complex set of relations between governments at all levels, university researchers, farmer organizations, economic pressures and trade agreements, consumer demand, media, and the environment. A key part of this relationship is the creation and dissemination of knowledge around farming practices and economic relations (Goodman et al. 2012, Hassanein 1999). The creation of farmer subjectivities and subject-making through state governance, corporate institutions, and collective actions means that farmer identities are often found somewhere along a continuum of peasant agrarianism to technocentric agribusiness (McGuire et al. 2013, Harris 2009, Gibson-Graham 2006, Burton 2004). The farmer subjectivities that are formed through these political interactions are also rooted in place; they are embedded within the soil, microbes, seeds, non-human and human actors that surround them and that are coevolving continuously. Farmers respond to positive reinforcement, through government financial support, peer and consumer respect, or improved yields, and negative

dissuasion, through regulatory barriers, lack of infrastructure, or path dependency, in a complex process shifting attitudes and behaviours (Burton 2004).

In this research, new and aspiring farmers, as well as experienced farmer mentors, in Canada are asked to discuss the political dimensions of their knowledge and how they address the challenges they faced finding knowledge that matched their farming identity. The focus is on farmers who are practicing alternative agriculture, that is, farming based on agroecological principles and community-based economics, since their farming knowledge is often marginalized with few institutional supports from universities, government, or corporations. As a result, these farmers are often engaged in daily acts of resistance and are therefore sensitive to the effects of politics and governance on their lives. In contrast, farmers engaged in conventional agribusiness have research funding and infrastructure to facilitate their efforts to gain knowledge and make a livelihood (Luymes 2012, Wittman 2011, Burton and Wilson 2006). The purpose of this research is to understand the confluence of farmer subjectivities and farmer knowledge and the implications this has on food systems and environments.

The overall objectives of this dissertation are multi-faceted and are designed to understand:

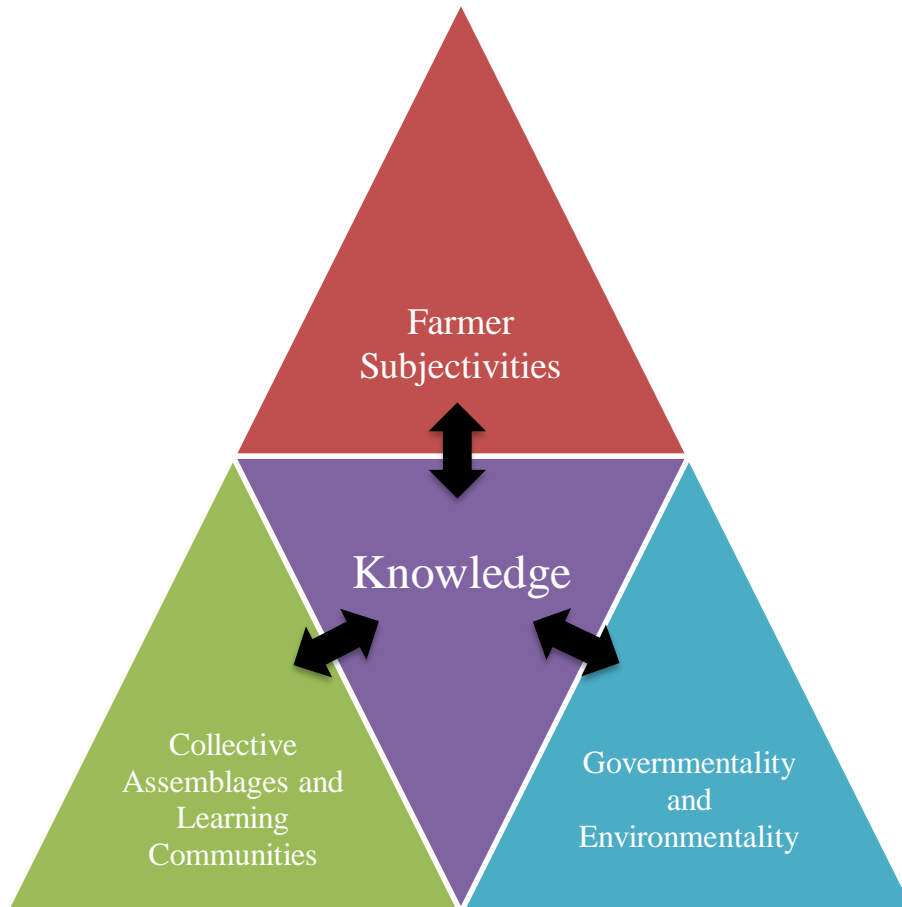
1. The formation of farmer identities and the influences on their subjectivities focusing on the role of state and institutional actors, collective actions, and agency using theories from Gibson-Graham (2006) and Foucault (1991). In Figure 1.1 this is represented by the relationship between the components at the base of the triangle as they influence farmer subjectivities at the top.
2. The relationship between knowledge and power and the effects this has on the information that new alternative farmers can access. Feminist and post-structuralist

theories around the co-constitution of power and knowledge (Hassanein 1999, Foucault 1979) can illuminate the tensions between agricultural science and localized knowledge, between experts and farmers, between capitalist and community-based economies, and between agroecology and agribusiness. This research also considers the effects of these narratives on farmer knowledges and subjectivities on those who want to practice alternative and agroecology farming (Haggerty et al. 2009, Harris 2009, Burton 2004). In Figure 1.1 this is demonstrated on the right side of the triangle as the relationships among governmentality, knowledge, and farmer subjectivities.

3. The facilitation of creative and collaborative processes to help create learning communities for new alternative farmers by enabling peer learning (Morgan 2011, Oreszczyn et al. 2010, Warner 2008, Percy 2005). Deleuze and Guattari's (1987) metaphor of rhizomes as the subterranean and labyrinth-like ways that ideas and values are shared organically without discernable direction is important to understanding the role of these learning communities as they may or may not contribute to social change. Figure 1.1 shows this as the relationships on the left side of the triangle among networks and assemblages, knowledge, and farmer subjectivities.

As a whole, this research considers the implications of interactions between farmer subjectivities and knowledge, between knowledge and the power of governmentality, and between knowledge and the power of social networks/assemblages (Figure 1.1).

**Figure 1.1 A theoretical framework: Connecting knowledge to farmer subjectivities, social networks and assemblages, and governmentality**



The chapter-articles in this dissertation represent four different conversations regarding the objectives above in an effort to understand the interactions between farmer subjectivities, governments and institutions, collective identities, and knowledge in Canada. Some of these encounters were planned in advance and scheduled during the process of writing my proposal, while others arose from circumstances during my time as a doctoral student and as iterations of previous stages of research. This thesis is one part of the story of new alternative farmers by considering the ways that knowledge and community have helped them establish their

agricultural lives and the challenges they have faced from government regulations and lack of support. The farmers in this story come from across Canada but there is a special focus on the regions of Manitoba and Eastern Ontario as two areas with emerging local and sustainable food systems. This thesis also represents my own journey as a researcher, scholar, activist, farmer-gardener, and community organizer. It includes examples of opportunities that I have had to engage with farmers, by not just collecting their stories, but also by working with them in community meetings, campaigns, and coalitions. I would like to think that my role has been not simply to record these events, but to provide support and to assist in activities that are working towards improving the ability of new farmers to engage in a livelihood that they love.

In the first chapter-article of this thesis (Chapter 4), the concept of environmentality will be used to examine the history and geography of farming on the Canadian Prairies. Environmentality, or eco-governmentality, examines the ways that state institutions change discourses around human-nature relations using Foucault's (1994, 1991) concept of governmentality (Thorpe 2012, Kosek 2006, Agrawal 2005, Braun 2002). In this process, environmental subjects, that is the collective and individual identities of farmers and also Indigenous people, are shaping and have been shaped by environmental objects including soil, water, and seeds that have transformed the rural landscape of the Prairies. Using environmentality concepts allowed me to explore the first two objectives of this dissertation as it relates to both the formation of settler-farmer subjectivities and the interactions between power/knowledge in early Prairie agriculture, which also have reverberations on the contemporary experiences of new alternative farmers. This chapter-article is primarily exploratory and theoretical and relies primarily on historical data and secondary sources to determine if the concepts apply to the Canadian Prairie context.

The second chapter-article (Chapter 5) explores the impacts of and barriers created by food safety regulations on small-scale farmers interested in providing small-batch or niche products. This collaborative project looks at the North American context of the barriers facing farmers and has now been published in *Agriculture and Human Values* (Laforge et al. 2016). This chapter-article explore how governmentality, this time in the form of neoliberal, industrial, and productivist agriculture systems, manipulates the behaviours of farmers and how grassroots, alternative food systems actors are responding (Miewald et al. 2015, Thompson and Lockie 2013, McMahon 2013, Stuart and Worosz 2011, Hatt and Hatt 2011). A four-part framework was developed that contrasts the use of governmentality (Foucault 1991) to *contain* or *coopt* development in the alternative food system with ‘politics of possibility’ (Gibson-Graham 2006) acts by farmers who are both *contesting* government regulations and *collaborating* on their transformation. Using governmentality and the ‘politics of possibility’ allowed once again for the first two objectives to be considered, but this time in a contemporary context and with more obvious collective and individual resistance to the efforts of a capitalist state to direct farmer behaviours. This chapter-article explores the influences on farmer behaviour, the role of governments in constraining alternative agriculture, and how collective action is contributing to food system change.

Knowledge plays a significant role in farmer identity and subjectivity. My third chapter-article (Chapter 6) examines the ways that both conventional and agroecological farmers have their knowledge limited by institutional actors who are attempting to universalize agricultural knowledge and thus minimize the importance of local knowledge. The frictions created through the interactions of universalized and local knowledges can result in scars on the landscapes due to a lack of careful, detailed, local observation and the application of practices that were created



elsewhere (Tsing 2005, Hassanein 1999). The relationship between power and knowledge highlights the importance of recognizing situated and everyday knowledge as an act of political empowerment (Sachs et al. 2016, Thompson and Lockie 2013, Conway 2006, Cruikshank 2005, Simpson 2004, Hassanein 1999, Foucault 1979). Highlights from my work on the 2015 National New Farmer Coalition survey highlight the differences and similarities in learning that are gendered, regional, and based on the type of farming done by new farmers. This chapter explores the second objective by bringing together discussions on the power/knowledge connections in agricultural science and training. This chapter contributes to the literature on new alternative farmers in Canada, their background and demographics as well as their motivations and interests and how these fit within the mainstream food and farming system.

My fourth and final chapter-article (Chapter 7) examines the ways forward for new farmers through informal and social learning, and will consider the importance of networks and assemblages in transformational food systems as facilitators of local and alternative farming knowledge. I explore how these specific learning community networks vary and also how they fit within relational and heterogeneous assemblages. I describe the food system assemblage as a metaphorical mycorrhizal structure as a metaphor to explain non-hierarchical organizing (Funke 2012, Ferreira and Devine 2012, LeGreco and Lenard 2011, Le Grange 2007, Deleuze and Guattari 1987). Assemblages and rhizomes are useful ways to explore power by focusing on its relational qualities (Levkoe and Wakefield 2014, Escobar and Osterweil 2010), while networks provide a practical way to understand how farmers are sharing knowledge (Hassanein 1999). Together these two concepts contribute to a theory and praxis of new alternative farmers and other community actors who are working to address the status quo in Canada. This chapter focuses primarily on the final objective by exploring the details of learning processes and the

practices that new farmers are employing to facilitate their learning and contribute to social change.

As a final undercurrent to this dissertation is the idea of socio-nature as a concept to explain how both social relations are inherently ecological and ecological relations are inherently social and the ways in which this applies to food (Alkon 2013). The concept of socio-nature builds on the foundation of human geographers including Cronon (1995) and Castree and Braun (2001) who have explored the implications of how nature/wilderness and society/civilization became binaries and what would happen if the natural was framed as social and the social was understood as natural. The concept describes a hybrid relationship of social and natural processes. Socio-nature is used to explore how food can provide symbolic and literal potential to confronting and resisting neoliberal capitalist hegemonies and contributing to social change. As the socio-nature of food has been transformed, the way that we know food has also changed. This understanding of the socio-nature of food is implicit in everything that has been written in this dissertation. Applying this understanding implies not privileging the biophysical characteristics and importance of food over the socio-political or vice versa and asserts that, “nature is inseparable from inequalities of race, class, gender, national status, etc. and from the capitalist processes that are foundational to their (re)production” (Alkon 2013, 677). At the same time, using the concept of socio-nature also means resisting the romanticism of local, organic farmers and continuing to push for a food system that values food workers, farmers, labourers, as well as plants, animals, and soil. Finally, using the concept of socio-nature, challenges us to consider the hidden histories of the food system since as Peluso (2012) writes, “understanding how history is told or remains untold is an essential part of the politics of knowledge production,

but also of human experience and mobilization for change” (80). Socio-nature is used as a heuristic device or method of interrogation throughout this dissertation.

Before delving into theoretical preoccupations, I provide an outline of the biophysical, historical, sociocultural, political, and geographical context of farming in Canada. Since very little research has been done looking at the experiences of new farmers in Canada, the experiences of new farmers in American and European contexts will also be considered. Finally, this introduction includes a description of the organizational landscape in Canada, including organizations that work directly with new farmers, but also those who address questions of food sovereignty and food justice. Chapter 2 provides the logistical and methodological details of the research conducted in this dissertation. A comprehensive literature review in Chapter 3 provides more details on the theories, concepts, and ideas used in the subsequent chapter-articles and highlights the gaps in the literature and explores the rationale to engage in certain literature.

As a sandwich-style thesis, the narrative structure of this dissertation requires that each chapter-articles be preceded by a pre-introduction that provides context and explains the overall flow and connection of ideas in the chapters. Each chapter-article is presented in such a way as to build an argument of the influences on farmer subjectivity and knowledge starting from the challenges facing new alternative farmers and building to the ways that resistance is growing and social change is coming from the networks and assemblages of grassroots actors. Many of the concepts and theories presented in the literature review in Chapter 3 are explored from multiple angles as they are applied differently in each chapter-article. The impetus for this repetition is to emphasize the multiplicity and hybridity in understanding and applying these theoretical concepts. I hope that by demonstrating the flexibility of these theories, others will continue to

build on these ideas and their application. However, it is important to begin by demonstrating the specific historical and geographical context and motivations for this research.

### **1.1 The history and geography of agriculture in Canada**

Historian Peter Russell (2012) suggests that agriculture *made* Canada in his examination of the history of settlement and agriculture as it progressed from east to west. While agriculture and settlement were central technologies in colonial visions of the nation, the argument could also be made that Canada *made* agriculture. That is, the history and geography of Canada shaped agriculture as much as agriculture has shaped the history and geography of Canada. For example, soil quality and depth meant that the Canadian Shield prevented agricultural interests from expanding into this region. The deterritorialization of Indigenous communities and the erosion of their histories and geographies occurred when the settlement-agriculture process intersected and overlapped. This section explores how these processes have shaped each other while also shaping the identities of farmers themselves alongside the power-laden dynamics of settler and Indigenous relationships. Although initial colonial interest in Canada did not include agricultural aspirations (Russell 2012, Epp 2008), the drive for raw natural resources is not that far removed from the conversion of wilderness into agricultural fields (Coulthard 2014). Both practices demonstrate capitalist attitudes of harnessing and harvesting allegedly underutilized resources either by converting trees into lumber or converting forests into fields (Lowman and Barker 2015, Coulthard 2014, Cronon 1995). Agriculture was also a way to justify settlement through the colonial project (Russell 2012).

Canada's farming history is predicated upon processes of colonialism, immigration, and dramatic and massive-scale environmental transformation, which are grounded in financial

aspirations. Despite efforts to deterritorialize them, Indigenous people in Canada continue have a relationship with the land as a source of food and spiritual and cultural meaning that has also been found to include farming and gardening (Carter 2016, Lowman and Barker 2015, Massie 2014, Russell 2012, Tang 2003). Most traditional Indigenous agriculture in Canada before the arrival of Europeans included minimally invasive practices included scattering seeds and returning later to harvest what had grown, such as wild rice, or clearing plants that contributed weed pressure and would have reduced crop yields from desirable wild plants like blueberries (Massie 2014, Russell 2012, Davidson-Hunt 2003). Due to the subtlety of Indigenous food provisioning, it was poorly observed by Europeans when they arrived but also, much of this history has been obscured, erased, and then replaced with a narrative of an uncivilized, and precarious food systems built upon hunting practices or wild gleaning (Massie 2014, Russell 2012). The erasure of this history served to legitimize the arrival of settlers who were characterized as being better suited to using the land productively through agriculture exports (Coulthard 2014, Russell 2012, Epp 2008).

If Indigenous people could be shown to be struggling on a subsistence diet, then the agriculture of Europeans was logically better suited to ‘civilizing’ the wilderness of Canada. This process of massive settlement was facilitated by the negotiation of the Numbered Treaties in Western Canada with Indigenous nations as well as the construction of the railway to facilitate movement of settlers (Epp 2008). These treaties were negotiated between the Crown and Indigenous Nations after the Royal Proclamation of 1763 laid out the constitutional foundation and principles of treaty negotiations (Hall 2011, Epp 2008). The treaty process was fraught with difficulties as nations brought different expectations and understandings to the process, which has contributed to the many contemporary conflicts over treaty interpretations and administration

(Craft 2013, Hall 2011). While the Canadian government often behaved as though treaties were real estate deals that extinguished Indigenous land rights, Indigenous people, such as the Anishinaabe during the negotiation of Treaty One, comprehended these as sacred agreements between autonomous people to share land and resources in kinship relationships (Craft 2013). Additionally, conflicts continue due to interpretation of treaties that indicate that the Canadian government holds a fiduciary responsibility while Indigenous people also have the right to self-government, concepts that have proven difficult to reconcile.

Treaties formalized settlement in a process that was often volatile and included wars, rebellions, armed conflicts and massacres, but also featured coercion and economic incentives. This violence and assimilation paved the way for European settlement to expand gradually from east to west. The Canadian economy at Confederation was built upon the assumption of the availability of natural resources including fur and timber and when the availability of these began to slow down, the push for agriculture increased (Russell 2012, Kuyek 2007, Loo 2006). Settlement in Ontario, Québec, and Atlantic Canada took place in the pre-Confederation era, happened in a more gradual and organic fashion with land parcels determined in a more piecemeal fashion in comparison to the elaborate settlement plan for the Prairies that took place after Confederation and the construction of the railway (Duncan 1996). When eastern Canada was settled, the initial goal was not to produce food through agriculture, so most farms were established only after timber and fur reserves had been exhausted and workers settled primarily on subsistence farms (Russell 2012). The push for settlement increased on the Prairies, in the 1880s and 1890s in Manitoba and 1900s and 1910s in Saskatchewan and Alberta, as the Homestead Act made land affordable for many immigrants (Russell 2012, Waiser 2005, Owram 1980). Settlement and agriculture slowed after 1921 year when the last Numbered Treaty on the

Prairies was signed and new treaties were negotiated in small parts of British Columbia. Settlers in British Columbia did not see the lack of treaties as a barrier and often bought and sold land before treaties were negotiated (Epp 2008). The Canadian government sought to encourage settlement through treaty negotiation, immigrant recruitment, building railways, and the Homestead Act in order to guarantee its sovereignty and transform the landscape from wilderness to a patchwork of fields of wheat, canola, soy, corn, and flax today.

Canada's biophysical characteristics and the ways they varied regionally also impacted the development of agriculture. Soils across Canada vary significantly by fertility and depth and while these characteristics contributed to the settlement of immigrants, the soil itself was also affected by the actions of immigrants (Russell 2012, Savage 2004, Soils of Canada n.d.). Other qualities such as water quantity and quality and climate also limit agriculture's range in Canada, while at the same time contributing to the ways seeds and crop production have developed over time since the arrival of Europeans (Marchildon 2009, Savage 2004). Developments in agriculture science since settlement have contributed significantly to these changes (Kuyek 2007, Szego 1995, Skogstad 1987). For example, farmers have long known that soil fertility decreases over time and if fields are not given a chance to regenerate, they become less productive. However, how this fertility is managed has changed from practices of summer-fallowing and spreading of animal manure to the addition of fertility through green manure or chemical fertilizers (Cunfer 2004). Changes in farm management practices and technological advances resulted in changes in the physical and cultural landscape, from the ploughing of native grasslands and removal of trees, the draining and shifting of wetlands, the mass extinction of species including the bison, to the transformation of the traditional home of Indigenous people into a settler-farmer occupied territory.

Gradually, regional specializations began to emerge elsewhere in Canada, often due to differences in policies and sometimes because of climatic conditions. For example, Atlantic Canada became the largest producer of blueberries in Canada, Québec specialized in dairy, Ontario has focused on corn and soybeans, the Prairies became a breadbasket of grains and oilseeds, while BC specialized in fruit trees and vineyards (Statistics Canada 2016c). Very few of these crops are native to Canada and many arrived with immigrants themselves. These seeds (and also the animals produced on farms) have biophysical qualities that have changed over time as the seeds were bred for the Canadian climate, they have also seen social and cultural relations change around them. The establishment of university research and agricultural programs facilitated much of this regional specialization, which was also aided by the centralization and institutionalization of public research in Canada as directed by the federal government.

While the United States began establishing their land grant universities for agricultural research and development in 1862 (Hassanein 1997), there was never an equally vigorous system established in Canada (Kuyek 2007). However, equivalent agricultural faculties did emerge, usually at one university in each province, notably Dalhousie University in Nova Scotia, McGill University in Québec, Guelph University in Ontario, University of Manitoba, University of Saskatchewan, University of Alberta, and the University of British Columbia. These faculties developed strong diploma and certificate programs to help farmers learn a variety of farm practices and business skills. They also housed research on crop and animal breeding through their graduate programs, gave tours to farmers, and answered agricultural questions through an engagement in public research and extension. These programs transitioned towards a corporate and neoliberal model of industrial, mechanized, and biotechnology-based agriculture starting in the 1980s, in part as a response to the decrease in public funding available for university research



and an increase in corporate sponsorship (Diaz and Stirling 2003, Kuyek 2007, Kneen 1990). The changes at Canadian universities reflected a larger political and economic shift towards a neoliberal model of capitalism that saw a reduction in regulations and emphasis on free markets (Kneen 1990).

Meanwhile, the federal and provincial governments have been active in the promotion, and development of agriculture since an 1868 Act of Parliament established the federal department system (Kuyek 2007). Their activities relating to farmer learning were accomplished through two avenues: extension services and public research. Extension services in Canada were a way that farmers sought information on new technologies or practices or could get information to assist with specific problems on their farm (Milburn et al. 2010, Gill 1996). From 1914 to the late 1990s, the provincial and federal governments in Canada provided this important information (Jones 2013). Meanwhile, with respect to public research, Canada's first experimental farm was established in Ottawa in 1886 and was part of the Dominion Experimental Farm project which also saw the establishment of farms in Nappan, NS; Brandon, MB; Indian Head, SK; and Agassiz, BC (Jones 2013, Minister of Agriculture 1925). These research farms worked on developing practices in animal husbandry, crop rotations, horticulture and ornamental plants, and the prevention and treatment of animal and plant diseases through a national network of nineteen research stations across the country (Minister of Agriculture 1925). These programs were ultimately ended due to changes in information technology and the ease with which new information could be accessed through the Internet, but also because of the same neoliberal influences on the economic and political landscape that changed funding structures for governments as well as universities (Milburn et al. 2010). Currently in Canada, agricultural funding is administered by Agriculture and Agri-Food Canada's Growing Forward framework

which provides only basic funding guidelines and passes accountability to the provinces, but which leaves significant gaps in its approach (Wittman and Barbolet 2011). These gaps are often filled by either corporations, if there is a profit to be made, or non-profit organizations, if there is no significant profit available (Eaton 2013). The next section will explore how this history and geography influenced the contemporary politics and power dynamics of food and farming systems in Canada.

## **1.2 Power, politics, and conflict in Canadian food systems**

The combined influences of mechanization, industrialization, capitalism, globalization, and neoliberalism have dramatically transformed the global agri-food system in less than a century (Andrée et al. 2014, Wittman 2010, Pimbert 2009, Patel 2005, McMichael 2000). Processes of mechanization and techno-scientific development have resulted in an increase in the scale of agriculture, while also increasing yields and input costs (Cunfer 2004). Mechanization and industrialization have also changed how food is processed, transported, sold, stored, and cooked. Together, these practical, market-based, and relational processes have also resulted in increasingly uneven power dynamics in the food system while also changing the ways Canadians interact with their food on a daily basis. In particular, the commodification of food has resulted in a physical and symbolic distancing between food consumers and the places and people associated with the production of food (Akram-Lohdi 2013).

It is important to include a discussion of politics and power when talking about food and agriculture systems, as knowledge, including farming knowledge, is ultimately an expression of power. In the modern food system, ‘truth’ has increasingly become the reductionist and positivist scientific knowledge used by universities and corporations employing scientists to solve

questions that are framed as solely technical in nature (Warner 2008). For example, the Green Revolution of the 1960s popularized the notion that solutions to increasing global food demand would come from the socio-technical development of high yielding crops and agricultural chemicals (Sillitoe 1998). Science, particularly positivist science, as a technology of power is important because of its perceived objectivity (Pedyowski 2003), and can be employed to enable institutions to continue to reinforce their own value systems. In this model, some agricultural scientists can end up seeing themselves beyond the influences of culture or class, which could result in biases being further entrenched in the creation of farming knowledge (Warner 2008, Hecht 1995). The influence of scientific knowledge and its deep ties to capitalist interests have pushed some local and traditional farmer knowledge to the margins (Goodman et al. 2012, Warner 2008). The convergence of science and capitalism symbolically understand nature as a machine to be understood in terms of inputs and outputs, cycles, and therefore controllable through proper management (Goodman et al. 2012, Pedyowski 2003). Agroecological science and research often positions itself in contrast to this model and because of its emphasis on participatory approaches that work for and with farmers and that challenge the “fundamental problem of expert/lay power relations” while also understanding nature much more holistically (Warner 2008, 4).

Finally, the influence of capitalist and neoliberal ideologies in transforming the food system has resulted in the corporate concentration of food ownership through both vertical and horizontal integration (Akram-Lodhi 2013, Patel 2005, Knuttila 2003, Skogstad 1987). As a result of the capital-intensive commodification of agriculture, farmers are often forced to make decisions on their farms that put their ability to sustain a livelihood against the environmental health of their land (Brookfield 2008, Desmarais 2008, Cushon 2003). Globalization has only

exacerbated this tension, although Canada has long experienced the effects of export-based agriculture that has resulted in the export of key nutrients off continent (Menser 2014, Waiser 2005, Cunfer 2004, Atkinson and McCrorie 2003). Farmers selling on the global market are increasingly vulnerable to variations in currency, prices, or changes in trade agreements in addition to the local influences such as weather (Eaton 2013, Akram-Lodhi 2013, Magnan 2012). Neoliberal capitalism has also included increasing deregulation and privatization that put farmer livelihoods at risk including the eradication of supply management and marketing boards in Canada, the USA, and Australia (Christensen et al. 2016, Magnan 2015, Lawrence et al. 2013). Finally, farming premised on increasing mechanization and globalized markets is arguably detached from both the specifics of the land and consumers; that is, both the land and consumers are seen as interchangeable with other land or other consumers (Qualman 2011, Diaz and Stirling 2003, Argue et al. 2003). Resistance to the influences of globalization, neoliberalization and industrialization in food and farming systems comes in various forms, but is often framed as part of a fast-emerging and increasingly influential food sovereignty movement (Andrée et al. 2014). In fact, it has been argued that food sovereignty exists only to resist the neoliberalization and industrialization of the food regime (Holt Giménez and Shattuck 2011).

Food sovereignty in Canada has close ties to the international farmer movement of La Via Campesina, and includes two Canadian member organizations, the National Farmers Union and Union Paysanne (Wiebe and Wipf 2011). Food sovereignty emphasizes citizenship approaches that work with natural systems and called for a decreased role for corporations in the food system (Wittman 2011). It focused on rebuilding local food ecosystems and economies by calling for more recognition and dignity for those who work to grow, process, and serve food. The key principles include: calling for the decommodification of food and the emphasis of food

for people not corporations, building traditional food knowledge systems, working with nature, providing sustainable livelihoods for all food providers, localized food over increases in exports, and local control over food resources (Kneen 2011). In Canada, an additional principle was included calling for the recognition of sacred Indigenous foodways (Desmarais and Wittman 2014). In this dissertation, the term ‘alternative food systems’ encompasses the principles of food sovereignty as well as the practices of agroecology, with an emphasis on developing community-based food economies that reject the commodification of food and the capitalist hegemony.

The term agroecology is used in this dissertation to comprise all ecological and sustainable farming practices such as certified organic, permaculture, biodynamic, or pasture raised livestock. However, agroecology is more than farming practices, it also recognizes and addresses the power and political dimensions of production and how these are embedded in socio-cultural and economic systems (Menser 2014, Fernandez et al. 2013, Wittman 2010). The term was initially used most notably by Miguel Altieri (1997) to refer to the traditional practices of Indigenous people in Latin America who have developed sustainable techniques over centuries. While corporations and conventional agricultural institutions have attempted to coopt the meaning of agroecology, La Via Campesina’s grassroots and civil society approach to agroecology has reaffirmed the links to food sovereignty (NFU 2015, Fernandez et al. 2013). Agroecology is used in this research as the “integrative study of the ecology of food systems” (Fernandez et al. 2013, 116). The next section explores how these concepts are applied to the discourses and practices of new farmers in Canada.

### **1.3 Discourse and new farmers in Canada**

One hundred years ago, food in Canada was primarily locally based, not because of cultural trends or fads, but because of the limitations of communication and transportation infrastructure (Russell 2012, Friesen 2000). Yet, practices honed by previous generations - gardening, canning, and preserving - but largely left unused since the post-WWII boom in industrial domesticity, have seen a resurgence in popularity in the last decade (Elton 2010). In particular, there is increasing demand for food that does more than meet nutritional needs, but tastes good, contributes to cultural food traditions, builds relationships, and recognizes sacredness of food itself (Wiebe and Wipf 2011). Fuelling the concerns of urban consumers are popular books like *The Omnivore's Dilemma* by Michael Pollan and documentary films like *Food, Inc.*, which celebrate the wholesomeness of local and organic food (Alkon 2013, Allen 2008). The interest in local food consumption has been mirrored by increased interest in local food production. After declining for the past 70 years, there may be hope for establishing more farms in Canada as a new generation of farmers are coming from urban backgrounds and are interested in food production that is ecological, sustainable, and socially just while also creating opportunities for quality of life (Dennis 2015, NFU 2015, Monllor 2012, Elton 2010).

There are many challenges facing new entrants into agriculture in Canada, particularly those who come from non-farming backgrounds and who wish to practice less conventional forms of agriculture such as organic, permaculture, rotational grazing, and direct marketing. Not much is known about new farmers in Canada since there has never been a comprehensive study. For example, the 2011 Agriculture Census reported 24,055 farm operators under the age of 35 or 8.2% of all farmers (Statistics Canada 2016b), but did not ask how many years of experience they have or if they have a farming or rural background. While the data also show that there has

been an increase in certified organic production so that 1.8% of all operations are organic (Statistics Canada 2016c), there is no information on those using other ecological practices or how many of these operators may or may not be under the age of 35. Statistics Canada also admits that small farmers, those making less than \$10,000 annually, often representing new entrants, are under-reported (Statistics Canada 2016a), which may occur because they are growing their business and are not yet reporting farm income, they are more mobile due to off-farm jobs and therefore difficult to sample, they may exit farming before participating in the census, or they may feel that the questions in the survey are not designed to survey the type of farming they are practicing. Meanwhile research in the US and Canada has found examples of wilful blindness on the part of governments to the realities of farmers, including the systemic barriers challenging the entry of women or people of colour by identifying them as ‘farm wives’ or ‘migrant workers’ and discounting the ongoing contributions they have made to feeding communities (Sachs et al. 2016, Desmarais et al. 2011). This is despite the fact that a number of studies that have found that women are leading the way in new alternative and sustainable farming systems (Sachs et al. 2016, Trauger 2004, Hassanein 1999).

As a result, existing research on new farmers in Canada is limited. Globally, research has found trends indicating that many new farmers are coming from non-farming backgrounds and intergenerational farming is becoming less common, especially in the Global North (Takahashi et al. 2016, Calo et al. 2016, Katchova and Ahearn 2015, Ruhf 2013, Monllor 2012, Shute et al. 2011). For example, Shute et al. (2011) found that 78% of new farmers in the US who responded to their survey did not grow up on a farm. Similarly, Monllor’s (2012) research in Canada and Spain found that 78% of new farmers in Ontario came from cities while 36% of Catalonian new farmers came from a city. Given that conventional farming has become a capital-intensive

endeavour with rising agricultural debt, it is no surprise that farm families are pushing their children into other professions (Meter 2012). Research has found that these new entrants are establishing themselves in sustainable or ecological farming as a way to become more financially viable while also addressing food justice and environmental concerns (Rissing 2016, Fernandez et al. 2013, Monllor 2012, Niewolny and Lillard 2010, Mailfert 2007). They are also more able to engage in alternative farming practices since they are not experiencing *path dependency* in the same way as continuing farmers (Rissing 2016). It is easy for farmers to become entrenched in an agricultural system that values some types of farming and knowledge over others and become stuck on a productivist treadmill:

“[Farmers] cannot simply cut their existing use of fertilizer or pesticides and hope to maintain outputs, thereby making operations more profitable. They also cannot introduce a new productive element into their farming systems, and hope it succeeds. The transition costs arise for several reasons. Farmers must first invest in learning. [...] Lack of information and management skills is, therefore, a major barrier to the adoption of sustainable agriculture. During the transition period, farmers must experiment more, and incur the costs of making mistakes as well as of acquiring new knowledge and information” (Pretty 2010, 290-291).

Farming knowledge is a barrier for many new farmers, especially those who did not grow up on a farm or who may want to use marginal and alternative farming practices like permaculture, biodynamic, or holistic management (Fernandez et al. 2013, Niewolny and Lillard 2010, Hassanein 1999). Without the knowledge of how to grow vegetables or other crops, how to raise animals, or how to market and manage their farm, new farmers lack the skills, confidence, intuition, and experience to feed Canadians.

While previous generations of farmers worked to address power and politics in the food system, the opportunities and possibilities of building movements with eaters greatly contributes to this transformative potential. If indeed many of today’s new farmers are coming from cities,



they can mobilize existing relationships with urban communities using social media to build and maintain these connections and strengthen the food and farming movement (Fernandez et al. 2016, Carlisle 2015, Kneen 2011, Elton 2010). In contemporary food and farming systems, conventional farmers risk becoming specialized cogs in a very complex food chain that involves long transportation distances and multiple steps (Kneen 1990). This type of farming may not appeal to new alternative farmers in Canada, especially those from urban backgrounds, who often come with environmental, social justice, and community-based ethics and backgrounds (Monllor 2012). These alternative farmers are seeking a sense of place and a sense of community while contributing to their vision of sustainable, local food systems (Ngo and Brklacich 2014).

The term ‘alternative’ is being used very intentionally here for several reasons, but mainly because it speaks to the power dynamics that exist within the agricultural sector and the ways that small-scale and sustainable farms are often pushed to the margins. For example, the institutional influence of government and universities has become enthralled with and dependent upon neoliberal ideals that promote industrial farming. As a result, there are only a handful of universities and colleges that provide limited training in sustainable, ecological, organic, or agroecological agriculture. These include Dalhousie University, McGill University, CÉGEP de Victoriaville, Guelph University, Trent University, Fleming College, Durham College, St. Lawrence College, University of Manitoba, University of British Columbia, and Kwantlen Polytechnic University (Organic Agriculture Centre of Canada n.d., CÉGEP de Victoriaville 2016). While some of these programs are housed at the same universities as the agriculture faculties, they are often associated with environmental studies or science faculties or even social sciences and humanities and thus do not receive the same funding or feature rigorous research programs (Francis et al. 2011).

Alternative is also used to describe the types of political and economic relations new farmers are building (Goodman et al. 2012). Local and sustainable food systems can resist capitalist hegemonies by reimagining the ways that food and other goods and services can be exchanged (Blay-Palmer et al. 2016, Ballamingie and Walker 2013, Sonnino and Marsden 2006). These community economies are built upon a ‘politics of possibility’ that envisions new spatial power dynamics and new self-cultivated subjectivities, that is new ways of building community-oriented ethics and practices (Gibson-Graham 2006). The self-cultivation of farmer subjectivities is a process of both reflection and engagement with other kinds of knowledge (Bell 2004) but which I also suggest requires finding peers in order to ensure resilience when challenging cultural norms (Burton 2004). This community-oriented economic and social ethic is also found in the principles of food sovereignty (Wiebe and Wipf 2011).

Alternative also refers to the production practices of farmers, namely agroecological principles (Altieri 1997). Agroecology is about more than ecological production practices; it is also about challenging the status quo of social and political structures by moving towards food sovereignty (NFU 2015, Wittman 2010). During the data collection, attempts were made to avoid confusing or unclear terminology, thus the terms food sovereignty and agroecology were never used during interviews or in surveys, but the ideas contained within those terms were often discussed. For new farmers around the world, especially those from non-farming backgrounds, opportunities to move beyond path dependency and challenge input-intensive, export-oriented agricultural production and rebuild rural resiliency are growing (Anderson and McLachlan 2012, Monllor 2012, Shiva 2000, Duram 1997).

The ideas presented in this dissertation consider the various ways that farmer learning takes place in alternative agriculture including the work of organic extension agrologists working

for public universities, government, and private companies providing one-on-one consultations (Warner 2007, Gill 1996), farmer field schools (Anandajayasekeram et al. 2007), incubator farms (Carlisle 2015, Berman 2011, Niewolny and Lillard 2010), internships and apprenticeships (MacAuley and Niewolny 2015, Perez et al. 2010), and other informal, facilitated networks (Morgan 2011). Many of these learning processes focus on decentralized power and co-learning opportunities rather than a unidirectional process of information dissemination (Warner 2008). While programs exist in Canada to support new and beginning farmers, notably FarmStart (which in 2017 announced that it will no longer be able to provide support due to lack of funding) and the Everdale Environmental Learning Centre in Ontario (Ballamingie and Walker 2013, Monllor 2012), there is much that needs to be done to explore the ways that education in agriculture is related to the social structures influencing food and farming systems and the power relations that influence that process (Niewolny and Lillard 2010). Other notable non-profit programs that assist and train new and agroecological farmers include Atlantic Canada Organic Regional Network (ACORN) (Atlantic Canada), Équiterre (Québec), Just Food (Ottawa), National Farmers Union “New Farmer Project” (Kingston, now defunct), Manitoba Farm Mentorship (Manitoba, now defunct), Farm Folk City Folk (Vancouver and British Columbia), Young Agrarians (British Columbia) (Ballamingie and Walker 2013, Chinnakonda and Telford 2007). Collaborative approaches to fostering alternative marketing and production have been found to increase social capital, create new learning opportunities and to foster innovation amongst farmers helping to address emerging rural crises (Anderson and McLachlan 2012, Milestad et al. 2010).

Finally, the new farmers in Canada examined in this research are part of the small-holder and peasant farmers around the world who are meeting the majority of the current food needs

while resisting global discourses that continue to emphasize the need for productivist, industrial farming as a way to meet growing demand from growing populations (Holt Giménez and Shattuck 2011, Bello and Baviera 2011, Altieri 2010). While new entrants face barriers such as land access and affordability (Calo et al. 2016, Katchova and Ahearn 2015, Ruhf 2013), capital and financing (Rissing 2016), and social integration and acceptance (Ngo and Brklacich 2013, Mailfert 2007), they are also contributing to new food imaginaries and are transforming the food and farming system in Canada and beyond. The next chapter presents the methods and discusses how they are designed to acknowledge the potential marginalization facing new alternative farmers in Canada as they resist neoliberal agricultural norms and work to create their own farming narratives.

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## **Chapter 2: Methodology**

My research has primarily used mixed methods (Creswell 2013, Creswell and Clark 2007, Bryman 2006), collaborative practices (Cho and Trent 2006), and an iterative and inductive approach to analysis (Corbin and Strauss 2008, Charmaz 2004) as a way to address the dynamic landscape of farmers in Canada. These practices and methodologies amplify the voices of research participants, which is important in highlighting the experiences of marginalized communities (Cho and Trent 2006, Bailey and Jackson 2003). In particular, as a scholar, I recognize the activism of knowledge (Gibson-Graham 2008) and am acting on that responsibility by highlighting the counterhegemonic and non-capitalist projects of farmers. Furthermore, Gibson-Graham (2008) suggest that scholars reflect on the possibilities of the following questions: “What if we were to accept that the goal of theory is not to extend knowledge by confirming what we already know, that the world is a place of domination and oppression? What if we asked theory instead to help us see openings, to provide a space of freedom and possibility?” (619). They go on to suggest that it is important to not only critically examine dominant narratives, but to also emphasize the experimental alternatives in an effort to build hybrid scholar-activist collectives (Gibson-Graham 2008), which is at the basis of many of the methodological decisions in my research. In this section, I will explain these concepts and the ways they were used in this research; however, each chapter also contains a specific methodology and methods section to further communicate the ways information was collected and analysed. This chapter concludes with a reflexive section on my situated knowledge as it relates to the political and power dynamics of this research.

Firstly, an iterative process ensures that theories and data are in dialogue with each other so that neither is privileged (Corbin and Strauss 2008, Charmaz 2004, Lincoln and Guba 2000).

Combined with a collaborative approach, this ensures that theory and data are revisited throughout the process to guarantee that they are dialectical (Bailey and Jackson 2003, Bong 2002, Lincoln and Guba 2000). This allowed me to tell complex, diffused, or nuanced ‘truths’ through multiple stories (Charmaz 2005). Indeed, the qualities of data saturation may also be impossible to reach since the complexity of human subjectivities mean that distilling will only ever be an approximation (Bong 2002, Lincoln and Guba 2000). Rather, the purpose of this research approach is to provide rich, holistic description of local, situated experiences while also providing a praxis of emancipatory social change (Gibson-Graham 2008, Cho and Trent 2006).

Chapters 5, 6 and 7 use iterative and inductive approaches in slightly different ways. In Chapter 5, the data had been collected earlier (between 2009 and 2011) and the methodological and analytical process involved revisiting the quantitative (closed-ended survey questions) and qualitative (open-ended survey questions and interviews) data and then testing them against and expanding upon various theoretical frameworks. Chapters 6 and 7 tended to follow a more iterative approach between the quantitative and qualitative research, where the data from one was used to verify the findings the data from another and vice versa. As such, the mixed methods were grounded in each other as the qualitative and quantitative methods informed each other (Bailey and Jackson 2003). Beyond data collection, I also approached the analysis and conceptualization iteratively. This included ongoing conversations with colleagues and participants regarding the appropriated fit of different theories to the realities that were arising in the research. For example, in Chapter 5 when case study data were added after an event occurred that caused my co-authors and me to revisit the theoretical framework, a completely new set of theories were chosen that we felt were now better suited to describe the data we had collected.

Mixed methods combine quantitative and qualitative processes throughout the research to knit together a complex understanding of new farmer issues in Canada. Mixed methods can provide a diversity of explanations for social processes while also providing credibility and depth in research (Creswell 2013, Bryman 2006). Quantitative data is useful because it allows for simplified and numerical comparisons in time and space while making information about large sample sizes easy to digest and understand (Koenig 2009). The risk of using only quantitative data is that it may reify causal relationships without exploring the specifics of lived experiences (Denzin and Lincoln 2005). As a result, I chose to use mixed methods to attempt to benefit from the advantages of these two methods. Quantitative and qualitative data from two independent surveys and interviews allowed for a broad stroke understanding of the situation of new farmers in Canada (Chapter 6), and direct marketers in Canada and the United States (Chapter 5), while qualitative data provided more nuanced descriptions of the lives and experiences of specific farmers and farm families.

Chapter 5 contains data from a 2009-2011 survey that was distributed to farmers in Oregon, South Dakota, North Dakota, British Columbia, Saskatchewan, and Manitoba as part of co-author Colin Anderson's research (but which was not used in his doctoral dissertation). The basis for the selection of these regions was to explore the differences between Canada and the US while also exploring whether there were differences between central and coastal regions in terms of direct marketing experiences. Sampling for this research began by conducting a systematic Internet search of national, provincial/state, and regional databases for direct marketers that provided a master list of 227 farmers and ranchers of which 51 farmers were interviewed. They were asked questions about their farm history, direct marketing experiences, motivations, barriers, interactions with customers, opinions about support structures available, and plans for

the future. These interviews provided the basis for a mail-out questionnaire that asked participants ranking questions regarding: attitudes and motivations for direct marketing; government and direct marketing; and demographics and farm characteristics. A total of 169 farmers, of the 227 on the master list completed the survey, a response rate of 77%. While my involvement with this project began with the data analysis, I did play a key role in the design of the 2015 National New Farmer Survey.

In partnership with the National New Farmer Coalition (NNFC), a national online survey was widely distributed by email and social media to new farmers from across Canada in 2015. The survey design built upon other existing national and regional surveys including a survey conducted by the National Young Farmer Coalition in the US and published in 2011 (Shute et al. 2011). The survey collected data on demographics, production, barriers, programs that were working, and solicited recommendations from participants on what changes would support them. The survey received responses from 1621 people (1432 in English and 189 in French) of which 1326 completed the survey (a completion rate of 81.8%). Details about this survey and subsequent analysis are also found in Chapter 6.

Data from both the National New Farmer survey and the surveys of direct-meat producers were summarized using Excel and analyzed using SPSS (Version 20) in order to look at the descriptive statistics and also at the more complex relationships among variables. While I conducted most of the data analysis alone, data were shared early on with National New Farmer Coalition colleagues and their feedback was employed in further analysis of that survey. The power of quantitative data comes from the way it is received by decision-makers (Denzin 2009) and as such, it has already allowed the National New Farmer Coalition to bring their policy

recommendations to the federal government and media (see Fletcher 2015). I also used qualitative methods in this research to explore the research objectives in more depth.

Qualitative data can acknowledge the complexity of the social world and resists its reduction (Bergin 2011, Denzin 2010). Qualitative methods are also well suited to understanding nuanced power dynamics, particularly as they relate to gender divisions and other marginalized contexts (Andersson and Lundqvist 2014). As a result, these data are also political and can contribute to social justice by challenging assumptions and recognizing agency (Tracy 2010). In this research, interview data from both the direct-marketers of meat as well as new farmers, mentors, and farmer trainers were transcribed and coded iteratively using the online analytical tool Dedoose ([www.dedoose.com](http://www.dedoose.com)) to identify themes from the interviews (Bergin 2011, Bong 2002). Interviews were designed to understand the learning pathways of farmers, including new or aspiring farmers and experienced mentors. They were also asked to list the sources and destinations of knowledge and to place these on a map and indicate the connections between these resources (details on these interviews are available in Chapter 7). Meanwhile all questions in the survey had a comment box to solicit voluntary responses from participants, while also asking some open-ended questions about barriers and recommendations for policy change. The codes used in both the interviews and open-ended survey responses included discussions of the barriers and opportunities facing new farmers and ways of learning. The process of coding interviews is emergent as codes develop gradually over time after interactions with the interview data (Bailey and Jackson 2003, Bong 2002). In the end, these interviews were also used to provide explanations to findings from the survey.

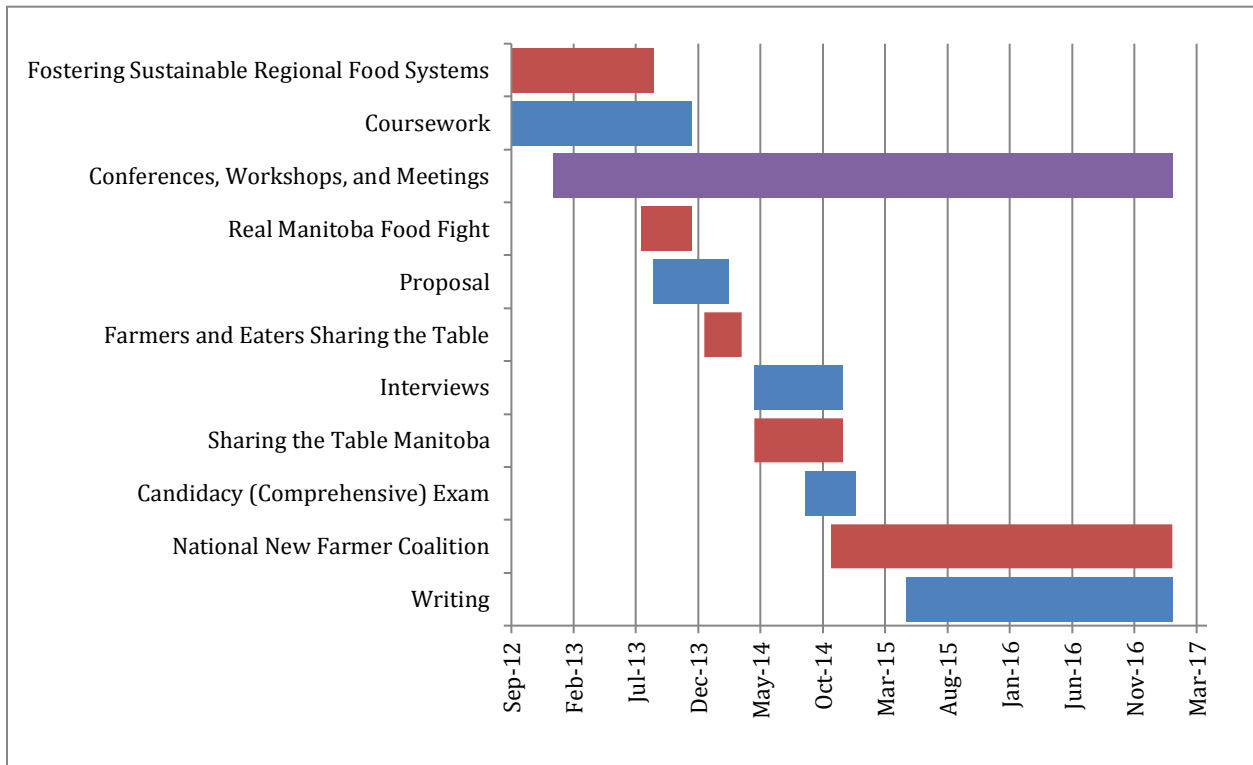
This research also features other methods including case studies and social network analysis. Chapter 5 features a case study set in Manitoba that was chosen to provide more

complexity to the qualitative and quantitative data that were also used (Eisenhardt and Graebner 2007). Case studies provide an important opportunity to validate and confirm theories when designing experiments is logistically or ethically impossible (Koenig 2009). They are also able to provide in-depth information on the affective and narrative effects of experiences that open-ended interviews may not allow (Gibson-Graham 2006, Bailey and Jackson 2003). Meanwhile, a variation on social network analysis was also used to map out the learning networks of farmers in Chapter 7 (Cadger et al. 2016, Levkoe 2014, Kimmerle et al. 2012, Tallman and Chacar 2011). This tool provided a visual summary of the social relations and learning networks of new farmers, and also provides some quantitative statistics (Levkoe 2014, Kimmerle et al. 2012).

This dissertation includes both formal academic concepts and community-engaged research objectives that can be difficult to balance. Combining a diversity of research methods assisted in meeting both the academic and community needs in this research while also providing a more comprehensive analysis of the formation of farmer subjectivities. In the interest of both recognizing the important contributions of community-based partners and fully disclosing the other activities that took place during the last five years, I have outlined how these have come together (Figure 2.1). This timeline incorporates the formal academic activities including coursework and the writing of the proposal, candidacy exam (comprehensive exam), and the dissertation itself (indicated in blue). It also includes various informal projects such as the Fostering Sustainable, Regional Food Systems project, Real Manitoba Food Fight (later Farmers and Eaters Sharing the Table and then Sharing the Table Manitoba) and the National New Farmer Coalition (indicated in red). Meanwhile, conferences, workshops, and meetings have been a significant part of the collaborative process in which the research and the research participants have had an opportunity to engage with one another (indicated in purple since these

were examples of both academic and community processes). Attending these conferences and workshops has also provided space for everyday reflexivity to take place with participants in this research, as the research was presented and critical feedback was given and integrated (Kohl and McCutcheon 2014).

**Figure 2.1 Dissertation timeline from Autumn 2012 to Spring 2017**



As a collaborative research project grounded with community partners, some of the decisions regarding the locations and re-orientation of research objectives meant engaging iteratively. As a result, each stage of the research that appears in Figure 2.1 is built on the previous stage. For example, my involvement in the Real Manitoba Food Fight and Sharing the Table Manitoba as described in Chapter 5 were built on the foundation of community-engaged research with the Fostering Sustainable Regional Food Systems which both built trust with local farmers as well as provided me with greater knowledge about the Manitoba context. This in turn

provided me with the opportunity to collaborate with the National New Farmer Coalition, which provided an important opportunity to engage nationally on new farmer issues. The timeline in Figure 2.1 is also helpful to understand some of the projects, experiences, and self-cultivation that affected not only my research, but also my subjectivity as a scholar-activist. Next, I explore how this research progressed iteratively and highlight the specific ways that community and academic colleagues inspired, encouraged, and challenged my vision for this research.

## **2.1 Positionality, reflexivity and situated knowledge**

All knowledge is situated, including the knowledge of the researcher (Haraway 1991). Acknowledging my positionality as the researcher, using reflexivity to situate myself, and highlighting the limits of my objectivity is a critical part of recognizing the power relations inherent in academia and research, but is only one part of the process of challenging these problematic dynamics (Denzin 2010, Daley 2010, Holmes 2010, Tracy 2010, Cervero and Wilson 2001, Pratt 2000, Rose 1997). The process of reflexivity reflects the dynamic agency of the research-subject and is intended to be an unsettling process due to the lack of certainty, contradictions, and incompleteness (Holmes 2010, Rose 1997, Gibson-Graham 1994). This research examines the subjectivities of new farmers, and to fail to examine my own subject-formation and agency as part of this process would be disingenuous and insincere. This section represents only a brief summary of the questions, examinations, and conversations that have been part of what Kohl and McCutcheon (2015) call ‘kitchen table reflexivity,’ or the ongoing and everyday conversations around positionality and reflexivity. This kind of reflexivity is necessarily partial as my subjectivity is shifting as both my own situation and the society and environment I am located within also change. Finally, Gibson-Graham (2008) call for scholars to recognize the “vision of the performativity of knowledge, its implications in what it purports to



describe, its productive power of ‘making’” (614). As a researcher then, it is not enough to ask questions of participants, I must also engage in their worlds, understand their realities, and become their advocate (Gibson-Graham 2008). Methodologically, my own subjectivities and identities are an important limitation to mention, since despite my best efforts, my biases have impacted the methods and thus the outcomes of this research.

As a cisgendered, white woman from a middle-class family in Saskatchewan, there have been many opportunities opened to me, including this research project, which have not been available to others. Most of the participants and collaborators in this research had similar identities to my own which facilitated the building of trust. However, these identities also limited my ability to build relationships with gender non-conforming, racialized, or disabled communities who may also be interested in farming and who are continually marginalized by research and farming communities alike. These identities also affected my research objectives, the things I determined were or were not important to pursue, the types of questions I did or did not ask, how my recruitment of interview and survey participants was conducted, where I expected to find respondents, with whom I did or did not build partnerships.

Rather than a linear route, this research took on the form of a constellation with points along the way that were unanticipated, but which in the end created a figure that contributed to understanding farmer subjectivities. This section will explore my journey and how I responded to circumstances that at first appeared to take me away from my core research question, but later proved to be highly relevant. This story begins, not with my own history, but the history of my ancestors who were peasants before arriving in Canada as settler-farmers dependent on and complicit with the deterritorialization of Indigenous people between the 17<sup>th</sup> and 20<sup>th</sup> Centuries. I grew up on Treaty 6 territory in Saskatchewan and witnessed the everyday injustices and

systemic oppressions that make up colonial legacies. At the same time, settler-farmer inheritances were also shaping me as a person and I took for granted gardening and farming knowledge. My family histories were often framed in contrast to dominant British-Canadian narrative of settlement with the ongoing struggle to maintain language and culture of Ukrainian, German, Belgian and French traditions. But it was not until I did research for my Masters degree at the University of Ottawa that I began to look more critically at questions relating to agriculture and the environment when I examined the experiences of drought migrants during the 1930s. I realized that the farmers whom I interviewed, who were now in their 80s and 90s, were the people who had shaped the landscape of my childhood and I wondered how the farmers of today were continuing to change this landscape even more. At the same time, a significant contribution to my subjectivity has come from anti-oppression training that I have received variously over the years, which has highlighted the many ways that I need to continue to decolonialize myself and my relations with others and the land.

In an effort to challenge dominant academic narratives, politicize the research process, and resist the ‘othering’ of the research participants, this research is deeply collaborative (Kohl and McCutcheon 2014, Gibson-Graham 2008, Foley and Valenzuela 2005, Cervero and Wilson 2001). Working collaboratively is an ethical undertaking that requires that partners and participants are involved at various stages along the research process, and includes a relational ethics that recognizes the importance of sharing findings with participants and partners in language that is useful and relevant to their work (Tracy 2010, Gibson-Graham 2008). On a few occasions, participants shared critical feedback that was sometimes difficult to hear, but which identified important gaps that I may have otherwise missed. I have worked side by side with new farmers and others as an employee and volunteer of organizations who work on building

sustainable food systems, as a coordinator of Seedy Saturday, as a facilitator for the Fostering Sustainable Regional Food System work in Manitoba, and as a part-time farmer in Saskatchewan from 2013-2016. This work demonstrated the importance of anti-capitalist types of farming, but also highlighted the incredible amount of work yet to be done in making these movements intersectional. In addition, I accept my own hybridity of neoliberalized and non-capitalist approaches and the difficulties in navigating these sometimes contradictory identities (Gibson-Graham 2006, 1994).

This research represents my efforts to engage thoughtfully in collaborative and community-engaged research and to resist academic hierarchies. For example, with the design of the National New Farmer Survey I worked with a team of farmers from the National New Farmer Coalition to develop questions based on our own experiences as farmers, researchers, and activists. The survey was disseminated by all of us on social media (including Facebook and Twitter) and coding of survey responses was done collectively. Using an interdisciplinary team approach contributes to a greater complexity in interpreting the findings while addressing various limitations in the personal subjectivities of the team-members, particularly my own (Dierckx de Casterlé et al. 2012). Similarly, working with Colin Anderson and Stéphane McLachlan in Chapter 5 encouraged a more iterative process as theoretical frameworks were being developed since all three authors had slightly different, and sometimes conflicting, interpretations and understandings of the research. Unfortunately, due to time constraints and the pressures to simplify research objectives, some opportunities to engage in collaborative research could not be pursued. For example, the original objective to work with the Harvest Moon Society had to be dropped when logistical barriers at the organizational level meant that it would take more time than what would have been appropriate for a doctoral research project. Additionally, not all

community feedback could be fully integrated, especially if it did not match academic goals, highlighting one of the many challenges in navigating community-based research.

This reflexive discussion of positionality does not absolve me of my bias and limitations, but rather serves as the beginning of a conversation on my subjective role as a researcher. Many Indigenous scholars and critical researchers have pointed to the abuse of positionality statements as a distraction from a truly critical engagement with marginalized voices (Nixon 2015, Morgensen 2014, Louis 2007, Abbott 2006). In particular, I would like to highlight some of the many power dynamics that exist through this research. Despite the fact that as a student, I often felt marginalized by the lack of institutional supports for collaborative research and the difficulties in navigating university bureaucracy, at the same time, as a researcher, I could be seen as holding more influence because of my privileged position within a university. Drawing from Pratt (2000), I acknowledge the importance of going beyond positionality as a static starting point and examine ways that I can be more self-critical. By focusing on new alternative farmers, I am trying to highlight marginalized voices, but even here there are voices who have been silenced. Moving forward I would like to take up less space as a researcher and provide more room for voices from the margins.

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### **Chapter 3: Literature review**

As the primary method of feeding humanity, agriculture represents one of the main interactions between society and nature (Alkon 2013, Duncan 1996). The making of new socio-nature relations, objects, and actors through agriculture has occurred countless times in the 10,000 years of agricultural history. This included the domestication of plants and animals and the resulting changes these have had on the genetic material and biophysical properties of these agricultural entities. These processes of domestication have simultaneously changed human bodies and cultural practices including taste and food processing practices (Alkon 2013). Today's socio-nature relations between society, food and agriculture, and nature have become corporatized, industrialized, and politicized so that food consumption has become an act of capitalist activity or of protest, rather than a straightforward response to a physiological need. Opportunities abound to explore new socio-natural relations in this changing and dynamic context while also addressing the inequalities and injustices of past, present, and future farming relationships.

In this literature review, I will examine the various theories, concepts, ideas, and frameworks that have inspired, explained, directed, and set the direction for this dissertation. These theories variously address the formation of self, individual relations to society and the state, processes of social change, power and knowledge dynamics, the role of government institutions, and learning practices. Knowledge connects to identities and subjectivities (Harris 2009, Gibson-Graham 2006); that is, how farmers know themselves and what they do is intimately connected (Thompson and Lockie 2013, Burton 2004, Bell 2004). By exploring the question of farmer subjectivity using various theoretical perspectives, I intend to provide a particular understanding of how farmer subjectivities can be formed. Many of these theories have



not been brought into conversation with each other in this way before and thus this doctoral research represents a unique contribution to understanding these concepts and their implications for farmer subjectivities.

### **3.1 Embedded subjects and situated movements**

“... Social change involves networks of people coming together to design new forms of material life” (Goodman et al., 2012, 159).

Alternative food systems are characterized by their necessary embodiment, embeddedness, and geography. They are both material and cultural, both experienced and theoretical. This section explores the complex relationships between subjectivities, situated identities, embeddedness, and politics of the food system and the collective resistance associated with it. Individuals and societies create and change each other through individual and collective action. Power is always local since political actions occur in place and are therefore embedded in a location, thus resistance itself is also local (Roberts 2012, Busch 2010). Local acts ripple outwards into more significant meaning beyond their location and is the primary way that the political becomes mobile. However, even with the emphasis on local, the goal is not to fetishize ‘local’ food or the associated movements that emphasize local food since these have been demonstrated to re-produce entrepreneurial and neoliberal tropes (Goodman et al., 2012). Rather, I explore the various ways that social assemblages interact and affect knowledge and subjectivities before then exploring how governmentality also acts to shape knowledge and subjectivities (see Figure 1.1). Theories of governmentality and capitalist and neoliberal state or corporate influence are used in contrast to theories of social change and community-based alternatives to address the weaknesses of each of these concepts; notably how governmentality

can serve to reify and reinforce the power and influence of state, corporate, and institutional actors (Harris 2009), while community-based alternatives are presented as unrealistic or oversimplifying the processes of overcoming these institutional barriers (Glassman 2003). By combining these approaches to explore how they influence knowledge and farmer subjectivities, the goal is to demonstrate how these relationships are dynamic and dialectical in nature resulting in subject-making as a unique and individual experience.

### **3.1.1 Subjectivities and the ‘good’ farmer**

Farmers, Indigenous or settler, are not without agency. Although their subjectivities are shaped by knowledge systems, they are also able to react to particular power/knowledge dynamics (Healy 2014, Thompson and Lockie 2013). This section will explore how the discourses, narratives, and identities that subjects create for themselves as they navigate their own subject-making are shaped over time (Harris 2009, Gibson-Graham 2006) (see the top of the triangle of Figure 1.1). Subject-formation occurs as experiences are embodied and digested until they are internalized as identities and ‘common sense’ narratives (Gibson-Graham 2006). Because subjects are located in place, these subjectivities are spatial, and resistance through self-cultivation also happens in place. J.K. Gibson-Graham (2006) have used subject-formation to explore how identities and personal politics are formed, but also how these subjectivities can be transformed over time. In essence, subjectivities are the personal identities that are built on cultural and political interpretations of the definition of ‘common sense’ as mediated by powerful state and corporate actors, collective grassroots networks, and individual agency and experience.

The spaces in which subjects are located are also the result of socially constructed meanings where values and spatial qualities become intertwined. For example, Burton (2004)

writes that “ethnographic studies of farming communities place considerable importance on the influence of regional histories and the sense of place experienced by inhabitants in influencing both symbolic values and self-identity” (208). These subjectivities are always becoming, although they may be understood as being less dynamic over time as values are entrenched into identities (Leffers and Ballamingie 2013, Darier 1996). Since subjectivities and identities are formed through interactions between individuals and their biophysical and sociocultural environments, they can be understood as socio-nature projects (Alkon 2013, Kooy and Bakker 2008). However, subjectivities rely on agency to become fully formed expressions of identity. Bell (2004) writes about farmers’ agronomic decisions and the connections to their identity as follows:

“To farm the self is to cultivate our allegiances and to align our practices along the rows of a social agronomy... these patterned inclusions and exclusions are structures of a sort, as influential on the lives and ways of farmers as government, technology, and the economy” (144).

In the case of Canadian farmers, their subjectivities are variously influenced including by the complex agricultural geographies and histories described in Chapter 1 as well as the contemporary politics and cultures that continue to shift and transform over time. This research builds on previous studies on farmer identities that have looked at what it means to be a ‘good’ farmer; in other words, how farmers develop subjectivities and a culture of ‘common sense’ (McGuire et al. 2013, Haggerty et al. 2009, Burton 2004).

Burton (2004) uses the concept of a ‘good’ farmer identity to explore the productivist values of mid-western American farmers. The values driving many of these farmers include a vision of increased yields being used to feed an increasingly hungry world. Burton proposes that voluntary programs to encourage environmentally conscious programs on farms generally fail

because they do not address productivist farmer identities. In particular, farmers fear rejection from their peers if they abandon commonly held values (Burton 2004). Particularly for farmers, the land becomes a part of their identity as Burton (2004) writes,

“While productivism and its consequences for the landscape may represent to us the excesses of an over-subsidised agricultural industry, for many farmers it represents a picture of good farming practice, displayed in a manner that enables the farmer to obtain social status and recognition within the community as a ‘good farmer’ and to judge the credentials of others” (208).

These productivist values are also present in Canada with policies promoting increasing exports and yields, pushes towards high-input, high-cost, and high-energy models, the financialization of farm land, corporate concentration in various agricultural sectors, and trade agreements that privilege transnational companies over local farmers (Qualman 2011).

The concept of ‘good’ farming and farmer subjectivities has also been used to explore the influences of neoliberalism on the internalized values of citizens through governmentality. For example, Eaton (2013) examines the role of collective action and farm organizing on public views on genetically engineered (GE) technologies, particularly regarding opposition to GE wheat in Canada. However, with the rise of neoliberal capitalism, the common view has become that these types of decisions should be made by individual consumers, rather than through public debate on the common good or through regulatory bodies. For example, Eaton (2013) writes that “[c]onsumer choice supports a notion of subjectivity that is fundamentally asocial in the sense that what is best for the sum of individuals is best for society: there is no need for a public sphere, for negotiation, or for a conception of common good” (140). Neoliberalism suggests that subjects ought to be rational utility maximizers capable of risk calculation through access to complete knowledge; however, subjects seem to be characterized more by neurosis and chronic fear of making the wrong decision in a world of overwhelming choices (Healy 2014). As a result,

subjugation in neoliberalism occurs when subjects, dominated by shame and anxiety, become reliant of experts to tell them how to behave and act (Healy 2014). This research explores how farmer-subjects become neoliberalized through state technologies of power, especially governmentality and biopower, particularly in Chapters 4 and 5.

### **3.1.2 Environmentality: biopower and governmentality**

The concept of environmentality comes from the synthetic interpretation of two ideas introduced by French theorist Michel Foucault, governmentality and biopower (Hart 2011, Fletcher 2010) (see bottom right corner of the triangle of Figure 1.1). Together governmentality and biopower are subtle tools used by the state and institutions to manipulate public and private discourses as well as the behaviours of citizens in order to maintain the state's power while also shaping the everyday conduct of the population (Foucault 1991, 1994). Biopower engages the regulation of state subjects and allows governments to “enhance the health and vitality of the subject ‘population’” (Fletcher 2010, 175); for example, by enacting programs to increase birth rates or improving public health through sanitation (Rutherford 2007), although it can also be used in regulatory behaviours less linked to health outcomes. Biopower manages the biological conditions of life in a population and thus conditions how that population conducts itself in everyday life; it is the biological boundaries within which a citizen makes their own decisions. Today, biopower relies on science to reveal normative truths and produce the ‘correct’ conditions of the environment and human health, thus giving state and institutional decision-makers the appearance of objectivity. The subtext of both biopower and governmentality is that the population legitimizes the power of the state and other institutions by demonstrating their obedience to these boundaries and limitations and by reproducing the power of the state in its own image (Fletcher 2010, Darier 1996).

Governmentality is closely related to biopower and the two concepts are symbiotic in developing an interpretive framework. Governmentality is both the art of governance and the technology of governing mentalities and attitudes (Hart 2011, Fletcher 2010, Rutherford 2007, Darier 1996). Fletcher (2010) interprets Foucault's writings and suggests that he considered two forms of governmentality, disciplinary and neoliberal, and that governmentality "functions as one of the principal means by which the state (as well as other actors) exercises biopower" (175). Disciplinary governmentality considers how the fear of being identified as deviant conditions individuals to comply with social norms, norms that have been determined and shaped by states. Fear of legal action or of being ostracized means that most individuals will conform to the status quo, only those who are extremely deviant will risk being shunned; that is, any resistance to 'common sense' ideals is seen as highly risky. For instance, the use of force would be an example of disciplinary governmentality, which would rely on fear of repercussions to ensure the 'conduct of conduct'. Fletcher (2010) suggests that neoliberal governmentality on the other hand, would use economic incentives to encourage changes in behaviours, thereby rewarding correct behaviour. Neoliberal governmentality creates rational actors or subjects who have been produced within a regime of biopower, and are then motivated to behave within the desired state-sanctioned structures. Subjugation through governmentality produces individuals who accept the social norms and 'common sense' values that are directed by the state and other institutions. Governmentality offers a lens through which the state and its interventions can be analysed while also creating a framework for "understanding of power and of 'modern' subjectivity" (Darier 1996, 586). I have used governmentality and biopower to explore how farmer subjectivities have both maintained and refused productivist and capitalist narratives in Chapters 4 and 5.

More recently the concept of environmentalism, which had also been expressed as eco-governmentality and green governmentality, has been used to describe the application of governmentality's technologies to nature and to describe the ways that nature is governed in order to lay sovereign claim to natural resources (Fletcher 2010, Rutherford 2007, Agrawal 2005, Goldman 2005, Braun 2002, Darier 1996). In most cases, environmentalism is tied to the management of natural resources for the economic benefit of the state by building 'common sense' narratives around the quantification, extraction, production, and mobilization of nature (Peyton and Franks 2016, Thorpe 2012, Tsing 2005, Braun 2002). Environmentalism narratives complicate power dynamics by creating hierarchies on the ground between forests, citizens, local residents, and government officials (Thorpe 2012, Kosek 2006, Goldman 2005, Tsing 2005). The desire for natural resources from colonial state actors required control over local populations, an extractive dynamic that was repeated around the world and in Canada, including within forests in Ontario (Thorpe 2012) and British Columbia (Braun 2002). The places that power is "articulated and enacted" are key to understanding how it works through "institutions, governments, corporations and bodies that are material and particularly located" (Rutherford 2007, 303). As a result, environmentalism's influence on subjectivities and on relationships with the biophysical world will be different everywhere, such that the experiences in the forests of Temagami in Ontario (Thorpe 2012), Clayoquot Sound in British Columbia (Braun 2002), or in Kumaon in India (Agrawal 2005) cannot be generalized into a universal phenomenon.

Environmentalism results in the creation of environmental subjects and objects, both of which are managed and controlled by the government in the best interests of the state (Peyton and Franks 2016, Kosek 2006, Agrawal 2005). Subjugation occurs primarily when environmentalism changes individual and collective narratives that limit the imaginative potential

of subjects; that is, they embrace capital-centric hegemonies and trust that state policies are in their best interest (Healy 2014, Fletcher 2010, Gibson-Graham 2006). In turn, these new environmental subjects work with and on the landscape to transform it into the environmental objects that the state vision dictates (Agrawal 2005). For example, in Kumaon's forests, after a period of forceful exclusion, Indigenous communities were allowed back into the forests, only to find themselves monitoring each other and enforcing the normative behaviours on proper forest management and use that had been introduced by the state (Agrawal 2005). This "colonization of the imagination by powerful political beliefs" (Agrawal 2005, 170) is an example of intimate government where regulations have an effect on everyday practices. Environmentality shapes environmental knowledge which in turn affects how subjects relate to the biophysical world, which can have both harmful and helpful impacts on forests and landscapes. The ways that these subjects and objects were made on the Canadian Prairies through settlement and agriculture are explored in Chapter 4 of this dissertation. Since governmentality and environmentality tend to overemphasize the influences of state and institutional actors, I also consider the forms of resistance and agency, particularly through the self-cultivation of subjectivities and building of community economies proposed by Gibson-Graham (2006) (see the bottom left of the triangle of Figure 1.1).

### **3.1.3 Social change and the 'politics of possibility'**

Feminist geographers J.K. Gibson-Graham have examined the ways alternative and community-based economies are changing and subverting capitalism and the hegemonic influence of states, corporations, and institutions that (re)produce capitalist subjectivities (2008, 2006, 2005, 1996). They use post-capitalist economic geographies to examine both the overt resistance to capitalist hegemony but also the subtle power of opposing the imaginaries of capitalism by acting to build community economies (Gibson-Graham 2006, 1996). They identify



non-capitalist activities that are taking place everywhere alongside an analysis of how capitalist hegemonic power seeks to minimize or subvert these forms of resistance (1996). This resistance, characterized by ethical practices of self-cultivating non-capitalist subjectivities, is grounding local communities in wider social change, and is known as the ‘politics of possibility.’ This term has been explored in the context of alternative food economies in Canada (Blay-Palmer et al. 2016, Ballamingie and Walker 2013, Wilson 2013). Practically, this includes the building of community economies that imagine themselves as sites of new subjectivities and as part of a “global politics of local transformation” (Ballamingie and Walker 2013, 531). Gibson-Graham also draw upon Foucauldian approaches to understanding subject formation, but highlight the role of resistance to the state influences of governmentality (Healy 2014, Harris 2009). In many ways, Gibson-Graham are suggesting an “ontology of hope” where changes to capitalist hegemonies are possible (Ballamingie and Walker 2013) and already taking place (Healy 2014). They suggest a new political movement based on multiple, and not necessarily connected attempts from individuals to change themselves with new practices of living and being together; that is, that the ubiquity of these self-cultivated subjectivities have the potential to influence new discourses of belonging that is part building of an alternative imaginary (Gibson-Graham 2011). I explore the processes of self-cultivating alternative subjectivities by engaging in new ways of imagining oneself and knowledges associated with these identities to frame questions of alternative food systems and new farmer subjectivities in this dissertation, especially in Chapter 6 and 7.

One of the main critiques of the ‘politics of possibility’ advocated by Gibson-Graham is that its openness to all types of alternative and community economies also makes it subject to possible cooptation, especially by corporations and clever marketing campaigns that suggest

idyllic outcomes from consumer choices. For example, geographers Julie Guthman (2008) and Patricia Allen (2008) have been critical of the food movement's tendency to re-create and re-produce existing injustices by failing to confront the neoliberal systems in which the food system is entrenched. They point out that the ideas of 'voting with your dollar' and market-based change are simply reinforcing neoliberal ideologies that dismiss the importance of regulatory policies and suggest that the organic food movement has been coopted by capitalist interests (Guthman 2008, Allen 2008). Problems arise when organic consumers "rise to defend the "defetishized" transparency of the ecological production process rather than to unmask exploitative labour relations" (Goodman et al. 2012, 45). In other words, "a consumer politics based on individual consumer choice reinforces the ideologies, subjectivities, and governmentalities of neoliberalization, notably by absolving the state of its regulatory functions and its universalist commitments to the social welfare of its citizens" (Goodman et al. 2012, 143). The first wave of the local food movement has also been accused of ignoring issues of race and class, in particular where local, sustainable, and healthy food are not affordable to everyone (Slocum 2007). Those who are quick to promote farmer's markets and CSAs are less likely to raise awareness for the issues facing migrant farm workers and less inclined to help address food insecurity in poorer inner cities or remote Indigenous communities (Busa and Garder 2015, Guthman 2008, Allen 2008).

Yet the line between co-optation and adaptation remains blurry since the same boundaries that are used to "protect alternative systems from cooptation into the mainstream, [...] will [be] increasingly need[ed] to make hybrid systems to incorporate more alternative practices into the mainstream, thereby realizing the prefigurative potentials of alternative systems" (Goodman et al. 2012, 174). Even when actors are not aligned, or if power is not evenly distributed, objects or

food systems still have the potential to be shaped and moulded by actors working collectively, if not in collaboration. In other words, even as power is exercised from the top down, resistance in the form of alternative food systems creates new conditions of possibility within capitalist systems. Yet it would also suggest an inevitable compromise in which radical ideals are almost always eroded from their original complexity into an approximate form that conforms to the common sense of the majority. A politics of possibility resists the neoliberal subjugation by cultivating not only new economic relations, but also new subjectivities that are always in the process of becoming even as food systems themselves are also changing (Busa and Garder 2015, Ballamingie and Walker 2013). This research provides a further discussion interactions between governments and the grassroots in the struggle to define food safety in Chapter 5 of this thesis. Meanwhile, the complex influences on farmer subjectivities is explored in Chapter 6, which also considers the ongoing struggles to build alternative farmer subjectivities in the face of capitalist normativity. Since the processes of self-cultivation of alternative subjectivities and collective resistance are complex, I use network and assemblage theories in my analysis to explore the sharing and building of community-based alternatives and the re-imagining of identities in order to address and highlight these intricacies.

### **3.1.4 Assemblages and networks**

A discussion of social change, especially change based on the role of individual subjectivities and collective resistance, should include a discussion of networks and assemblages in order to describe the mobility of ideas, knowledge, and resistances that emerge when striving for social justice (see bottom left corner of triangle of Figure 1.1). The use of networks and assemblages in this dissertation provide important relational understandings of the processes of social change by emphasizing the importance of both collective resistance and self-cultivation of alternative subjectivities. Networks can be used to describe connections between related actors,

as in a learning network, or it can be a technical description of the relationships themselves (Goodman et al. 2012, Wilkinson 2006). Traditional network analysis often focuses on the structure and function of relationships while disregarding the importance of personal values or power dynamics (Goodman et al. 2012, Haynes 2011). Oftentimes, this analysis places emphasis in the relations and flows between actors, for example by assuming the ubiquitous influence of globalization or neoliberalism (Escobar and Osterweil 2010). Assemblages offer another way to explore relational questions while also exploring the role of power. Networks and assemblages are similar, but assemblages are based on non-hierarchical assumptions and the decentralization of power by focusing on relational dimensions of the human and non-human actors they are exploring (Goodman et al. 2012, Featherstone 2008). Deleuze and Guattari (1987) first described assemblages, using the metaphor of rhizomes, as the relational connections in society. Rhizomes can be developed as a metaphor to explain the role of power in this relational structure (Levkoe and Wakefield 2014, Escobar and Osterweil 2010). Importantly, assemblages and rhizomes understand social movements as multi-dimensional and recognize that the ‘solution’ to capitalism is not singular, but a confluence of heterogeneous actions by multiple actors (Escobar and Osterweil 2010, Olesen 2005, Escobar and Alvarez 1992). This is important in this research since it recognizes that despite the fact that farmers and food activists may not know each other or engage in similar forms of resistance, they are connected by their mutual commitment to building food system alternatives. This is discussed in Chapter 7 when exploring the remarkable similarities between learning communities of farmers from different parts of the country who are engaging in diverse sustainable farming practices.

Assemblages are a multiplicity of heterogeneous actors and the emergent relations among them (Haynes 2011). The concept necessarily flattens scale, thus reducing the problem of global

versus local influence, while legitimizing all scales equally (Escobar and Osterweil 2010). Assemblages are also inherently dynamic, as a result of the influence of multiple actors; for example, government bureaucracies both determine and enact policies is an assemblage of different opinions, experiences, and interactions (Li 2007). Assemblages are also a useful way to understand social change as they embrace multiplicities and “attempts to re-imagine the world’s geographies of power and knowledge,” (Escobar and Osterweil 2010, 207) especially by radical or marginalized groups who would otherwise be dismissed. In this research, assemblages are used to explore the spread of new discursive imaginaries and knowledge as a component of social movements. Assemblages can also be used to explore subject-formation as a complex interplay of embodied experiences with other people, non-human actors, biophysical environments, politics, culture, markets, and ideas.

Deleuze and Guattari also use rhizomes to explain non-hierarchical organizing, as a metaphor for assemblages (Funke 2012, LeGreco and Leonard 2011). Rhizomes are the lateral roots that propagate new plants, resulting in a network of aboveground vegetation. Identifying the centre of the plant structure is impossible because of this propagation process (Le Grange 2007). As a metaphor, they are a useful way to examine the movement of ideas, resources, or practices within an assemblage because they have no beginning or end and are open to multiple points of entry and understanding (Ferreira and Devine 2011, Le Grange 2007). For example, LeGreco and Leonard (2011) use the concept of mycelium, which are the thread-like roots of fungal colonies, to build on the rhizome metaphor:

“The beauty of the mycelial mat is that this subtle, yet intentional network of ideas and values manifests into fruit (the mushroom) when it encounters a change in medium or a barrier. So that fruit (and therefore more spores) are the creative result of a challenge, and the mat actually becomes stronger as it collectively works through the barriers it faces” (361).

The rhizome metaphor explains the unplanned outcome of assemblages and explores how they act in un-strategized processes for the flow of energy, ideas, and resources (Ferreira and Devine 2011). In Chapter 7, rhizomes are used to help understand how different practices, ideologies, or knowledges can become established in ways that may appear to be sudden or spontaneous but that are really local representations of the praxis that has propagated within the food movement assemblage.

While, assemblages provide important metaphorical ways to challenge understandings of how ideas, knowledge, and resources move through space, however their analytical application is limited. I have addressed this by combining assemblages with networks to explore the ways in which the two concepts coalesce and interact in Chapter 7. I use networks to describe the practical ways that information and knowledge is shared between farmers, but considers food movement assemblages to examine the power and politics that influence these networks and the ways that knowledge circulates within them. Thus, networks and assemblages can be complementary and provide both a critical social theory lens and practical descriptions (Haynes 2011). Similarly, Levkoe and Wakefield (2014) write that: “theorising networks as complex assemblages helps to visualise and understand that initiatives with diverse goals and approaches can work together without ideological coherence” (317). The learning networks or learning communities of farmers can provide important information on how knowledge is shared informally between farmers and the important role learning plays in transforming food and farming systems.

### **3.2 Knowledge and learning communities**

Many authors have emphasized the links between knowledge, social change, and collective resistance (Goodman et al. 2012, Choudry and Kapour 2010, Conway 2006, Hassanein 1999) (see Figure 1.1). The sharing of knowledge has and will continue to act to reconfigure food system assemblages (Goodman et al. 2012). This is because of the socio-nature networks that are formed through the practices, routines, and traditions that mobilize resources in particular ways (Alkon 2013, Goodman et al. 2012). These routines and habits become “durable repositories of knowledge and skills” (Goodman et al. 2012: 51), or in other words, a key component of identities and subjectivities (Bell 2004). This section will explore some of the theories around the relationships between power and knowledge and then the practical ways that farmers have addressed these challenges to create their own knowledge sources that bypass the institutional knowledge. I discuss the implications of power/knowledge on farmer learning communities in Chapters 6 and 7.

#### **3.2.1 Power/knowledge**

Scholars have examined the relationship between power and knowledge in order to better understand how knowledge is constructed (see the centre of the triangle of Figure 1.1). Indeed, it has become one of the central questions of critical scholarship in recent decades. This analysis and reflection has developed around questions of how some forms of knowledge become valued over others, with significant scrutiny into the ways that knowledge is universalized, reduced, simplified, and translated. Much of this work is inspired by the work of Foucault who described the ways power was embedded in the practice of defining knowledge while knowledge simultaneously operated as a tool of power (Goldman 2005, Braun 2002). This concept lies at the heart of governmentality and necessarily describes power as a relational force, much in the same way that physics understands force as “a power exercised on the body [...] not as a property, but

as a strategy, that its effects of domination are attributed not to ‘appropriation,’ but to dispositions, manoeuvres, tactics, techniques, functionings [...]” (Foucault 1979, 26). Power is not a privilege that can be possessed, but is in tension as it is acquired and preserved through strategic domination (Foucault 1979).

The discursive claim-making process determines what knowledges are valuable. For example, the role of knowledge and power in perpetuating harmful extractive practices, especially mining, often pits the scientific knowledge used by corporations and governments against the anecdotal knowledge of local communities (Buchanan 2013, Li 2009). My research will consider the truth-power relation used by states and corporations to discipline and coerce citizens into accepting their influence in their everyday lives, but also the ways that individuals are sharing local and traditional knowledge in order to resist. Knowledge production can be an act of anti-capitalist counter-hegemony, by changing the way citizens see themselves, and their interactions with both each other and with nature (Healy 2014, Bell 2004, Hassanein 1999). For example, Tovey (2009) describes how knowledge is shared in the building of alternative and ecological farmer groups and the role of power and uncertainty,

“knowledges possess unequal symbolic capital, and network boundaries are blurred or disregarded by those for whom other ways of doing things have no legitimacy. Power acts through the uncertainty and deference of small rural producers, many of whom are fearful of what the future holds for their livelihoods and profession” (33).

Knowledge is often characterized as something which is ‘produced’, that is that it is made by someone; however, knowledge itself is a powerful tool of production (Braun and Whatmore 2010). Scholars such as Warner (2008) suggest that an alternative way of conceiving of knowledge sharing from scientists to farmers as part of a circulatory system of science, that includes a discussion of power relations that emerges from more hierarchical models of



knowledge transformation. This circulatory system metaphor recognizes the social construction of knowledge and suggests that science serves as a beating heart that redistributes knowledge (Goldman and Turner 2011, Warner 2008). Knowledge and networks have been combined to explore how agroecological partnerships are developed differently in order to facilitate social learning and changes in farmer behaviours (McGuire et al. 2013, Warner 2008). My research builds on the work of Warner (2008) by focusing on the discursive influences on the sharing of knowledges and the perceptions of its value, and less on its creation in laboratories, and suggests a non-hierarchical process of knowledge sharing.

The friction over knowledge and how to evaluate its value has resulted in more room for Traditional Ecological Knowledge (TEK), Indigenous Knowledge, local knowledge, or, more broadly, the knowledge that comes from lived experiences (Tsing 2005). However, the histories of colonialism are in many ways tied to the current industrial, agribusiness model of farming in that both seek to undermine alternative ways of knowing and interacting with nature and food systems and that one directly contributed to the success of the other (Goyes and South 2016, Pechlaner and Otero 2008, Patel and McMichael 2004, Hecht 1995). The western obsession with Enlightenment investigation and measurement had the effect of separating nature and culture whereas in many Indigenous worldviews, space and nature had significant cultural and spiritual meaning (Cruikshank 2005). The dichotomies of nature/culture and objective/subjective are reinforced through ongoing colonial efforts to make these categories into ‘common sense’ discourses of civilization/wilderness into which TEK must be made to fit (Simpson 2004). In most cases, conventional western science extracts the information deemed useful from TEK and leaves behind anything that contradicts the worldview and conventions of western science (Brook and McLachlan 2008, Nadasdy 1999). Agroecology may be able to contribute to

transforming the relationship between TEK and conventional science, as it is based in socio-nature worldviews that recognize the social construction of the biophysical and the natural production of social-cultural realities. The possibilities of this process will be explored more in Chapters 6 and 7.

Another critical contribution to conversations of power and knowledge comes from feminist theories, which examine the impact of personal experiences, affect, and everyday political struggles on how knowledge is transformed and assessed (Sachs et al. 2016, Andersson and Lundqvist 2014, Conway 2006, Hassanein 1999). The radical potential of local knowledge rests on its situatedness, its specificity, and its embodiment (Conway 2006, Braun 2002, Hassanein 1999). Feminist theorists have shown that knowledge is situated in the context in which is created; however, most contemporary agricultural knowledge ignores the unequal development that results from gendered knowledge produced by men (Sachs et al. 2016, Andersson and Lundqvist 2014, Liepins and Schick 1998). Knowledge produced from the margins is aware that it is not universal; rather its power comes from the specific locations and experiences in which it was created (Featherstone 2012). This local knowledge develops slowly over time and is mediated by both social and physical space (Conway 2006, Hassanein 1999). Bell (2004), following Foucault, describes this as a genealogy of knowledge, wherein:

“in order to get through the day, a farmer needs cultivars of knowledge - lines of knowledge history, stretching through time and social relations – that is, recipes and routines of knowledge worked out through previous experience, and passed on to someone else for further working out. In other words, a farmer needs cultivars that come, at least in part, from others. [...] And in this way, the cultivation of knowledge becomes not only the cultivation of self, but the cultivation of the social phenomenology of being” (132).

Finally, knowledge that is embodied recognizes the importance of affect, intuition, and sensual perceptions and the implications this has for not only gendered experiences of agriculture, but

also racialized and other marginalized experiences (Andersson and Lundqvist 2014, Hassanein 1999). Feminist theory understandings of knowledge and power will be applied in Chapters 6 and 7. I have incorporated theories on informal learning and learning communities in order to explore how local farming knowledge sharing is part of the everyday politics of farming and a possible movement to re-emphasize the importance of local knowledge.

### **3.2.2 Learning Communities**

Theories that explore the formation of learning communities or other processes of peer-to-peer learning provide important contributions to the role of knowledge in social change. These theories have their origins in the development of transformative and social learning in the fields of educational psychology and social work. These learning theories describe the power dynamics in the educational system and interrogate power/knowledge, such as who benefits from the ways education is organized and whose knowledges are reinforced and legitimized (Apple 2001). Transformative learning has been used in research on agricultural extension services as a way to share experiential knowledge and foster critical reflection (Percy 2005). While this framework strives to address how learning and knowledge can lead to individual and collective change, it is often limited by its assumption that the knowledge held by educators and researchers is somehow better than the knowledge that lay people have, thus requiring that learning be facilitated. In contrast, social learning has been used to explore how communities of learners can direct their own learning through a decentralized process that disrupts power (Reed et al. 2010, Sims and Sinclair 2008, Warner 2007). Warner (2007) has described social learning in agriculture as requiring diverse participation in experiential research and knowledge. Many have described how the sharing of social learning requires the creation of groups of collaborators who are interested in sharing ideas and solutions, these are variously called “learning communities,” “communities of practice,” and “networks of practice” (Morgan 2011, Oreszczyn et al. 2010).

Learning communities are often formed within a specific network, although it could also demonstrate vertical integration, for example between consumers and farmers, or between farmers and researchers (Nerbonne and Lentz 2003). The modes of interactions may be “real” or virtual, and membership is based on shared interests and norms rather than formal agreements (Kimmerle et al. 2012). Research on communities of practice or networks of practice within farming communities has found that they are often characterized by weak organizational but stable networks (Oreszczyn et al. 2010, Morgan 2010). A community of practice is a group of people who share a common interest but who do not necessarily work together directly (Tallman and Chacar 2011). Communities of practice allow for a broader understanding of identity formation as part of a learning process by taking into account the social network of learners (Oreszczyn et al. 2010). There is often a shared culture between members that is fostered over time by sharing ideas, stories, tools, and through repeated interactions that have been recorded as books, rituals, and practices (Kimmerle et al. 2012). Morgan (2010) has examined the ways that organic farmers in Wales create communities of practice by sharing information on production practices and business planning. Additionally, the concept of networks of practice bring in questions of how communities of practice are affected by social and political influences and actors, by examining and describing their relational connections (Oreszczyn et al. 2010).

When farmers set out to share practical information, they may also end up developing stronger communities by creating social support networks as well as learning networks. Similarly, there is a bridging that takes place between specific communities and wider social movements, as members may never meet each other, but they know they share a common culture and politics (Whelan 2007, Burton 2004). Community learning address the ways that farmers and others establish informal relationships to address gaps in learning, while also reinforcing attitudes,

behaviours, and identities (Oreszczyn et al. 2010). Learning communities open up the process of education and knowledge sharing, allowing individual farmers to explore alternatives to the global agricultural food system and to become educators themselves (Sachs et al. 2016, Morgan 2010, Hassanein 1999). As such, learning and knowledge are important for social change because they exist within a broader social-nature context that influences how information and knowledge is transferred (Schneider et al. 2009, Conway 2006, Carr and Wilkinson 2005, Hassanein 1999). Chapter 7 examines how these concepts inform each other.

Taken together, all of these theories explore the repercussions and interactions between farmer subjectivities, knowledge, state and institutional actors, and collective networks and assemblages of social resistance and explored variously in the following four chapter-articles. These chapter-articles explore how farmers see themselves and how they impact the land. They will address the role of knowledge in community-based alternatives and in state and corporate power. Finally, this research has implications for a shift to agroecology, attention to gender and racial inequalities and histories, the protection of local and Indigenous knowledge, discussions on private property and land titles, the renegotiation of trade agreements, agrarian reforms, and the creation of a new, equitable and sustainable food regime.

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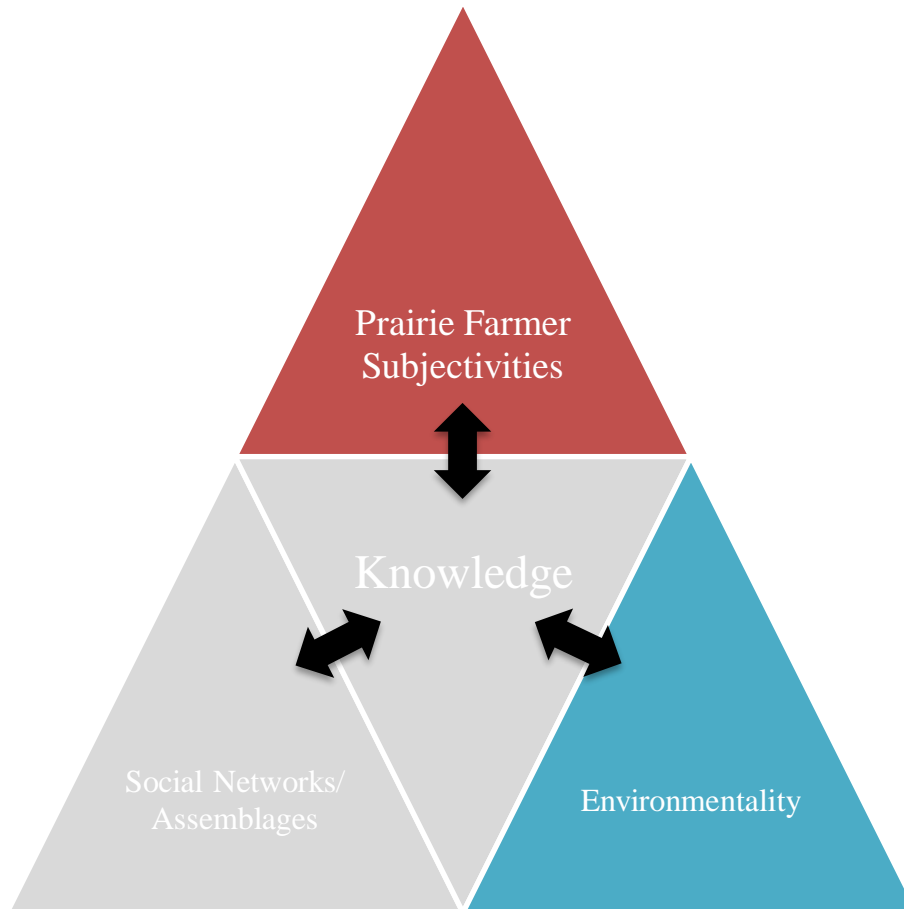
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## **Chapter 4: Environmentality on the Canadian Prairies: Settler-farmer subjectivities and agri-environmental objects**

While studying for my candidacy (comprehensive) exams, I began to explore how knowledge and nature are related and the role of power in defining discourse around both of these. Much of the literature focused on examples of interactions with forests and was set in colonial contexts, but there was a gap in the literature around agriculture, especially as it contributed to Prairie landscapes. Since much of the context for new farmers rests on the foundation of these histories and geographies, it is important to understand how discourses around Prairie agriculture have been shaped by state and institutional actors and how these discourses continue to manipulate both the environmental objects of Prairie agriculture - soil, water, and seeds – alongside the environmental subjects that emerge simultaneously. While these narratives also contain within them examples of resistance, both collective and through individual agency, the emphasis of this chapter is to explore the state and institutional capitalist vision for the Prairies as an agricultural economy. In particular, this chapter explores the technologies of environmentality and the processes through which settler-farmer subjects and agri-environmental objects were shaped by government policies, public and corporate research, and market forces. Figure 4.1 illustrates how this chapter-article fits within the research objectives of this dissertation.

**Figure 4.1 Connecting farmer subjectivities and governmentality**



The overall objectives of this chapter-article address the first two objectives from the introduction, namely to explore:

- The formation of farmer identities and the influences on their subjectivities focusing on the role of state and institutional actors and agency. In this case, these are explored from the specific history and geography of the Canadian Prairies.
- The relationship between knowledge and power and the effects this has on the narratives of farmers and their subjectivities, through the use of environmentality as a specific type of governmentality.

Land is at the centre of both new alternative farmer questions and questions of Indigeneity. The financialization and commodification of land has resulted in further exclusion and as such there may be an opportunity for reconciliation as new alternative farmers and Indigenous people could unite to counter these processes. The Truth and Reconciliation Commission of Canada (2015) encourages all Canadians to have new conversations about our collective identities and subjectivities. The potential for land to spark these conversations and debates is evident as new land agreements and treaties are negotiated throughout Canada. However, land rights on the Prairies are understood as having been determined over one hundred years ago and settler-farmers were quick to take what they could through homesteading. Currently, this intergenerational land transfer practices and land commodification has excluded new farm entrants who come from non-farming backgrounds and who are interested in alternative land tenure relationships. As a result of these differences, there may be an opportunity for new alternative farmers to resist dominant narratives of relationships between settler-farmer and Indigenous people. But this cannot be done unless the genealogy of the process of colonialism, settlement, and governmentality on the Prairies is understood. This chapter-article contributes to those conversations by exploring subjectivities of divergent actors tied to prairie agriculture and providing fodder for processes of self-reflexive and self-cultivation (Holmes 2010).

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## **Abstract**

By attempting to shape settler-farmer subjectivities, state and institutional actors were trying to shape the landscape and thus the history and geography of the Canadian Prairies. The goals of this paper are to extend an analysis of environmentality from its typical application on colonial forestry projects and instead interrogate agriculture on prairie landscapes. The Canadian state, in its use of the technologies of environmentality to manipulate ‘common sense’ attitudes and behaviours towards a capitalist vision, acted first to deterritorialize Indigenous communities and then manipulate their subjectivities in order to guarantee settler-farmer access to land. Later, institutions and federal policies and programs moulded the settler-farmer subjectivities and identities in an effort to also shape environmental objects out of soil, water, and seeds. These environmental objects have also acted upon the settler-farmer subjects by setting biophysical and genetic limits such as soil fertility, water quality and quantity, and plant hardiness and disease resistance. Finally, understanding processes of subjugation may suggest ways to successfully resist environmentality’s influence on subjectivities.



## 4.1 Introduction

The ‘common sense’ assumptions about how farming is done on the Prairies have been formed through interactions of soil, water, seeds, politics, histories, cultures, and the agency of farmers themselves. Federal governments, institutions, and corporations have all altered the attitudes, discourse, and behaviour of Canadian farmers since Confederation as part of a colonial project to settle the land, assert sovereignty, and create an export-based agriculture regime and vital economy (Daschuk 2013, Russell 2012, Braun 2002, Potyondi 1995). Farming practices and the prairie landscapes have changed dramatically in the past 200 years since Euro-Canadian exploration and settlement by farmers; from native grassland disturbance to dismissal of prairie fire regimes and the extirpation of the bison, through the ravages of the Great Depression, followed by advancements in mechanization and industrialization, and eventually the rise of agribusiness and neoliberal agricultural policies and the recent decline of rural communities (Cunfer 2005, Savage 2004, Potyondi 1995, Owram 1980). The empirical details of these changes have been well rehearsed by scholars of prairie landscapes (see Russell 2012, Waiser 2005, Potyondi 1995, Owram 1980), but the ways that policies, in this case analysed as technologies of governmentality, have changed discourses of prairie Canadian settler-farmers are still poorly understood. An analysis of the technologies of environmentality, the subtle transformation of ‘common sense’ attitudes and associated behaviours, to explore these issues provides new insights into the histories and geographies of agriculture, land, and food systems on the Canadian Prairies. At the same time, farmer attitudes and behaviours are also the result of agency and embodied experiences in place, which are transformed through practices and understandings of nature and community (Bakker and Bridge 2006). This exploratory chapter-article makes this argument using evidence from historians as well as historical data tracking changes in farmer behaviour and agri-environmental indicators.

The decisions that a farmer makes has dramatic effects on the landscape; from production decisions regarding which crops to grow and how to grow them, the drainage of wetlands, and the planting or removal of trees. These decisions have implications for the construction of railways and roads to move agricultural goods, the (de)construction of grain elevators, and the location of grain-handling facilities, all of which have changed the landscape of the Canadian Prairies. Farmer decisions shape local environments, but they also produce wide-ranging externalities. Farmers' bodies, along with their management practices and behaviours, have the potential to change water flow and quality in downstream rivers (Wheater and Gober 2013), to reduce or increase soil erosion across the region (Amichev et al. 2015), and can even contribute to weather patterns downwind as broadleaf crops such as canola have been shown to change evapotranspiration patterns (Raddatz 1998). Farmers, historically and currently, do not make such decisions in isolation; they are responding to economic, socio-cultural, political, and technical influences that come through talking to their neighbours, seed and fertilizer company consultants, university researchers, extension workers, and engagement with media. Through these on-farm decisions, farmers are recreating the landscape in the image of the state and capitalist interests. For example, the adoption of shelterbelts after the Great Depression was developed as a project of the Prairie Farm Rehabilitation Administration (PFRA) to dramatically increase the number of trees planted on the Prairies in order to help mitigate extreme soil erosion (Marchildon 2009). Tree-planting slowed significantly in the 2000s and 2010s, and by the time this program ended in 2013, new techniques including conservation tillage and the use of genetically modified (i.e. herbicide tolerant) crops had replaced shelterbelts and once again the landscape was transformed (Amichev et al. 2015, Wheater and Gober 2013). Both of these farming technologies were inaugurated in conjunction with state farming policy and continue to

reproduced emblematic and ‘correct’ prairie landscapes, yet the farming landscapes of the post-Depression era and present-day are in stark contrast to one another.

In this chapter-article, I examine the shifting subjectivity (Harris 2009, Gibson-Graham 2006) of dominant discourses that define what it means to be a ‘good’ farmer (McGuire et al. 2013, Burton 2004) on the Canadian Prairies and how soil, water, and seeds are employed as technologies of governance. I argue that the current ‘good’ farmer subjectivity of industrial, productivist agriculture is part of a centuries-long process of environmentality in which the Canadian state has influenced identities of both settler-farmers and Indigenous people. This colonial and capitalist project to create an export-based agriculture regime relied on the creation of two separate and distinct subjectivities and sets of relations with nature, which at the same time were contingent on and reproduced by each other. I analyse how the history and the spatiality of white settler-farmer men, and later their families, who worked to turn ‘unproductive’ land into orderly fields, have been designed by the process of governmentality and environmentality, following the work of Agrawal (2005) and others (see Li 2007, Kosek 2006, Tsing 2005, Braun 2000), who use these frameworks to explore human-environment interactions. The process of environmentality created environmental subjects of settler-farmers who then act to create a circumscribed image of the environment that enables state actors and institutions productive access to environmental objects, such as water, soil, and crops like wheat and canola.

This chapter-article will examine how environmentality can explain historical and current patterns in Canadian Prairie farmer subjectivities. I begin by exploring the concept of environmentality and how it has been used to explore various environmental subject- and object-making processes. After exploring the pre-settlement context in Canada and how the making of a capitalist state vision of Indigenous subjectivities facilitated the establishment of and subsequent

domination by settler-farmers and settler culture, I will examine the environmental objects that governments sought to manage through the institution of the Prairie Farm Rehabilitation Administration (PFRA) (established in 1935 and ended in 2013 by the federal government). A second example focuses on the shifting materiality of the seeds used to grow the main crops on the Canadian Prairies, by looking at the role of the Canadian Wheat Board (CWB) (started by farmers 1935 and endorsed by Parliament, its monopoly status was ended 2012 by the federal government) as well as public and private crop breeding projects and policies. These case studies allow the exploration of how soil, water and seeds were shaped by corporations and state institutions into objects to be managed by farmers-subjects in Western Canada and how these objects in turn (re)created farmer subjectivities. These programs, policies, and institutions changed the way that farmers saw themselves, and also the way that they interacted with the environment. Yet the influences of environmentality and governance are not all-encompassing and exploring the role of collective and individual resistances can yield important counter-narratives and subject positions that hint at how farmers' agency and episodic influence can shift state policies, potentially reimagining the 'common sense' that the state seeks to maintain (Li 2005).

#### **4.2 Environmentality on the Canadian Prairies**

Sometimes called eco-governmentality or green governmentality, the concept of environmentality emerged from Michel Foucault's theories of governmentality and biopower (Kosek 2006, Agrawal 2005, Foucault 1994, 1991). Foucault's writing on governance includes discussions of biopower, discipline, sovereignty, and the manipulation of social norms through both the directive use of power and the subtler manipulation of conduct of individuals (Lemke

2001, Foucault 1991). As monarchies contended with the shift towards democratically elected officials, heads of state had to continue to justify their importance to citizens (Foucault 1991). This was partially accomplished by shifting the management of the economy from families to the state so that the state could manage the population using “surveillance and control as attentive as that of the head of a family over his household and his goods” (Foucault 1991: 92). In this way, the state could involve itself in the everyday lives of citizens and claim to be acting for the common good. Once the population has accepted that governments should be responsible for the management of the economy, public health, natural resources, and so on, they become more willing to change their behaviours based on subtle shifts in social norms directed by governments and institutions, allowing governance to be done from afar, which further facilitated the diffusion of capitalist narratives (Foucault 1994, 1991).

Environmentality has been used to analyse how environmental subjects are created as a foundational part of the process of governance, and especially how government policies and actions work to change individual attitudes and behaviours framed by social and political relations (Agrawal 2005, Foucault 1990). The process works to transform citizens into environmental subjects and natural resources into environmental objects requiring management by those same subjects; natural resources are then framed as a key part of the national economy and thus become the rightful responsibility of federal governments (Peyton and Franks 2016, Kosek 2006, Agrawal 2005). The technologies of environmentality, including bureaucratic persuasion and policy-making, market-based interventions, regulatory restrictions such as inspections or enforcement, and on rare occasions disciplinary punishment such as imprisonment shift discourses around acceptable behaviours of individuals (Dressler 2014). The shifting subjectivity of local people has been examined primarily from the perspective of interactions

with extractive resources such as forestry (see Li 2007, Kosek 2006, Agrawal 2005, Tsing 2005, Braun 2000). Many authors have made important links to colonial histories that link Indigenous people to nature, producing the simultaneous management of both people and resources in the ongoing interest of colonial power (Thorpe 2012, Kosek 2006, Braun 2000). This research expands on this literature to include the experiences of rural and farmer subjects, particularly in North America. Additionally, I suggest that this conceptualization may offer transformative potential for contemporary environmental subjects to engage in resistance through self-cultivating alternative subjectivities by reimagining agricultural landscapes.

#### **4.2.1 Making environmental subjects on the Canadian Prairies**

This chapter-article will follow Agrawal's (2005) narrative of environmentality, and will consider how the state sought to first gather data on environmental objects and organize it using statistics, ensuring that the state became the holders of knowledge. I contend that in Canada, this took place beginning in the 1600s until the 1970s as exploration, trade, and construction took place and bureaucracy grew. During this period, discipline and force were used to deterritorialize Indigenous communities and transform their identities through subjugation. While settler-farmers were not necessarily directly engaged in the dispossession of Indigenous people, this process allowed farming identities to be developed in relationship to policies regarding immigrant recruitment and private property regimes, interactions with neighbours and family, experiences on the land, market forces, and embodied experiences. Then, beginning in the 1980s, environmentality was further reinforced through neoliberal governmentality using coercion and fear to regulate farmer behaviours, a process that further entrenched a set of practices and identities that ensured long-term access to and control over agricultural resources (Fletcher 2010). This neoliberalization of subjectivities resulted in the deregulation of agricultural markets, the emphasis on free market ethics, and increased corporate control of the food system. In Canada,

the resistance to capitalist subjugation has taken many forms, and today exists as networks of alternative farmers and other food systems actors, including Indigenous communities working to build self-cultivated subjectivities grounded in community-based economies and new relational ethics (see Gibson-Graham 2006, Harris 2009). However, the influence of the capitalist state in manipulating hegemonic narratives has changed the ways settler-farmers see themselves in their everyday relations with the environment, to the state, and to each other.

Since the exploration and settlement of Canada took place through the economic and nationalist interests of the colonial powers of Britain and France, this process of normalizing and enforcing the role of the state had largely taken place among white settlers, however Indigenous subjugation remained a necessary step in establishing sovereignty. Early efforts to create an Indigenous environmental subject relied on the twinned process of deterritorialization and the erasure of a culture of agriculture from many Indigenous histories. This took many discursive forms in Canada: the Frontier, Terra Nullius, the image of the Noble Savage or the disappearing Indian of salvage ethnography (Thorpe 2012, Braun 2002). All of these artifices allowed European settlers to build a vision of civilizing the empty wilderness, or displacing a people who were not using the land ‘correctly’ (Harris 2004, Owrarn 1980). The moral and legal influence of Locke and Hobbes were at the root of frameworks supporting private property as the basis of civilized societies and in maintaining that agriculture was the only suitable use of land (Epp 2008, Harris 2002). As part of a land ethic of ‘taming the wilderness’ (Cronon 1995), thousands of acres of native Prairie grasslands were ploughed, trees were cut down, and wetlands drained to create orderly and productive fields of wheat and oats, and eventually new commercial crops like canola. In this way, governments acted to secure their role and influence by situating national economic wellbeing as a phenomenon requiring the conservation of natural resources from

exploitation and poor management at the hands of local Indigenous communities (Coulthard 2014, Kosek 2006, Carter 1992). Both the so-called “Indian agents” and missionaries, as state and church agents, saw the transition to agriculture as a civilizing practice of cultural conversion towards capitalism (Truth and Reconciliation Commission 2015, Massie 2014, Russell 2012).

However, the understanding of the Canadian Prairies as non-agricultural, under-utilized land was artificially created as part of a colonial process (Lowman and Barker 2015, Daschuk 2013). Farming and gardening were practiced by First Nations and Métis peoples before Euro-Canadian settlement, as evidenced from samples containing maize and other domesticated plant pollens in the sedimentary deposits of lakes across northern North America dating back approximately 1000 years (Munoz et al. 2010). However, even the emphasis on ‘productivity’ of land ignores the many cultural and spiritual Indigenous values of land. Oral traditions and personal diaries dating back to records from 1805 indicate that farming and gardening were widely practiced by Indigenous people on the Prairies (Massie 2014, Russell 2012, Carter 1992). On the Prairies, as elsewhere in Canada, Indigenous agriculture resembled current permaculture practices where seeds were planted and left to grow unattended and later harvested (see Morrison 2011). Evidence of these management practices have been documented including the use of fire to suppress the spread of forests on the open prairie, thus encouraging bison populations (Savage 2004) and the management of ‘wild’ plant species such as blueberries and wild rice (Davidson-Hunt 2003). However, this horticultural history has been erased from dominant historical narratives that emphasize a limited survival based on hunting and gathering (Russell 2012, Carter 1992).

Hunting and gathering were more than important sources of food for Indigenous people, with bison hunting providing cultural and economic value as well (Daschuk 2013, Russell 2012).



However, at the time of Numbered Treaty negotiations between 1871 and 1921, Indigenous communities on the Prairies were struggling with decades of disease and the systematic extirpation of bison, which enabled the imposition of the Numbered Treaties (Daschuk 2013, Russell 2012). The coerced negotiation of treaties with First Nations leaders allowed the Canadian government to access large tracts of land in exchange for promises including monetary compensation, access to farming equipment and training, education, and health care among others (Russell 2012, Daschuk 2013, Epp 2008, Savage 2004). These treaties resulted in the sequestering of First Nations on reserves that were often dominated by muskeg or rocky terrain, thus guaranteeing that land suitable for agriculture remained ‘empty’ for selection by European immigrants (Daschuk 2013). Despite the poor quality of most reserve land, many early farming efforts by First Nations living on reserves were initially successful with high yields of wheat and even local prizes and awards handed out in Saskatchewan (Tang 2003). However, these efforts were effectively sabotaged by changes when government policies shifted to a more disciplinary and forceful approach after the Métis led 1885 North West Resistance (Russell 2012). In particular the role of ‘Indian agents’ in limiting both the mobility and economic participation of First Nations citizens represents a disciplinary form of environmentality (Daschuk 2013, Russell 2012, Tang 2003). In addition, the banning of cultural practices such as Sun Dances demonstrates the beginning of the cultural genocide that further subjugated Indigenous people (Truth and Reconciliation Commission 2015).

Governmentality and environmentality have “a material as well as discursive dimension: relations of power are inscribed in physical space as well as social relations” (Kooy and Bakker 2008, 377). Thus, ‘common sense’ discourses result in physical infrastructure that further entrench systems of influence and control. For example, the power of Canada’s colonial

governments was widely enforced through disciplinary institutions including Residential Schools, forced relocations of communities, and flooding for hydroelectric dams and other acts of cultural genocide, which continue to have ripple effects today (Herriot 2016, Coulthard 2014, Simpson 2004). At the same time, the concept of biopower changes discursive understandings, and emphasizes state policies to enhance, monitor or otherwise control the health of the population, for example by enacting sanitation programs, selective sterilization, or even vaccination programs, with the end goal of fostering a more productive population (Fletcher 2010, Kooy and Bakker 2008). As a tactic of assimilation through population management, Indigenous women who married non-status men, those not deemed 'Indian' and thus no longer the responsibility of the state, also lost their treaty status. Indian Affairs Deputy Minister Duncan Campbell Scott highlighted the reason for this assimilation-by-de-legitimization in 1902 when he stated that the purpose of the Indian Act "is to continue until there is not a single Indian in Canada that has not been absorbed into the body politic, and there is no Indian question, and no Indian Department" (as quoted by Truth and Reconciliation Commission 2015). The tracking of people as 'populations' through censuses is an important component of biopower and governmentality, which at the same time serves to dehumanize and disempower citizens (Kosek 2006, Curtis 1994). Compelling parents to send their children to Residential schools also served to dehumanise, track, and assimilate Indigenous children from 1880 until 1996 (Truth and Reconciliation Commission 2015). Finally, more contemporary research on environmentality has "focused on how changes in governance of the environment produces (and is part of) knowledge categories and truths that 'socially situated actors' come to understand, internalise and act on in terms of their natural and social environment" (Dressler 2014: 250). Colonialism in Canada has

resulted in the transformation of Indigenous knowledge (Settee 2013), food systems (Morrison 2011), and identities that were removed from both land and cultural traditions (Coulthard 2014).

Concurrently to the reshaping of Indigenous subjectivities, the Canadian state was also shaping the subjectivities of settler-farmers to foster attitudes and behaviours that would ensure the long-term management of agricultural resources. Economic and nationalist interests of the Canadian state in establishing an agricultural territory to export wheat to the British Empire was so great, that despite declaring the region unfit for agriculture in 1857, the Canadian government encouraged the construction of the Canadian Pacific Railway mainline through the prairie grassland starting in 1881 (Waiser 2005, Owsram 1980). The process of managing the ‘conduct of conduct’ of farmers has been ongoing and is part of the colonial legacy of the settlement of Canada where “the intended environmental subject is individualized, entrepreneurial and, above all, accepting of the inherent extractive potential of Canadian resources” (Peyton and Franks 2016: 455). Settler-farmers who were mostly European males, and later their families, have had their subjectivities moulded since their arrival in Canada in order to establish a politically stable population to contribute to the Canadian economy (Danysk 1996).

Controlling Canadian agriculture involves controlling the technology and infrastructure of agriculture, once again reflecting the material dimension of governmentality (Kooy and Bakker 2008). The process of developing an agricultural export system was carefully designed to include the establishment of a railway line to move people and grain. Limiting the movement of Indigenous people to reserves also made it easier to build railways to bring settlers westward (Tang 2003). From the late 1800s until 1914, millions of settlers arrived, drawn by the provisions of the Dominion Lands/Homestead Act of 1872 which allowed settler families to settle on 160 acres (a quarter section) of land for only \$10, if they cleared the land and built a home within

three years (Waiser 2005). Technologies including seed varieties, livestock breeds, and equipment were often brought over by settlers themselves, but were kept from Indigenous farmers who were forced into ‘peasant farming’ practices with poor quality farm equipment that was maladapted to Prairie farming (Russell 2012, Tang 2003, Carter 1992). The selection of what were considered ‘good’ farmers from Europe – including Ukrainians, Germans, and British immigrants - and limiting those who were seen as less desirable - including those from Spain, Italy, or Greece (Waiser 2005) - is an example of the Canadian state’s use of biopower. Immigrants were subject to racial hierarchies as government programs sought to establish a ‘suitable’ and cooperative farming population facilitated by the ‘whitewashing’ of the image of a ‘good’ farmer on the Canadian Prairies (Massie 2014, Daschuk 2013, Danysk 1996). For example, British-Canadian women active in the suffrage and land ownership movements advocated that giving them the right to own land and vote would protect land from non-British interests, reflecting cultural narratives dominated by pro-Anglophone, pro-white nationalism (Carter 2016).

Neither these material nor discursive dimensions of environmentality prevented ‘good’ farmers from experiencing the many hardships caused by the prolonged drought and economic depression of the 1930s. At the time, there were limited government support programs to help farmers address either the biophysical or economic realities of this period, and many farmers left agriculture and left Canada entirely, while others migrated further north to homestead again in a less drought-prone region (Laforge and McLeman 2013). As a result of this environmental and economic catastrophe, state agricultural and social policies were developed to help support the settler-farmer population in Western Canada while protecting large tracts of land from American interests (Knuttila 2003, Skogstad 1987). While farmers sometimes had agency within the

confines of agricultural policies, it was typically in their best interest to follow the directions that the state provided. For example, accessing newly opened land through the Homestead Act meant that land was more affordable for settler-farmers, and in turn the state achieved a dispersed population to break the soil and set up the wheat economy (Waiser 2005). This persuasive and coercive governmentality reinforced obedient subjectivities as those who followed state formulated practices were rewarded with land and livelihoods on the path towards establishing a capitalist agricultural region.

Environmentality is not a ‘top-down’ approach to governance (Li 2005). State schemes themselves are rarely straightforward enactments of policies, but rather, multiple experts and authorities engage with conflicting proposals to produce policies that are sometimes reactionary, created to suppress civil society movements, and sometimes respond to economic or corporate demands (Li 2005). The art of governance requires that these contradictions and failures are smoothed over and that any political questions are repositioned as technical in order to reassemble policies to give the appearance of cohesive governance (Li 2007). Thus, while the state often seeks to use simplistic models and statistics to track the population (Agrawal 2005, Kosek 2006), the actual act of governance requires a much more complex management of attitudes and behaviours to address the messiness of citizen agency (Li 2007, Tsing 2005). As a result of the complexities of the state, there are multiple ways that resistance can affect change.

Since its primary influence is on the definition of ‘common sense’, farmers can themselves contribute, resist, or reify these approaches, which can in turn affect the agricultural policies in place. An individual’s ability to resist is influenced by their diverse embodied experience, cultural traditions, and communities; these are also what determine whether or not subjugation to state environmentality will take place. For example, between 1910-1940, settler-

farmers used their agency to develop wheat pools and unions in order to harness their collective marketing and advocacy power during a period of agrarian and socialist reform on the Prairies (Waiser 2005, Atkinson and McCrorie 2003). Settler-farmer resistance also took the form of farmer-led initiatives like the co-operative Grain Growers Company in 1905, Wheat Pools in 1924, and even the National Farmers Union in 1969 (Beingessner et al. 2011, Atkinson and McCrorie 2003). These agricultural policies and farmer-led institutions shaped the “symbolic and cultural production” (Ferguson and Gupta 2002: 981) that helped farmers until the 1970s and 1980s, when the neoliberal political ideology in Canada resulted a shift away from welfare state policies (Skogstad 1987). This political transition was marked by changes in farmer attitudes from cooperation and agrarian reform to individualism and competitiveness (Atkinson and McCrorie 2003). Since the agency of individuals does not supersede the presence of governmentality in the lives of settler-farmers and Indigenous people, as the neoliberal model progressed, subjectivities on the Canadian Prairies were coerced into accepting free-market ideologies as the capitalist state attempted to break down community-based and civil rights era communitarian values of the 1960s (Eaton 2013, Atkinson and McCrorie 2003).

Environmental subjects, whether they are Indigenous communities, foresters, or farmers, have material interests in the world around them. In this sense, subjectivity produced complicity in the shaping of environmental objects as an ongoing process of (re)creation (Agrawal 2005). Bodies themselves are made as both subjects and objects through processes of biopower where human health and reproduction are governed by the state so that these bodies can be used to access resources (Kosek 2006). In other words, the production of environmental objects as resources (or not) has implications for both subjectivities and materialities (Bakker and Bridge 2006). The power of state institutions to manage access to and control over natural resources in

the best interests of the state is an outcome of a ‘common sense’ discourse and resulting subjectivity that asserts that governments are best suited to manage national economies and their natural resources. In Canada, natural resources have been discursively and materially central to the economy and nationhood since Confederation, making the federal government the ‘natural’ body responsible for the management and wise use of these critical resources (Peyton and Franks 2016). These environmental objects have been shaped by settler-farmer subjects as well as the ongoing effects of neoliberal environmentality.

#### **4.2.2 Making environmental objects on the Canadian Prairies**

*“Agricultural man has left his mark on soils but in the main he applied his efforts to producing a crop from the materials of his hand.”* (Archer 1980, 5)

The making of environmental objects to be managed is foundational to the process of environmentality and critical in the shift from ‘nature’ to ‘resource’. The physical outcome of environmentality is to position environmental objects as economic goods (Peyton and Franks 2016), which in turn can have implications for the materiality of the objects themselves. For example, Agrawal (2005) examined how trees were made into resources for colonial governments using statistics and other scientific tools. This move allowed colonial governments to understand and manage the forest according to its own vision of what a forest ought to be, which had material implications for its composition and biodiversity. Yet these surveys, tracking, and management programs required the exclusion of local populations from using forests for fuel, hunting, or other activities that were deemed non-productive, a pattern that was repeated in Canada in places like Temagami in Ontario (Thorpe 2012). Dressler (2014) applied the insights of environmentality scholarship in his study of swidden practices in the Philippines, in one of the few examples that examine environmentality and agriculture. Changes in discourse around ‘proper’ farming practices produced a shift motivated by economic interest in forestry and the

environmentalism of urban civil society organizations pushing a sustainability agenda, which ultimately had negative impacts of farmer's livelihoods (Dressler 2014). Similarly, on the Canadian Prairies, both the management of soil and water resources and later the development of annual crops like wheat and canola represent coercive technologies of environmentality. Since environmentality's effects are neither 'good' nor 'bad,' this section will consider how environmental objects have been both protected and eroded through these processes. At the same time, these technologies of environmentality continue to treat farming issues as apolitical and technical problems that have resulted in a discursive and practical shift on the part of settler-farmers.

At the time of settlement, the rich Chernozemic soils of the Prairies helped with high initial yields of early crops (Soils of Canada n.d., Cunfer 2004). Chernozemic soils are the result of cold Prairie winters slowing the decomposition of organic matter and the complex root structure of grasses that allow for good water and air interaction making this soil some of the most fertile in the world (Savage 2004). Rainfall patterns on the Canadian Prairies are cyclical and multi-year wet or dry periods are common (Wheater and Gober 2013, Marchildon 2009). The presence of Prairie potholes or sloughs provided some moisture during dry years, but water storage is limited (Marchildon et al. 2008). Average precipitation amounts are below 500mm annually, with most rainfall occurring in the spring (Marchildon et al. 2008); however, frost risk remains until late May and locations such as Swift Current, SK, in the centre of the prairie grain belt, have an average of only 110 growing days (Archer 1980). Rainfall occurs mainly in the spring and summer helps crops like wheat and canola grow when the temperatures are hottest. Meanwhile, the fall harvest is facilitated by drier conditions. However, at the time of settlement, these data on soil and water on the Prairies was known only through the local and experiential



knowledge of Indigenous people, who were never asked to share their knowledge (Settee 2013), and the records of surveyors who had only a few decades of direct observations.

Soil and water as environmental objects in this period of early settlement were poorly understood and often taken for granted and as a result experienced poor management. Agricultural techniques used by early settlers were not well suited to the dry climate and deep ploughing left scars, producing a landscape that was vulnerable to soil erosion (Waiser 2005, Cunfer 2004). The practice of summerfallowing, which involved letting the soil 'rest' by keeping it bare and free of weeds or vegetation through tillage for a year to restore fertility, also resulted in wind erosion and dust clouds (Cunfer 2004, 2005). In addition, sloughs had been removed or drained in the process of settlement creating an idealized and uniform landscape (Stunden Bower 2011). The first attempts to record and classify soils in Canada occurred with surveyors such as Palliser who made casual observations, but these were not refined until the 1920s when the universities of Alberta, Saskatchewan, and Manitoba conducted preliminary soil surveys in each of their respective provinces (McKeague and Stobbe 1978). Despite the lack of rigorous science in soil management, Cunfer (2004) found that North American farmers were using a variety of ways to manage soil fertility: swidden (although never called that, the practice of short-term land tenure was common in early settlement periods), using legumes to fix nitrogen in the soil, integrating residual plant material, and spreading livestock manure. However, the soil on many farms was soon been mined for much of its nutrients, particularly nitrogen, as there was no true strategy to sustain long-term cropping (Cunfer 2004). Thus, when a multi-year drought struck in the 1930s, the 'good' farmers of the Canadian Prairies, along with their counterparts on the US Great Plains, were poorly prepared and saw their fortunes blow away with their topsoil and their hope dry up like the many shallow wetlands that dot the landscape. Fertile soil as an

environmental object was transformed to dust, prompting the federal government to step in (Marchildon 2009).

In many ways, the Prairie Farm Rehabilitation Administration (PFRA) represented the continuation of first stage of environmentality that Agrawal (2005) identified, where the state seeks to quantify through statistics the resource that it seeks to manage. The PFRA's attempts to manage soil and water for the purposes of agriculture, therefore it had to first quantify these objects before it could manipulate settler-farmer behaviours through policy interventions. PFRA engineers immediately mobilized "surveys, comprehensive soil and hydrological studies, drainage design and air photo analysis" (Marchildon et al. 2008, 406). As a welfare state project, the PFRA was widely lauded after its creation in 1935, indicating a general acceptance of state interference as providing a solution for farmers (Arbuthnott and Schmutz 2013, Marchildon 2009). The PFRA initiated a variety of projects aimed at reclaiming soil, conserving water, and making farms more sustainable (Amichev et al. 2015, Marchildon 2009). These projects included establishing community pastures, building dams for local irrigation, providing free trees for shelterbelts, and conducting extensive research on cultivation practices in an effort to keep farmers on the land (Marchildon 2009).

The practices that the PFRA mobilized reflected attitudes on how the environment should be managed for agriculture. In this 'synoptic' vision, the damming and diversion of rivers for massive irrigation projects produced a manageable landscape by reducing its natural complexity (Loo 2016). Marchildon et al. (2008) describe how the PFRA worked to change the culture of farming on the Prairies by,

*"encouraging farmers to adopt new farming methods designed to counteract the negative effects of soil drifting and soil erosion as well as new methods to*

*conserve surface water as well as a concerted effort to construct dugouts for stockwatering on thousands of prairie farms” (406).*

Dams also represented political rather than simply agronomic decisions since it was suggested to Prime Minister Bennett in 1934 by a grain company manager that the visibility of such water projects would “*put [the] party in good standing with these farmers*” (as cited by Marchildon 2009, 287). In addition, the PFRA’s focus on research into cultivation practices suggested an ideological preference that held that the management of prairie soils ‘naturally’ included cultivation and contributed towards the goal of making the Prairies the ‘bread basket of the world.’ In fact, the Premier of Saskatchewan, James Gardiner, stated about the southwest portion of the province in 1937,

*“I am not altogether in agreement with the position taken that the lands of that area should have remained ranch lands. The history of land development fairly well proves that a pastoral form of agriculture always precedes a more permanent form”* (as cited by Marchildon 2009, 294-295).

However, this emphasis on cultivation minimized the potential role that livestock ranching could have had in protecting delicate Prairie soils which today are still under threat due to erosion (Herriot 2016). The PFRA, as a branch of Agriculture and Agri-Food Canada, continued to change agricultural discourses and practices that solidified soil and water into environmental objects that farmer-subjects were coerced into them managing for economic gain. ‘Good’ farmers were those who planted shelterbelts, built dugouts, or used good crop rotations to ensure soil and water quality remained high, not just for themselves, but for the entire rural community and the national economy.

Settler-farmer attitudes and behaviours around seeds and crop production were also being carefully directed by state policies during the early settlement years. At the beginning of the twentieth century, seed catalogues in Canada listed grasses, millets, clovers, alfalfa, field corn,

buckwheat and flax among what were considered to be the most important field and grain crops (Szego 1995). Cereal crops were not in high demand from seed companies since they were easily saved or available for local trade and faced higher transportation costs due to the higher quantities needed (ibid). Most farmers at the time engaged in primarily subsistence farming, which supported a diversity of agricultural practices and occasionally sold their excess production. Since the climate of the Canadian Prairie is characterized by a short growing season, extreme annual temperature variation, and low precipitation (Savage 2004), most early settler-farmers planted wheat varieties that had come from northern Europe because few varieties had been bred for the shorter growing seasons in Canada (Kuyek 2007). The Homesteader Act was used to discourage settlement in towns or other communal arrangements, and instead, farms were established as quickly as possible across the prairie in the patchwork patterns associated with the township and range survey system (Waiser 2005, Owram 1980). In this period at the end of the nineteenth century and beginning of the twentieth century, being a ‘good’ farmer meant removing excess trees, breaking the land, and staying alive through the long, cold winters (Archer 1980). Eventually as the infrastructure improved and transportation became easier, export agriculture became increasingly important and an export-oriented farmer subjectivity replaced the subsistence subjectivity.

While early seeds were brought over by settlers themselves and saved year to year (so called “brown bagging”), eventually the agency and control over the seed supply shifted to public breeders and small seed companies, and finally to larger, eventually multinational, businesses that manipulated the legal system to support their monopoly control over royalties and ownership rights (Kuyek 2007, Szego 1995). Public plant breeding programs in Canada were developed under the premise that seeds were a public good rather than a commodity and that the

process of plant breeding was in the national public interest (Kuyek 2007). Kuyek (2007) writes how the first crop breeding efforts were directed by the Dominion Experimental Farm in Ottawa, established in 1888. The first Director of the Experimental Farm, William Saunders, focused on collecting and disseminating seeds to farmers in order to facilitate the important work that farmers were already doing in their fields to develop new varieties. In 1895, 26 000 free wheat seed packages were sent to Canadian farmers with another 35 000 sent the following year in an effort to meet the high demand from farmers (Kuyek 2007). Seeds, and the resulting crops, were becoming an increasingly economic good, but were still primarily under the control of farmers.

Since then, various programs administered by Agriculture and Agri-Food Canada, university agriculture researchers, seed co-ops, and private seed companies have worked to develop new crop varieties focused on disease-resistance and drought-tolerance. State and corporate actors legitimized their knowledge claims in the 1920s through the quantification of wheat protein, which was used as a proxy for rating the quality of wheat (Varty 2004). Debates over wheat quality from different Prairie bioregions meant that protein, as a quality of good bread-making flour, became the de facto criteria that determined price, and as Varty (2004) writes, *“the call for scientific measurement of an invisible constituent – protein – as a guarantor of ‘transparence’ [sic] in state-controlled grading legislation and as a mediator of private interest and public administration betray[ed] [a] ‘trust in numbers’ (736).* Varty (2004) goes on to recognize that farmer knowledge and scientific knowledge were at odds in determining wheat quality, and that ongoing subjective understandings of quality were causing controversy since

*“in the case of wheat grading, the choice between two systems of knowledge – one based on cultivated experience and seasoned judgment, and one based on explicit, measurable, and quantifiable criteria – was not simply about precision and fairness. [Since] protein made wheat the world’s most modern grain, and Canada the producer of the world’s most modern wheat. Thus, to impugn the grading*

*system on the grounds of its inability to measure protein was to go well beyond the charge of mistreatment of producers; it was to raise the spectre of a wheat industry lacking the requisite science to keep pace with an increasingly modern world.” (737).*

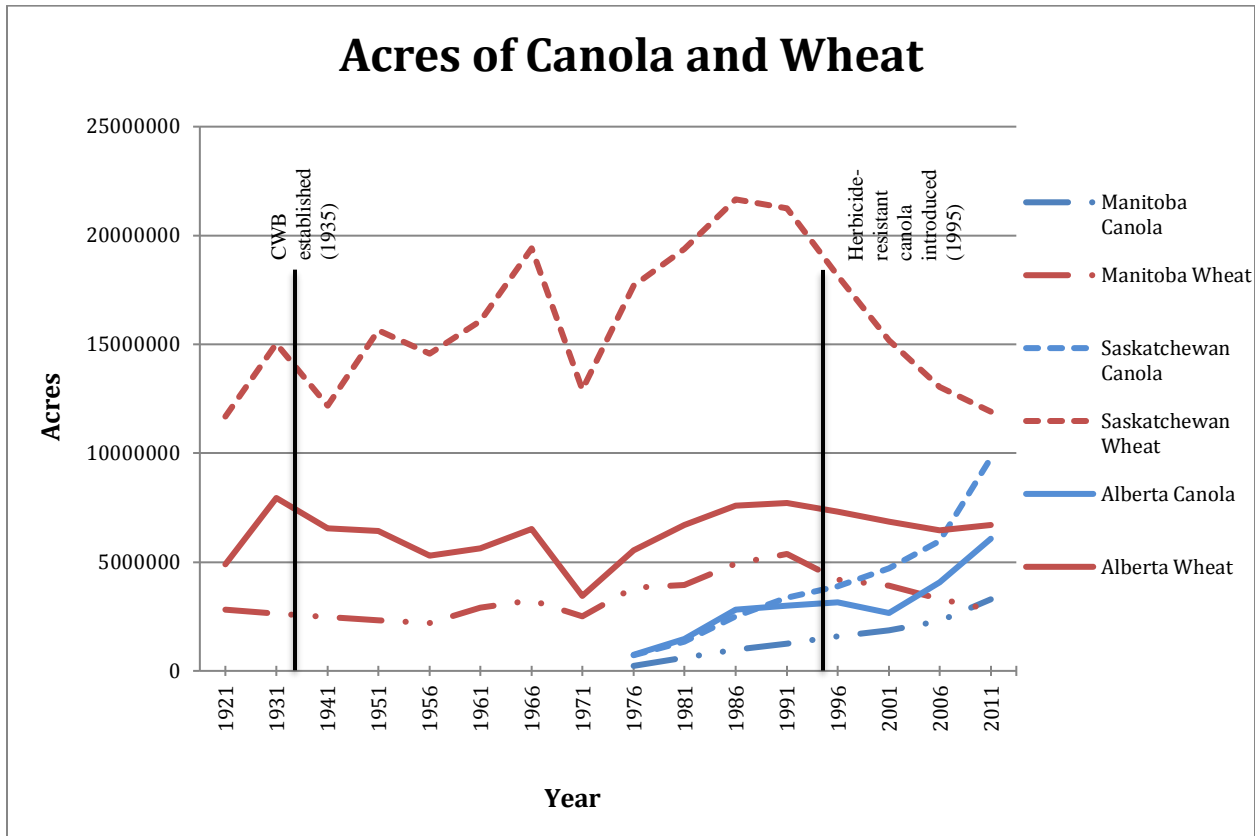
Creating trust in the scientific understanding of biophysical characteristics of wheat resulted in new social and agronomic understandings of farming on the Prairies. Seeds however, are not just economic and biophysical, they are also cultural; for example, Kuyek (2007) writes, “*the seeds we plant are profoundly social: They reflect and reproduce the cultural values and social interests of those who develop them*” (3). Thus, while public seed research and regulation was generally beneficial for farmers, it also normalized top-down processes of crop development (Kuyek 2007). The discourse surrounding the embedded economic value of seeds is critical to understanding the environmentality of the Prairies, particularly the development of wheat and canola as environmental objects.

Difficult economic and climate conditions prompted many farmers to form collective networks and establish tools like marketing boards to guarantee stable prices for farmers (Skogstad 1987). In response to pressure from farmer cooperatives, the Canadian Wheat Board (CWB) was formed in 1935 to create parity in wheat marketing and to address high rail freight rates; and in 1943, its mandate was expanded to include barley and oats (Magnan 2011, Skogstad 1987). The CWB represented a key way that farmers could sell their wheat collectively and ensure that, regardless of their location, the price of delivery was equitable due to the common pooling of the grain (Magnan 2011, Kneen 1990, Skogstad 1987). The CWB may have originally been a farmer-led initiative, but it was only through government intervention that the CWB gained monopoly-power (Magnan 2011, Kneen 1990). By protecting the financial value of wheat, barley, and oats the CWB produced environmental relations through market-based technologies and globally promoted the message that these crops were better suited to Prairie agriculture and

that only ‘good’ settler-farmers grew these crops. This worked to transform settler-farmer attitudes towards wheat as its symbolic importance in making the Prairies a ‘bread basket’ was now further implicated in its role in building communities and economic opportunities (Eaton 2013, Kuyek 2007, Varty 2004).

The next phase of environmentality took a more neoliberal form in the 1970s and 1980s. The state began to shift away from disciplinary governmentality of earlier eras, as demonstrated by Indigenous subjugation, towards a process to extend free market rationality into other realms (Fletcher 2010). Environmentality in agriculture in this period sought to create farmers who “manifest her/his own self-interest through enterprise and competition for maximum profits” (Fletcher 2010, 174), in contrast to the morality arguments used during the disciplinary phase of environmentality. In the pre-1970s period, farms were smaller, more diversified, but still emphasized wheat. This production was supported by infrastructure and markets to ship, measure, grade, distribute, process, and simplify wheat’s genetic and qualitative diversity (Varty 2004). Alongside a political shift from welfare state-style stabilization projects to productivist attitudes and the downturn in global commodities markets, many farmers left Prairie agricultural in the 1980s and 1990s (Burton 2004, Skogstad 1987). This outward migration was precipitated by regional droughts and market collapses in the 1970s and 1980s and ultimately resulted in an abrupt population decrease in rural areas and the agglomeration of land into larger and larger farms (Sommerville and Magnan 2015). Concurrently, settler-farmer preferences regarding the types of crops that were grown and where to access their seed also changed. Canola came to challenge the dominance of wheat on the prairies (Figure 4.2); a crop whose successful transition from mechanical lubricant to food-grade oil is linked to (and perhaps only possible because of) scientific and technological advancement (Eaton 2013).

**Figure 4.2 Comparing acres of canola and wheat in Manitoba, Saskatchewan, and Alberta from 1921 to 2011**



Source: Statistics Canada. Table 004-0003 - Census of Agriculture, selected crop data, Canada and provinces, every 5 years. Note data missing from 1926, 1936, and 1946.

Alongside this development of seeds as environmental objects is a shift from their base in intimate farmer knowledge to one that farmers rarely control anymore. In this instance, the management of the genetic material has shifted from field, to public seed bank, to private laboratory and commodity markets (Kuyek 2007). The commodification of hybrid and GM seeds had undermined and subsequently commodified traditional seed knowledge of farmers as well and resulted in an increased reliance on transnational seed companies to provide support and advice to farmers (Eaton 2013, Mauro et al. 2009, Kuyek 2007).

Meanwhile state policies like the PFRA no longer applied in the neoliberal era where individual productivity maximization was seen as the primary driver of farmers. Thus in 2013,

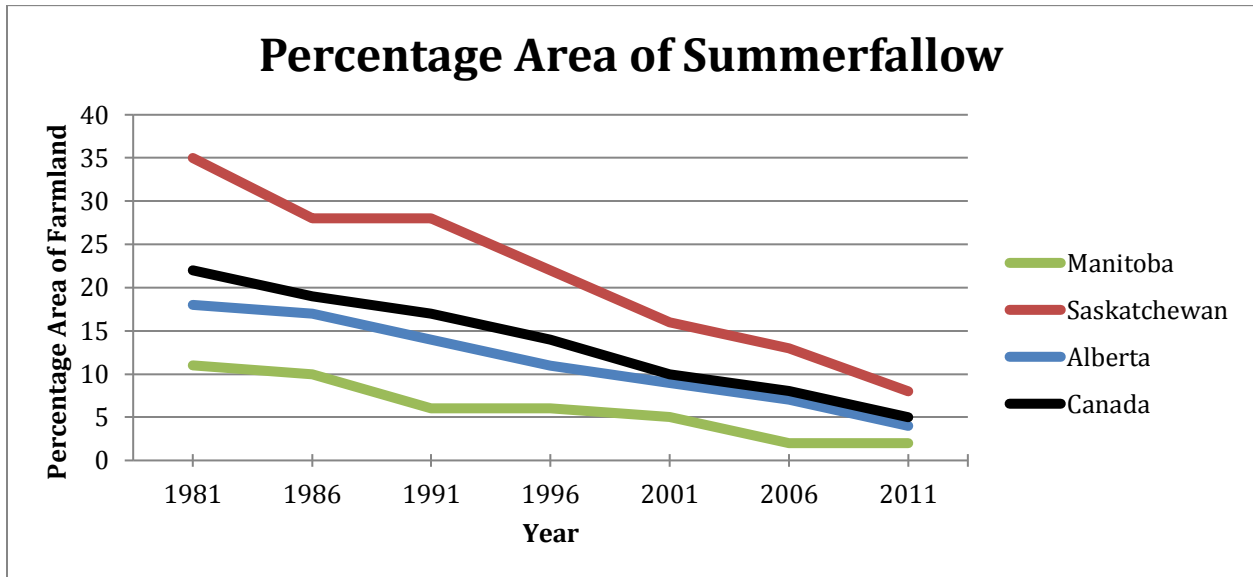


the PFRA and its programs were terminated amid modernist and productivist attitudes of competitive advantage and economies of scale (Arbuthnott and Schmutz 2013, Burton 2004). This has had significant effects on farmer behaviour and thus on the agricultural landscape of the Prairies. For example, the end of the PFRA shelterbelt program which provided free trees as well as ongoing economic pressures have resulted in many farmers tearing up shelterbelts in order to expand the area of cultivation (Amichev et al. 2015). These actions could contribute to potential soil erosion problems in the future and has the immediate effect of changing the landscape. The decrease of trees also means a corresponding loss of natural habitat and biodiversity (Clearwater et al. 2016, Philips 2015, Herriot 2013).

The transition represents changing ‘common sense’ attitudes towards soil erosion and has also decreased the emphasis on the role of trees on the Canadian Prairies. Indeed, the programs of the PFRA were seen by many as redundant because of the decrease in soil erosion due to the use of conservation tillage, direct-seeding, soil drainage, precision farming (i.e. the use of GIS and satellite imagery in managing nutrient inputs), and agribiotechnology (i.e. herbicide tolerant crops) which ostensibly reduced the need for tilling the soil and exposing it to the threat of erosion (Amichev et al. 2015, Argue et al. 2003). Soil management is now a technical problem addressed by modern equipment, rather than one part of a larger farm management system. However, the long-term implications of this change in practices may be difficult to fully comprehend as soil fertility may be improving through a reduction in summerfallowing (Figure 4.3), but the implications of increased pesticide use associated with no-till and herbicide-resistant crops may also have significant repercussions (Figure 4.4). Health Canada reported a 24% increase in glyphosate sales from 2008-2014 (when they first began tracking sales, in kilograms

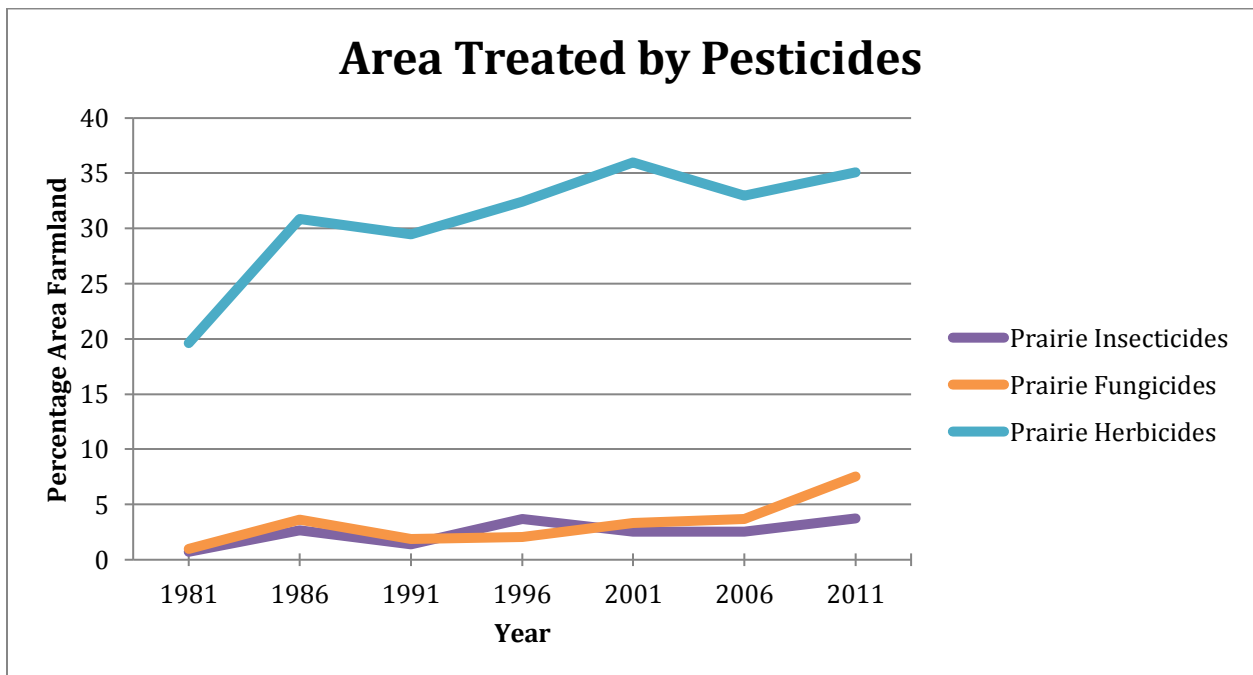
of active ingredient), which is attributed to increased use of the genetically modified crops with herbicide resistance (Clearwater et al. 2016).

**Figure 4.3 Percentage area of farmland using summerfallow**



Source: Clearwater et al. (2016).

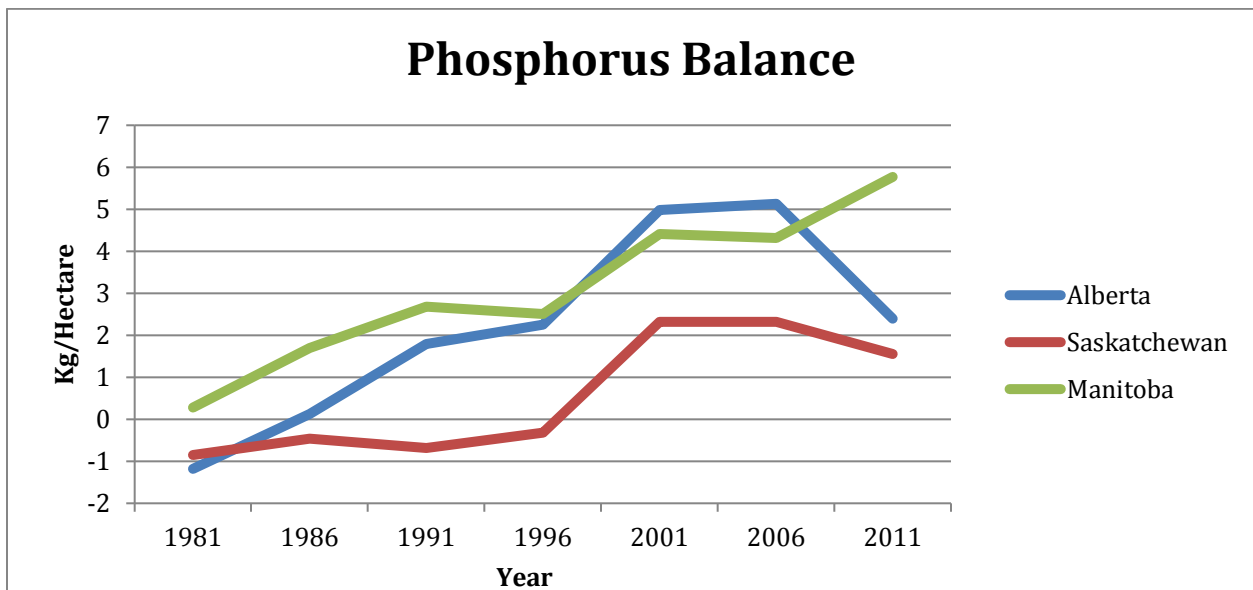
**Figure 4.4 Area treated by pesticides, percentage of farmland area, by pesticide type, between 1981 and 2011**



Source: Clearwater et al. (2016).

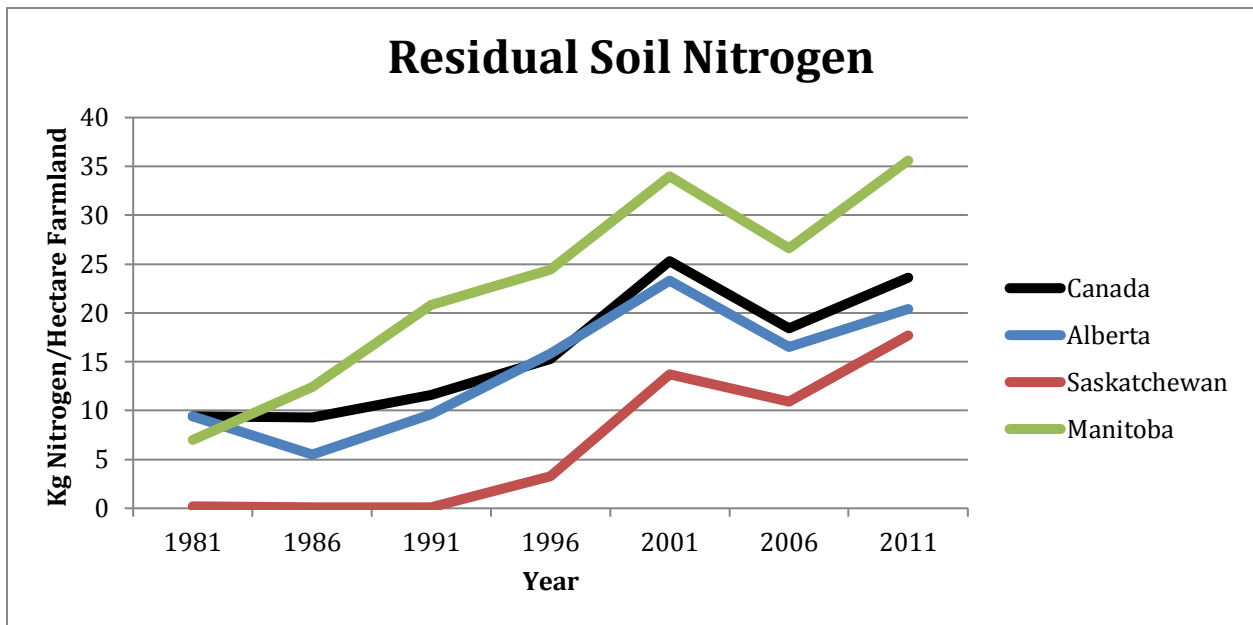
Some research shows that the decrease in the number of trees on the prairies, combined with the draining of wetlands has resulted in increased rates of runoff and silting and thus flood occurrences downstream, consequently changing the water landscape on the Prairies and the role of water as environmental object (Dumanski et al. 2015). The diversion of wetlands or sloughs has also become a persistent problem on the Prairies even though it is illegal in most jurisdictions to drain wetlands; the fines and likelihood of being caught are less significant than the potential economic gains of more farmland (Ducks Unlimited Canada 2015, Dumanski et al. 2015, Stunden Bower 2011). The increase in phosphorus and nitrogen in waterways is one of the key indicators of an increase in surface water runoff caused by increased drainage (Figure 4.5 and 4.6). Phosphorus and nitrogen can improve soil fertility, but their presence in waterways can cause eutrophication (Clearwater et al. 2016).

**Figure 4.5 Phosphorus balance, in kilograms per hectare of farmland, by province, between 1981 and 2011**



Source: Clearwater et al. (2016).

**Figure 4.6 Residual soil nitrogen, in kilograms per hectare of farmland, by province, between 1981 and 2011**



Source: Clearwater et al. (2016).

The shift towards neoliberal governmentality also had remarkable effects on the transformation of seeds as environmental objects. By the 1970s it became clear that an ideological divide was growing and many farmers had “abandoned cooperation for free-market principles” (Magnan 2011: 123), a shift that coincided with an increase in production of new crops, especially canola (see Figure 4.2). Beginning in the 1980s, a shift in size and influence of multinational seed companies like Cargill took place (Kneen 1990). Agribusiness corporations are interested in proprietary hybrid seed development, ensuring that farmers must return every year to purchase fresh seed rather than saving seeds that quickly lose their vigour (Kneen 1990), or patented genetically modified seeds that are illegal for farmers to save year-to-year (Kuyek 2007). Through vertical integration, Cargill provides support and advice on crop inputs including fertilizers, chemicals, and seeds, work that used to be done by public extension services from either universities or provincial governments (Kuyek 2007, Kneen 1990). The powerful coalition

between state and corporations commodified farmer knowledge and contributed to the production of the enterprising farmer subjectivity on the Prairies (Winson 1994). These free-market subjectivities resulted in open opposition to the CWB in the 1990s and concluded with the termination of the CWB's monopoly in 2012 (Magnan 2016). The single-desk exporter for cereal grains in Western Canada went from a \$7 billion CDN producer of revenue (Magnan 2016) to an empty building today (perhaps not coincidentally located only a few blocks from the Cargill corporate offices in Winnipeg). Many farmers indicated that they believed that they could get a better price if they were allowed to sell wheat themselves on the open market (Magnan 2016, Carter et al. 1998), indicating a firmly neoliberal subjectivity.

This shift from disciplinary governmentality to neoliberal governmentality continued to see the exclusion of Indigenous subjects from agriculture. The PFRA and other state policies had reinforced subjectivities of exclusion through institutional racism. Between 1938 and 1941, the PFRA relocated Métis farm families from Ste. Madeleine in south-western Manitoba in order to establish a community pasture (Herriot 2016, Payment 1989). In order to ensure that the families did not return, their houses were burned (Payment 1989). Moreover, the programs and assistance of PFRA and other federal and provincial projects to address flooding were not available to First Nations families despite reserves often being situated on floodplains (Stunden Bower 2011). Neoliberal environmentality also erased Indigenous cultural and spiritual history to seeds. In particular, corn and sunflowers represent key commodity crops today, but have their origins in North American Indigenous practices (Szego 1995, Kuyek 2007). As Szego's (1995) shows in his history of the Canadian Seed Trade Association (CSTA), there was often very little reflection on the origins or implications of growing different seeds,

*“bought or stolen from the Indians [sic], corn is said to have saved the English colonies of Virginia and Massachusetts more than once. The indian [sic] corns were basic and primitive and had changed very little during the centuries they had been grown. Improved varieties were developed as open-pollinated strains in the 1800s in the United States and in the early 1900s in southern Ontario” (13).*

Throughout the history of seeds, the making of this environmental object has involved the undermining of agency of various environmental subjects. First was the complicit involvement of settler-farmers in the removal of Indigenous people as agricultural subjects and later the removal of settler-farmers themselves by agribusiness corporations who now claim ownership and make decisions regarding seed.

#### **4.3 Discussion and conclusion**

Understanding both the physical geography of the Canadian Prairies as well as its cultural history is to understand the intimate relationship between humans and nature and the politics of agriculture. I have explored the dimensions of the tensions of environmentality through the environmental objects of water, soil, and seeds; chosen because of their importance to agricultural economics, their centrality to Prairie farming culture, their biophysical implications for rural landscapes and environments, their controversial transformation in recent years, and the ways that settler-farmer agency and state power have interacted to change their material and symbolic qualities. Thus far the process of environmentality has been to consider how environmental subjects have been made and how these have shaped and transformed environmental objects. However, the understanding of biophysical characteristics of these environmental objects is also culturally derived. The way that the biophysical is known is economically and culturally mediated; in much the same way that Aristotle ‘knew’ stars to be circles painted on a celestial ceiling (Busch 2003). Or the way states and corporations had no

economic interest in bison as agricultural resources until relatively recently because these were not seen as good candidates for domestication. Recent technological advances and ongoing neoliberal environmentalism are continuing to challenge ways of knowing, for example the search for more and more economically viable resources has resulted in the practice of biopiracy, that is the extraction and commercialization of previously ignored traditional Indigenous flora and fauna (Goyes and South 2016). This reframing could threaten the already tenuous spiritual and cultural relationships Indigenous people have with their food systems, as crops like wild rice are transformed into commodities (Morrison 2011). The processes of environmentalism require that knowledge held by state or corporate actors produces standardized, one-size-fits-all production paradigms that effectively undermines settler-farmer and Indigenous agency (Mauro et al. 2009, Kuyek 2007, Kneen 1990).

Environmentalism on the Canadian Prairies has gone through two main phases, the disciplinary phase during colonialism and early settlement and the neoliberal phase using coercion and incentives. The premise of environmentalism is that power is diffused through multiple technologies of governance to manage citizens and the environment for the ‘betterment’ of the whole of the state and its constituents (Dressler 2014, Kosek 2006), this moral imperative is particularly important for disciplinary environmentalism (Fletcher 2010). Later, economic growth is used as an indicator of success by the state and the environment becomes a source of economic wealth (Peyton and Franks 2016, Fletcher 2010, Agrawal 2005). Due to the ongoing, intergenerational relationship between farmers and the natural environment, agriculture is rarely considered an ‘extractive’ activity, rather it is framed as a ‘productive’ resource enterprise. The difference in process and timeline means only that environmental subjects were created using the ‘slow violence’ of residential schools, cultural genocide, technocratic reorganization, and

environmental decline (Nixon 2011). Neoliberal environmentality continues to impact Indigenous subjectivities in much the way it impacts settler-farmer subjectivities with an increase emphasis on individualism and private property over shared responsibility and communal land tenure.

The reshaping of the properties of prairie environmental objects - soil, water, seeds - are co-produced gradually by environmental subjects who are then in turn formed alongside the environmental objects they manage. For example, Eaton (2013) demonstrates that seeds have been shaped by farmer-breeders, scientists, and public officials so that the biological traits of the plant have changed, but these seeds also act upon farmers by determining the types of cropping systems and agronomic practices they could employ, thus changing landscapes. Meanwhile, soil and water management on the prairies has seen farmers switch from practices of summerfallowing to the widespread adaptation of technologies of conservation tillage and pesticides in order to maintain soil fertility and retain water, a transition that required a whole-scale capital and knowledge investment in new farming practices. The changes in environmental objects and their symbolic and material meaning are reflected in the neoliberal environmentality that resulted in the termination of state programs that acted to support and protect environmental objects through disciplinary environmentality. While these may appear to be irreconcilable state actions, first to introduce the PFRA and support the CWB and then to terminate them, they reflect ongoing projects to maintain sovereignty and control over natural resources for the national economic interest. At the same time, the transition towards increasingly neoliberal forms of governmentality may have serious implications for the agri-environmental objects with the rise in pesticides and threats of water contamination and the potential return of soil erosion through the loss of trees (Clearwater et al. 2016, Amichev et al. 2015).



The spaces of resistance and the frictions between agency and environmentality, characterized as a tension between embodied, local knowledge and the standardization of scientific agriculture research, have often taken place over the cultural, symbolic, and practical aspects of, soil, water, and seeds. In the case of land and soil, discussions over treaty rights, land access, soil fertility, and the health of the land have brought settler-farmers, Indigenous people, and others together in resisting development from oil and gas extraction and pipelines across Western Canada (Peyton and Franks 2016). Territory and subjectivity are interconnected and the resistance to claims to the land is also the resistance to a subjectivity defined by environmentality (Peyton and Franks 2016). For example, resistance on the Canadian Prairies, as an expression of agency has resulted in Idle No More, a national environmental and human rights movement led by Indigenous activists, especially women, exemplifies a resistance through a revival of Indigenous self-cultivated subjectivity and identity (Coulthard 2014). The corporatization of soil and water, and their production as environmental objects, makes these ‘resources’ subject to private property regimes and thus changing these objects requires changes in individual farmer behaviour and management. Seeds however, are transportable, and resistance to their corporatization is located in the backyards and farms of Canadians through the tangible and symbolic act of saving and sharing seeds (Phillips 2008, Mascarenhas and Busch 2006). While there is also political resistance to the legal frameworks that make seed saving illegal on the part of both settler-farmers and Indigenous people in Canada (Eaton 2013, Pechlaner and Otero 2008), much of the resistance of seeds’ environmental object formation comes from informal seed saving in rural and urban environments including the work of Indigenous seed sovereignty activists (Sierra Seeds 2016, People’s Food Policy Project 2011). Seeds such as wild rice are

increasingly symbolic and material examples of Indigenous resistance to narratives of colonialism (White Earth Land Recovery Project 2013).

By understanding the motivations and discourses behind agricultural policies and their implications for rural communities and the environment, we can better imagine alternatives to neoliberal hegemonic thinking. The practices of self-cultivating alternative subjectivities not only gives space to imagining other ways to be a ‘good’ farmer, but also to recognize the ways that we have all become subjugated, especially by neoliberal environmentality and its rationalities (Healy 2014, Gibson-Graham 2006). The ways that settler-farmers are interacting with the state are also changing and more and more civil society and grassroots coalitions are building networks of community-based economies to oppose corporate agricultural models (Ballamingie and Walker 2013). As these challenges to the status quo are made, they will likely rub against the technologies of environmentality that will continue to act to manipulate behaviours back towards subjugation. As Kosek (2006) writes “the formative aspects of power are not just the conspicuous ones of domination or control. Instead, formation takes place through the cultivation and identification of individuals – by means of both their internal natures and their external landscapes” (286). The current perception of a ‘good’ farmer is as a successful business owner who is “likely to disregard environmental impacts of their decisions and place personal profit before public welfare” (McGuire et al. 2013: 57). Settler-farmers have also demonstrated their willingness to change their behaviours when they act to carefully manage environmental assets through the use of sustainable and agroecological practices (Burton 2004). Therefore, resistance can result in new subjectivities as well as new environmental realities and ways of knowing and doing farming.

Situating the narrative of prairie agriculture in its colonial history is a way to account for the dispossessions that took place through this process (Lowman and Barker 2015). The making of the settler-farmer and the settlement pattern it produced required that the barrier posed by the legitimate claim to the land of Indigenous people had to be removed (Coulthard 2014, Daschuk 2013). Land, and the relationships that both settler-farmers and Indigenous people have with it, offers an opportunity to explore resistance to and contestation of environmentality and the ways it changes our relationships with nature. Definitions and relations of individuals to land vary dramatically among different subjectivities and among different cultures and worldviews. In the cracks of this complex set of relations, openings are appearing that can facilitate the emergence of new collective visions of land, soil, water, and seeds on the Canadian Prairies. Many farmer-settler and Indigenous subjects find significant spiritual importance in land and it is often a key part of identity formation,

*“Land is at the root of any issue or conflict you could care to name involving Indigenous and Settler peoples in Canada. The land is what sustains Indigenous communities and identities. The land is what Settler people need in order to have a home and economic stability. The land is what colonialism seeks to turn into a commodity for power and profit”* (Lowman and Barker 2015: 48).

As narratives from the Truth and Reconciliation process are becoming widespread in Canadian media and households, an opportunity to cultivate new subjectivities and transformative political identities has emerged (Truth and Reconciliation Commission 2015, Coulthard 2014).

Conversations about agriculture, settlement, and the history and geography of these ongoing colonial legacies are a critical part of this process (Herriot 2016, Lowman and Barker 2015, Epp 2008). The concept of ‘settler common sense’ has allowed settler communities to be complacent about their own exploitative place in the colonialism of Canada, while the discursive strategies of past state policies of assimilation continue to manifest in the present (Lowman and Barker 2015).

However, it is possible for both Indigenous and settler-farmers subjectivities to be reconciled through careful practices of self-reflection, decolonization, and atonement (Herriot 2016, Tang 2003). It is also important to commemorate partnerships between settler-farmers and Indigenous people including those from the past such as the horses provided by the Muskeg Lake First Nation to help newly arrived Doukhobor immigrants in Petrofka, Saskatchewan in 1909 (Tang 2003). Recent reconciliation efforts include land agreements between settlers in Laird, Saskatchewan and the Young Chippewayans First Nation whom they had displaced in 1879 (Polachic 2017) and between the Esk'eteme band and a local rancher in the Cariboo area of British Columbia (Lamb-Yorski 2017). Herein lies the potential of ongoing practices of self-cultivation of subjectivities and collective resistance to reconcile the colonial inheritance of Canadians and resist the neoliberal environmentality of the present; both necessary steps in building a sustainable agriculture system that meets the needs all Canadians.

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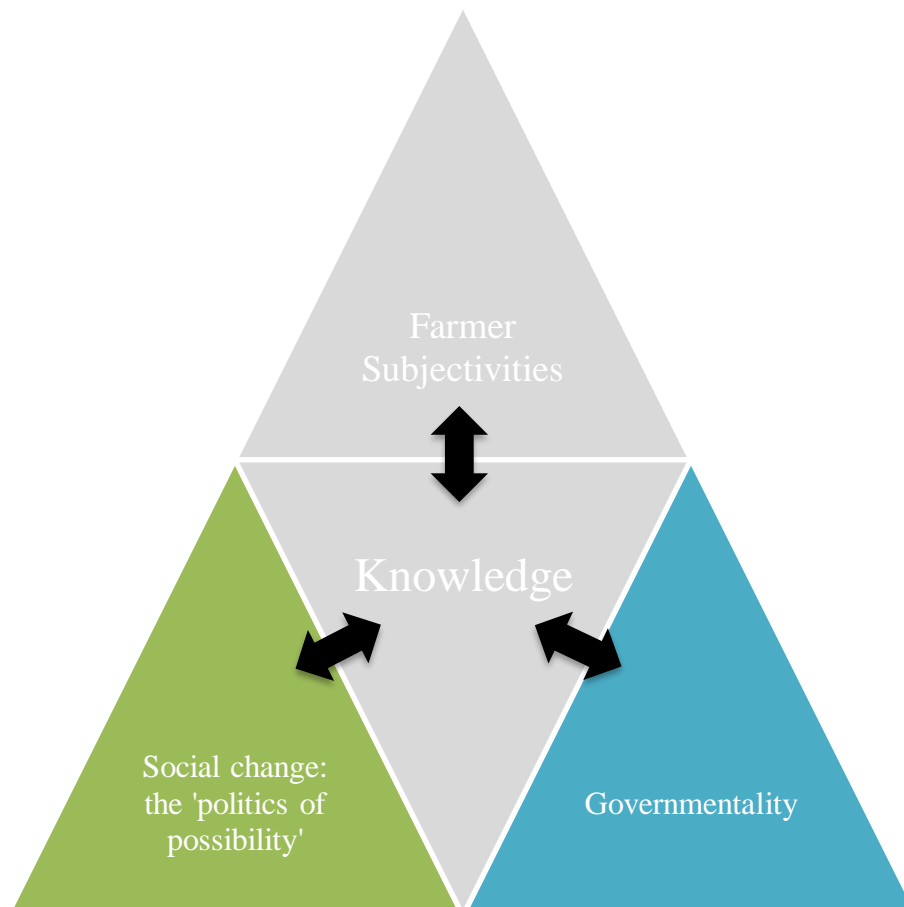
## **Chapter 5: Governments, grassroots, and the struggle for local food systems: Containing, coopting, contesting, and collaborating**

This chapter-article arose from a series of circumstances that made it clear that food safety regulations were limiting what small-scale farmers using agroecological practices could do to market and sell their products. The three main sources of data and motivation came from the Fostering Sustainable Regional Food Systems project of the Manitoba Alternative Food Research Alliance, interview and survey data collected from North America in 2009-2011 by Colin Anderson (co-author), but used for the first time here, and the seizure of cured meat that took place in August 2013 while Stéphane McLachlan, Colin Anderson (co-authors), and I, were co-instructing a field course in rural Manitoba called Living Rural Community and Environments. As the lead author of this chapter-article, I conducted the qualitative analysis of the interview and survey data, which led to the decision to focus on barriers created by government regulations, although this was changed slightly after the incident in August 2013 to focus mainly on food safety regulations.

This chapter-article uses a combination of Foucauldian governmentality and Gibson-Graham's 'politics of possibility' to explore the interactions between governance and farmer resistance with the case of food safety (Figure 5.1). This chapter-article builds on the previous one by incorporating a larger discussion of the role of agency and collective resistance and by exploring a more contemporary example making farmer subjectivities. By exploring the interactions and confrontations between state and corporate actors in contrast to grassroots and civil society actors, the conflict over food systems and farmer knowledge can be better understood. As part of a collaborative and emergent approach, the theory and the data were tested multiple times to ensure that they fit together and that I was not misrepresenting the data. This included presenting the preliminary findings on several occasions at formal community

conferences and workshops, but also in informal conversations with farmers and participants. A version of this chapter-article has been published in *Agriculture and Human Values* (Laforge et al. 2016).

**Figure 5.1 Connecting social networks and assemblages and governmentality**



This chapter-article addresses the second objective from the introduction, specifically, to understand,

- The connection between knowledge and power and the effects this has on the information that alternative farmers, in this case direct marketers, can access. In particular, this chapter-article includes an exploration of the implications of regulations as determined

through processes of governmentality and community-based alternatives, on the behaviours of farmers.

This chapter-article strives to contribute to a conversation around regulations while also inspiring and encouraging collective action in communities who are working to change food systems. These community economies are based on the self-cultivation of new subjectivities in resistance to capitalist-centric state and institutional subjugation while also working collectively to develop socially embedded and culturally distinct food systems (Ballamingie and Walker 2013). Finally, this discussion contributes to the idea of the socio-nature of food by exploring the actual and perceived risks of local food and the role of trust and community-economies versus science and capitalism in shaping discourses between farmers and consumers (Alkon 2013, Peluso 2012).

## Abstract

Local sustainable food systems have captured the popular imagination as a progressive, if not radical, pillar of a sustainable food future. Yet these grassroots innovations are embedded in a dominant food regime that reflects productivist, industrial, and neoliberal policies and institutions. In this study, we examine the encounters of direct farm marketers with food safety regulations and other government policies and the role of this interface in shaping the potential of local food in a wider transition to sustainable agri-food systems. This mixed methods research involved interview and survey data with farmers and ranchers in both the USA and Canada and an in-depth case study in the province of Manitoba. We identified four distinct types of interactions between government and farmers: containing, coopting, contesting, and collaborating. The inconsistent enforcement of food safety regulations was found to restrict or *contain* progressive efforts to build alternative food systems. While government support programs for local food were helpful in some regards, they were often considered to be inadequate or inappropriate and thus served to *coopt* discourse and practice by primarily supporting initiatives that conform to more mainstream approaches. Farmers and other grassroots actors *contested* these food safety regulations and inadequate government support programs through both individual and collective action. Finally, farmers found ways to *collaborate* with governments to work towards mutually defined solutions. Developing a better understanding of the nature of these interactions will help grassroots movements to create effective strategies for achieving more sustainable and just food systems.

## 5.1 Introduction

*“We’ve been on this organic journey for 20 years now and we just dropped our organic certification...David Neufeld who has an organic greenhouse in Boissevain, he’s done the same thing... I think local is the new thing; I mean organic has been corporatized now to the point where there are Walmarts and everyone else into it. You’ve got to do something to stay one step ahead of them. I think local is one thing that they can’t steal from you”* (Robert Guilford, Manitoba, 2006).

When post-organic farmer Robert Guilford in made this statement 2006, there was already a palpable buzz across North America about the prospects of a local food revolution. Livestock farmers who were still reeling from the BSE (Bovine Spongiform Encephalopathy or Mad Cow Disease) crisis, declining farm incomes, and uncertainty around declining rural populations and infrastructure were beginning to question their extreme dependence on export markets and the concentration of power in multinational corporations (Anderson and McLachlan 2012). At the same time, urban consumer interest in local food was growing, fueled by popular books (e.g. *The Omnivore’s Dilemma* by Michael Pollan) and documentary films (e.g. *Food, Inc.*) celebrating the virtues of these alternatives (Allen 2008). Farmers and ranchers were also interested in alternatives but were disenchanted with the conventionalization of organic agriculture (Guthman 2004). Many saw local food as impervious to cooptation by the dominant agri-food system. They hoped that direct marketing would help them to build stronger connections with urban customers and would lead to a new food culture based on interest in healthy and sustainably produced food. A decade later, local food has become a mainstream discourse in food politics and there are many indications that its role in the food system is growing. Its potential for influencing meaningful change and its role as a farm livelihood strategy, however, are hotly contested (see Busa and Garder 2015, Alkon 2013, Hinrichs 2003). Can local food be developed and expanded in ways to foster a more sustainable and just food future? Or is it being coopted like its organic precursor? How do relationships among grassroots



initiatives, governments, corporations, and institutions play out in creating this food future? These are some of the timely questions this chapter-article will seek to address.

Many advocates of local food are hopeful about the place of local food in a transition towards a sustainable food system (e.g. Lutz and Schachinger 2013). Using J.K. Gibson-Graham's (2006) 'politics of possibility', many have claimed that local food and community economies of food are contributing to substantial and potentially transformative change (Blay-Palmer et al. 2016, Ballamingie and Walker 2013). From this perspective, researchers are examining how new social, cultural, and environmental relations in local food economies are fostering democratic social relations, agroecological practices, and new political perspectives which are a part of a transition to a more sustainable and just food system (see Blay-Palmer et al. 2016, Levkoe 2014, Clancy and Ruhf 2010, Friedland 2010). Yet others argue that the local food 'movement' inevitably reflects the tenets of the neoliberal food system and are at best only a marginal component of a dominant system based on capitalist, industrial, and productivist agriculture and food policies and practices (see Busa and Garder 2015, Adams and Shriver 2010, Allen 2010, Johnston et al. 2009, Guthman 2008a). Despite these opposing perspectives, it is increasingly clear that local food politics and practices are heterogeneous (Holloway et al. 2007, Ilbery and Maye 2005, Watts et al. 2005). These spaces of local food can be both sites of possibility and of domination and there is a need to better understand these dynamics and why they change over time.

At this juncture in the politics and practice of local food systems, it is more important than ever to understand how power relationships between grassroots organizations and governments and corporations unfold. The goal of this chapter-article is to better understand the processes and possibilities for change in the food system and to develop conceptual tools to

articulate the relationship between grassroots and government in community food systems. In our empirical data, we examine local food systems from the perspective of North American farmers and ranchers, their efforts to develop local food economies and their experiences in navigating their relationships with the wider food system as mediated by government policy and regulation. From our analysis of cross-regional survey and interview data and an in-depth case study in Manitoba, we develop a dynamic typology of the interactions between grassroots and government providing a relational analysis of how a governmentality-politics of possibility framework plays out in local food systems. This is interpreted using two theoretical bodies of literature - Foucault's governmentality and Gibson-Graham's 'politics of possibility.' Before turning to our empirical analysis, we review these literatures in the context of food and agriculture governance in the following section. Ultimately, our goal is to support the development of autonomous, sustainable and just food systems by providing a critical framework to understand how governments often undermine autonomy. Just as importantly, we aim to articulate how grassroots actors and networks can gain more agency and collective control of food systems.

## **5.2 Making subjects in the food system: governmentality and the 'politics of possibility'**

The dominant food system in the Global North reflects the wider political economic context of neoliberal capitalism where industrial production methods, free-market trade, and export-oriented agriculture are supported and promoted by multi-national corporations and government policy (Blay-Palmer et al. 2016, Akram-Lohdi 2012, Friedmann 1993). These neoliberal ideologies become embedded in society through modes of governmentality, which exert power by shaping subjectivities, or the ways that individuals understand themselves, their

agency, and how they relate to the rest of society, by shifting what is considered to be ‘common sense’ (Busa and Garder 2015, Kurtz et al. 2013, Dowling 2010, Allen 2008). The political and social construction of governable subjects has been central to the neoliberal project and is an important and pervasive mode of power and control in food systems (Harris 2009, Guthman 2008a, Guthman 2008b).

Governmentality was first developed by Michel Foucault (1994, 1991) to examine the historical transition from sovereign states ruled by monarchs to democracies wherein governments needed to convince citizens that government and other public institutions were necessary to keep social order. Processes of creating new subjects through governmentality involve re-shaping social norms, discourses, and subjectivities over time in ways that legitimize the role of the nation-state and the free market as the dominant domains of social organization and which served to marginalize family, community and civil society as sites of agency (Foucault 1991). This process involves a shift from direct government of individuals to the ‘conduct of conduct’ where processes of self-regulation and subjectification came to be the primary mode of controlling the citizenry (Foucault 1991). Additionally, Foucault argued that governments use technologies such as the tracking of populations through censuses, regulation and the management of public health, in order to legitimize their management of the economy and the state (Foucault 1990). Today, powerful actors including government and corporations reproduce neoliberal subjectivities through processes of governmentality, which simultaneously limit alternative practices and subjectivities and create a common-sense capitalist hegemony (Gibson-Graham 2006).

In North America, corporations and governments shape food systems through regulatory, policy, and market mechanisms (Denny et al. 2016), but also through the more subtle power that

comes from manipulating attitudes and social norms through technologies of governmentality (Guthman 2008a, 2008b, Foucault 1991). As a result, these mainstream institutions have marginalized practices, technologies, and farming systems that challenge the importance of increasing yield or the ideologies of neoliberalism (Denny et al. 2016, Holt-Giménez and Shattuck 2011, Stuart and Worosz 2011, Hatt and Hatt 2011, Clark et al. 2010). In many ways, neoliberalism is an extension of existing capitalist values, but with a further emphasis on individualism, devolution of government power, erosion of the welfare state and reorganization of society based on market relations (Eaton 2013, Dowling 2010).

In this context, contemporary mainstream agriculture policy and discourse have increasingly inculcated market-oriented agricultural subjectivities that fit into the neoliberal and productivist agricultural development model while devaluing alternative practices and subjectivities (Denny et al. 2016, McMahon 2013, Anderson and McLachlan 2012). Smaller scale farmers and community food systems that often have multifunctional benefits to society have, in turn, been marginalized to the detriment of the environment and food culture to the degree that rural communities and family farmers now face ongoing crisis and continuous decline (Anderson and McLachlan 2012, McMahon 2009, Cushon 2003). Similarly, governments act to invisibilize or ignore emerging alternative food initiatives while characterizing them as ‘niches’ that should be incorporated into the dominant system (Andrée et al. 2010, Ilbery et al. 2010), as doomed to failure (Harris 2009), or even as dangerous or unsafe (Kurtz et al., 2013). Productivist policies, which emphasize ever-increasing yields, patented technologies and the reduction of labor input to maximize profit, are enforced through market deregulation and privatization. The shift towards neoliberal, productivist policies are notable with respect to seed laws, supply managed markets, and agricultural subsidies and create path

dependencies on farms by enabling some production and marketing options while disabling others (Desmarais and Wittman 2014, Guthman 2004). Finally, the neoliberal and productivist paradigm is further entrenched through the ‘art’ of governmentality that encourages individuals to regulate their own behavior to conform to the social norms that have been created by the dominant discourses of government and other powerful actors in the food system (Dressler 2014, Foucault 1991). Many producers in North America have internalized this productivist paradigm so that being a “good farmer” is increasingly understood as excelling at high input, high output production systems to maximize production (McGuire et al. 2013).

Using the example of food safety policies, neoliberal economic rationalities continue to trump other considerations, such as health, environment, and community, and where the responsibility for managing risk is shifted to corporations rather than third parties such as government inspectors (Denny et al. 2016, Thompson and Lockie 2013, Hatt and Hatt 2011, Stuart and Worosz 2011, Dunn 2003). As part of the process of trade liberalization and deregulation both corporate and bureaucratic actors are promoting a technology intensive science-based risk management approach to food safety (Busa and Garder 2015, Miewald et al. 2015). When food safety crises occur, companies and public officials have effectively neutralized public concerns over the systemic causes of mass outbreaks of food-borne illness, which include the increasing concentration of processing facilities, poor working conditions, and inadequate inspection regimes (McMahon 2013). Powerful corporate and government actors manage these crises by engaging in what Stuart and Worosz (2011) refer to as ‘anti-reflexive’ practices to justify ignoring calls for wider system change. During food safety crises, corporations and public relations experts have manipulated the debate to avoid blame, by shifting it to other sources of contamination, blaming victims for poor food handling, and appealing to ideals of profitability

and technology, all of which act to deter more radical changes to the food system (Stuart and Worosz 2011). Thompson and Lockie (2013) have explicitly labeled these types of actions in food safety regulation as ‘technologies of governmentality’ and have explored both the power of private food standards to change on-farm practices and how farmers have contested this process.

Public fears over food safety have thus been channeled by public health professionals and governments to implement strict phytosanitary procedures by appealing to consumer trust in the neoliberal logics of technology, science, and entrepreneurship, regardless of whether or not these procedures actually result in safer food (Miewald et al. 2015, Stuart and Worosz 2011, McMahon 2009, DeLind and Howard 2008, Gouveia and Juska 2002). Consequently, despite the growing interest in developing local food systems, the regulatory context has undermined the trust that direct marketers rely upon through the construction of farmer and consumer subjectivities that are deeply committed to centralized and individualistic modes of managing risk (Dubuisson-Quellier and Lamine 2008). The resulting subjectivities undermine the potential for communities to support ecological and sustainable production practices and food systems and alternate pathways of rural economic development (da Cruz and Menasche 2014, Miewald et al. 2015, McMahon 2009). As a result, the neoliberalization of food safety policies has been shown to contribute to the loss of small-scale processing facilities, the centralization of food processing, the consolidation of corporate power, and increased food insecurity in rural and northern communities across North America (Miewald et al. 2015, Miewald et al. 2013, Hassanein 2011, GRAIN 2011, Stuart 2008).

However, rather than simply complying with this uneven power dynamic, individuals and groups located in grassroots civil society continually cultivate alternative practices and subjectivities based on values and approaches that reflect priorities negotiated in alternative food

economies (Blay-Palmer et al. 2016, Levkoe and Wakefield 2014, Ballamingie and Walker 2013, Marsden and Franklin 2013). Local food systems can thus reflect what Gibson-Graham call a ‘politics of possibility’ where these diverse community-based economic initiatives create new possibilities for decentralized alternatives to the dominant food system (Gibson-Graham 2006, 1996). In opposition to the dominating narrative of a neoliberal food subject, many alternative food systems challenge the ways that individuals define ‘common sense’ understandings of good, safe food and thus create new possibilities for change while cultivating their own agency (Gibson-Graham 2006). Although powerful processes of neoliberal governmentality have created consenting and self-governing subjects, it is equally true that these subjectivities are not fixed. Gibson-Graham (2006) point out that there are always various power relations, and various subject positions and thus the subjugation that results from governmentality is regularly resisted, adapted, and subverted, even though this may be difficult to observe through the hegemonic lens of neoliberal capitalism. Citizens drive this change through a range of political and practical acts in the construction of alternative economies and social systems which foster new subjectivities and challenge the government control of social norms and discourse (see Blay-Palmer et al. 2016, Dowling 2010, Allen 2010, Harris 2009, Hinrichs 2003, Escobar 2001). Equally important is that collective action by grassroots communities can cultivate critical awareness and new understandings of individuals themselves through a process of re-subjectification that build on the resistance to neoliberal governmentality (Gibson-Graham 2008, 2006).

The concepts of ‘politics of possibility’ and ‘community economies’ have been used effectively to explore how alternative food systems are working to create sites that are “resocialised, repoliticised, place-based [...] in which an interdependent commerce is understood as ethical praxis” (Ballamingie and Walker 2013: 530-531). Similarly, Blay-Palmer et al. (2016)

argue that exploring food systems is an important way to understand wider system change because “food offers one way forward as communities re-invent the economic and political terms on more sustainable grounds” (15). Local food initiatives become testing grounds for alternative economic systems and social relations because they emphasize collective processes that are highly adaptable and able to address related technical, social, economic and political problems as they arise (Ballamingie and Walker 2013, Wilson 2013, Allen 2010). As these community food initiatives coalesce and transform local relationships and politics, they are also becoming further entangled into wider and more diverse movements for social transformation (Hassanein 2003, Escobar 2001). Parallel conflicts over subjectivities and narratives are also playing out in the global struggle for defining ‘agroecology’ where farmers are resisting its cooptation by corporations and governments (Anderson et al. 2015). Community food initiatives, including more radical variants grounded in food sovereignty, food democracy, and food justice, arguably represent components of a new social movement opposed to the global agri-food system (Holt-Giménez and Shattuck 2011).

Although both governmentality and the politics of possibility have each been used to examine local and alternative food systems in the literature (see Blay-Palmer et al. 2016, Dressler 2014, Ballamingie and Walker 2013, Thompson and Lockie 2013, Harris 2009), their combined influence has been underdeveloped thus far as they relate to their impact on food systems and farmers themselves. Thus, our framework provides insight into the intersection between governmentality and the politics of possibility in the everyday lives of farmers by examining farmer’s encounters and responses to government policy and regulation. In the next section, we describe the methodology used in our cross-regional study. We then present our analysis of participants’ experiences with government support programs for direct marketing and



food safety regulations. From these data, we develop a four-part typology of containing, coopting, contesting, and collaborating that we explore in detail using an illustrative case study based in the Canadian Province of Manitoba. This typology provides a framework to understand the dynamic interplay between the implicit and overt control of practices and subjectivities by government and the countervailing modes by which actors assert their own interests, autonomy, and agency.

### **5.3 Mixed methods**

Our data collection focused on the experiences of farmers who direct market their products in a capitalist, industrial food system in different regions of North America. As a result, this allowed us to understand the creation of farmer subjectivities as influenced by governments and corporations and their own efforts to engage in alternative economic activities. Our mixed methods approach (Creswell and Plano Clark 2007) combined Likert-scale, in which participants rank options from 1 to 5, and open-ended survey questions, individual interviews, and case study methods in order to analyze across a wide diversity of ecological and geographical contexts and experiences. Colin Anderson created a master list of 227 farms by conducting a systematic Internet search using national, provincial/state and regional databases that list farmers and ranchers who direct market meat in three western Canadian provinces (Manitoba, Saskatchewan and British Columbia) and three western American States (Oregon, North Dakota and South Dakota). Between September 2009 and July 2010, Colin Anderson conducted individual interviews with 51 of these farmers and ranchers, randomly selected from this list. Each participant was interviewed using a common semi-structured approach to ensure that participants addressed similar topics. These broad topics included: farm history; how farmers direct market

their meat; motivations for direct marketing; barriers to direct marketing; interactions with customers; support structures that are available to direct marketers; and their plans for the future. These interviews were audio recorded and were transcribed along with the detailed field-notes that were taken during each interview.

Based on the preliminary analysis of these interview data, a mail-out questionnaire was developed and distributed by Colin Anderson from October 2009-August 2010, to further explore emerging themes. This seven-page questionnaire consisted of Likert-scale, ranking, and open-ended questions that were split into three topics: attitudes and motivations for direct marketing; government and direct marketing; and demographics and farm characteristics. Each of the 51 interviewees from the previous phase was mailed a questionnaire in addition to the 176 farm households that remained on the master list. Of the 227 mailed surveys, 169 were completed and returned amounting to a relatively high 77% response rate. I coded interviews to look for attitudes towards government support programs, food safety regulations, and overall barriers facing direct marketers.

Meanwhile, our case study emerged from a crisis that occurred during a field course taught in rural Manitoba by all three authors. On August 28, 2013, the class of 28 students had been scheduled to visit Pam and Clint Cavers, one of the original 51 interviews in the study, who raise animals and direct market fresh and cured meat. Only a few hours before our anticipated arrival, the Cavers' informed us that a food safety raid was taking place at their farm and that a provincial food inspector was in the process of confiscating their entire inventory of cured meat. Because the incident exemplified the very analysis we were beginning to develop in this research, we systematically documented and analyzed the situation, purposely examining the dynamics through the lens of our emerging framework of analysis (Creswell and Plano Clark 2007,

Charmaz 2004). Case studies can provide depth, insight and a rich narrative (Eisenhardt and Graebner 2007, Gibson-Graham 2006), which helped to refine the outcomes from our larger cross-regional analysis. This experience resulted in many course-related outcomes including an Internet-based campaign of support for the farmers, a participatory video, and an undergraduate thesis that further explored and provided a context for the raid. The case study analysis also includes thirteen interviews that were conducted as part of the undergraduate research (Ramsay 2014) and are a part of an ongoing participatory action research project on building sustainable local food systems in Manitoba (Anderson and McLachlan 2015).

We also view data collection, analysis, and writing as being an iterative or dialectical process, rather than being mutually exclusive or sequential in nature (Corbin and Strauss 2008, Charmaz 2004). In this way, qualitative data from the surveys and interviews were transcribed and analyzed using Dedoose, an online qualitative data analysis tool, as our project progressed. Quantitative data were analyzed using descriptive statistics (SPSS V17) and were then cross-interpreted with the qualitative findings. The case study brought further conceptual clarity to our emerging findings as we integrated the qualitative, quantitative, and case-study specific data. Our analytical process included reviewing a variety of theoretical frameworks, choosing to relate the emergent typology to Foucault and Gibson-Graham's theories on governmentality and the 'politics of possibility,' which we felt was best suited to describing the situation we were observing, particularly with the ongoing Manitoba case study. We also continued to revisit the qualitative and quantitative data, as the theoretical framework was being developed to ensure that it continued to resonate with the experiences of the farmers in this research.

The tensions in the relationships between government and grassroots actors affected the way we analyzed and communicated our findings. Normally we attribute quotations to specific

participants in order to affirm their voices, local knowledge, and their interpretations of the situation; however, many research participants expressed concerns that government officials could use their statements against them, reflecting fears of surveillance and possible repercussions. Thus, the identities of participants remain anonymous, with the notable exception of the Cavers' family who has already gone public with their concerns about the actions of the Manitoba government.

## **5.4 Results**

In this section, we present the results regarding farmer attitudes towards and experiences with government through their direct-marketing businesses, focusing first on government support programs and second on food safety regulations. These findings are then further developed in our case study, illustrating the various ways that farmers are acted upon, through governmentality, and directly through regulatory limitations, but also the ways they resist and respond through a politics of possibility. In the subsequent discussion section, we cross-interpret these results to develop a typology of four different modes of interaction between grassroots and government.

### **5.4.1 Farmer attitudes towards government support programs**

Many survey respondents generally felt that the support programs at all levels of government were inadequate or inappropriate to farmers interested in local food systems. In total, 56% agreed that “*direct marketers need more support from government*” while 69% disagreed that the federal government was “*committed to supporting direct farm/ranch marketing.*” Provincial/state governments fared only slightly better, as 56% disagreed that “*our provincial/state government is committed to supporting direct farm/ranch marketing*” (Table 5.1).

Most (74%) survey respondents recognized there was much more government support for large-scale export-oriented producers such as the corn subsidies offered to farmers in the US while in Canada, funding offered by the national Growing Forward 2 program almost exclusively encourages export-oriented production (National Farmers Union 2013). Many felt there was relatively little, if any, direct support for small-scale, direct marketers. *“The national agriculture policy framework makes it clear that there is a preference for export agriculture. This reduces the motivation and ability to focus on local programs”* (South Dakota 121).

**Table 5.1 Attitudes towards government support for direct farm marketing (N=169)**

	Mean	SE	Importance (proportions %)		
			Agree	Neutral	Disagree
Government policy is too focused on export agriculture	5.52	0.11	74%	19%	6%
Direct marketers need more support from government	4.61	0.14	56%	20%	23%
Lack of government support programs is a barrier to direct marketing on my farm	4.27	0.13	43%	30%	27%
Our provincial/state government is committed to supporting direct farm/ranch marketing	3.22	0.13	25%	18%	56%
Our federal government is committed to supporting direct farm/ranch marketing	2.68	0.12	13%	18%	69%

Ranked according to mean value. Mean scores and proportion agreed were derived from a 7-point scale, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree'; disagree (1-3), neutral (4), agree (4-7); SE: standard error.

In the absence of government support, many participants identified the importance of the support they had received from other farmers and from local grassroots organizations such as farmers’ market associations. Indeed, when asked to compare the value of different sources of support, all three levels of government were ranked last while the support of other farmers/ranchers and farm organizations all were ranked highest (Table 5.2).

Interview and survey participants identified a range of possible approaches by which government supported direct farm marketing. Some identified the role of government as a regulator and certifier of food safety, which can increase consumer confidence in farm products: *“Being fully licensed and government inspected has provided our customers with more guarantee that the products they buy are safer”* (British Columbia 198). Others identified various government programs that support the development of direct farm marketing, which were observed as being more prevalent in recent years with the growing interest in local food: *“There is a growing network of supports for people who are doing direct marketing even in North Dakota...the [State Agriculture] Department is actually doing more. They work with a farmer’s market direct marketing group”* (North Dakota 402). Indeed, farmers are accessing support programs if they were a good fit with their farm’s needs.

**Table 5.2 Farmer-ranked sources of support for direct farm marketing (N=169)**

	N	Mean	SE
Other farmers/ranchers	169	5.09	0.10
Farm organizations	165	4.64	0.13
Universities	165	4.39	0.11
Environmental non-government organizations	157	4.39	0.14
Food security non-government organizations	153	4.03	0.13
State/provincial government	163	3.60	0.12
Municipal government	159	3.33	0.12
Federal government	161	3.00	0.11

Ranked according to mean value. Mean scores and proportion agreed were derived from a 7-point scale, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree'; disagree (1-3), neutral (4), agree (4-7); SE: standard error.

However, farmer attitudes were often critical of government support programs as they found them to be under-resourced or failed to reflect their own priorities and values, but rather emphasized the agenda of governments themselves. Some indicated that they would not accept support even if it were offered, whereas others were frustrated by the lack of support,

*You can look on the web but it's not like there are any subsidies. It's hard to get grants. You shouldn't expect that there is going to be any financial assistance for doing it. And I think most small farmers actually are okay with that (Oregon 311).*

Although it would certainly have been beneficial for many to have access to support programs that provided resources, skill-development, and funding, these programs were often seen as not being worth the effort because of the bureaucratic nature of their implementation, “[...] *but then so often you get grants and there are stipulations to it. You have a certain standard then or certain rules that you have to follow, that makes it more expensive in the end too*” (British Columbia 602). Some interview respondents described a distrust of government and a desire to avoid the surveillance that might arise from formally participating in government programs. A farmer from Manitoba described how program funding was tied to providing information that might ultimately be (mis)used to track and penalize the farm in the future, “*I don't know what they do with all that info and I don't trust their judgment or think they have the right ethos to be trusted with the details of our farm*” (Manitoba 521). Others commented that existing support programs tended to encourage farmers to adopt the values and practices that were congruent with the dominant food system rather than allowing for innovations and experiments that deviated from the status quo, “*I don't know what they want, but it seems as if they want us to fit into the existing system that's already built*” (Manitoba 508).

#### **5.4.2 Farmer attitudes towards food safety regulations**

Many (70%) of the farmers surveyed identified food safety regulations as a barrier to direct marketing (Table 5.3) and to the wider development of local food systems, “*It's like that one level of control that kind of keeps this [local food] from getting very big*” (Oregon 304). Food safety regulations were often viewed as an impediment to diversifying and innovating in local food markets. Regulations were described as being designed for large-scale operations and as impractical or unaffordable for smaller scale producers to comply with,

*They need a really complicated inspection system. It's called HACCP [Hazard Analysis and Critical Control Point] ... It's a binder. It's about 300 to 400 pages. Every worker, every line in a big factory has to check off that they've followed certain procedures on a regular basis. The problem is, when you impose that complicated rigorous food safety inspection system on a small farm, it's impossible (Manitoba 508).*

The application of one-size-fits-all regulations was seen to favour larger processors while putting small processors at further disadvantage,

*... We have limited processing facilities because Cargill has taken over them. [...] They limit our opportunities for processing because they take it all, limit our opportunities for marketing because they control it all, limit our opportunities for where you buy your feed, where you buy your fertilizer, [...] because it's all monopolized and it's something that changed over the last 25 years (Manitoba 505).*

Farmers described how the regulatory burden had led to the closure of smaller scale abattoirs and butchers, thereby eroding local processing capacity and creating a bottleneck in the local food system (see also Miewald et al. 2013). Additionally, the loss of local processing facilities increased costs and travel time for farmers bringing their animals to market (see also Miewald et al. 2015). Thus, one farmer from Oregon described needing to make a 400-mile (approximately 650 km) round trip to the nearest federally inspected processor.

Farmers expressed frustration with poorly defined regulations, inconsistent interpretations of regulations, and the hostile culture of most regulatory enforcement. Many (61%) of those surveyed felt that “*government regulations for direct marketing are not clearly defined*” and that there was often little support for farmers to navigate poorly articulated regulations (Table 5.3). The excessive time and resources required to understand and comply with these regulations, which often amounted to a moving target, increased the transaction costs for local food businesses, and created a substantial disincentive for farmers and value-added



processors, “Every one of those compliance things takes up time, takes up a lot of money and really limits opportunity” (Oregon 304).

**Table 5.3 Attitudes towards government regulations as they related to direct farm marketing (N=169)**

	Mean	SE	Importance		
			Agree	Neutral	Disagree
I am concerned that future changes in food safety regulation will threaten the viability of my direct-marketing business	5.48	0.10	81%	9%	10%
Food safety regulations are a barrier to direct marketing on my farm	5.18	0.12	70%	13%	17%
Government regulations for direct marketing are not clearly defined	4.82	0.10	61%	29%	10%
Inconsistent interpretation of regulations by inspectors is a problem for my direct marketing business	4.56	0.13	47%	34%	19%
Government regulations don't interfere with my direct marketing business	3.54	0.14	34%	13%	52%
Government inspection is a high priority for my customers	3.53	0.14	37%	12%	51%

Ranked according to mean value. Mean scores and proportion agreed were derived from a 7-point scale, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree'; disagree (1-3), neutral (4), agree (4-7); SE: standard error.

In interviews, many indicated that inspector interpretations of the guidelines and regulations varied over time and that there were substantial differences in interpretation between inspectors, “it just depends on what side of the bed some of these inspectors get up on each day as to whether they are going to be cooperative, or whether they're going to be argumentative” (North Dakota 404). A farmer from Oregon explained in an interview that renovations initially budgeted at \$10,000, ultimately cost him approximately \$25,000 because different inspectors imposed conflicting requirements. In turn, a farmer from Manitoba explained how he cancelled his plans to develop an on-farm meat processing plant after witnessing the mounting unforeseen costs faced by local abattoirs and butchers as a result of the inconsistent interpretation of poorly defined regulations.

The majority (81%) of survey participants were concerned that “*future changes in food safety regulation will threaten the viability of [their] direct marketing business*” (Table 5.3). A

Manitoba farmer explained,

*Then those are the grey areas and all of a sudden, the government gets something in its head and the inspectors come in, and the grey areas are all of a sudden changed. They're not grey anymore and we're getting fined* (Manitoba 508).

Some also identified the presence of a hostile surveillance culture that was disconnected from the needs of small-scale farms and that pressured them to be more cautious and conservative when developing their businesses (see also McMahon 2009). Farmers were fearful that inspectors might show up unannounced, that their neighbours might report them for suspicious behaviours, or that potential customers might actually be undercover inspectors,

*You know when you get a call out of the blue there is always this feeling like - hmmm, is this a federal inspector checking to see if I'm doing things right? We're trying to do things right but you never know for sure if you've met all the regulations or not because it's not easy* (North Dakota 402).

The lack of clear regulations, inconsistent interpretation, and distrust towards government discouraged many farmers from innovating and taking business risks. Some indicated that asking for clarification from government about innovations such as renovations, new products, or marketing avenues was risky in-of-itself, because it might draw unwanted attention from regulators. Many farmers face the conundrum of needing to be highly visible to attract new customers and grow their business on one hand and the need to avoid the attention of inspectors in the context of an amorphous and sometimes hostile regulatory and enforcement context on the other hand.

Despite these risks, many farmers contested the imposition of regulations in both implicit and explicit ways. Indeed, interviewees frequently mentioned that many farmers challenged the

rules and regulations by operating ‘under the radar’, knowingly circumventing the rules while providing food that they knew to be safe,

*We try to do what’s right in terms of not breaking any laws, but you might bend a few. There are some regulations in terms of how you store stuff and like I mentioned before that we’re not really allowed to bring stuff back to the farm, but we do (Manitoba 505).*

In other cases, especially where there were few or no government-sanctioned processing facilities, some farmers opted out of the regulatory system by illegally processing uninspected meat themselves and marketing it on the black market.

*There are some areas of the province where it’s just a black hole and undoubtedly any local meat is all illegal. So there’re a few people who are brazen enough to advertise in some of the local rags saying they’ve got meat but I think most people have just really gone underground with it (British Columbia 601).*

Other farmers described the need to explicitly contest and challenge inappropriate regulations and the need for allied organizations to advocate for change,

*I see Friends of Family Farmers offering the biggest strength of having somebody full-time in that liaison room who can be engaging with the legislature and then come back to all the grassroots and activate the troops (Oregon 311).*

Indeed, over the course of this research, struggles to contest and reform food safety regulations took place in three of the four regions reflected in our project. In Oregon, new food safety regulations addressed the needs of direct marketers (Brekken 2012) whereas in British Columbia a multi-scaled approach to food safety regulations was introduced in 2010 (Miewald et al. 2013). In the next section, we focus in on an in-depth case study that details such a struggle that emerged in Manitoba in 2013.

#### **5.4.2 Contradictions in local food policy in Manitoba – a case study**

Although Manitoba has a long and rich history of Indigenous food systems (Martens 2015), government and industry attention has centered on the export-oriented markets of

grains/oilseeds and meat since the province was settled in the 1870s. As the provincial agriculture and food agency, Manitoba Agriculture, Food, and Rural Development (MAFRD) is simultaneously responsible for promoting agriculture and food businesses as well as conducting food safety inspections of local meat and other food products. At the period of this study, three core programs existed to support a growing interest in local food within the province: the ‘Buy Manitoba’ campaign, administered by the Manitoba Food Processors Association (CBC Manitoba 2013a); Open Farm Day, an annual event that purports to celebrate family farms (Manitoba Government 2010); and the ‘Great Manitoba Food Fight’ which promotes direct marketers within the province (Manitoba Government 2013). These programs and their contradictions are explored in detail next.

In 2012, MAFRD launched a program called ‘Buy Manitoba’ in response to growing interest in local food (Manitoba Government 2012). A cross-sectorial committee was formed to develop the terms of reference of the program. Initially, it was composed exclusively of larger corporate stakeholders and industry associations and none of the Manitoban NGOs that focused on promoting and representing local sustainable food systems were invited. Several grassroots groups requested a seat on the committee, which they ultimately were granted. However, these groups were marginalized throughout the process, especially when it was decided that industry groups who were in a position to provide matching funding would have greatest control over the program, and in determining the definition of ‘local’ (Food Matters Manitoba 2015). Although the ‘Buy Manitoba’ program had the potential to directly support the growing number of pioneering small-scale farmers and processors in the province, it ultimately became a labeling scheme that only identified Manitoba-made products. The labeling focused on the largest corporate food retailers such as Safeway, as they were able to provide the expected matching

funds. The value of the labeling scheme was also questioned by some, as products that had been processed but not produced in the province were labeled as “Made in Manitoba” - including Coca-Cola (CBC 2013a).

A second local food program called ‘Open Farm Day’ was initiated by MAFRD in 2010 (Manitoba Government 2010). Based on similar popular programs in Eastern Canada and responding to a growing interest in re-connecting farmers and consumers, Open Farm Day aimed to encourage farmers to open up their farms to the general public. The program provided a needed boost to direct marketers in the province. However, Open Farm Day was also viewed by some as representing a narrow and romanticized view of agriculture while obscuring the neoliberal focus of the province’s agriculture policy. One farmer from Manitoba describes his experience,

*Open Farm Day is great but it shows a very rosy picture of what farming is about. People come out to our farm and get the picture that this is what farming is like in Manitoba and generally this just isn’t the case... We were asked [by MAFRD] not to contrast our operation from conventional agriculture (Manitoba 510).*

Organizing Open Farm day represents a minimal investment and allows the Manitoba Government to appear to be playing a highly visible role in supporting local food while also acting to shape and control the discourse around local food in the province.

Finally, the ‘Great Manitoba Food Fight’ became an annual event organized by MAFRD and the Assiniboine Community College Manitoba Institute of Culinary Arts as a way of showcasing farmers and chefs interested in promoting local food (Manitoba Government 2013). Beginning in 2005, the event paired ten value-added producers with chefs to build a meal based on an original local food product that the farmers had created. The winners received cash and in-kind support to commercialize their prize-winning product. While the winning farmer benefitted,

such programs focus on local food as being a commercial product and generally obscure the importance of the social, cultural, ecological, and political processes that represent a more holistic, critical, and transformative approach to developing local food networks (Winter 2003). In this way, farmers were encouraged and supported to develop commercial products as individuals whereas any support for the wider development of local food networks and larger infrastructure remained completely absent.

#### *5.4.2.1 Harborside Farms – The Real Manitoba Food Fight*

*“So one arm gave us the money, and the other one is seizing it”* (Pam Cavers, Manitoba, 2013).

Pam and Clint Cavers and their three children operate Harborside Farms near Pilot Mound, Manitoba where they sell fresh and cured meats. In September 2007, they opened a meat shop and a year later that they began to research the production of cured meats such as prosciutto, salumi, and soppressata. Throughout this process, the meat shop was inspected several times including in 2011 when MAFRD was first notified of the Cavers’ interest in expanding their business operation to include the marketing of local cured meats. Since the Cavers’ were not producing their meat for export, they fell under the jurisdiction of the provincial rather than the federal government. However, there were no rules for the production of cured meat in Manitoba, therefore the guidelines outlined by the federal Canadian Food Inspection Agency (CFIA) were used by provincial inspectors to direct the process of establishing a safe product. These guidelines for the processing of ‘ready-to-eat’ foods state that food must be stored at a certain temperature and that such meats must be stored separately from fresh meat (CFIA 2014), guidelines that the Cavers’ strove to follow even though they produced very little cured meat. In fact, they had only about \$8000 worth of product available in 2013, which accounted for less than ten percent of their annual sales.

In 2013, the Cavers' were invited to participate in the Great Manitoba Food Fight by their local MAFRD representative, which they ultimately won after entering their cured meat products. The Cavers' welcomed the \$10,000 cash prize and the offer of technical and marketing support. However, in June 2013 - only three months after the competition - a new inspector was assigned to the Cavers' case. The guidelines were reinterpreted and the Cavers' were required to cease any production until they purchased expensive instruments for testing the pH of their cured products and until they renovated their facilities. The Cavers' ceased selling their product and began exploring strategies that would allow them to comply with the newly imposed requirements.

On Wednesday, August 28, 2013, MAFRD inspectors served Harborside Farm with a 'Seize and Destroy' order, citing "non-physical evidence" that the Cavers' had continued selling their cured meat (see CBC 2013b). The Cavers' refute these charges and indicate that cured meats have a long shelf life and that restaurants might have continued selling products that had been purchased prior to June. Pam Cavers refused entry to the inspectors and then called the Royal Canadian Mounted Police, who were highly critical of the aggressive tactics used by the inspectors and attempted to mediate according to Cavers. The impasse was resolved when the inspectors agreed to seize but *not* destroy the product. Unfortunately, the product was destroyed a few weeks later without notifying the family and the Cavers' were fined \$1,400, which when combined with the value of the destroyed product, amounted to \$10,000 in penalties – ironically, this was the equivalent value of the prize they had been awarded earlier by the same provincial government department. Months later, the charges against the Cavers' were dropped without explanation, compensation, or any admission of wrongdoing on the part of MAFRD. The emotional impact of this event on the entire Cavers family was significant. Pam Cavers described

feeling anxious and afraid when the inspectors arrived and for weeks after the incident the family felt nervous whenever a car they did not recognize drove up to their farm.

The long-term implications of these government actions for the Cavers' are unclear. While there have been significant financial effects, a diverse group of NGOs, students, and customers fundraised to help offset legal expenses and also created a website that acted to make the information about this conflict widely available ([www.realmanitobafoodfight.ca](http://www.realmanitobafoodfight.ca)). However, at the time of publication, the Cavers' are still not allowed to produce cured meats, although they continue to sell fresh meat products. Further, in their subsequent interactions with food safety inspectors, the Cavers' were implicitly threatened to stop speaking out publically, "*They told us, 'when you speak to the media, it makes it very difficult to work with you'*" (Clint Cavers, Manitoba, 2013). After the Cavers' raid, two other direct marketing farms also received surprise inspections by MAFRD. Some farmers were concerned that they were being targeted because of their increased public presence,

*Inspectors are getting more savvy and regularly scour the Internet to identify and target direct farm marketers, and as farmers reach out to try to promote what we are doing, we at the same time allow the government into our farm before they set foot here physically* (Clint Cavers, Manitoba, 2013).

The public campaign 'The Real Manitoba Food Fight' ultimately resulted in the creation of an advocacy group initially called 'Farmers and Eaters Sharing the Table' (FEAST) which was then renamed 'Sharing the Table Manitoba'. These campaigns and coalitions act as a vehicle for farmers, fishers and hunters, processors, consumers and other stakeholders to advocate for policies that would support sustainable local food systems in the province. The initial campaign capitalized on the political opportunity that emerged from the raid on the Cavers' farm as a



leverage point to advocate for change. Yet, the resulting public pressure also opened new opportunities for cooperation between farmers and the provincial government.

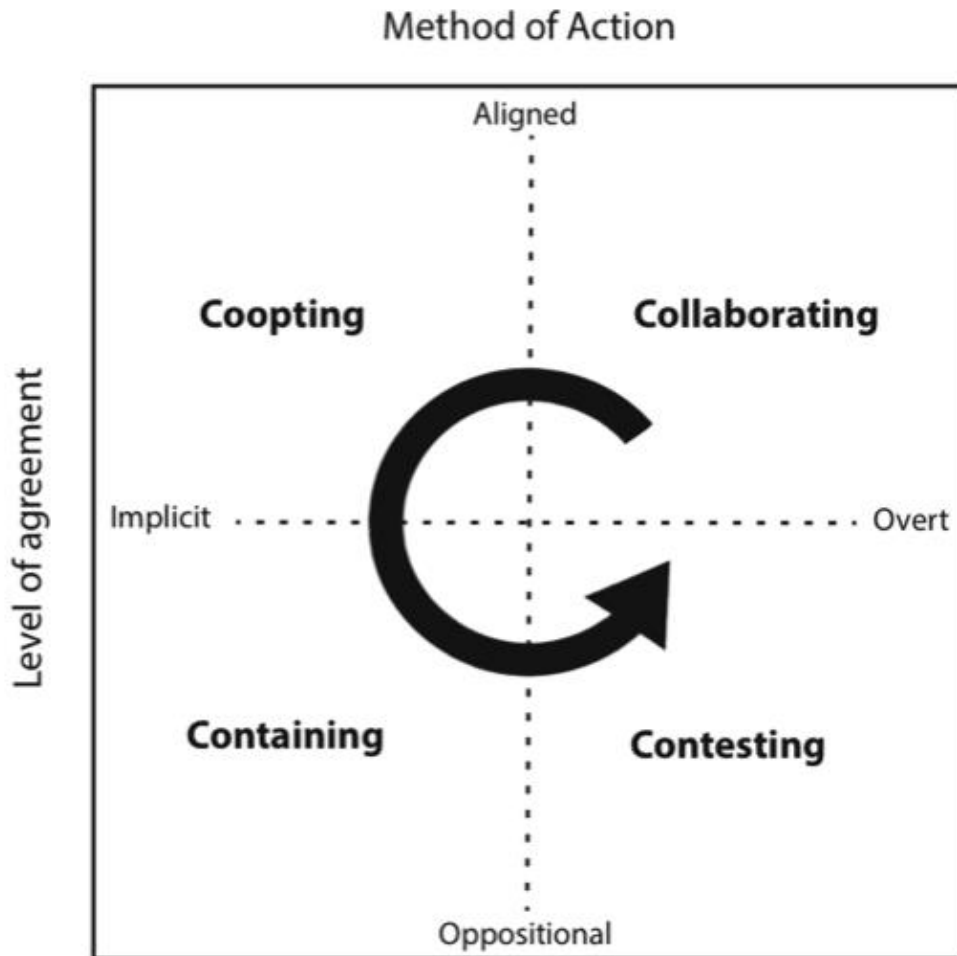
On October 18, 2013, an initial meeting was held between farmers, representatives of MAFRD, and civil society actors. These initial efforts were followed up by MAFRD by launching the creation of a Small Farmers Roundtable, also made up of industry, government, and farmer representatives, and chaired by the province's former Chief Veterinary Officer. The resulting report identified the many problems related to extension, regulations, quota systems, etc. (Small Scale Food Manitoba Working Group 2015). Co-generated by government and civil society actors, the report has the potential to act as a point of departure for policy reform in the province and to further mobilize different actors in civil society. More recently an organization has been formed, in part as a response to this report, to work directly with government called the Direct Farm Marketing Association of Manitoba (Anderson et al., forthcoming). The outcomes of this process remain unclear as survey findings from the report were denied to members of 'Sharing the Table' and efforts by farmers to organize themselves have yet to result in any substantial policy changes resulting in some becoming cynical about the potential for achieving meaningful change.

### **5.5 Discussion: Containing, coopting, contesting, and collaborating**

The findings from our multi-regional and case study research suggest a typology made up of four interrelated modes of interactions between institutional and grassroots actors regarding local food systems: *containing*, *coopting*, *contesting*, and *collaborating* (Figure 5.2). The horizontal axis compares implicit and overt methods of action, which range from the actions dominated by institutions to the actions dominated by grassroots actors. The degree to which

actions are overt or implicit, meaning whether they are direct and easily observable or whether they constitute subtle changes in discourse and attitudes, also varies. While all actions can have both overt and implicit characteristics, *coopting* and *containing* are often more subtle and implicit while *contesting* and *collaborating* tend to be more obvious and explicit. The first two types of interactions, *containing* and *coopting*, see greater influence from institutional actors in shaping food systems through the use of governmentality or direct governance practices. They reflect both the apparent and subtle abilities of government and corporations to reinforce power structures and relations of the dominant neoliberal and productivist system, thereby undermining innovative local food models and effectively denying the agency of farmers as a demonstration of governmentality (Foucault 1991). In these interactions, farmers, consumers, and other food system actors are constructed as passive, consenting, and conforming subjects in the dominant neoliberal and industrial food system (Thompson and Lockie 2013). Government policies reinforce unequal power relations by restricting (*containing*), often through the direct enforcement of limitations through regulations, or diluting (*coopting*) emerging grassroots alternatives through technologies of governmentality. The second two types of interactions, *contesting* and *collaborating*, demonstrate the influence and agency of grassroots actors. They reflect how community economies and grassroots movements employ a range of strategies and tactics that circumvent, challenge, and countervail the status quo while reflecting what Gibson-Graham (2006) call a politics of possibility.

**Figure 5.2 Typology of containing, coopting, contesting, and collaborating as levels of agreement between grassroots actors and governments against methods of action**



These types of interactions also vary in the level of agreement between grassroots and institutions, represented on the vertical axis, from the relative alignment of ideologies represented by the processes of *coopting* and *collaboration* to the oppositional nature of *containing* and *contesting*. All four of these interactions are always changing and can even co-exist for short periods of time as they transition from one relationship to another. They are also dynamic and change over time in predictable ways and in response to shifting political and social opportunities and pressures. As discussed below collaborative efforts between the grassroots and government can be subject to cooptation by the increasingly more influential government actors

and eventually become restrictive enough in nature that in turn give rise to explicit and collective resistance expressed as contestation. These politicized grassroots responses in turn pressure and increase the willingness of government to accommodate or collaborate community priorities and concerns and the cycle continues (Figure 5.2). This typology involves both explicit and implicit strategies where food system actors assert their agency to create food systems that reflect their collectively negotiated values, thus facilitating more meaningful and community-scale change regarding food systems. Together, these interaction types have important implications for farmer subjectivities, the type of production practices and economic relations used by farmers, and the food system as a whole.

### **5.5.1 Containing**

With respect to the first type of interaction, our results suggest that governments at both the national and provincial/state level often *contain* the development of alternative food systems. Regulatory measures both directly and indirectly constrain grassroots innovation and paths of development that stray from the neoliberal and industrial food paradigm (Figure 5.2) (see also Denny et al. 2016, Miewald et al. 2015, McMahon 2009). Processes and relations of containing can be highly visible where farmers who try to produce food beyond the regulations or push back against them are penalized and even criminalized under the auspices of a risk management in food safety discourse. This was evident in our interviews with farmers and in the Cavers' case study, but has also played out elsewhere in battles over the direct marketing of raw milk (Kurtz et al. 2013). Containing is significant because government regulations are disproportionately costly and burdensome for small operators who are rarely the source of major food safety outbreaks (McMahon 2009). In most cases, containment represented a very direct action taken by governments, however the neoliberal capitalist emphasis on competitive advantages results in direct-market producers who focus on trust-based risk management being pushed out by those

producers who accepted the risk management paradigm based on phytosanitation procedures (Denny et al. 2016, Miewald et al. 2015, Stuart and Worosz 2011, McMahon 2009).

However, the mechanisms of *containing* were not always explicit or obvious and often occurred through more subtle changes in behaviours and attitudes on the part of regulators and modes of self-regulation on the part of farmers. For example, some farmers avoided expanding or exploring new innovations on their farms because of the risks of constantly changing and inconsistently interpreted regulations by enforcement officials. High profile raids and antagonistic interactions with regulators also signal a hostile or uncertain regulatory culture (see also Kurtz et al. 2013). In this context, farmers indicated they were much more reserved in their planning, no longer trusted expanding into a regulatory grey zone, avoided promoting their businesses, and were deterred from questioning or challenging regulations due to risk of reprisal as an anti-reflexive practice (Stuart and Worosz 2011). In this case, active enforcement of regulations is combined with the modes of governmentality that arise from the inconsistency of regulatory enforcement, surveillance culture, and the ‘making of examples’ of innovators that deviate from the status quo. This context fosters self-governing subjects that regulate their everyday decisions to avoid risk of operating outside of the rules, norms and pressures of the dominant food system. Additionally, the ‘go-big-or-go-home’ discourse in food and agriculture implies that small farms and processors are irrelevant and doomed to failure unless they conform to the productivist, industrial, and centralized approaches tied up in the neoliberal food system. Thus, the path dependence of the dominant system manifests itself by normalizing and influencing the ‘conduct of conduct’ of citizens to discourage alternative practices and to encourage conformity to the dominant system (Stuart and Worosz 2011, Guthman 2008a, 2008b).

### 5.5.2 Coopting

With respect to the second type of interaction, the relationship between government and grassroots can serve to *coopt* ideas and innovations emerging from the bottom up and thus undermine the transformative potential of alternative local food systems (Figure 5.2). In our study, direct marketers received very little financial or program support from government, and where support was offered it often encouraged farmers to focus on individual commercialization or expansion. In effect, government support programs tended to direct farmers to pursue the dominant growth trajectory in agriculture and in food processing. Cooptation also occurred when funding, support and extension programs bolstered actors who already held power in the dominant system (e.g. corporate retailers) to benefit from local food systems. In the Manitoba case study, the “Buy Manitoba” local food program was aimed primarily at supermarkets and food processors, actors that were already well established in the dominant food system, and had little benefit for direct farm marketers. For example, “Buy Manitoba” used a definition of ‘local’ that was less rigorous than the one used and proposed by local food organizations (Food Matters Manitoba 2015) and which significantly benefited large corporations (CBC 2013a). These findings resonate with studies conducted in Australia (Andrée et al. 2010) and England (Ilbery et al. 2010) that found government programs encouraged farmers and processors to conform to a productivist and neoliberal model of growth, thus undermining the potential of civic, cooperative and alternative food economies.

The process of *coopting* was also expressed through the attitudes and actions of farmers themselves – a process that reflects the ongoing enrolment of farmers as subjects of neoliberal governmentality. The pervasive emphasis of government programs on the commercialization of products, on scaling up, and on channeling products through existing corporate retail rather than through grassroots food networks can shape the perspective of participants towards these

pathways. In a study of farmers' self-identity in Iowa (McGuire et al. 2013), farmers often began to internalize neoliberal values of these programs, such as competitiveness, specialization, and supporting laissez-faire free market capitalism. In our study, farmers often expressed a strong sense of independence and entrepreneurship, rejecting any government assistance but also implicitly accepting the conventionalization of 'buy local' efforts as inevitable. Indeed, many of the arguments for direct farm marketing reflect the mantra of 'consumer choice' rather than arguments for alternative relationships around food based on trust, reciprocity, and mutual accountability, and reflecting what Guthman (2008) called 'responsibilization,' or a shift from public welfare to self-help attitudes. At times, such sentiments were expressed during the 'Real Manitoba Food Fight', where some argued that these artisanal products be allowed based on the notion of 'consumer choice,' rather than any broader and more politicized commitment to alternative food systems. In this way, the coopting interaction reflected a process of governmentality where the influence of government was to change common sense notions of how farming should be done and what it meant to produce and consume safe food (see also Kurtz et al. 2013, Stuart and Worosz 2012).

### **5.5.3 Contesting**

The third type of interaction, *contesting*, occurred when farmers and other civil society actors took individual and collective action to challenge government and its complicity in serving the interests of powerful actors in the dominant system (Figure 5.2). Here, citizens consciously rejected cooptation and containment by government, and mobilized as social and political agents reflecting a politics of possibility (Gibson-Graham 2006). In our study, rural and urban actors involved in the Real Manitoba Food Fight explicitly *contested* the government's role in suppressing local food systems in Manitoba. Similarly, farmers and food activists in BC protested changes to the Meat Inspection Regulations in 2004 (Miewald et al. 2015) and farmers

from Oregon lobbied to change state regulations and policy to better support local food (Brekken 2012). Importantly, these acts of contestation were successful because they engaged with a wide diversity of citizens, not just farmers themselves, to work collectively to create new subjects that were empowered. These local acts of contestation are occurring across multiple sites drawing from the discourses of community food economies and food sovereignty and can be seen as representing a larger social movement (Escobar 2001, Fairbairn 2012, Levkoe 2014).

While *contesting* is often an overt and public action, farmers and their customers also *contest* implicitly and covertly by pushing the boundaries of ‘grey areas’ of regulations or by ignoring or circumventing regulations in the black market. Public actions were sometimes seen as riskier than the covert contestation that occurred through this engagement in alternative markets. Moreover, Dunn (2003) found that engaging in underground markets was a viable form of farmer contestation to the imposition of food safety standards in Poland. In our study, these acts were demonstrated in all four regions of our study where small farmers felt unfairly disadvantaged by regulations, especially for those who were in areas of low population density or who were greater distances from regulated processors. Black market responses included the illegal sale of uninspected meat that had been processed on-farm. Grey market responses included using labels that failed to meet regulations, engaging in online sales (in some jurisdictions), or delivering items that are typically only available at the farm gate such as eggs. These acts of contesting the food system fit within Gibson-Graham (2008)’s diverse economic relationships and their (2006) ‘politics of possibility.’ They argue that by building alternative and diverse economies that include relationships like CSAs (community shared agriculture) or other work-share arrangements (Wilson 2013) and community food hubs (Ballamingie and Walker 2013), citizens are contesting the current food system by subverting neoliberal and productivist



governmentality through acts of self-cultivating alternative subjectivities and collective action (Gibson-Graham 2008). However, contesting requires energy on the part of grassroots organizers and these actions may fail because networks and individuals simply do not have the capacity or resources to maintain resistance. It is also important to recognize that this mode of interaction is often unstable and sometimes even dangerous for individuals who can become targeted by authorities, at least until supported by wider social movements that can pressure governments to accommodate and sometimes collaborate with grassroots actors.

#### **5.5.4 Collaborating**

The fourth type of interaction, *collaborating*, occurs when government and grassroots actors work in authentic and balanced partnerships to build local food economies together (Figure 5.2). In this case, governments provide genuine opportunities for farmers and citizens to help shape policy, regulations, and practices related to local food and, in turn, farmers understand themselves to be active participants in this process. This is accomplished when support programs are developed with partners to provide adequate flexibility for farmers to pursue their own innovations and to build community food systems. At the collective level, governments can engage with grassroots groups of farmers and allies to meaningfully engage in democratic decision-making processes and equalize power relationships among actors. In our study, governments in Manitoba and Oregon have ostensibly responded to the requests for small-size farmers to be included in the creation of new regulations.

The ability to collaborate with government in policy arenas often requires collective action amongst farmers and can be strengthened through cross-sectorial networks to represent the joint needs of farmers and local food allies including eaters, processors and chefs. Often taking the form of “Friends of Farmers” (2015) groups, these coalitions can unite eaters and food

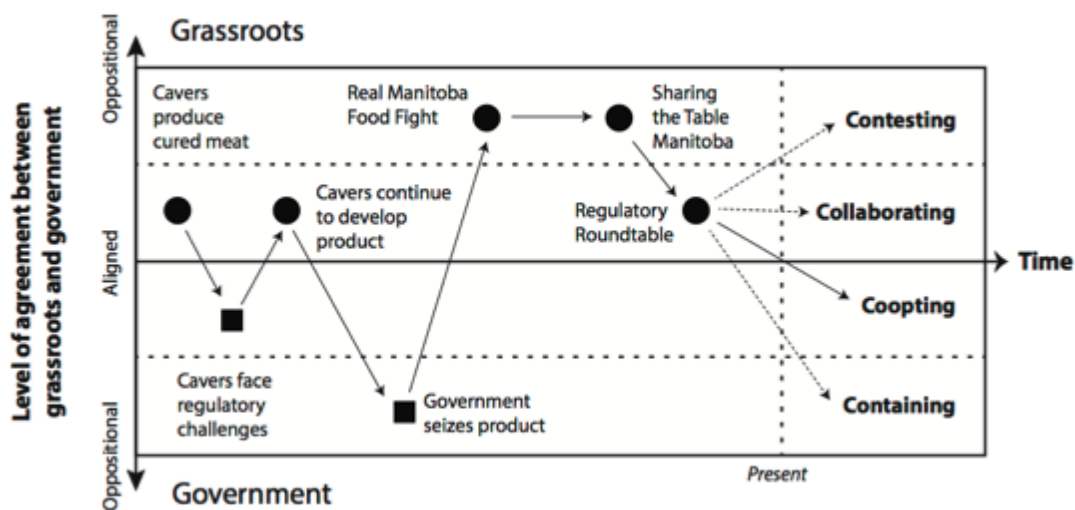
producers and allow non-farm advocates to push for change while protecting farmers who may otherwise be reluctant to speak out against regulators for fear of retribution. In Manitoba for example, 'Sharing the Table Manitoba' included chefs, researchers, food and social justice organizers, and consumers in their membership, in part because urban actors often had fewer concerns about negative repercussions from government (Anderson et al. forthcoming). In Oregon and British Columbia, grassroots campaigns have resulted in collaborative efforts between civil society groups and regulators resulting in the adoption of a regulatory framework that better supports the development of local food systems (Miewald et al. 2013, Brekken 2012).

These collaborative efforts require knowledge sharing and viable networks to build relationships and bring about long-term change and represent opportunities to cultivate new subjectivities among grassroots actors (Blay-Palmer et al. 2016, Wilson 2013, Tovey 2009). Effective *collaboration* requires a sustained commitment by government to co-create a power-equalizing deliberative space where citizens are able to co-produce agendas, choose topics to address, and able to generate pragmatic outcomes that address their needs. However, power sharing is generally rare in the context of top-down policy making. These tenuous spaces become opportunities for citizens to gain a sense of agency and trust in institutional and policy processes and have great potential to support community based economies and food systems. On the other hand, when the influence of elites and corporations retain or regain control, *collaboration* can quickly become *cooptation* where citizens are rather enrolled in superficial public participation in policy-making that legitimizes the agenda of government but denies the agency of grassroots actors.

### 5.5.5 Dynamics among types of interaction

Although the four types of interaction between government and grassroots actors might be viewed in isolation from each other, our results indicate a dynamic relationship between the four types that evolves over time as subjectivities and power relationships are constantly shifting. In the Manitoba-based case study (Figure 5.3), grassroots actors gained agency with the high-profile incident on the Cavers' farm that revealed the contradictions and limitations of provincial government food safety regulations. The resulting mobilization of communities and collective political action (*contesting*) increased the grassroots agency and political potential to create systemic change in provincial policy. In this example, the process began when the Cavers' initially researched and develop their cured meats with support from inspectors (*collaborating*), but faced challenges with narrowly defined regulations that emphasized commercialization and shifted emphasis away from the community food systems (*coopting*). Later, their products were seized and ultimately destroyed by government inspectors and they faced a great deal of hostility from inspectors and from food safety authorities in the province (*containing*). This incident catalyzed a strong grassroots political response (*contesting*), which then pressured the government to establish a cross-sectorial regulatory roundtable that is still working to develop more palatable alternatives to one-size-fits all regulations (*collaborating*) (Figure 5.3). No doubt the situation will continue to evolve, and early feedback suggests that some of the more radical grassroots actors are frustrated by the government-dominated process, which has thus far only resulted in a few minor concessions (*coopting*).

**Figure 5.3 Dynamics of power relationships between grassroots and government actors and the types of interactions that arose over time in the Manitoba-based Cavers case study**



Occasions to collaborate effectively with government are rare but important opportunities to affect change. The situation in Manitoba continues to evolve and while there have already been important gains made, there are concerns that any prospects for effective collaboration will be diluted as the political opportunity that arose through the high-profile Cavers case has subsided and government faces less pressure to work with grassroots actors (Anderson et al. forthcoming). Similar interrelations were also evident in other regions and show how the dynamic processes of containing, coopting, contesting and collaborating rely on tenuous power relations that can change suddenly. For example, in British Columbia when food safety regulations were changed, farmers' livelihoods were threatened (containment) which stimulated both implicit (black market selling) and overt (political action) contesting which then led to collaboration with government and ultimately to policy change (Miewald et al. 2015, Miewald et al. 2013). One of the most common ways that governments maintain the status quo is by engaging in disingenuous forms of collaboration which lead to only modest reforms rather than the more transformative changes needed to enable local food to contribute to a more sustainable,

viable and just food system (Thompson and Lockie 2013). This variation of coopting is used to limit the aspirations of grassroots who as a result are less hopeful about their ability to affect system change.

This research contributes to the theories of governmentality and politics of possibility by using a dynamic food system analysis while considering both the influence of government and civil society. For example, Harris (2009) argued that governmentality, particularly as it applies to neoliberalism in the food system, is often credited with more power and influence than it is due which serves only to further entrench its significance. Meanwhile, Gibson-Graham's approach has been argued to place too much emphasis on community agency and autonomy without considering the barriers that institutions can create (Glassman 2003). Whereas these frameworks can give an absolute impression of either domination or agency, our framework bridges these two perspectives by examining how governmentality and a politics of possibility are dialectically related through the four interrelated modes of interaction we propose. Our typology echoes the assertion that subject formation is a complex process that is neither uniform nor universal, while also exploring the social construction of subjectivities due to the manipulation of discourse through governmentality (Gibson-Graham 2006, Foucault 1991). Farmers and citizens in local food systems are able to resist their subjugation as neoliberal and productivist subjects, but this is most effective when the means by which this subjection occurs is made visible. Furthermore, by understanding the relations between these types of actions as cyclical and dynamic, much like the seasons, a cycle to which farmers are well attuned, farmers and grassroots organizers can strategically respond to the limitations and opportunities that arise over time.

## **5.6 Conclusion and implications**

This typology provides a framework for understanding how the agency of grassroots stakeholders is shaped through the dialectical pressures of neoliberal governmentality in tension with the creative resistances of individuals, communities, and allied networks of support. Through processes of individual and collective agency, farmers and citizens are rejecting their construction as neoliberal subjects and instead are engaged in processes of re-subjectification (Gibson-Graham 2006) as agents that are building more just and sustainable food economies. Farmers in this research are working in various coalitions including the Sharing the Table Manitoba, BC Food Systems Network (see also Miewald et al. 2015), and various Friends of Farmers groups and direct marketing or farmers' market associations to change policies while also engaging in grey markets to push the regulatory boundaries on their own farms. Our study showed how government policy and regulation play a substantial role in the governing of local food systems and in shaping the way that actors perceive their role and their agency to make change. Government influence goes beyond the imposition of direct regulation on individual subjects to include the power of governmentality to cultivating self-regulating subjects who internalize the dominant neoliberal logics. Examples included farmers who reluctantly engaged with support programs that often failed to reflect their values and the self-regulation of farmers who avoided any actions that put them at risk of punishment. Although our findings indicated that there is often some government support for local food systems, they also indicated that such policy and regulation mostly worked to suppress or dilute meaningful alternatives and often served to conventionalize 'local food'. However, food producers and allies in grassroots movements continue to actively contest policies and regulations by challenging hostile governments to open more space for bottom-up development of alternatives. Through collective action, individuals have the potential to build alternative food relations and work together to

contest the dominant food system, and in turn cultivate new subjectivities and gain agency in their struggles (Gibson-Graham 2003). There are other important sources of support that are gaining momentum, primarily farmer-driven initiatives, and to a lesser degree urban-based consumer groups and environmental NGOs, which are all acting to shift agency towards community actors. Although there is potential for meaningful collaboration between grassroots actors and government, in most cases government and industries ultimately act to undermine these efforts and the actions begin to resemble cooptation. Thus, when working with governments, it is essential for grassroots organizations to be ready to adapt and contest the process when faced with these sometimes highly unequal situations.

The outcomes of our study show the importance of being aware of the processes of governmentality, and the way these processes play out in the everyday lives of farmers and rural communities, but also in the ways that farmers and other grassroots stakeholders contest governmentality and create opportunities to collaborate with government on their own terms. Such multi-actor food movements can be seen as part of Gibson-Graham's vision of an alternative economy and by resisting the processes of cooptation through recognizing its risk and refusing "to see cooptation as a necessary condition of consorting with power" (2006: xxvi). The potential of food movements to claim food economies will always be an outcome of political struggles that are rooted in a critical understanding of the ways by which government and other institutions manage their development and undermine their potential. Local food activists are attempting to act at multiple scales through various networks while also acting in a particular place and context to affect local change (Levkoe 2014, Escobar 2001). Ultimately, however, real and sustained grassroots transformation will only become feasible when grassroots actors transcend the local, become politicized, and work with and alongside other actors at multiple

scales. In so doing, the transformative potential of these sustainable, community-grounded, and politicized food economies is great indeed.



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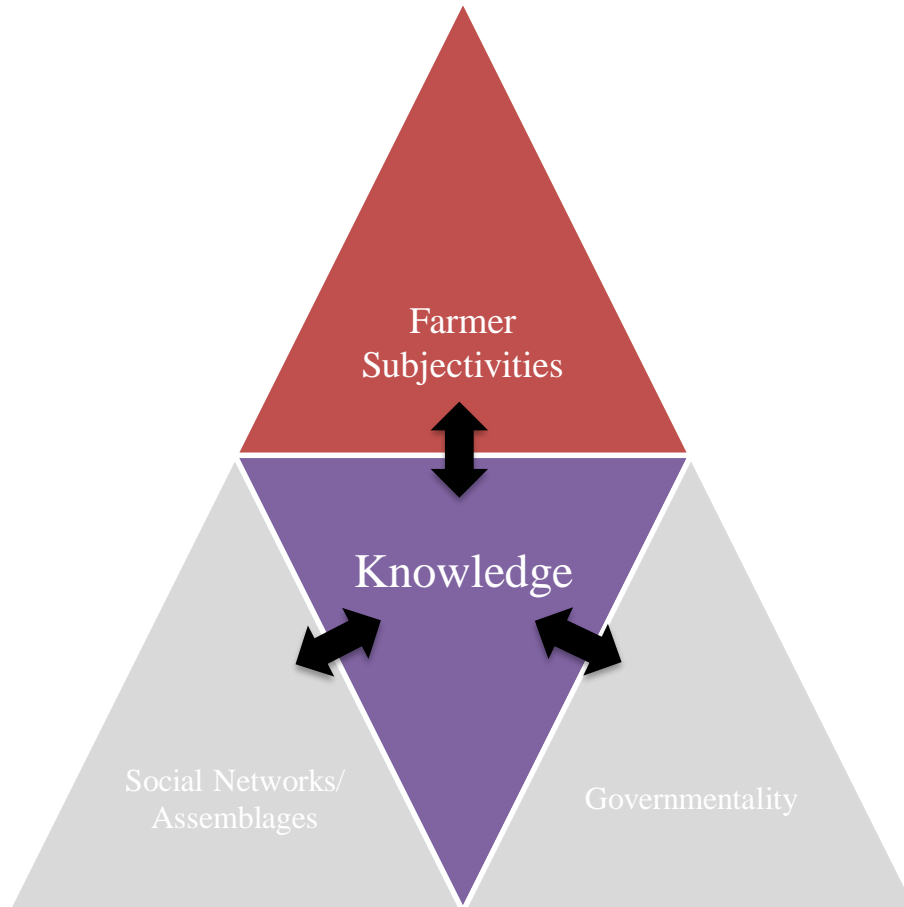
## **Chapter 6: Alternative agriculture and new farmer knowledge in Canada**

This chapter considers the ways that knowledge and subjectivities are co-created within alternative food and farming systems. Knowledge is not something that is simply acquired; rather it must be nurtured and tended to over time not unlike a plant, which will allow it to continue to grow over time. In this metaphor, the knowledge plant thrives if it is available to be openly shared by as many knowledge users as possible. Instead of sunlight and water, knowledge needs sharing and experience in order to grow. This is especially true of farmer knowledge. Here knowledge may be taken away from the plant as its fruit, leaves or seeds, but it has to be returned in digested, reimagined, reshaped forms in order to ensure that the local knowledge continues to be available for the next generation. As such, knowledge ought to be carefully tended by knowledge stewards, including farmers themselves, who recognize that only through sharing will knowledge continue to thrive.

The increase in neoliberal capitalism and the associated use of positivist and reductionist science, however, has taken this shared knowledge and moved it to a private corporation where it is difficult to publicly access and is legally protected through international laws (Warner 2008, Kuyek 2007, Pedykowski 2003, Hassanein 1999, Hecht 1995). New farmers may benefit from increased freedom from path dependence (Monllor 2012), but their participation in a predominantly commodified and financialized food system limits their ability to access land, capital, and sometimes knowledge. The relationship between capitalism and nature has eroded socio-nature relations and this research explores how new agroecological farmers engaged in community-based economies could rebuild these connections (Eaton 2008, Alkon 2013, Busa and Garder 2015). This chapter-article contributes to the overall research objective of how knowledge and farmer subjectivities are co-created (Figure 6.1).



**Figure 6.1 Connecting knowledge to farmer subjectivities**



This chapter-article takes the second objective from the introduction and aims to examine

- This chapter-article uses feminist and post-structuralist theories around the co-constitution of power and knowledge to illuminate the tensions between agricultural science and localized knowledge, between experts and farmers, between capitalist and community-based economies, and between agroecology and agribusiness. This research also reflects on the impacts of these narratives on farmer knowledges and subjectivities on those who want to practice alternative and agroecology farming.

By having non-capitalist and alternative motivations, new alternative farmers continue to struggle to reshape their subjectivities, but as Alkon (2013) points out, the local and organic food movement does not always result in social justice or anti-capitalist subjects. In addition, the experiences of new farmers in this research present an opportunity to address past inequalities in Canadian agriculture, to revisit relationships to land and to confront sexism within farming communities.

## **Abstract**

As the demographics of farmers are shifting, the ways of knowing farming and sharing that knowledge is also changing. At the same time, there is growing interest in rebuilding food systems to address environmental and social injustices. Since knowledge is a key component of farmer subjectivities, this research will explore how new alternative farmers may contribute to a new 'good' farmer identity. This chapter-article uses the lens of Foucauldian and feminist critiques of knowledge and power and considers the implications this will have to the possible reconciling of the socio-nature of food. The national survey of 1326 new, aspiring, exited, and experienced farmers presented herein found that an increasing number of new farmers are coming from non-farming backgrounds and are women, and that these identities could challenge the status quo in Canadian agriculture. The new alternative farmers who responded to the survey reported facing challenges in accessing agricultural knowledge since they had not grown up on farms and the resources available through institutions like university and government extension may not be appropriate to the type of agroecological farming they employ. There are also important geographical limits to knowledge sharing opportunities available to these new farmers, as local non-profits are offering many programs for new farmers, but funding limitations mean that they are not available nationally. Despite these challenges, the new alternative farmers in this research are finding ways to access the knowledge they need in order to establish themselves, their farms, and their livelihoods, which will have positive implications for how Canada feeds itself into the future.

## 6.1 Introduction

Farmers do more than grow and raise the food Canadians eat everyday; they contribute to the Canadian economy through exports, they build rural communities, and they can be guardians and managers of the environment. Yet, there are a number of indications that farmers and the food system in Canada may be on the brink of major transformation. For example, the number of farmers in Canada has been declining at an increasing rate for the past 70 years (Qualman 2011, Statistics Canada 2009). From 1991 to 2011, the number of farmers in Canada under the age of 35 fell from 77,910 to 24,055 (Statistics Canada 2012a), which amounts to a decline of 69%. Meanwhile, the average age of those that remain show that existing farming populations are aging, with the average age at 54 years old. While under-researched, estimates indicate that 60% of this population do not have someone positioned to replace them on their farm (Errington 1998). Currently only 2% of Canada's population is farming for domestic and export production (Statistics Canada 2009, Statistics Canada 2012b). While agriculture clearly serves a critical role in Canada today, farmer's work is often unrecognized or minimized as demonstrated by the way farmer control and knowledge has been undermined by corporations (Diaz and Stirling 2003), and by the decrease in the number of farmers encouraging their children to continue in this livelihood (Qualman 2011). Farming is often considered to be an intergenerational activity; with new entrants born into farm families where in many cases they learn about farming as children and have access to some land through inheritance (Diaz 2003, Dumas et al. 1995). However, farmers across North America are increasingly coming from non-farming and even non-rural backgrounds, both of which make access to land and knowledge difficult to acquire (Calo et al. 2016, Rissing 2016, Katchova and Ahearn 2015, Dennis 2015, Fernandez et al. 2013, Knibb et al. 2012, Monllor 2012, Shute et al. 2011).

The Canadian food supply may even be at risk due to an increased reliance on food imports into Canada, which could contribute to a rise in food insecurity as recent global economic fluctuations remind us. For example, Canada's food prices are very sensitive to changes in relative prices between the US and Canadian dollars, and the price of fresh food like cauliflower often changes with corresponding changes in currency (Elton 2016). On the farms themselves, processes of industrialization and corporatization and the associated shifts in government policies have encouraged farmers to grow the size of farms, which has further exacerbated the decrease in the number of farms. The commodification and subsequent financialization of food crops has resulted in a spike in agricultural land prices as investors from around the world rushed to capitalize on the food crisis of 2008 (Clapp et al. 2015, Sommerville and Magnan 2015, Ruhf 2013). This has made it difficult for new entrants to agriculture to afford land. Even for established farmers, the increase in input and equipment costs and the concentration of farmland ownership have resulted in stagnation in farm income, an increase in farm debt, and limited abilities to expand their own operations (Sommerville and Magnan 2015, Qualman 2011, Cushon 2003). As a result, there continues to be a decline in farming populations and rural infrastructure despite a resurgence of interest in agriculture and local food production in the last decade. In short, Canada is facing a looming problem created by the lack of new entrants to agriculture, the exit of aging farm operators, the transfer of farmland when prices are at an all-time high, environmental concerns around industrial agriculture practices, and low profitability in food production.

Around the world, the influences of neoliberal capitalism go beyond increased land costs and corporate concentration and affect both the knowledge and subjectivities, that is the identities, personal philosophies, and agency, of farmers (Haggerty et al. 2009, Burton 2004).

Such subjectivities are moulded in a manner of ways including by agricultural production practices, marketing or economic relationships, agency, and changing discourses and definitions of ‘good’ farmers (Blay-Palmer et al. 2016, Haggerty et al. 2009, Eaton 2008, Guthman 2008, Burton and Wilson 2006, Burton 2004, Liepins and Schick 1998). In particular, farmers have been found to weigh the implications of social respect from peers and wider cultural rewards from society when considering their farming practices, as they navigate their own understanding of what it means to be a ‘good’ farmer (Burton 2004). In this chapter-article, I will take a critical look at how the politics of place and power/knowledge dynamics vary spatially across Canada so that farmer knowledges and subjectivities also differ geographically.

Overall, my objective in this chapter-article is to explore how the knowledge sharing opportunities available to new alternative and agroecological farmers affect subjectivities, narratives, and socio-nature discourses. After first analysing how government policies and corporate influences shape the food system, I use this frame to ask farmers how these power dynamics affected their knowledge, identities, and subjectivities. Using quantitative and qualitative data collected through a national survey done in partnership with the National New Farmer Coalition in 2015, I explore the experiences and challenges of new alternative farmers in Canada. In particular, this research attempts to understand how those who use alternative production practices such as organic, permaculture, or biodynamic farming, or who participate in alternative economic activities like direct marketing, are experiencing challenges differently from their more conventional colleagues. The experiences of these particular kinds of new farmers are poorly researched and may represent a growing demographic in the changing face of Canadian agriculture. Indeed, ‘alternative’ practices are some of the only types of agriculture that is increasing in participation (Dennis 2015, Statistics Canada 2012b, Organic Agriculture Centre

of Canada n.d.). This research represents the first attempt to explore new farmer issues nationally in Canada. Finally, I consider the discourses and experiences of these new alternative farmers in Canada to better understand the influences on their subject-formation as it relates to knowledge, training, and education and how these can transform socio-nature relations.

## **6.2 Knowledge, power, and the socio-nature of farmer subjectivities**

An examination of knowledge is necessarily also an examination of power and politics. Foucault (1979) explains how knowledge and power are co-creators: “there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations” (27). This epistemology allows for a set of questions regarding the co-constitution of power and knowledge in society and more specifically in the food system, rather than the assumption that one or the other comes first. Understanding power as a relational force also ensures that the agency of individuals within society is not lost, and that citizens, and in this case farmers, are not reduced to “docile bodies” (Thompson and Lockie 2013) but rather are capable of challenging these systems of knowledge. Power is something that is expressed while knowledge is something that is possessed. Redistributing knowledge, through education, is one way to shift or transfer power in society, although education can also reproduce and even aggravate existing inequalities (Cervero and Wilson 2001). Knowledge comes from encounters with others, with the landscape, or indirectly from stories or other written or visual representations; that is to say that knowledge’s power comes from when it is variously shared or withheld (Cruikshank 2005). Farmer’s knowledge in particular relies on the dynamic and tacit forms of knowledge that come through embodied

experiences with soils, plants, and animals (MacAuley and Niewolny 2015, Morris and Kirwan 2010, Morgan and Murdoch 2000).

Farmer knowledge has shifted gradually, beginning with the establishment of land-grant universities in the US and similar agriculture programs at universities in Canada, which began the transition of moving knowledge from field to campus, while still keeping the focus of knowledge in the public arena (Kuyek 2007, Hassanein 1999). Slowly, with the shift to private laboratories owned by corporations, the direction of knowledge flow reversed so that it now flowed from scientist to farmer (Hassanein 1999). One of the most significant problems with such a reductionist model of agricultural knowledge is geographical in nature, Hassanein (1999) has shown that “the knowledge generated and the technologies produced are generalized solutions to agricultural problems that are supposed to work in the same way anywhere and everywhere” (16). That is, even when agricultural research is done on a regional basis, it still fails to address the specific biophysical needs of farms or individual sociocultural preferences of farmers, making the research done in laboratories difficult to apply uniformly. While local farmers can address this by recognizing the importance of sharing traditional knowledge, corporate interests using the apparent objectivity of science have undermined this form of knowledge.

The power/knowledge dynamics in an increasingly urban society have resulted in a hierarchy of farmer knowledge that is reinforced by governments and dominant corporations who work to change the discourse of what it means to be a ‘good’ farmer (Busa and Garder 2015, Haggerty et al. 2009, Lyson 2007, Burton 2004, Hassanein 1999). In this hierarchy, the institutional knowledge of scientific experts who use positivism to reduce agriculture to a series of technical parts is reified while the embedded, holistic knowledge of farmers of a specific



space with all of its complex interactions is increasingly dismissed or ignored altogether (Warner 2008, Hassanein 1999). The influence of corporate agriculture has further driven a wedge between the co-production of social and biophysical aspects, with nature framed as outside of society (Mascarenhas and Busch 2006). As a result, the role of culture in agriculture is often ignored by such experts who believe that objectivity is possible, while simultaneously disregarding the potential social and economic implications of their research on highly intrusive technologies such as ag-bioengineering and nanotechnology (Laforge et al. 2016, Mauro and McLachlan 2008, Varty 2004). Science, governance, and capitalism have had and continue to have dramatic impacts on how we interact with the biophysical world by reproducing particular socio-natural relations by shaping new narratives and subjectivities (Busa and Garder 2015, Alkon 2013, Peluso 2012, Eaton 2008).

Food and farming have been described as the ultimate socio-nature; not only does everyone eat in order to meet their biophysical needs, but the process of growing food is a deeply cultural activity with the practice of domestication transforming the genetic material of crops and animals over the course of generations (Alkon 2013). One way that capitalism has shaped the knowledge and histories of socio-natural objects, including food, has been through its manipulation of discourses and forms of knowledge about these objects (Alkon 2013, Peluso 2012). The undermining of local farmer knowledge has taken the form of reduced public resources for regional farmer-based research, particularly from government and universities, and an increased focus on the agricultural science of crop breeding and the development of chemical inputs by experts in sterile corporate research laboratories that are increasingly placeless (Kuyek 2007, Argue et al. 2003). The power/knowledge relationship in food and farming systems has been explored from the context of food safety standards (Laforge et al. 2016, Thompson and

Lockie 2013), consumer behaviours (Guthman 2008), and on-farm practices in the form of farmer decision-making and behaviours (Haggerty et al. 2009, Burton and Wilson 2006).

Yet this productivist and neoliberal regime continues despite the fact that critical scholars consider the industrial food system to be unsustainable from economic (McMichael 2000), environmental (Altieri 1995), social (McMahon 2009), and public health (Thompson and Lockie 2012) standpoints. While farming knowledge includes the tacit and practical information that farmers need to grow and run a farm, it also includes the broader political and social contexts in which this knowledge is shared, all of which have implications for socio-nature and the subjectivities of farmers themselves. This power/knowledge relationship is central to understanding the experiences of new farmers in Canada whose farming identities and practices may have been shaped by these processes.

In seeking to understand farmer behaviours, Burton (2004) examines the symbolic value of production activities and how these relate to what he calls ‘good’ farmer identities, or subjectivities. Everyday farm tasks can represent a symbolic personal victory for farmers over the land, a positively received and reinforced behaviour from peers, and a socialized self-identity (Haggerty et al. 2009, Burton and Wilson 2006, Burton 2004). Social membership provides an important way to gain security and stability through shared meaning and understanding and “failure to display symbols of group belonging can result in social disapproval, leading to a sense of loss for the individual and a corresponding decrease in self-esteem” (Burton 2004, 198-199). Farmer subjectivities are multifaceted and dynamic; global market forces, government policies, farming landscapes, and experiences with crops and animals themselves have shaped these subjectivities in various ways (Haggerty et al. 2009, Burton and Wilson 2006). This suggests that if dominant ‘good’ farmer subjectivities today consist of neoliberal, productivist identities, they

are also capable of changing and may offer opportunities for new alternative farmers to find a place in the agricultural landscape.

The renewed interest in alternative forms of farmer knowledge can also provide an opportunity to break through the artificial silos of agricultural research done by experts. Farmer-to-farmer knowledge sharing and agroecological practices that work alongside rather than against the biophysical world have the potential to transform hierarchical knowledge relationships while also empowering local communities around the world and changing farmer subjectivities (Niewolny and Lillard 2010, Haggerty et al. 2009, Warner 2008, Nerbonne and Lentz 2003, Altieri 2002, Hassanein 1999). Beyond learning and knowledge sharing, new research also includes programs to bridge the epistemological divide between farmers and scientists, perhaps most notably in on-farm experimentation (Thiessen Martens et al. 2013, Nerbonne and Lentz 2003), collaborative research (Anderson et al. 2014), and participatory plant breeding (Brush 2004, Cleveland and Soleri 2002, Almekinders and Louwaars 1999). This work also often addresses the problems caused by patriarchal foundations in agriculture, including the challenges that this extends to Indigenous and other marginalized farmers whose lack of economic and political influence has meant that their cultural needs and biophysical realities are often ignored (Sachs et al. 2016, Humphries et al. 2012, Classen et al. 2008, Slocum 2007, Liepins and Schick 1998, Hassanein 1997, Hecht 1995). Generally, these farmers are often producing at a smaller scale, on lower quality land, with more biodiversity, and are doing less exporting than their monoculture-based, industrial counterparts (Altieri 2002). Access to relevant knowledge continues to limit more farmers from adopting sustainable and agroecological methods since corporations and governments influence discourses by suggesting that these practices are less productive and therefore not aligned with ‘good’ farmer narratives.

Indeed, very little research on the availability and quality of knowledge for new, young, or beginner farmers interested in organic, permaculture, biodynamic or other alternative production or marketing avenues such as direct marketing has been conducted in Canada or elsewhere (see Knibb et al 2012, Shute et al. 2011, Niewolny and Lillard 2010). At formal institutions such as universities, colleges, and Quebec-based CEGEPs in Canada there are limited options for practical education in agriculture, especially if it is in alternative market arrangements and agroecological practices. For example, on the Canadian Prairies, less than 2% of agricultural researchers in universities research or teach agroecological farming practices (McLachlan 2012). In an increasingly neoliberal model of free market ideology, government knowledge support, especially in the form of extension services, have diminished in Canada, with the Growing Forward framework representing the only program that could potentially provide funding for new alternative farmers to learn about different production practices (Qualman 2011).

Based on preliminary analysis of a number of online websites, the number of organizations offering training and educational support for new farmers is unevenly distributed in Canada, with more new farmer opportunities located in Southern Ontario than anywhere else in Canada. In particular, FarmStart and Everdale are two organizations supporting new farmers interested in ecological practices in this region. In other regions, local non-profit organizations have various farmer training opportunities including mentorship and conferences that contribute to learning opportunities; however, the quality and frequency of these programs vary and are subject to funding availability (Levkoe et al. 2012, Chinnakonda and Telford 2007). Finally, farmer-to-farmer training opportunities are not always formally run and while many new farmers may develop mentorship relationships with neighbours and others through informal social

networks, these opportunities can be difficult to organize, and even harder to track, and are often of varying quality. In the next section, I describe the methodology of the 2015 National New Farmer Survey and then the data analysis that explored the differences between conventional and agroecological farmers and between learning practices. From this data, I examine the relations between farmer knowledge, learning, and farmer identities in new farmers in Canada and discuss the implications for the Canadian food system as a whole.

### **6.3 Methods: A collaborative national survey**

In 2015, I collaborated on the design of a national online survey in partnership with the National New Farmer Coalition and distributed it by email and social media to new farmers across Canada. The National New Farmer Coalition (NNFC) is a partnership between the National Farmers Union Youth, Young Agrarians, and Food Secure Canada (National New Farmer Coalition n.d.), all of whom helped in the distribution of the survey. The survey team consisted of four female members and myself, all of whom had personal farming experiences to draw upon. We designed the survey using other national and regional questionnaires conducted in Canada and in the US (see Dennis 2015, Knibb et al. 2012, Shute et al. 2011). Also contributing to the survey design were preliminary findings from 38 interviews I conducted in 2014 that looked more specifically at farmer learning in the Canadian provinces of Manitoba and Eastern Ontario (see Chapter 7). Using these qualitative data and incorporating them into a quantitative survey, allowed for a more refined analysis of the issues that farmers face when learning about agriculture production and business training while also sampling a larger population of alternative farmers from across Canada and follow recommendations on conducting mixed methods (Creswell 2013, Creswell and Clark 2007). The questionnaires were

created and made available in both English and in French. A pilot was conducted with 16 farmers from across Canada who were then asked to provide critical feedback on the survey. The feedback included making the survey shorter and clarifying some questions.

Recruitment was done only using online tools including both email and social media which directed potential participants to a WordPress page before redirecting them to the survey hosted by Survey Monkey ([www.surveymonkey.com](http://www.surveymonkey.com)). Despite the limitations of online surveys, particularly in calculating a response rate, it was determined that this tool was still the best one for this project due to the low administration cost, speed of distribution, and high level of online engagement of Canadians (CIRA 2013). A print copy of the survey was also made available upon request. In order to collect as much information from new farmers as possible, we used a snowball technique to recruit participants using viral social media, mostly through the sharing of posts on Twitter and Facebook, which has been found to be helpful in reaching populations that are difficult to identify or recruit (Baltar and Brunet 2012).

In total, there were 2951 views<sup>1</sup> to the host website on WordPress, but only 1621 clicked through to the survey itself on Survey Monkey (54.9%). This participation rate may have been due to self-selection as visitors realized that they were not eligible to participate. Most respondents to the survey arrived to the Survey Monkey site ([www.surveymonkey.com](http://www.surveymonkey.com)) from Facebook (65.4% of all views) or from newsletters from farm organizations such as the National Farmers Union (NFU) (4.2%), Union Paysanne (1.2%), and Young Agrarians (0.7%), as well as the popular blog published by one of the survey co-authors and a farmer at Broadfork Farm (17.8%) (Table 6.1). Emails were sent out to 289 national and regional organizations, producer

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<sup>1</sup> Views are not the same as unique visits. Some of these may be repeat visitors to the site.

associations, and universities and colleges to request that they share the invitation with their email lists in order to recruit participants from a variety of farming backgrounds and production types (Appendix A). However, Table 6.1 indicates that viral recruitment through Facebook and Twitter and recruitment from partners of the NNFC were the most successful means to disseminate the survey. To ensure a large and well-distributed sample, a brief analysis was done midway through the sampling window to identify low-response regions and production types, and reminders were sent to producer groups reflecting these gaps. In addition, cash, gift cards, and other prizes were offered to encourage participation; the total approximate value of which was over \$1500.<sup>2</sup> The survey was circulated in February and March in 2015, when farmers have more time. Responses that had completed less than half of the survey questions were excluded from our analysis; thus, of the 1621 responses (1432 in English and 189 in French) 1326 (82%) were complete.

**Table 6.1 Online recruitment for National New Farmer Survey (Total clicks = 2951)**

<b>Referrer to the online survey to www.ruminationsongerminations.com</b>	<b>Views</b>	<b>Percentage</b>
Facebook	1,927	65.3%
www.broadforkfarm.com	526	17.8%
www.nfu.ca	124	4.2%
Search Engines	114	3.9%
Twitter	95	3.2%
www.unionpaysanne.com	36	1.2%
www.youngagrarians.org	22	0.7%

Source: WordPress analytics

The survey consisted of four streams of questions for respondents, these depending on whether participants self-identified themselves as “aspiring”, “new”, “exited”, or “experienced.” Each stream contained 40-43 closed and open-ended questions depending on which of the four

<sup>2</sup> Funding for gift cards and other prizes came from various in-kind donations and cash prizes came from the Manitoba Alternative Food Research Alliance.

farmer types participants selected at the beginning of the survey. Questions were designed to discern experiences around the themes of land access, capital, and knowledge and community. Including aspiring and exited farmers allowed for the inclusion of experiences of those who have been unable to overcome various barriers and provided more comprehensive new farmer experience. Demographic information included production practices and types, gender, and farm income as well as off-farm income. We asked farmers about what programs and activities have helped them the most and where they see priorities for changes to policies. In relation to farmer knowledge, we asked farmers where they were learning about production and marketing and what determined their ability to benefit from these opportunities. When asking about production types and production practices, the survey question was designed so that respondents could identify more than one production type and more than one production practice, and thus reflect nuanced detail about their operations. We also asked those who identified as mentors what types of education and support they were providing.

Responses were analysed using Microsoft Excel, SPSS (Statistical Package for the Social Sciences: Version 20), and the qualitative research online software Dedoose ([www.dedoose.com](http://www.dedoose.com)). Demographic information on mean responses, standard errors, and distribution were calculated in Excel compared in SPSS. Coding in Dedoose included examining specific barriers and challenges, such as government policies (or lack thereof), financial burdens, or different learning types, including formal and informal learning. While farmers were able to respond to indicate specific production practices on their farm, a categorization was created for the analysis that compared agroecological practices (including the categories of permaculture, biodynamic, organic, and non-certified organic) (66.8% of all respondents), conventional (14.3% of all respondents), and mixed production practices (18.9% of all respondents). Mixed farmers



were not included in the examination of learning preferences in order to determine if there were significant differences in the ways conventional and agroecological farmers overcame knowledge barriers.

### **6.3.1 Limitations to understanding new farmer experiences**

As the first attempt to explore new farmer issues in Canada, this research is addressing a key gap in the literature. As a result, the decision to use convenience sampling, through an online survey, was determined to be appropriate due to the difficulty of executing a random and representative sampling method. Information on new Canadian farmers can be difficult to obtain and may not be recorded in Agriculture Census statistics because as farmers are growing their business their farm sales are too small to be successfully recruited (Statistics Canada 2016). New farmers, and especially aspiring farmers, are also more mobile as they search out permanent land access arrangements, may not own a registered farm business, or may exit the industry before their experiences are collected. As a result, some of the findings of this survey differ significantly from the Canadian Agriculture Census (Table 6.2).

At the same time, many new alternative farmers may find that the questions in the Agriculture Census are not suited to their production practices and assume a certain size and scale of operation, making it difficult for them to answer these questions. Women, in particular, are often excluded from the results of the Agriculture Census because until 1971 sex of the farm operator was not asked since it was assumed that only men were farmers and also because many women farmers operate smaller farms with diverse incomes streams that Statistics Canada has indicated they have difficulty recording (Statistics Canada 2014, Leckie 1993). Other limitations to understanding the experiences of new alternative farmers include the lack of data on direct marketing (Statistics Canada 2015). There is likely some self-selection bias in our survey

recruitment resulting in an over-representation of young women, with non-farming backgrounds, and high levels of formal education as compared to results from the 2011 Agriculture Census (Table 6.2).

**Table 6.2 Comparison of Findings between 2011 Agricultural Census and the 2015 National New Farmer Survey**

<b>Findings</b>	<b>2011 Agriculture Census</b>	<b>2015 National New Farmer Survey</b>
Numbers of respondents	292,795 (farm operators)	1326 (farm operators - includes exited and aspiring)
Under 35	8.2%	54.1%
35-54	43.5%	34.5%
55 and Older	48.2%	11.4%
Gender of farm operators		
Women	27.5%	57.6%
Men	72.5%	41.1%
Other	n/a	1.3%
Geography of farm operators		
Atlantic	4.0%	21.8%
Québec	15.6%	15.8%
Ontario	26.9%	22.8%
Prairies	43.6%	16.8%
British Columbia	9.9%	22.8%
Highest level of education		
Secondary school	26.7%	13.9%
Trade school/diploma	15.1%	
College or CEGEP	19.3%	31.4% (also diplomas)
University	17.2%	53.4%

Source: Statistics Canada 2016b

While the survey results are not representative of the experiences of all new farmers in Canada, or even all new alternative farmers, it does contain important information on the experiences of the 1326 farmers who completed the survey, a substantial sample. Our findings around gender, background, education, and farming practices reflect the findings of other comparable North American research including those in the US National Young Farmer Coalition 2011 survey (Shute et al. 2011), the FarmON Alliance 2012 survey in Ontario (Knibb et al. 2012), and a 2015 survey in BC (Dennis 2015). For example, we found that 82% of respondents were from non-farming backgrounds while Knibb et al. (2012) had found 73% of

respondents not growing up on a farm in Ontario, Dennis (2015) had 80% from non-farm backgrounds in British Columbia, and 78% of the respondents in the National Young Farmer Coalition in the US did not come from a farming background (Shute et al. 2011). Research in North America has also shown an increase in female participation in alternative, small-scale agriculture (Sachs et al. 2016, Monllor 2012, Trauger 2004). And while some research has shown that women may have higher response rates to surveys (Sax et al. 2003), many respondents commented on the survey that they were grateful for the opportunity to participate, indicating a high level of interest and relevance of the questions, which has been shown to contribute to an increase in response rates (Fan and Yan 2010). Thus, while the findings of this research may be limited in their generalizability to the overall Canadian farmer experience, this in no way diminishes the important insights that arise from these data as they relate to participants, particularly as the experiences of women, small-scale, post-urban, or ecological farmers have never been comprehensively explored in Canada.

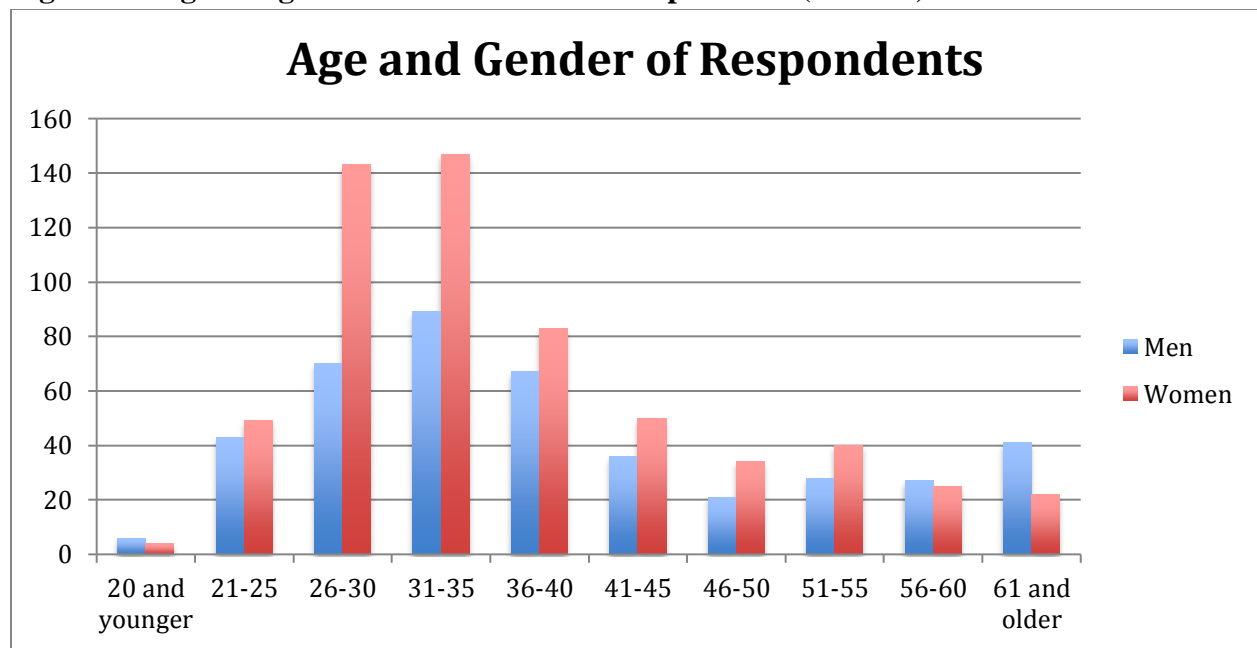
#### **6.4 Results: The new alternative farmer experience in Canada**

Our findings found the potential beginning of a transition in new alternative farming demographics, particularly that more urban youth are entering farming. In total, 68% of national survey respondents did not grow up on a farm. Importantly, 83% of those with less than 10 years of farming experience did not grow up on a farm, whereas only 29% those with 11 years or more of experience did not grow up on a farm, numbers that could suggest a potential trend, rather than selection bias in the sampling. Similarly, gender also differed significantly from what we expected compared to the 2011 Agriculture Census (Table 6.2) with 58% of survey respondents identifying as female, 41% as male, and 1% identified as other. Indeed, until respondents reached the age of approximately 56, women represented the majority of respondents and were nearly

double the number of men in the 26-30 and 31-35 age categories (Figure 6.2). Once again, these values may suggest a trend in ecological farming, and may not be explained by selection bias alone.

Of those farmers who identified themselves as ‘new’, the average age was 37 years old while the average number of years of farming experience was 6.7. When asked to describe their motivations to farm, all respondents Canada indicated that they were primarily attracted to a farming lifestyle, followed by environmental concerns and family, which could mean pursuing an intergenerational farm or moving to a farm to raise their own family. This was true regardless of the number of years of farming experience or age of the farmer.

**Figure 6.2 Age and gender distribution of all respondents (N=1326)**



The median number of years of experience of all respondents was 6 which determined the 4 quartiles of years of experienced: 1-2 years, 3-5 years, 6-10 years, and 11 or more years, with many comparisons done between those with 10 years or less of experience and those with 11 years or more. Most respondents (53.9%) identified as new farm operators, while 21.9% were

aspiring farmers, another 20.2% were aspiring farmers, and finally 4.1% were exited farmers. Those with less than 10 years of experience owned an average of 124 acres and rented 62 acres while those with 11 or more years of experience owned an average of 350 acres and rented 219 acres.

In terms of production practices, farmers with less than 10 years of experience (i.e. the first three categories) were more likely to engage in agroecology than farmers with more than 11 years experience (56.2% vs. 43.6%), but were even less likely to use “conventional” practices (7.5% vs. 21.0%). Additionally, farmers with 10 years of experience or less were more likely to produce vegetables (24.8% vs. 19.0%) or niche products<sup>3</sup> (14.1% vs. 10.5%). Meanwhile, farmers with 11 years of experience or more were more likely to produce beef (9.0% vs. 3.0%) and grains/oilseeds (8.1% vs. 2.7%). In terms of production practices, men were more likely than women to use “conventional” methods on their farms (30.2% vs. 19.8%), while women were more likely to respond that they used “non-certified organic” practices (66.7% vs. 52.1%). Regionally, men on the Prairies reported the highest percentage of “conventional” farming (46.3%) whereas men in BC reported the lowest amount of “conventional” practices (8.0%). Meanwhile, women in Ontario reported the highest level of “non-certified organic” (75.8%) whereas women in Quebec had the lowest response in this category (54.5%), although these women were also the most likely to report “certified organic” practices. The preference for “non-certified organic” field vegetables in Canada is relevant since there are limited training programs in this area, as is discussed below.

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<sup>3</sup> Includes small livestock, mushrooms, nursery, floriculture, herbs, hops, micro-greens, maple and other tree syrups, forage crops, aquaculture and aquaponics, and wild harvested products

When the types of production of respondents were examined, the production of field vegetables was highest (66.8%), followed in descending order by eggs (41.3%) and greenhouse vegetables (39.4%); in contrast, dairy cattle production was least common (7.9%). Of the latter group, women in British Columbia were the most likely (14.2%) to be involved in the dairy industry whereas men on the Prairies were the least likely (2.7%). Meanwhile men in British Columbia were the most likely to produce field vegetables at 80.0% with Québec women in a close second with 79.2% growing field vegetables. Meanwhile only 36.0% of men on the Prairies reported producing field vegetables. With regards to the number of years of experience, those with 3-5 years of experience were the mostly likely to produce field vegetables (79.3%) and also the least likely to be involved in the dairy industry (4.6%). This difference was less pronounced for participants who reported 11 or more years of experience, with 45.1% producing field vegetables and 10.1% raising dairy cattle. Finally, when it came to marketing and economic relationships, 80% of farmers with less than 10 years of experience reported using direct marketing practices (including farmers' markets, farm gate sales, Community Supported Agriculture (CSA), and wholesale relationships with restaurants) compared to those with more than 11 years of experience responding with 61% using these methods.

These regional, gendered, and experiential patterns in production practices, production types, and marketing all indicate a shift towards local, agroecological food especially among participating women in Ontario, Québec, and British Columbia. These differences also represent barriers and challenges for many farmers, as the following quote demonstrates:

*“Wanting to be environmentally-friendly, organic is already seen as different. Being female and raised in a city is the next big reason I am discounted. Getting land to start on and keeping start up costs down is exceptionally challenging!!!!”*  
(35-year-old female in Alberta producing certified organic field vegetables, poultry, and eggs).

Next, the specific learning preferences of new farmers, like the previous one from Alberta, will be explored in order to determine the learning barriers that new farmers may be facing.

#### **6.4.1 How do new alternative farmers learn in Canada?**

This section explores the responses according to learning preferences, production practices, region, gender, and years of experience. There were also regional differences for learning resulting in inequality in access to education, thus potentially influencing the motivations of farmers when selecting these practices and products. Many similarities exist between these categories, in particular the emphasis on social forms of learning, which emphasize local and traditional farmer knowledge. Most survey respondents reported that they were producing ‘unconventional’ or niche products using ‘unconventional’ or agroecological practices, which in turn suggests that the learning avenues used by conventional farmers may not be applicable. As such, the analysis will also consider whether the difficulty of finding formal learning in alternative production represents a possible marginalization of alternative forms of farmer knowledge. For example, the most popular form of learning was self-teaching and experimental learning (Table 6.3). Farm mentorship, farmer-to-farmer knowledge sharing, and farm tours are all key to helping to bring knowledge back to farmers and to keep knowledge local.

**Table 6.3 How important were the following in your farmer education?**

<b>Learning type for all respondents</b>	<b>Mean</b>	<b>SE</b>	<b>+</b>	<b>-</b>
Self-taught/experimental (IND)	4.31	0.03	95.3	4.7
Farmer-to-farmer (SOC)	4.19	0.03	94.1	5.9
On-farm training (including internships and/or jobs) (SOC)	3.69	0.05	75.6	24.4
Books/Periodicals/Magazines (IND)	3.62	0.03	81.3	18.7
Websites (IND)	3.36	0.03	66.2	33.8
Workshops and/or Conferences (INST)	3.30	0.04	65.2	34.8
University or College program in agriculture (INST)	2.65	0.08	41.6	58.4
University or College program in something other than agriculture (INST)	2.53	0.07	31.2	68.8
Online courses (IND)	2.38	0.07	26.8	73.2

Incubator farm programs or farmer schools (SOC)	2.24	0.09	27.9	72.1
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Mean is the average Likert scale response with 1 being not at all significant and 5 being extremely significant; SE is standard error; + is the percentage number of positive responses (4+5) compared to negative (1+2) Likert scale responses; - is the percentage number of negative responses (1+2) compared to negative (4+5) Likert scale responses.

Three broad categories of learning emerged from the analysis of the responses were ‘independent’ (IND), ‘social’ (SOC), and ‘institutional’ (INST) (see also Chapter 6).

*Independent learning* was described as the type of learning that was self-directed, usually done alone, and tended to be more flexible. It includes self-taught and experiential learning, that is the learning through making mistakes and trying new ideas, learning done individually by reading books/periodicals/magazines or by consulting websites or participating in online courses. This type of learning offers fewer opportunities to engage with new narratives of farmer subjectivities through self-cultivation or the formation of supportive cultural and social networks. Independent learning ranked the highest overall for respondents with this quote summarizing the reasons why farmers felt it was so valuable:

*“The end result is that new farmers need land to practice what they have learned, to hone their skills and grow their knowledge. Farming is not something you read in a textbook like many other jobs - it is old school - hands own, information is passed on and shared, trial and error [...] It takes years for a farmer to develop their farming abilities and it never stops”* (35-year-old male in Ontario growing non-certified organic vegetables and poultry).

*Social learning* involves opportunities to work with peers and share knowledge by building networks where information is usually shared informally. These learning opportunities included farmer-to-farmer exchanges, on-farm training and mentorship, and incubator farms and farm schools, all of which usually facilitated opportunities to share knowledge on an on-going basis through network building. Social learning provides opportunities to rebuild farmer knowledge and encounter discourses of ‘good’ farming that emphasize traditional, embedded farmer knowledges. In these cases, learning occurred because of connections made with experienced farmers and peers, as this farmer indicated:



*“Peer support/farmer to farmer create long lasting relationships that provide continued support, and I can be specific about my needs/what I am trying to figure out. On-farm training is really the best way to get familiar with different farming systems, figure out what I like or don't like about a system/type of production. It also ideally builds relationship one can rely on down the road and provides tons of hands-on learning opportunity, and I am more likely to remember something I do than something I read about”* (33-year-old female in British Columbia producing non-certified organic vegetables).

Finally, *institutional learning* was learning that occurred off-farm and was organized by an organization, government office, or institution like a university or college. This type of learning happened with others, but was more formally planned than social learning and rarely included a practical, or in-field, component. Institutional learning is usually a one-time learning opportunity that is more focused on theoretical knowledge sharing. Institutional knowledge often reinforces techno-scientific understandings of farming and served to reinforce ‘good’ farmer narratives of productivist and neoliberal ideologies. Those who valued their institutional learning often named the specific institution and program, like this graduate of the Nova Scotia Agriculture College: *“[My] stud[ies in] soil biology and the properties and hydrology of water were very significant with my university education. I took many engineering courses as well, focusing on water and properties of materials”* (44-year-old male from Nova Scotia producing conventional and non-certified organic seeds, vegetables and herbs).

Participants were asked to list the programs that have worked for them with respect to education and training (Table 6.4). Overall, programs and services delivered by non-governmental organizations (NGOs) that addressed a knowledge need were well received, except in Québec and BC where it is likely that other programs were more significant (highlighted in grey). NGOs are likely more responsive at offering programs and often met a specific need unaddressed by governments and other institutions, as the result of the neoliberal rolling back of support programs, and are working in very specific local contexts, thus working with traditional

forms of farming knowledge. However, many of these programs are unevenly distributed across Canada and may be difficult to access for those of limited financial means given that conference and workshop fees can be too high for some. Some provincial government agricultural departments offer workshops and/or conferences, but not all provinces provided programs that were relevant to new or agroecological farmers. Québec respondents ranked College and Agriculture programs in agriculture 2<sup>nd</sup> overall for the province which reflects the importance of the CÉGEP de Victoriaville’s certificate in organic fruit and vegetable production (highlighted in grey).

**Table 6.4 Ranked mean response of existing programs of all respondents (N=1326)**

EXISTING PROGRAMS * Indicates a tie	ALL	BC	AB	SK	MB	ON	QC	NB	PEI	NS	NL
Informal farm workshops, field days, farm tours	1	3	1	1	1	2	3	3	1	3	4
On-farm training (including internships)	2	1	5	5	6	1	1	4	4	5	6
Farmer to farmer mentorship programs	3	2	3	4	4	3	4	2	2	1	9
Workshops/Conferences offered by NGOs	4	5	2	2	2	4	6	1	3	2	2*
Online educational resources	5	4	4	3	3	5	9	8	7	4	1
New farmer networking forums	6	6	6	6	5	6	5	5	9	6	2*
Incubator farms or farmer schools	7	7	9	11	9	7	8	7	10	9*	11
College/University agricultural programs	8	8	7	9	8	8	2	10	11	9*	7*
Workshops/Conferences offered by governments	9	9	8	7	7	9	11	11	5	8	5
Government extension services	13	10	10	8	10	11	10	6	8	7	7*
Government loan and grant programs	11	11	11	10	11	10	7	9	6	10	10

Ranked mean response of Likert scale question.

Differences by region, gender, and years of experience turned out to not be substantial overall, with a few exceptions that I outline next. Regional differences were significant only for

“incubator farm or farmer schools” and “college/university agricultural programs” and most of the other responses remained similar throughout Canada. Since incubator farms and farm schools are not available everywhere in Canada, they ranked differently in different provinces with Ontario and Quebec ranking them the most highly. Similarly, university and college programs in agriculture are unevenly distributed and available. There may also be some differences in the quality of these programs based on how many years they have been running and how relevant they are to respondents who were predominantly interested in agroecological methods. For example, participants from Québec ranked this option much higher than in other regions with many citing the CÉGEP program in Victoriaville as a significant source of learning. This respondent described the Victoriaville organic farming program as a useful mix of theoretical and practical learning: *“Heureux mélange de théorie et de pratique. La théorie pour mieux observer le pratique et la pratique pour confronter la théorie”* (23-year-old male intern from Québec).

With respect to gender, the differences were surprisingly minor. Women tended to value all learning types higher than men. The only exception was for university and college programs in agriculture, where men placed a higher value, which likely reflects their higher participation rates these programs. Québec was an exception to this trend with both men (3.61 out of 5.00) and with women (3.55 out of 5.00) ranking these programs highly while British Columbian men fell at the opposite end of the scale with a response of 1.91. This likely relates to the number and quality of training programs available in these provinces. Meanwhile the categories of “self-taught and experimental” and “farmer-to-farmer,” continued more consensus among respondents in these categories.

Finally, with respect to the number of years of farming experience, most responses fit with the overall preferences (Table 6.4) except for “online courses” and “university or college program in agriculture” where there was some variation by the number of years of experience. In this case farmers with only 1-2 years of experiences ranked “online courses” at 2.62 while those with 3-5 years of experience only ranked them at 2.21. This may be an indication of the exploratory phase of new and aspiring farmers where online courses are useful early on, but soon reach their maximum potential after farmers begin to seek more hands-on learning. As for “university or college programs in agriculture,” this was ranked the most highly by farmers with 11+ years of experience at 2.59 while farmers with 3-5 years of experience ranked this at 2.43. This may be due to changes in agriculture programs available or the quality or relevance of these or changes in production practices over time. For example, this farmer suggests that that closure of the Kemptville College campus in Ontario will have negative effects for new farmers:

*“Kemptville Agricultural College to be closed by Guelph University [in] spring of 2015 (shamefully) [...] Eastern Ontario needs a dairy, hay and cereals operational community college like what Kemptville Agricultural School/College has provided for nearly 100 years!”* (79-year-old male from Ontario producing conventional grains and oilseeds and providing mentorship).

Meanwhile the needs of farmers change over time as they gain more experience so they may rely on different knowledge resources and education opportunities over time, as this farmer highlighted:

*“I’m already in the trenches, so continued support and learning opportunities in the form of workshops, field days, conferences, knowledgeable extension agents (versed in organic agriculture), and networking are all excellent ways for me to remain informed, inspired, and improve my farming practices”* (28-year-old female from Nova Scotia producing certified organic field vegetables).

#### 6.4.2 Barriers to farmer learning in Canada

Survey respondents were asked to comment about barriers relating to their ability to access knowledge on different production practices. Some mentioned the costs of training programs and farming knowledge resources since budgets can be especially tight for new farmers. For example, two farmers described the problems with the affordability of knowledge in Québec and Manitoba. *“The type of extension services I have to deal with right now are very expensive: 125\$/hour”* (40-year-old male in Québec producing certified organic vegetables and pastured pigs and eggs). Since most places no longer have access to public extension services, or those services are not specific to the kind of agroecological farming respondents are engaged in, they are facing costly consultation fees. Additionally, formal training at universities or conferences also includes fees which can be difficult for respondents to afford when they are facing high start-up costs on their own farm and so many opt for self-directed learning instead. There are challenges with the type of trial-and-error learning done on farms by farmers themselves: *“[W]e’ve basically had to learn from scratch through trial and error. If more resources/knowledge/training were available and affordable, it would have been an easier process”* (29-year-old female from New Brunswick producing non-certified organic sheep/goats, poultry, eggs and certified organic vegetables and berries). Others indicated that they did not have the time to learn on their own because they were too busy,

*“I find, even as an experienced grower of many crops, that there is very little time and resources put into researching alternate crops in a given area. Research needs to be local so that new farmers don't need to spend the huge amount of ‘learning through trial and error’”* (27-year-old male in Saskatchewan growing conventional and no-till grains and oilseeds)

In addition, respondents mentioned that programs are not evenly distributed, as many needed to travel long distances in order to access conferences, workshops, or courses.

Respondents also discussed the lack of extension services that met the needs of agroecological

farmers specifically in the context of a general decline of these programs and services. For example, a Manitoban farmer indicated that the type of farming she does is not covered by extension services “*[The] extension services in our area have no experience in the type of farming I do*” (36-year-old female in Manitoba growing certified organic fruits and vegetables and pasture-raised poultry and eggs).

Many respondents indicated a general distrust or lack of faith in government extension services, such as this farmer in Québec: “*Government agriculture extension does very little for information access, mostly only handles money and regulations*” (31-year-old female in Québec producing certified organic vegetables). There were some respondents who indicated that they were distrustful of government and corporate research and the kinds of knowledge they provided. Extension services provided by either government or university sources were widely criticized as reflecting these outsider priorities, “*Most of the time the government extension services are spouting "the party line" as dictated by chemical companies and large Agribusiness*” (35-year-old male from Ontario growing permaculture vegetables and fruits). It appears that respondents are aware of the lack of extension services in some regions of Canada as this farmer indicates: “*We were lucky to have received farm business training before we moved here. I think other farmers in the province would benefit enormously if the same type of training were offered here*” (43-year-old female in Prince Edward Island producing certified organic and biodynamic fruits and vegetables).

Meanwhile respondents also reported relying on information from other jurisdictions that may have dramatically different climate or regulatory contexts that make some of the information irrelevant, “*Government extension services are better in other provinces than BC - e.g. Ontario. Online resources are more extensive and accessible from American universities -*

*hardly anything available from Canadian universities”* (44-year-old female in British Columbia raising pastured sheep/goats, pigs, poultry and eggs and certified organic vegetables). In fact, the most common response to the question about what programs were working for farmers was to ask what extension services were, since they have not been available for several years in many provinces and respondents, particularly those from non-farming backgrounds would be unfamiliar with these services.

Other issues included comments about the general lack of accessibility of relevant knowledge and inadequate access to ongoing support and timely responses. Some respondents mentioned difficulties in building the confidence they need to successfully run their businesses on their own, as the following farmer who indicated concerns around the lack of time:

*“I understand the business side as I attended university and specialized in accounting. I really struggle with getting the proper answers I need for day-to-day problems. As farming is all about timing, sometimes when I receive the assistance/answer I am looking for it is too late and damage is done. [It's] very scary as a new farmer. I can see why many people that don't grow up in the industry never venture into it”* (36-year-old male in Prince Edward Island raising pastured dairy cattle).

These time pressures were especially evident with trying to access these programs,

*“Learning how to navigate multiple bureaucracies is time-consuming and doesn't actually help to grow food”* (60-year-old female in British Columbia producing non-certified organic sheep/goats, eggs, honey, and vegetables)

Internships and other on-farm mentorship were important, but some respondents mentioned the problems with internships, particularly if they are unpaid and precarious, like this farmers in Ontario:

*“Sometimes I think there's too much reliance on free/intern labour on farms that should be providing a model for economic sustainability. If a lot of free labour is*

*required, I worry about the economic sustainability of the incubator/teaching farms and whether they are relaying an unrealistic scenario to potential new farmers.” (31-year-old male from Ontario producing certified organic field vegetables).*

While the number of respondents who had access to incubator farms in Canada was small, those who have participated in these programs recognized the importance of ‘real-life’ experiences that can only be gained through failure and being fully engaged in the decision-making process while also minimizing risk. This female farmer in Ontario spoke very highly of her experience:

*“Being part of an semi-incubation farm literally changed my life. It gave me the chance to test out my ideas in a low risk environment and make sure that it was the path I wanted to take. Now, the only frustrating thing is I feel I need to go back a bit and apprentice, because learning almost from scratch, you make way too many mistakes. I could really use mentorship!” (26-year-old female from Ontario who is an aspiring farmer)*

Respondents were also asked to describe the reasons why they selected certain learning types whether for reasons of cost, timing, practicality, networking, etc. These responses were compared between conventional and agroecological farmers (Table 6.5). Agroecological farmers are identified by blue text while the text for conventional farmers is red. For agroecological farmers, convenience and affordability – identified in grey boxes – were the most important reasons for choosing independent learning (including “self-taught-experimental,” “websites,” “books/periodicals/magazines,” and “online courses”). While both social (including “farmer-to-farmer,” “on-farm training,” and “incubator farm or farm school”) and institutional (including “conferences and/or workshops” and both “university or college programs” in agriculture and in something other than agriculture) learning were both selected primarily for the networking opportunities and practical, hands-on experiences they provided, also marked in grey.

Meanwhile, respondents involved in conventional farming, were more likely to chose independent learning for convenience while social learning was selected for its practical, hands-



on learning, and institutional learning opportunities were selected for their networking possibilities. Affordability was less important for conventional farmers overall. While many of the responses in Table 6.5 indicate the similarities between the learning practices of conventional (red text) and agroecological (blue text) farmers, there are some interesting differences (boxes are shaded in red). For example, 21.7% of conventional farmers felt that a university or college program in agriculture met a specific learning need while only 14.2% of agroecological farmers felt that this was the case. Similarly, 29.7% of conventional farmers responded that a university or college program in agriculture was ‘not applicable,’ whereas 49.1% of agroecological farmers felt that this was the case, indicating that conventional farmers may getting more out of the institutional learning provided by universities and colleges. This was also noted by a farmer in BC: *“[a]ll the ag programs in colleges are geared toward conventional methods, and don't seem to provide practicums or on-land experience [...]”* (54-year-old female in British Columbia producing pastured pigs, poultry and eggs and certified organic fruit). Also, of note was the selection of “not applicable” in response to “university and college programs in something other than agriculture”, with 46.8% of agroecological farmers selecting this response while 51.9% of conventional farmers did. This indicates that agroecological farmers may be more likely to have a college or university education a non-agriculture based program. In regards to incubator farms and farm schools, conventional farmers were more likely to respond that these “not applicable” (68.5%) than agroecological farmers (56.9%), which may be due to the fact that these programs target organic and agroecological practices.

**Table 6.5 Learning practices, decision-making, and comparing agroecological (blue) vs. conventional farmers (red)**

	Affordable	Convenient (time, effort, etc.)	Met a specific learning need	Accessible (location, etc.)	Networking opportunity	Practical, hands-on experience	Flexible learning schedule	Access to continued support	Not Applicable
Self-taught/experimental (IND)	20.1	17.2	13.3	10.9	1.8	19.0	14.0	3.3	0.4
Self-taught/experimental (IND)	19.2	15.0	10.8	8.4	3.7	25.7	11.5	3.4	2.4
Farmer-to-farmer (SOC)	14.1	9.6	14.3	8.8	16.8	16.3	5.6	13.1	1.5
Farmer-to-farmer (SOC)	13.7	12.7	11.1	8.4	17.2	20.5	5.1	9.4	2.0
On-farm training (SOC)	11.7	7.7	12.8	8.1	12.8	21.7	4.0	9.4	11.8
On-farm training (SOC)	12.4	8.1	12.4	8.7	9.7	23.5	4.4	6.7	14.1
Book/Periodical/Magazine (IND)	18.1	22.1	20.8	14.6	0.7	1.2	15.3	5.5	1.8
Book/Periodical/Magazine (IND)	19.5	25.9	16.7	11.7	1.4	1.4	13.8	6.0	3.5
Websites (IND)	20.3	20.8	17.7	14.4	3.2	0.8	13.6	6.6	2.5
Websites (IND)	19.6	23.1	15.6	13.7	3.4	1.2	11.8	7.2	4.4
Workshops and/or Conferences (INSTI)	9.3	7.6	22.4	10.3	28.8	5.7	1.9	6.5	7.4
Workshops and/or Conferences (INSTI)	8.0	6.1	21.3	9.9	27.0	6.1	2.7	9.1	9.9
University/College program in Agriculture (INSTI)	2.7	2.9	14.2	4.9	9.9	7.6	1.6	7.1	49.1
University/College program in Agriculture (INSTI)	5.7	4.2	21.7	9.4	13.7	7.1	1.9	6.6	29.7
University/College program in something other than Agriculture (INSTI)	1.9	2.3	21.3	5.6	9.6	5.6	1.8	5.0	46.8
University/College program in something other than Agriculture (INSTI)	2.6	3.8	19.2	5.1	6.4	5.8	1.9	3.2	51.9
Online courses (IND)	8.7	12.4	14.4	10.0	3.6	0.6	9.6	4.1	36.6
Online courses (IND)	9.7	15.4	13.1	8.0	2.3	0.0	12.6	5.7	33.1
Incubator farm programs or farm school (SOC)	5.1	2.9	6.2	4.8	7.5	8.9	1.8	5.9	56.9
Incubator farm programs or farm school (SOC)	4.7	2.7	6.0	4.0	4.7	6.0	2.0	1.3	68.5

Grey highlighted boxes indicate highest responses in those categories. Red highlighted boxes indicate significant differences between the responses of agroecological and conventional farmers. SOC: social learning, IND: independent learning, INSTI: institutional learning. Agroecological farmers are identified by blue text while the text for conventional farmers is red.

### 6.4.3 Power/knowledge and new farmers

Many survey respondents are aware of the influences of politics, economic interests, and ideology in the creation of knowledge; and, in fact many of those who indicated using uniquely

agroecological or a mix of practices purposely chose these practices as a way to address broader social, economic, and environmental justice concerns. For example, many respondents had an education in environmental studies or work experience with social justice organizations. In addition, respondents had significant formal education with 17.9% reporting graduate school education and another 35.4% reporting an undergraduate education. For example, some respondents indicated a background in social sciences and humanities as contributing to their decision to farm, *“All of my humanities/social science courses in high school and university [...] shaped my career/lifestyle path: they created the philosophical and social foundations”* (24-year-old female from Ontario producing certified organic vegetables). Others indicated that they felt they had entered farming later in life (often after another career or education in another discipline) because they were unaware of farming as a career option:

*“[Farming] was never even considered as an option growing up...because I was good in school? Because I was in the suburbs? I had to come at it from a conviction of wanting to change the world, rather than just as an occupation like any other. This requires a certain amount of guts since I'm going against the grain”* (35-year-old female in Ontario producing certified organic vegetables).

Many are frustrated with the way power has affected the food system more broadly as well as their own personal farming lives, like this farmer in Manitoba,

*“When you live in an agricultural society, [there is] lots of competition - but the competition is not the same as you (not organic, not free range, etc.). Still, most people are related or work at traditional hog barns or dairy barns, or are being fed the politics and media that support those local traditional industries. So - you have people who not only do not support you, but may actively try to shut you down - they're usually the ones in power. Our politicians and policymakers are deeply in bed with the big-ag producers”* (33-year-old female in Manitoba producing pasture pigs, poultry, and eggs and permaculture flowers).

Still others were frustrated by the way dominant socio-political narratives discounted their identity as agroecological and alternative farmers, like this farmer in Ontario:

*“I find that even though I've operated a successful CSA for 15 years, I am still not considered to be a 'real farmer' by my conventional neighbours. The growing 'alternative' farming community around me is much more inclusive. But the dominant farming community's views remain gendered, classed and racialized, and I am excluded from joining those communities in many ways”* (39-year-old female in Ontario producing biodynamic poultry, eggs and field vegetables).

Respondents were aware of the ways in which their knowledge has been undermined as well as the need to restore local knowledge. Many were inspired to continue to work against these challenges because they saw their position as new farmers and as farmers using agroecological practices as opportunities to build new socio-nature relations, like this farmer in Ontario:

*“...the greater challenge is preserving and countering the erosion of cultural knowledge that has happened to our food system in the past decades. There are pieces of knowledge, seeds and varieties that take me days to find because I know they exist, but nobody really writes or talks about them anymore. They've completely been dropped from social collective memory”* (26-year-old male in Ontario producing non-certified organic vegetables, honey, and poultry).

Many respondents saw what they were doing as contributing to the building of new food system narratives, new socio-nature relationships, and alternative economies. For example, this farmer describes his motivation to farm as *“the desire to dedicate my life's work to harmonising our culture with the rest of nature”* (28-year-old male in Ontario who is aspiring to farm).

Meanwhile, this farmer highlights the connections between rural depopulation, the loss of knowledge, and environmental problems in agriculture:

*“We've depopulated the countryside and replaced skilled managers who knew and loved their little chunk of the ecosystem with ever larger machines and fewer people. [...] This has serious economic, climate change, and social consequences. We need to repopulate the countryside with farmers who are getting smaller and smarter about working with nature”* (31-year-old female in Ontario producing certified organic field vegetables).

Finally, this farmer gave a detailed description of the economic challenges that were facing new farmers and the importance of alternative economic relations:

*“I think we need to stop thinking of farming so much as just a business, and of how to make farming profitable within existing economic structures. That will never work. We need to look at farming as a way of building an alternative economy that meets our needs, instead of trying to fit ourselves into an economic model that was never designed to suit us - it will only ever favour giant corporate growers, and will ultimately destroy the ecological resources that we depend on in order to be able to farm. [...] Of course, new farmers have a hard time getting into the dominant economy - that is never going to change! We will succeed at getting more people into farming when we focus on building alternatives to that dominant economy that are based on different values, values like community, environment, and localization” (34-year-old female in British Columbia producing permaculture vegetables and medicinal plants).*

However, the new farmers in this research also presented complex and contradictory subjectivities that may have been hampered by capitalism and private land ownership. This resulted in internalized narratives of free markets fundamentalism and opposition to government supports, which may also be a reaction to state interventions that failed to provide adequate supports (see Laforge et al. 2016). For example, this young farmer from Manitoba expresses faith in free markets while also producing using sustainable practices,

*“As long as there is no government involvement or dependence for any program, but are grassroots organized and built, then whether or not I would use it, I support it. It needs to be a free market model. Some will fail, some succeed. I believe community networking has been made and is growing. Universities and government just need not apply” (22-year-old male from Manitoba producing conventional and organic vegetables).*

## **6.5 Discussion: Knowledge access as a barrier**

My results show that for the new farmers who responded to this survey, intergenerational knowledge transfer is less available today since most are not coming from farming backgrounds and therefore do not have access to family knowledge about agriculture. Thus, learning and training takes place later in life, but can also occur much more intentionally. Agroecological practices are more sought after by these new entrants, who are free of parental expectations that

can sometimes arise from farming with family members (Monllor 2012). New entrants are also less path dependent and thus are not required to work against the inertia of both knowledge and infrastructure to use agroecological methods (Monllor 2012, Cushon 2003). The addition of new alternative farmers into the rural landscape has the potential to inspire older, more established farmers to transition from chemical-intensive, highly specialized, and industrialized farming, and engage in direct marketing with urban consumers and work with ecological systems. In addition, the majority of new farmers who responded were women, who have been found in other research to be more concerned with environmental and social aspects of farming (Sachs et al. 2016, Desmarais et al. 2011, Trauger 2004). However, in many instances, despite the efforts of new farmers to engage in alternative practices they face cultural barriers that make it difficult for them to self-cultivate alternative subjectivities, and as a result, these new farmers often become disheartened and exit or exhibit internalized productivist subjectivities.

Farmers everywhere, including those surveyed, have demonstrated interest in informal, peer-to-peer learning in part because they recognize the value of the local knowledge that their often more experienced neighbours have maintained (Faysse et al. 2012, Shute et al. 2011, Mailfert 2007). A variety of informal sharing networks have been established to facilitate this, including the Manitoba Farm Mentorship (now defunct), World Wide Opportunities on Organic Farms (WWOOF), Collaborative Regional Alliance for Farmer Training (CRAFT), and Stewards of Irreplaceable Land (SOIL). These opportunities to gain practical knowledge through informal networks are key for new farmers from non-farming backgrounds to gain experience and contribute to their confidence and ability to start their own farm (MacAuley and Niewolny 2015). Because formal, institutional education does not generally provide practical training in sustainable agriculture, farmers are helping each other in informal and collaborative ways.

Internships are a significant source of new farmer learning, but these interns are often in vulnerable positions in terms of pay and job security (Ekers et al. 2015). While interns are highly mobile and often travel to participate in multiple internships over time, they are also somewhat limited by the geography of internships, which are not evenly distributed in Canada. Some regions may offer better internship experiences than others, but travelling for an internship may not benefit interns who may establish farms in other biophysical and sociocultural landscapes. Respondents were asked to identify the policies and programs they wanted to see developed and expanded and farmer-to-farmer mentorship programs were the top choice (with a value of 4.23 out of 5.00).

Respondents expressed pragmatism when it came to selecting the training opportunities that they used, and their main criterion was that the training met a specific knowledge gap that they wanted to see addressed. The new alternative farmers in this research indicated that affordability was also significant in determining what kinds of learning they pursued. They often reported participating in programs that were low-cost or free because they could not afford to pay for more expensive options. In addition, farmers are busy and have limited time therefore respondents were often selecting training for its convenience. However, new alternative farmers also felt that access to ongoing support were important (6.7% overall) than did conventional farmers (5.9% overall) (see also Table 6.5). This may be because there are fewer sources of knowledge and support available to agroecological farmers except from their peers.

It can be difficult to assess the extent to which a lack of farming knowledge in agroecological agriculture presents a significant barrier for new farmers. Unlike other barriers facing new farmers such as access to land or lack of access to capital or financing, finding farming knowledge can be done by building networks, doing online searches, and attending

events (Knibb et al. 2012, Shute et al. 2011). However, many survey respondents indicated that agriculture, particularly agroecological farming, as a career was not adequately promoted to students in primary schools and that the education that was available tended to promote conventional practices (e.g. Agriculture in the Classroom). Integrating farming into the primary and secondary curriculum was the third overall choice of policy or program recommendation from respondents (4.10 out of 5.00). The new farmers in this research who became engaged in alternative agriculture commented that they did not realize that the kind of farming that they are now doing was an option when they were younger and so many spent much of their early 20s pursuing other academic or career interests that they later abandoned.

In addition, most respondents felt that formalized education and training in agriculture was only of limited applicability for the kind of farming they want to practice. The conventional farming programs offered by governments and universities were largely available across Canada, while programs like farm schools and incubator farms that foster agroecological farming practices and practical skills were limited to just a few provinces, especially Ontario and Québec. Even internship programs were regionally distributed, with the Prairies seeing fewer of these programs even though these provinces have the highest number of farmers in Canada. This may also be a reflection of the scale of agriculture on the Prairies and the higher number of conventional farmers there, most of whom are involved in farming that is both land and capital intensive, or it may be a function of the decreased demand from smaller urban centres on the Prairies for local food. However, it may also reflect the regional nature of farmer subjectivities themselves with more productivist, industrial farmers found on the Prairies than elsewhere in Canada (see Chapter 4).



More research into the learning preferences of new alternative and conventional farmers is needed to build on the findings of this study. In particular, a more randomized sample is needed to determine the significance of the findings regarding new alternative farmer demographics. In addition, more research into the experiences of conventional farmers would provide a more complete picture of farmer learning and the impacts of power/knowledge. Expanding research on the experiences, challenges, and barriers of new alternative farmers in Canada is important to build a better food system.

## **6.6 Conclusion: New farmers and power/knowledge**

When it comes to power and knowledge in farming, it is clear that those who continue in the conventional or productivist path of farming have more access to institutional learning that suits their farming practices than those who are trying to apply agroecological principles. As an expression of power by corporate and neoliberal government actors in the food system, new alternative farmers may find it difficult to impossible to access programs and supports for agroecology in Canada and elsewhere around the world (Sachs et al. 2016, MacAuley and Niewolny 2015, Niewolny and Lillard 2010, Hassanein 1999). Knowledge is often hoarded by institutions and difficult to access because of structural and financial barriers that make knowledge inaccessible. Even when governments have knowledge sharing mandates, the methods of research employed are primarily hierarchical with very few participatory agricultural studies taking place (McLachlan 2012). Conventional farming ideology continues to view society and nature as separate, as demonstrated by the reductionist vision that has both universities and governments dividing food and agriculture systems into separate silos such as health, crop science, animal science, food science, genetics, etc. which rarely overlap (Warner

2008, Hecht 1995). Meanwhile, corporations reinforce neoliberal capitalist while profiting from agricultural research in mechanical, chemical and genetic advancements in agriculture (Busa and Garder 2015, Eaton 2008). Without a plan to engage new farmers in Canada, we may soon face a different kind of food crisis, one that could take decades to rectify due to the loss of food producers and farmer knowledge.

The agroecological farmers in this research are more likely to rely on social learning opportunities that facilitate long-term peer networks and are more likely to dislike institutional learning. Sharing knowledge with peers builds informal networks and acts to redistribute power in the food system by facilitating more learning and recognizing the local knowledge that farmers have grown over time as important (Niewolny and Lillard 2010, Cervero and Wilson 2001). This local knowledge may even be more useful than the laboratory research happening in corporate laboratories since it is more likely to meet the needs agroecological farmers rather than corporations themselves. There are limited examples of farmers and institutions working together collaboratively with farmers directing research and priorities, particularly with crop development in the form of participatory plant breeding. Programs such as the Bauta Family Initiative on Canadian Seed Security has partnered with a researcher team directed by Martin Entz at the University of Manitoba, various community organizations, and farmers to develop organic potatoes and wheat varieties using participatory practices (Bauta Family Initiative on Canadian Seed Security 2013). Opportunities to build on this work and use these principles in the sharing of farmer knowledge and the development of new farming research is significant and much needed.

Farmer subjectivities are (re)produced through these power/knowledge dynamics, and new alternative farmers must contend with both a lack of governmental and institutional support

and the lack of respect from their more conventional peers. Female farmers in particular are challenging productivist subjectivities, as they are more likely to engage in alternatives and their very presence as women already disputes dominant farmer narratives (Trauger 2004). The ‘good’ farmer values of agroecological farmers in Canada and elsewhere around the world are marked by concern over the environment and rural community, but also by an interest in building a lifestyle that meets aspirations for a holistic approach to environment and social health (Sachs et al. 2016, Monllor 2012, Trauger 2004, Cushon 2003). There are some new farmer subjectivities that are explicitly self-cultivated around a need to offer an alternative to the productivist, conventional food systems. These new alternative farmers’ engagement in farmer-to-farmer and other informal knowledge sharing, as well as their interest in direct marketing, provide an opportunity to build networks of both consumers and other producers that provide the social and cultural recognition they need to feel validated. However, many of these new farmer subjectivities also demonstrate internalized neoliberal narratives, despite the dedication to sustainable practices. Not all new alternatives farmers are anti-capitalist, regardless of the origins and praxis of agroecology, and many of the most successful are recognized for their financial acumen and business sense. However, the building of networks and assemblages between more radical anti-capitalist farmers and those who are more neoliberalized allows for politicization of practices to take place. So when farmers come together to discuss details of pasture-raised pork, they may also engage in discusses of systemic barriers and ways to act collectively to resist and build a more explicitly community-based ethical approach to farming.

Burton (2004) examines the importance of community and social supports in building new farmer subjectivities. He describes how productivist farms appear ‘tidy’ with neat rows and no weeds, but for the new alternative farmers in this research, the farm must demonstrate their

commitment to agroecology and thus should demonstrate how it promotes biodiversity and cycles nutrients, which is usually not ‘tidy’ at all. A farm becomes a self-portrait that reflects the farmer’s vision of farming, but farmers also require the respect of peers and society to reinforce these agroecological practices (Burton 2004). In fact, new alternative farmers may be engaging in direct marketing, not only to build community economies, but also to allow them to build a stable framework of supportive customers and peers to reinforce their alternative self-identity in a culture dominated by productivist ideals.

Recognizing the interest of new alternative farmers in agroecological production and local food as an entry point, particularly for those from urban backgrounds, can serve as a way to reach out to the future farmers of Canada. At the same time, engaging farmers means engaging entire farming communities and acknowledging and respecting the local knowledge held by all food producers, whether they are agroecological, conventional, or both. While agroecological farmers have the potential to grow food while addressing environmental and social problems, it is conventional farmers who currently have the local knowledge and land access, thus only through working in partnership can farmer subjectivities be transformed. In general, there is a need for increased support to help farmers meet the demand for sustainable, local food and revitalize rural communities, and the next generation of farmers in this research are already working to change the food system to ensure that Canadians will be fed into the future. The transformative potential of new alternative farmers as agroecological stewards is significant for a food system that may soon reach its environmental capacity. And as this final quote exemplifies, farming has the potential to bring together socio-nature concerns around the biophysical environment, human and animal health, the cultural traditions of seed saving, while fostering farmer knowledge and the self-cultivation of non-capitalist and alternative farmer subjectivities:

*“I wish farming was valued more highly in our world. We need to take better care of the land, our environment, our seeds, our animals and our bodies”* (34-year-old female in British Columbia producing biodynamic vegetables and pastured beef).

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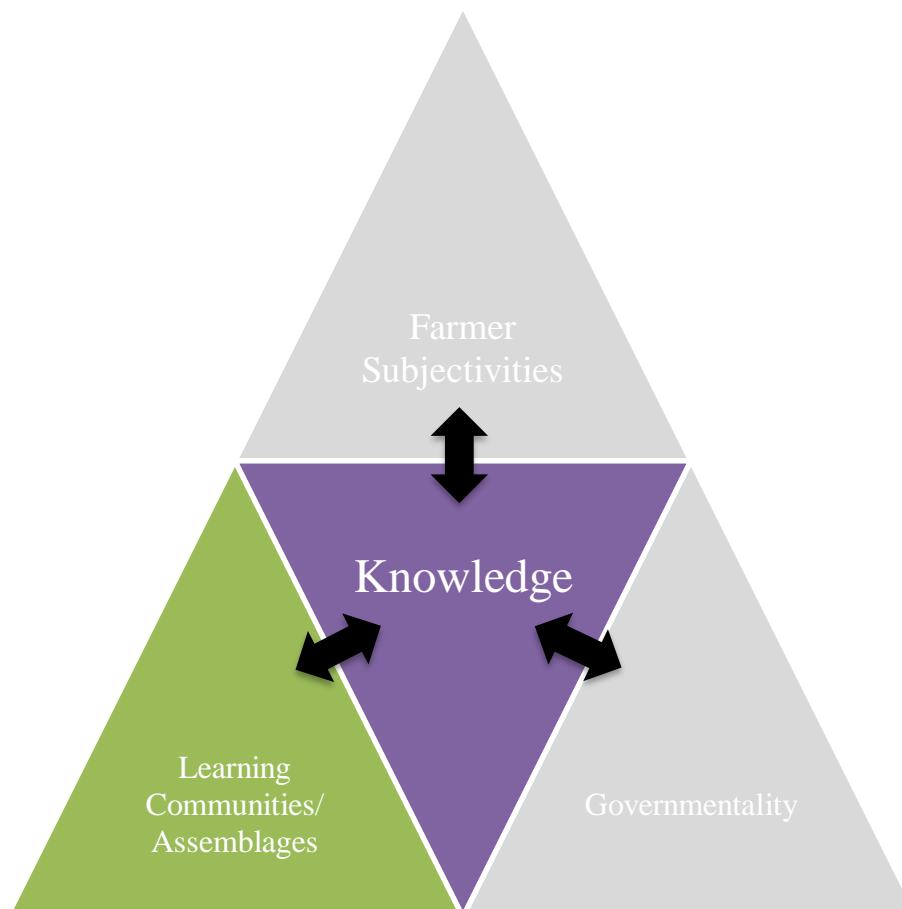
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## Chapter 7: Learning communities: Networks and assemblages of new farmer knowledge in Canada

Theories of social change have demonstrated that the relational connections among actors are critical to the wider influence of the movement and its ability to mobilize knowledge sharing (Goodman et al. 2012, Escobar and Osterweil 2010, Conway 2006, Hassanein 1999). New knowledge can also facilitate transformational changes in the ways that individuals and collectives imagine what is possible (Gibson-Graham 2011, Escobar and Osterweil 2010) which is critical if food systems change is to take place (Figure 7.1). This chapter builds on the previous chapter by exploring how the power/knowledge dynamics of the capitalist and corporate agriculture system can be overcome.

**Figure 7.1 Connecting knowledge to learning communities and assemblages**



The third and final objective listed in the introduction is the focus of this chapter-article. It aims to investigate

- The facilitation of collaborative learning communities for new alternative farmers. The ways these networks are similar to each other despite differences in region, gender, years of experience, or production type is attributed to the metaphor of rhizomes as the subterranean and labyrinth-like ways that ideas and values are shared without discernable relationships. Understanding the farmer-directed and peer-to-peer learning networks is an important way to understand how farmers may or may not contribute to wider social change.

Agroecology and alternative agriculture are two ways that new farmers are trying to re-imagine the food system as more sustainable, healthier, and more socially just. By re-imagining themselves and the farming system, new farmers are also re-imagining new socio-natural concepts of food, particularly as these relate to the decommodification of food and the building of new relations between nature and society (Alkon 2013). This research found that new alternative farmers are connected significantly by both their experiences and by the food and farming movement itself. This movement is contributing to the sharing of knowledge through unseen mycorrhizal networks that may have the potential to support new alternative farmers and other members of the food movement. By understanding the ways that assemblages share farming knowledge civil society and other collaborative projects and organizations can better help farmers to re-mould, re-build, and restore the food system.

## **Abstract**

The goal of this chapter-article is to examine learning processes of new alternative farmers in Canada in order to understand the role of learning communities and food system assemblages in transforming the food system. By exploring the formation of learning communities, this research examines the ways that new alternative farmers in Canada are learning about agroecology and community-based economic relationships as part of a larger assemblage of social change in the food system. The research in this chapter-article is based on interviews from Ontario and Manitoba with new and aspiring farmers, mentors, and farmer trainers. Farmer learning networks are explored and compared by region, gender, years of experience, and production practices. My results show more commonalities than expected in these categories, indicating the significance of virtual networks and the hidden connections and relationships that are supporting farmers on their learning journey. I found that farmers value social learning first, with independent learning as the next most important, and institutional learning as the least significant. Farmers who do not know each other have used the same resources to learn practical skills, indicating that they are part of the same movement and are part of the same assemblage of supportive neighbours, peers, print publications, online resources, and mentors. New alternative farmers in Canada face tremendous barriers to entry including access land and capital. Farming knowledge, as a component of a reimagined, sustainable, and just food sovereignty movement, has the potential to change the way farming is practiced in this country.

## 7.1 Introduction

*“Knowledge is not usually the first thing that comes to mind when we think of politics and social movements; but without knowledge it can be difficult, if not impossible, to take effective action toward movement goals”* (Hassanein 1997: 251).

New agroecological and alternative farmers in Canada, and elsewhere, are developing informal networks, communities, and assemblages to address knowledge gaps in the face of powerful corporate, institutional, and government actors that otherwise reinforce ideologies of neoliberal, productivist, and industrial agriculture (Sachs et al. 2016, Ekers and Levkoe 2016, MacAuley and Niewolny 2015, Hassanein 1999). These farmers are looking for practices that meet their food production needs while also respecting the environment and building rural communities (Mailfert 2007, Trauger 2004). While university and government extension services at one time may have met the learning needs of farmers, with the growing interest in agroecology many feel that the dominant system emphasizes hierarchical knowledge transfer with a focus on corporate profitability through the marketing of techno-fixes and disregards research requiring diverse and holistic ecosystem management (Warner 2008, Kuyek 2007, Hassanein 1997). While conventional farmers are also feeling the pinch of the cost-price squeeze, agroecological farmers are a metaphorical canary in the coal mine of the corporate food system, with the undermining of their farmer knowledge highlighting a threat to all farmer knowledge (Monllor 2012, Nerbonne and Lentz 2009, Hassanein 1999). As such, understanding the ways that new alternative farmers develop peer-to-peer and informal networks to facilitate their learning is critical to the future of farming in Canada.

While there is limited research on new farmers in Canada, some commonalities include the widespread interest in sustainable farming practices while also focusing on building relationships with their customers and setting their own prices by using direct marketing (Ekers



et al. 2015, Monllor 2012, see also Chapter 6). New farmers in Canada, as in the US, face rising land prices, inaccessible financing, underdeveloped markets, and have little if any access to training and skills (Calo et al. 2016, Fernandez et al. 2013, Ruhf 2013, Shute et al. 2011, Niewolny and Lillard 2010). Indeed, many new alternative farmers come from a non-farming and often urban background and therefore lack land, capital, or even experience which was not the case for previous generations of farmers who inherited the family farm (Katchova and Ahearn 2015, Ngo and Brklacich 2014, Monllor 2012, Niewolny and Lillard 2010). Monllor (2012) found that farmers who inherit the family business often continue to operate using the same practices as their parents with little room for flexibility, which may contribute to feeling trapped within certain production systems and may serve to discourage those who grew up on a farm to continue farming. Sustainable, ecological, or agroecological farming is still considered of marginal importance by governments and universities around the world and therefore lacks adequate research and training resources (Ngo and Brklacich 2014, Fernandez et al. 2013, Niewolny and Lillard 2010). In addition, programs for farmers vary provincially with respect to administrative support and funding, including cuts to provincial extension offices across the country (Milburn et al. 2010).

Meanwhile at universities, only a handful of very limited agriculture programs in Canada offer sustainable, or organic production, including those Dalhousie University, McGill University, CÉGEP de Victoriaville, Guelph University, Trent University, Fleming College, Durham College, St. Lawrence College, University of Manitoba, University of British Columbia, and Kwantlen Polytechnic University (Organic Agriculture Centre of Canada, n.d., CÉGEP de Victoriaville 2016). As Goodman et al. (2012) point out, many universities struggle to support sustainable programs because these practices and the associated knowledge are localized and

resist universalization. Furthermore, if knowledge cannot be universalized, then it is difficult to fit in a standardized scientific process and could be treated as less trustworthy and therefore less likely to receive funding and research energy at institutions (Goodman et al. 2012). Additionally, corporations have become increasingly implicated in the funding of university research and can push for more research on chemical and fertilizer development because it's more profitable (Kuyek 2007, Kneen 1990). For example, until recently traditional ecological knowledge on weather patterns, animal behaviour, or plant cultivars was often dismissed, but its basis in the cognitive and perceptive traditions of local knowledge holders has been found to be highly detailed and has been validated by western science on multiple occasions (Altieri 1997).

In addition to traditional knowledge, women's knowledge of local ecological food systems has also been marginalized (Classen et al. 2008, Hassanein 1999). The perception that farmers are men continues to exclude women from fully participating and dismisses their contributions on farms which in turn limits their inclusion in agricultural networks with men often acting as gatekeepers to information and knowledge (Andersson and Lundqvist 2014). As women are becoming increasingly important to local and agroecological food systems, it is important to recognize the ways that their learning and food system networks vary from men's (Sachs et al. 2016, Andersson and Lundqvist 2014, Jarosz 2000, Hassanein 1999, Liepins and Schick 1998). At the same time, the production and consumption of food is a socio-nature relationship between tacit knowledge, collective learning, routines, and worldviews that reflect the current ordering of the agro-food system, but there are always new ways to imagine, understand, and know these systems and thus to enact change (Goodman et al. 2012, Tovey 2009). Thus, the way farmers learn and know how to farm has the potential to transform the food system and as such, this research is interested in the processes of learning.

Building learning communities are one way that farmers are addressing these institutional and systemic barriers to gain agroecological knowledge. Also called communities of practice, these informal, social networks have been formed by farmers in various regions in Canada and may or may not be facilitated by non-profit organizations that support farmer training. These groups are defined by their mutual learning objectives (Oreszczyn et al. 2010, Nerbonne and Lentz 2003), but are understood to be situated within larger assemblages that include powerful social and political ideologies (Levkoe and Wakefield 2014, Haynes 2011). The goal of this chapter-article is to examine the characteristics of these learning networks and mycorrhizal connections to determine how they are formed and the influences of different climatic, historical, economic, and political forces in their development. By asking alternative farmers to describe their learning networks and the broader challenges with respect to years of farming experience, type of farming, gender, and region, I explore both the practical formations of learning communities and how they collectively overcome systemic barriers. Finally, the theoretical goal of this chapter-article is to explore how assemblages can be understood as providing rhizomatic, or in this case mycorrhizal, threads to move energy and resources to networks that need them, much in the same way these fungal structures act in the soil to support vascular plants (Leake et al. 2004).

This research explores the networks of farmers from Manitoba and Ontario through interview data collected in 2014. Participants were asked about their learning processes and learning networks including people, books, workshops, organizations, and conferences. Learning about farming is inherently geographical as farming practices vary greatly by region in terms of climate, soil, consumer behaviours, and regulations and policies around marketing and

distribution (Hassanein 1999). For example, farms have microclimates that require specific learning through observation and personal experience with the land and weather. This chapter-article considers all types of learning, from the practical skills that farmers need to grow plants, raise animals, add value to products, manage books, and market their products to the transformative change in behaviours and attitudes and the sharing of learning in networks. Finally, the different types of learning networks for different types of farmers will be examined to identify strengths and weaknesses in these networks. These informal learning communities are acting to change the food system by appealing for citizen control over the food system and the recognition of local knowledge, both of which are part of a food sovereignty ethic (Fairbairn 2012, Wittman 2011).

## **7.2 Exploring the theories of learning together**

Classical learning theories were based on the ontological understanding that knowledge acquisition and scientific inquiry were an extractive ‘mining activity,’ based on a positivist narrative of information being available in nature to those who seek it out, rather than seeing it as contextual and subjective (Goodman et al. 2012, Pedykowski 2003). Learning was primarily a top-down exercise based on observation and imitation. These learning models were influential in the creation of extension services in agriculture science where a linear approach from scientist to farmer has been dominant (Warner 2008, Percy 2005). This emphasis on positivist knowledge and the production of universal truths marginalized alternative knowledges by disparaging them as superstitions or antiquated (Goodman et al. 2012, Cruikshank 2005, Tsing 2005). The practice of swidden agriculture provides an example of the uncomfortable tension between two such incompatible views, wherein most outsiders *know* the practice to be environmentally harmful but

which local people *know* it to provide important subsistence, and where the reality lies somewhere in between of these frictional views (Dressler 2014, Tsing 2005). Recent theories follow a more iterative and multi-dimensional understanding of learning (Reed et al. 2010, Schneider et al. 2009, Berkes 2009, Percy 2005).

Feminist and post-structural theories maintain that the knowledge claims of the powerful are permeated with politics and are not universal, neutral, or objective (Sachs et al. 2016, Goodman et al. 2012, Conway 2006). For example, knowledge from permaculture or organics suggests general principles while emphasizing and recognizing the importance of local knowledge and practice. The local knowledge held by farmers is built from their own experiences in place, including natural and cultural histories, and recognizes how this knowledge transforms landscapes, by changing the way knowledge changes behaviours, attitudes, and actions (Nerbonne and Lentz 2009, Trauger 2009, Cruikshank 2005). In addition, the inclusion of this learned and traditional knowledge in agricultural systems has been shown to be key in the creation of resilient farms (Hassanein 1997, Morgan 2011, Bodin and Crona 2009, Carr and Wilkinson 2005). However, local knowledge is often marginalized even as it attempts to resist being essentialist or universal which can create a barrier for new farmers trying to learn about different farming practices (Goodman et al. 2012).

Learning can refer to many ways of gaining and acquiring knowledge. Learning results from social interactions and the personal reflections that come when knowledge is shared (Morgan 2011, Reed et al. 2010, Warner 2008). Social learning, as opposed to learning taking place in formal institutional settings, is more likely to recognize the value of local knowledge. It takes advantage of peer-to-peer networks and social relations (Reed et al. 2010). Social learning requires the creation of groups of collaborators and peers who are interested in sharing ideas and

solutions; these are variously called ‘learning communities,’ ‘communities of practice,’ and ‘networks of practice’ (Morgan 2011, Oreszczyn et al. 2010, Berkes 2009). Since fundamentally “all knowledge is born as local knowledge; it is embedded in the practices and epistemologies of actors” (Stuivier 2006, 153), these learning communities often begin by emphasizing learning within the group. It includes the learning aspect of changes to an individual’s understanding of a given topic, but also the integration of this change to a wider network (Reed et al. 2010, Morgan 2011). Communities of practice are about learning through experience and practical application, which makes the concept well suited to knowledge transfers within farming (Faysse et al. 2012, Morgan 2011, Oreszczyn et al. 2010, Warner 2008, Percy 2005). The premise is that knowledge can be found within communities, although there is also engagement with members of the network at the edges of the community to find new information (Blackmore 2012). For example, groups work together to meet their own learning needs, either through peer-to-peer opportunities or by organizing learning spaces with facilitators with particular knowledge who are brought in from outside of the community (Blackmore 2012, Morgan 2011). These communities may be informally organized or facilitated by non-profit or volunteer organizers. Learning may take place at conferences, workshops, sharing of resources and may include face-to-face interactions or virtual or online communications (Kimmerle et al. 2012).

The boundaries of these learning networks or communities are fluid as new members may be added or as new knowledge becomes available (Morgan 2011). The concept also allows the exploration of the role of power and politics in both the formation of the network and the creation and dissemination of knowledge since learning is limited by the socio-cultural, and political contexts in which it occurs (Thompson and Lockie 2013, Reed et al. 2010). For example, power within and between communities has a significant impact on knowledge transfer (Reed et

al. 2010, Morgan and Murdoch 2000). One of the most significant weaknesses of these learning communities is that they are vulnerable to the power of actors who work within broader or more influential networks to exert influence on local resource users (Reed et al. 2010, Oreszczyn et al. 2010).

These networks most closely resemble what Lockie (2006) calls a ‘network society’, wherein networks provide a new place for culture and knowledge to emerge but where farmers’ agency, experiences, and regional location also affect the farming decisions they make. While the proliferation of virtual networks may mean an increase in knowledge sharing, there remains trust-barriers that ensure the real-life, peer-to-peer networks continue to play an important role in social learning (Whelan 2007, Sligo and Massey 2007, Lockie 2006). While the formation of networks allows for knowledge and learning to be shared between and within groups of farmers, the development of learning networks or communities does not happen in isolation; rather, these communities are connected through various relationships that allow them to transcend the limitations of geography to connect with one another (Faysse et al. 2012, Whelan 2007, Lockie 2006).

Networks are a useful way to describe knowledge sharing, but assemblages are a powerful method to explore possible outcomes and impacts of these networks (Haynes 2011). Assemblages, and the related metaphor of rhizomes, describe the ways that networks behave and are shaped (Deleuze and Guattari 1987). Assemblages and rhizomes are characterized by diversified and self-organizing qualities (Escobar and Osterweil 2010). In the case of social movements, assemblages also consider ‘discursive imaginaries’ and how knowledge is produced, transformed and circulated in complex cultural-political interfaces (Escobar and Osterweil 2010, Li 2007). Social movements facilitate the sharing of knowledge and the building of new

imaginings and desires that demonstrate other possible worlds (Gibson-Graham 2011, Escobar and Osterweil 2010). In the context of food movements, the assemblage of new imaginings and possibilities is often ruminating within farmers' learning communities. For example, the assemblage of the alternative food movement is motivating many new farmers through their engagement with peers, consumers, and food activists while encouraging them to participate in learning communities in order to achieve that vision. In this case, the network of farmers is the practical expression of the coalescing work of the food movement assemblage (Haynes 2011).

Together, the concepts of networks and assemblages have been used to describe how communities of practice are situated within alternative food systems (Goodman et al. 2012). In this way, when farmers are resisting the hegemony of scientific agricultural knowledge by sharing local, experiential knowledge they are also challenging capitalist food system assemblages (Trauger 2009). Assemblages are powerful because they include an opportunity to examine discourse and agency, but their complexity can make them difficult to describe (Li 2007, Haynes 2011). Particularly in an era of digital technologies, assemblages need not be situated in place, they can be more fluid, diversified, and self-organized than in the past (Escobar and Osterweil 2010). In particular, virtual networks such as those of online communities can create the impression of an unseen, subterranean connection between actors in different geographic regions, and it can be used to refer to the ways that food movements, including those in Canada, express mobility of ideas, energy, and actions (Cadger et al. 2016, Levkoe and Wakefield 2014, Levkoe 2014, Migliore et al. 2014, Trauger 2009). As Internet use increase and tools like online forums become more popular, virtual assemblages may be playing a greater role in the lives new farmers in Canada (Funke 2012). I use the combination of networks and assemblages to



interrogate the unseen commonalities between farmers in different learning communities as potential rhizomatic connections within a broader food movement in Canada.

Research on new alternative farmer networks is limited. A study in France found that social networks and assemblages are critical to the social integration of new farmers, especially if they are from non-farming backgrounds, and also provided access to local knowledge (Mailfert 2007). Networks were found to have practical value as a way to share tools and equipment as well as knowledge, and these networks were also critical for the overall satisfaction in the transition to a rural life. While new alternative farmers may have had more diverse networks, they often lacked strong ties to already existing farmers, which put them at a disadvantage (Mailfert 2007). Similar research in Ontario found that new farmers rely heavily on the establishment of peer groups to build knowledge, but also to develop a sense of belonging in rural communities (Ngo and Brklacich 2014). These studies on new farmers highlight the need for both technical skills and the need for new farmers to integrate themselves into a larger and supportive social landscape. This research addresses a gap in the literature around the processes and contributions of learning communities and new farmers in Canada. It also serves to build on the literature of assemblages and networks by exploring both the practical and theoretical implications of using these concepts together to study social change.

### **7.3 Methodology: Qualitative and network analyses**

In 2012-2013, I facilitated a series of workshops in nine communities in rural Manitoba with Jackie Avent in a project called 'Fostering Sustainable Regional Food Systems' (Laforge and Avent 2013). I noticed that the communities were not only facing similar challenges, but also overcoming them in similar ways, indicated a potential sharing of resources and knowledge

both virtually and through peer-to-peer opportunities. This observation was the impetus for further research into the nature and role of these networks. In 2014, I followed up with participant interviews, and recruited other farmers in Manitoba, to explore learning networks and shared knowledge. I recruited farmers from eastern Ontario to see if there were similar learning networks and to explore the role of geography, economics, culture, history, demographics, politics, or climate in farmer learning.

Southern Manitoba and eastern Ontario provided a regional analysis without having disparate population sizes or local food markets. Both Manitoba and eastern Ontario (east of Kingston) rely on the business of two nearby urban markets, Brandon and Winnipeg in Manitoba, and Kingston and Ottawa in eastern Ontario. They are limited by soil or climate conditions and cannot grow many varieties of fruit trees that are common in more temperate areas such as southern Ontario and the BC interior. While eastern Ontario is limited by its transition to the Canadian Shield, resulting in rockier soil, southern Manitoba is limited by longer and more severe winters. With respect to farmer learning, several formal incubator farms exist in the broader Ontario region (including southern Ontario and western Québec regions) and while Manitoba previously had the Manitoba Farm Mentorship for interns, that program ended abruptly when funding from Heifer Canada was terminated in 2011 (a similar program in Kingston called the NFU New Farm was also funded by Heifer Canada and was similarly challenged when funded ceased). Ontario maintains an informal training program called CRAFT (Collaborative Regional Alliance for Farmer Training), which encourages regional partnerships among mentor farms including farm tours with interns. Manitoba does not currently have a program to support farmer training, although Food Matters Manitoba does support local food systems through advocacy and promotion work. In eastern Ontario, Just Food supports local food

systems and provides farmer training and manages an incubator farm project. Finally, these two regions have differences in terms of provincial government grants and supports for farmers and institutional programs including agricultural colleges at universities, notably at the former satellite campuses of the University of Guelph at Kemptville College and the francophone Collège Alfred in Eastern Ontario and the current programs available from the University of Manitoba.

This research uses mixed methods composed of interviews conducted in 2014 (June-October) and examines data from open-ended interviews as well as quantitative data from a related mapping exercise. Farmer participants (n=29) were interviewed along with another 13 representatives from farmer organizations in Manitoba and Ontario. Interviews focused on questions about their farming practices, how they were learning, and the challenges that they faced in trying to learn about different farming practices. Interviews were coded using Dedoose ([www.dedoose.com](http://www.dedoose.com)), an online mixed methods tool, to highlight discussions of the challenges in accessing learning and building networks, including the political and economic barriers, farmers' successes in accessing learning, and the types of learning process used. Coding was done iteratively to allow themes to emerge organically during the analysis (Corbin and Strauss 2008, Charmaz 2004).

In a mapping exercise, individuals were asked to list any and all sources and destinations of knowledge in their network, including all of the people, organizations, reference material, conferences, workshops, etc. that they used in their learning journey on small pieces of paper. They then placed each of these on a large piece of paper and were asked to draw directional and weighted lines. Thus, connections that were more significant had thicker lines than those that may have been more important in the past or which are only used occasionally (these were

summarized on a scale of 1-3). These maps were then combined into the learning maps by region, gender, production, and years of experience by inputting the sources and destinations of knowledge into Excel along with their weighted value and then graphed using Gephi (Bastian et al. 2009), an open access social network analysis (SNA) software. Since participants could list anything as a source or destination of knowledge, some categories were assigned during the analysis, such as ‘mentors’ or ‘neighbours’ instead of naming the individuals who had been identified. Three categories were ascribed to all of the sources and destinations of knowledge: social, institutional, and independent. These categories were chosen in response to the types of sources and destinations of knowledge that participants had listed, from literature on social and transformational learning (see Percy 2005, Reed et al. 2010), and also from the analysis in Chapter 6. Only the maps of 26 participants were used to create the summary maps because three of the farmer maps were deemed to be outliers.

SNA visually represents and statistically analyzes the relationships between actors in the network by charting each participant as a node and then mapping lines to show different connections (Kimmerle et al. 2012). This research uses a variation of this technique to explore the composition and dynamics of learning communities that farmers are using for their knowledge sharing and acquisition (Faysse et al. 2012, Mailfert 2007); however, in most SNA research, a quantitative survey is used to create a sociogram that is meant to approximate the entire network (Cadger et al. 2016). This research is much more exploratory and did not attempt to reach saturation, but rather looked for a variety of different types of learning networks and used Gephi to visually summarize these maps (Borgatti and Lopez-Kidwell 2011). In addition, most SNA research examines relationships between individuals within the same network, whereas this project examines farmers who may not know each other and asks about mutual use

of learning resources (see Mailfert 2007). Therefore, a common SNA comparison of 'betweenness centrality,' the measure of centrality based on the shortest path, is not appropriate; rather the average weighted degrees will be used instead.

#### **7.4 Findings: Exploring Similarities and Differences**

Respondent learning was coded and categorized according to three types of learning practices. These included: independent learning, which included trial-and-error and reflection, reading websites, reading books/periodicals/magazines, and enrolling in online courses; social learning, which included farmer-to-farmer interactions, incubator farms or farm schools, and on-farm training and internships; and institutional learning, which included workshops and conferences, university and college programs or government support. Participants could list as many of these learning types as they liked and would rate them on a scale of 1-3 and then these were averaged to provide a combined weighted value. The ten most important learning sources demonstrated the relative importance of social and independent learning as compared to institutional learning which did not make the list (Table 7.1). Meanwhile the average weighted value for each learning type overall was ( $\Sigma$  learning type/N): social learning: 9.3; independent learning: 4.8; and institutional learning: 3.1. Appendix B lists all of the organizations and resources named by participants and how they were categorized.

**Table 7.1 Top ten most important learning sources (N=26)**

Learning Activity	Value	Learning Type	Notes
Farmers/Neighbours	1.8	Social learning	Some participants listed more than one of these people in their learning map to highlight the individual role that each of these played in their farm's success
Internet	1.4	Independent learning	This includes consulting official websites, personal blogs, and online videos
Print Publications	1.4	Independent learning	In some circumstances, specific books were identified separately to highlight their individual importance
Mentors	1.0	Social learning	Some of these relationships were ongoing, but for more experienced farmers they were often no longer active relationships
Volunteers (also includes customers and interns)	1.0	Social learning	This was usually an expression of learning going away from the farmers towards these sources although there was sometimes a two-way transfer of knowledge
Parents	0.8	Social learning	These relationships were helpful in providing not only knowledge, but also social, emotional, and financial support
Personal Experience	0.7	Independent learning	Self-directed, trial-and-error processes
Non-farming friends and family	0.6	Social learning	These were helpful in providing not only knowledge, but also social, emotional, and financial support
“The Market Gardener” by Jean-Martin Fortier	0.5	Independent learning	Those who had read this book indicated that this book contributed significantly to their farm's success and their own learning on practical techniques
Just Food	0.5	Social learning	This regional food organization is based in Ottawa and has offered farmer training workshops in the past and currently runs an incubator farm project in Ottawa.

Value = (sum of all participants weighted importance on a scale of 1-3)/N

A new female farmer from Manitoba described the importance of independent learning and its particular significance for learning how to farm,

*“I definitely learned by just asking questions and going out to seek the experiences that I wanted [...] so I just would put myself in situations where I could learn, such as by doing work trades on a larger scale organic farm in Alberta and taking classes in the other things that I wanted to learn. I’ve received good responses to just approaching people and I think a lot of farmers are independent in a way and so on the one hand they really respect the independence that I showed just seeking out the knowledge that I want [...]” (MB1).*

Meanwhile, another new male farmer in Manitoba described experiential learning as something that is ongoing and is a significant source of continued learning, “*No matter what you’re studying, no matter what you’re trying to learn, if you’re not stepping off the edge and doing and failing...*” (MB16).

In an example of institutional learning, a new male farmer from Ontario described the various courses and workshops he had participated in which contributed to his farm learning, but also helped him find access to land through the building of networks that resulted from these workshops,

*“And then I got into a workshop series with Just Food, their Harvest Started CSA series. [...] It was a few different workshops that all linked into each other. Which were really helpful. And that’s where I met the lady that was living here and I started running the garden. And that course made a big impact. Really concrete information on how to get it going and that made the connection for me. And then I took a ten-part intro to biodynamics course”* (ON6a).

Finally, when it came to social or peer-to-peer learning, participants often described either formal internships or informal relationships they have with more established farmers as important. Farmers were often careful in their appreciation of internship opportunities and discussed some of the difficulties inherent to these relationships, like this aspiring female farmer in Manitoba,

*“So internships, [...] provide [the] intern with one experience. But they only provide them with one way of doing something and if that person really wants to be a farmer in their life, they’re going to have to figure out for themselves their reality, in their own life exactly how it could work for them. And that only comes with actually just doing it. [...] But an internship is a really good starting point. You gain knowledge and practical skills. And but it can be limiting I guess, if you don’t get to see different ways in doing something”* (MB7)

The learning maps created were remarkably similar in their structure and components despite region, gender, production or years of experience (Table 7.2). The average weighted

degree calculates the average number and weight of the lines connecting resources in the maps. In addition, the resources of farmers and neighbours, print publications, and Internet resources were overwhelmingly preferred (except by Vegetable and Crop growers, see below). It is only in the details that differences in these network maps begin to emerge.

**Table 7.2 Comparing learning maps: Average weighted degree, standard error, and number of resources according to region, gender, production, and years of experience**

Comparison	Learning Maps	Average Weighted Degree (only resources)	Standard Error	Number of resources/map
Region	Manitoba	7.794	1.077	34
	Ontario	6.032	0.853	32
Gender	Men	5.771	0.860	35
	Women	5.769	0.830	39
Production	Livestock	4.300	0.695	30
	Vegetables and Crops	5.703	0.738	37
	Mixed	4.308	0.688	26
Years of Experience	New and Aspiring	7.077	1.113	39
	Mentors	4.889	0.646	36

In the learning maps below, the independent, social, and institutional learning distinctions are still visible with independent learning categories represented by white circles, social leaning as grey circles, and institutional learning as black circles. The number of participants who listed that resource and the weight they gave that resource determined the size of the circle used. There were also small circles for each of the participants in the learning map, but these were not labelled, and were only visible as nodal points between resources. Lines between points on the map were not directional and may sometimes represent a mutual sharing of knowledge between actors; for example, peers (farmers/neighbours) often represented a non-hierarchical knowledge sharing relationship with the exception of mentors and volunteers/customers/interns where knowledge moved from mentors to interns. Generally, components of the learning maps that are

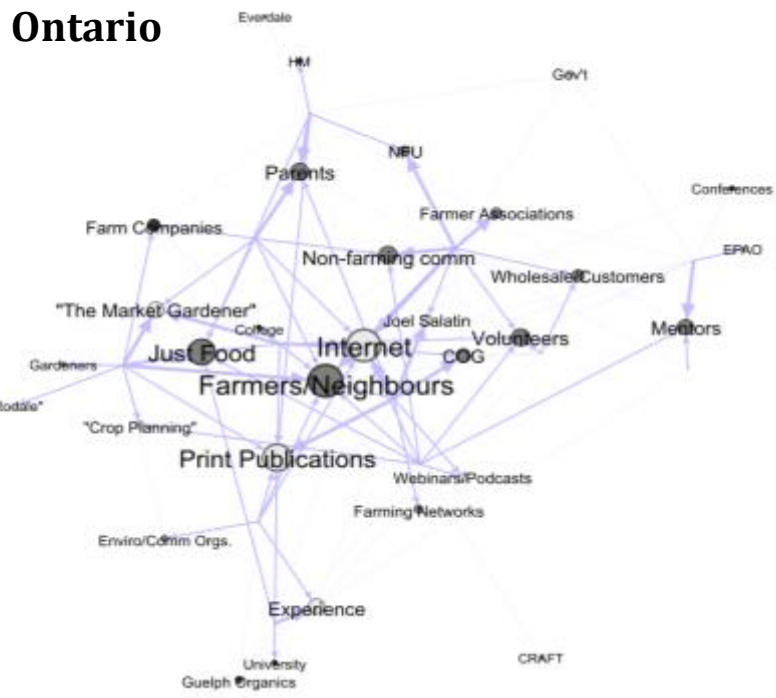
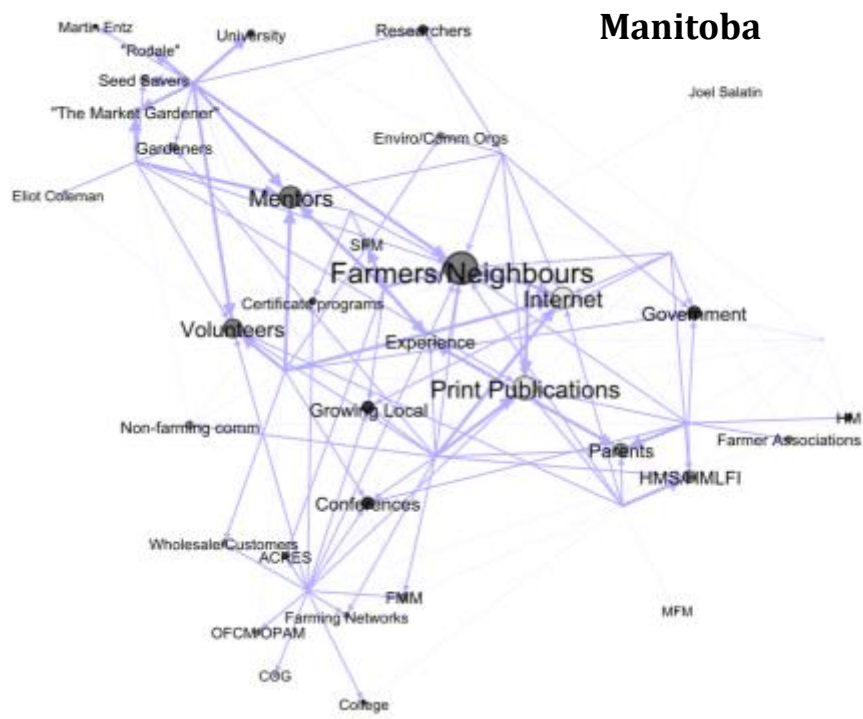


further away from the centre are less important than those located more centrally. However, in the maps below all of these connections were represented by undistinguished lines since the type of knowledge sharing was less important than the fact that knowledge sharing was occurring. Several comparisons were drawn to explore how learning networks vary regionally, by gender, by production type, and by years of experience.

#### **7.4.1 Region**

In Manitoba, the top four knowledge sources are other farmers and neighbours (1.0), print publications (0.9), the Internet (0.7), and then mentors (0.6). The Ontario context, first place was tied between other farmers and neighbours and Internet (1.5), then print publications (1.3), and Just Food (1.2) (Figure 7.2). When it came to the average weighted network connections, the social and institutional learning were higher in Manitoba, while independent learning was slightly less (Table 7.3). In addition, the learning map of Manitoba farmers is slightly more complex and diverse than that of farmers from Ontario, a slight difference that is observed by the larger size of the Manitoba learning map in comparison to the closeness of the Ontario's.

Figure 7.2 Regional learning maps: Comparing Manitoba (n=14) and Ontario (n=12)



**Table 7.3 Learning type average weighted values by region: Manitoba (n=14) and Ontario (n=12)**

Learning Type	Manitoba	Standard Error	Ontario	Standard Error
Social Learning	9.9	1.74	8.6	1.18
Independent Learning	4.6	2.94	5.3	2.01
Institutional Learning	4.5	0.96	1.7	0.55

In the interviews, the emphasis in Manitoba on social learning resources was suggested by MB8 who described a complex network of farmers, students, academics, activists, gardeners, seed savers, family, volunteers, customers, and others that contributed to a diffused learning process where everyone learned together,

*“[We’ve been] very much learning with the practicum students, [...] and with other folks that had been part of the emerging farmers’ collective. When we decided that none of us knew very much about what we were doing, we figured we should flatten things out and then figure out structure, [...] rather than having the prof who didn’t know much, imagining that he knew something about farming that he didn’t actually know much about” (MB8).*

This diversity and democratic nature of this network was likely due to the collective nature of the farm operation itself, which is a cooperative and therefore lends itself to a plethora of learning experiences and practices.

Beyond the three main learning network resources (farmers and neighbours, Internet, and print publications), the ranking of subsequent knowledge resources differed. In Manitoba mentors and customers/volunteers/interns (0.6) acted as the fourth most significant network component whereas in Ontario it was Just Food (1.2), indicating a higher presence of organizational support in Ontario and more informal networking in Manitoba. Participants highlighted the importance of the Just Food as a nexus of knowledge and information sharing among farmers,

*“That is perhaps one of the most important things and most positive experience with the Just Food Farm. All the farmers, especially first year farmers, are so*

*generous in sharing knowledge that it's remarkable. We learn new stuff each day. And it's not as if we are talking for the purpose of that, but it comes naturally"* (ON10).

This practical knowledge emerged from a diversity of sources including workshops, tours, internships and experiential learning, with another participant highlighting the value of the training itself, *"Just Food workshops were a main source of education for us as well as our internship and the farm tours because that gave us the more hands on look at how to do things"* (ON3).

Volunteers (including interns and customers) and mentors were ranked next in both Manitoba and Ontario. In Manitoba, many new farmers mentioned mentors, but these relationships were often much more informal and episodic in nature and involved calling mentors to ask for advice rather than spending sustained time doing internships on these farms. However, the attitude in Manitoba appears to be that internships are easy to access as indicated by this participant,

*"If somebody was really interested in internship/incubator they should be able to find that relatively easily and then how they source it and where it goes from there is really up to them or the farm or whatever it ends up being"* (MB13b).

It is likely that internships are less formal in Manitoba since the end of the Manitoba Farm Mentorship program in that province while Ontario has multiple ongoing internship programs including CRAFT.

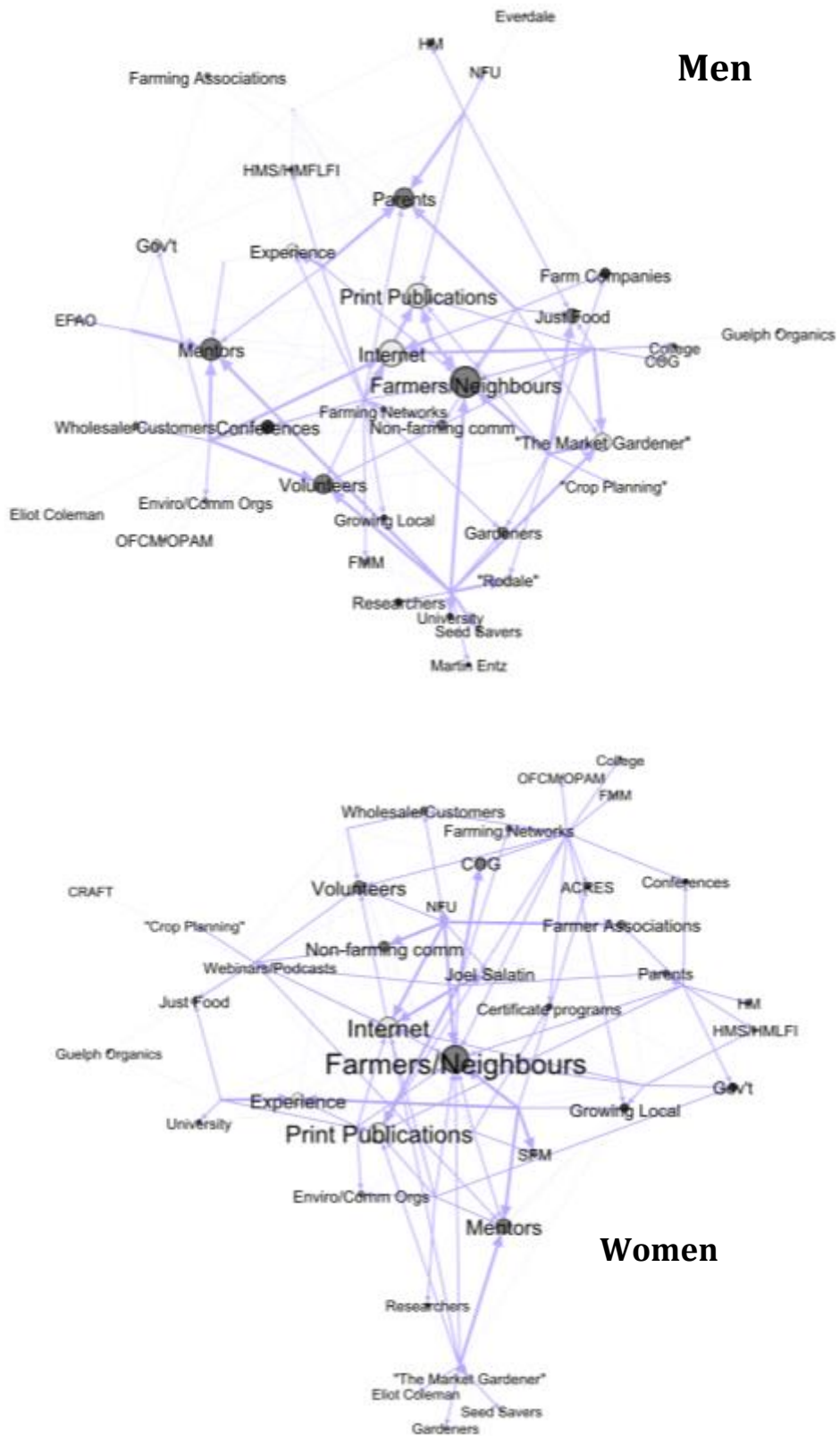
#### **7.4.2 Gender**

The learning networks of men and women were generally similar (Figure 7.3). The four main items of farmers and neighbours (1.9 women, 1.7 men), Internet (1.4 women, 1.4 men), print publications (1.4 women, 1.3 men) and mentors (1.0 women, 1.2 men) are similar.

However, women place greater significance on more 'peripheral' learning that comes from social

learning sources such as non-farming friends and family (0.7 women, 0.5 men) and farmer associations (0.5 women, 0.3 men), as demonstrated by their slightly larger learning map with more learning components mentioned. The only exception to this was that men placed a much higher emphasis on their parents (1.1) than women (0.4). Men seem to have core network components and a significantly less important peripheral set of learning sources. Men and women have similar values in social and independent learning, but in institutional learning women seem to find more value (Table 7.4). For example, women rated government at 0.5 while men gave government a value of 0.

Figure 7.3 Gender learning maps: Comparing men (n=12) and women (n=13)



**Table 7.4 Learning type average weighted values by gender: Men (n=12) and women (n=13)**

Learning Type	Men	Standard Error	Women	Standard Error
Social Learning	9.3	1.21	9.2	1.27
Independent Learning	4.9	2.43	5.0	2.24
Institutional Learning	3.2	0.70	3.2	0.59

A farming couple in Manitoba demonstrated some of the gendered differences in learning preferences:

MB12a (female): “[...] *I was interested in the ecology and it just seemed like a very easy way, other than becoming a biologist although it is tough to get a field position as a biologist, it seemed like a real way to apply the things that I was really interested in. I think once I had that initial interest. [...] Of course, there’s book learning, I was reading everything, of course the Internet is an extremely valuable tool. There are networks of people - you can meet people through Harvest Moon Society. Of course, not being a farmer I felt self-conscious a lot of the time and not being a foodie I didn’t really feel like a part of the crowd. I think that I actually found a lot of support with grazing club groups. I think that Holistic Management is really fantastic and just people that are on the ground that are farming not the city people that are involved with alternative programs but the people that are out there grazing their cows and moving their cows and people that are direct marketing and people that are interested in soil. And for me, because I think I went through the institution [i.e., university] I have appreciation on how to look through peer reviewed journals, who to talk to in order to get information.*

MB12b (male): *Yeah, your education makes you a better farmer than, I would say my education, when you look at the knowledge that you got through the institutions. Rather than going through the agriculture program I should have done something like an MBA and taken environmental studies or geography. I would have been way further ahead.*

MB12a (female): *I think that one of our advantages is that he has the practical skills, he opted out of the institution to do it at 18 which I think a lot of people don’t have the support to do.”*

Here, MB12a had a diverse set of learning resources, especially in comparison to her male counterpart who has lots of practical experience but relatively little formal training. In fact, MB12b is critical of the agricultural training that he received. Neither came from farming

backgrounds, but MB12b knew early that he wanted to farm and sought out formal training options, while MB12a made a career switch, which resulted in a need to convert her existing skill set and knowledge to a new discipline. Meanwhile, another farmer in Manitoba commented on how women farmers are perceived by both consumers and their colleagues and discussed the differences in scale between gardening, seen as women's work, and farming, seen as men's work:

*“The general disposition that would call this a garden before they would call it a farm. Which is, I think, representative of the entire politics that's out there of food; of how we understand food, as a commodity, as something that's distant, something that's produced with machines, by man, on big farms. That conversation gets opened a lot, because most, three of the four of us on the collective are women and the primary one labour is women. And we've had a lot more interest, so there's a gender dynamic in here that also works and if it's a garden it's fine, but as soon as you start calling it a farm, and then these women are farmers, there's sparks. You can see them, sometimes subtle and sometimes nuanced, but other times they're just right there” (MB8).*

Men and women may access different resources in their learning networks, yet this may be the result of some people not taking women farmers seriously. As a result, women farmers may need to create more diverse networks to address these gaps in their learning communities.

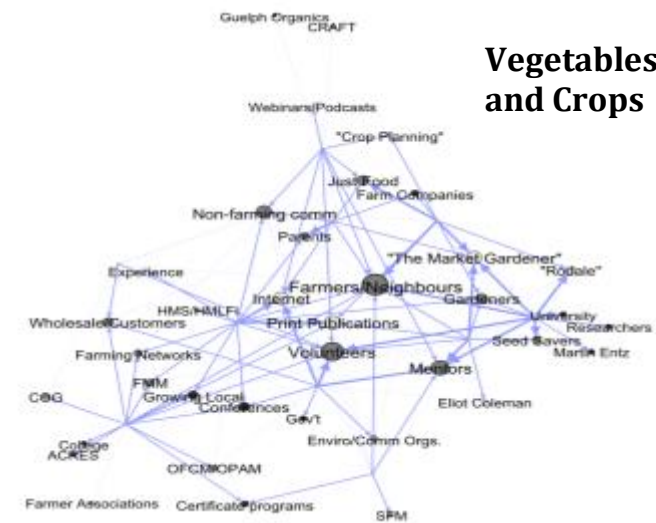
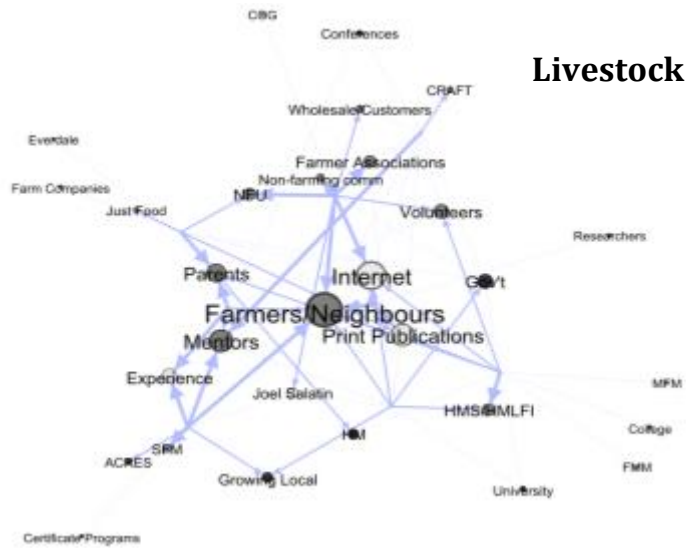
### **7.4.3 Production practices**

Three types of production were compared: vegetable and crop growers, livestock producers, and mixed farms. The top three resources for vegetable and crop growers were farmers and neighbours (2.0), customers/volunteers/interns (1.7), and mentors (1.3), indicating the social learning resources are more important for these farmers. Both livestock and vegetable and crop farmers shared an appreciation for mentors (1.3) in comparison to mixed farmers (0.5) who seem to have found less value from these interactions. Overall social learning was much higher for vegetable and crop farmers (12.1) compared to livestock (9.0) and mixed (6.0) farmers (Table 7.5). This may be the result of the high number of internship and mentorship



opportunities for vegetable farmers compared to other kinds of production. Meanwhile the difference for independent and institutional learning was not significant. Visually, Figure 7.4 demonstrates the relative closeness of mixed farmer networks compared to a much more diverse network for vegetable and crop farmers, with livestock farmers somewhere in between these two.

**Figure 7.4 Production practices learning maps: Comparing livestock (n=8), vegetables and crops (n=10), and mixed (n=8) production practices**



**Table 7.5 Learning type weighted values by production practices: Livestock (n=8), vegetables and crops (n=10), and mixed (n=8) production practices**

Learning Type	Livestock	Standard Error	Vegetables and Crops	Standard Error	Mixed	Standard Error
Social Learning	9.0	1.01	12.1	1.27	6.0	0.79
Independent Learning	4.1	2.02	5.2	1.48	5.3	2.27
Institutional Learning	3.0	0.54	3.8	0.53	2.8	0.37

A livestock farmer in Ontario described a variety of formal and informal resources that he uses including well-known Holistic Management trainer Tony McQuail:

*“Farming throughout the centuries was just handed down from parent to children, mostly father to son actually. It wasn’t really written down. I think there’s more stuff available now. The universities have their websites [...] they were useful but confusing. You don’t have a frame of reference. It’s hard to put them together, like how does that apply to me. I would try to go to everything I could. The first time I saw Tony McQuail was at an Ontario Grazers Association or something like that. [...] I think he was just getting into this holistic management so he was trying to get people to sign up for his course. Then the other source of learning, you know I’m flipping through the Internet and I come across the Ecological Farmers Association of Ontario, the EFAO” (ON5).*

Meanwhile a farmer in Manitoba on a mixed farm spoke about delving into farming without a lot of previous experience as a way to gain practical learning:

*“I recognized that I didn’t have any hands-on experience, which is why we started with just a couple of animals. The sheep were something that I felt comfortable with, but it’s not been without a lot of trial and error” (MB9).*

Certain programs and publications that are typically attributed to livestock production, such as Holistic Management and livestock production books by Joel Salatin, were actually used and read by more than just those producing meat. This may indicate that these are transferable skills and techniques or that more farmers are planning to transition to mixed production and are interested in integrating animals into their plant-based farms. With respect to social learning, parents, farmer associations, and organizations such as the Harvest Moon Society in Manitoba were important to all farmers.

Finally, the socio-political influence of national organizations like the Canadian Organic Growers mattered more for vegetable and crop growers (0.3) and mixed farmers (0.6), than for livestock producers (0.1). A vegetable grower in Manitoba discussed the importance of farmer organizations to changing the situation for farmers at multiple scales of organization,

*“I think it becomes even more important that we not only listen to national discussions, but international discussions [...]. I think there's so much, especially in terms of our analysis of why is this happening, why is there this blanket smothering the local food systems, just have more analysis of that and realizing that it's a global struggle. This is happening around the world [with] Via Campesina and so forth. How can we better understand what's going on globally, and that we're not alone” (MB2).*

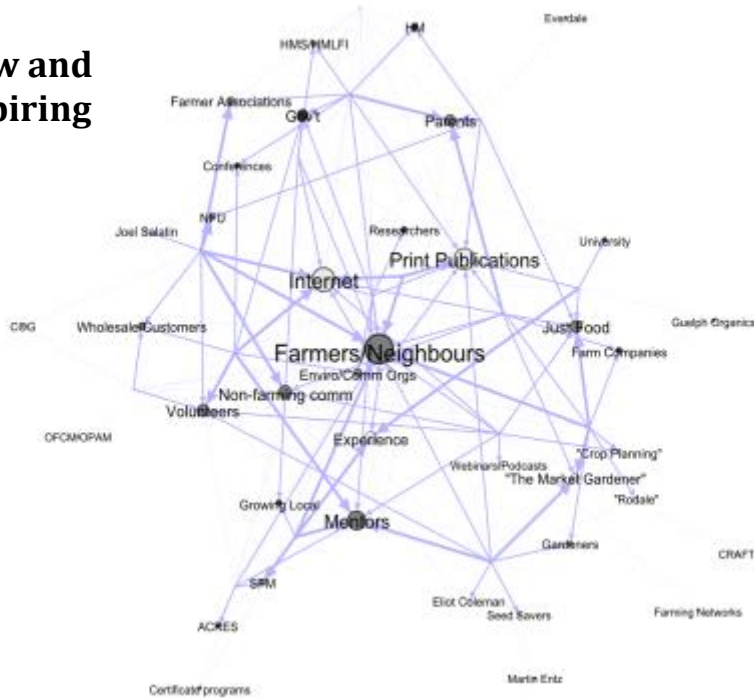
#### **7.4.4 Years of Experience**

New and aspiring farmers were compared to experienced farmers who have already started mentoring the next generation. Once again farmers and neighbours, print publications, and the Internet were most important (Figure 7.5). While new and aspiring farmers also listed mentors as important (1.1 new and aspiring, 1.0 mentors), the mentors themselves were more likely to list their parents (0.6 new and aspiring, 1.1 mentors). This is likely due to the high number of mentors who came from farming backgrounds and who had grown up with parents who farmed, whereas very few new and aspiring farmers had had this resource available to them since they often came from urban backgrounds. In terms of organizational support, new farmers rated Just Food relatively high (0.7 new and aspiring, 0.3 mentors), but the similar organizations in Manitoba saw a higher positive response from mentors with Harvest Moon Society (0.3 new and aspiring, 0.6 mentors) and Food Matters Manitoba (0 new and aspiring, 0.8 mentors) as the two key regional organizations listed. Mentors placed more importance on social learning approaches as a whole (11.8) compared to new and aspiring farmers (8.2), likely due to the development of more complex networks over time (Table 7.6). At the same time, the learning maps of new and aspiring farmers were much more diverse than those of mentors, which may be

a function of new and aspiring farmers trying to build their networks and mentors having refined theirs over time to focus on the most important sources and destinations of knowledge.

**Figure 7.5 Years of experience learning maps: Comparing new and aspiring farmers (n=18) and mentors (n=8)**

**New and Aspiring**



**Mentor**



**Table 7.6 Learning type weighted values by years of experience: New and aspiring farmers (n=18) and mentors (n=8)**

Learning Type	New and Aspiring	Standard Error	Mentors	Standard Error
Social Learning	8.2	1.72	11.8	1.00
Independent Learning	4.6	2.89	5.8	1.77
Institutional Learning	2.6	0.82	4.5	0.62

A Manitoba mentor described the role his father had on the development of his farm, which actually skipped a generation since his farm-raised father had not actively farmed:

*“Another really big thing has been my dad. He has been around a lot for it. One, it’s totally changed our relationship. We’ve always had a great relationship, [...], but it’s changed it in the sense that very often I would have a management issue or a whatever, anything, this isn’t working or that’s not working, whatever, I would ask dad “do you remember what grandpa did?” And then dad tells me stories. And it’s been wonderful because I’ve heard so many stories. And I mean I knew my grandfather well, I spent a lot of time with him, but he wasn’t farming anymore when I knew him. So I would hear about grandpa from the 50s when they were on the farm” (MB16).*

Unsurprisingly, mentors listed volunteers (which included both interns and customers) as a key component of their learning network because of the significant sharing from mentors to their interns. Meanwhile a new farmer in Ontario described the kinds of production-related knowledge she shared with urban customers, *“So I do a lot of educating of potential customers too, which is a marketing opportunity. People hear things and they toss out categories and words and they don’t necessarily know what they’re talking about. It’s interesting.” (ON8).*

#### **7.4.5 Participant reflections on food system assemblages**

When creating learning networks, farmers were also building informal relationships to provide them with the information that they needed in order to succeed. However, they were still acutely aware of the limitations of these networks that often relied on independent and social learning and that had limited access to (often inadequate) institutional knowledge. Like this

farmer in Manitoba demonstrates, agroecological farmers continue to need access to formal research:

*“I was trying to figure out ring water harvesting and vegetable crops. Well, there was a study done in the seventies at the University of Texas looking at the importance of first-flush systems, so that off of metal roofs, as opposed to shingled roofs as opposed to cedar shingles, how much toxicity you're gonna get and how much of that actually impacts soil, and of that impact soil, how much actually impacts vegetables. Well, who's asking that? Well that's a ridiculous question. Who's harvesting rainwater to grow food?” (MB8).*

Of special note was the emphasis on the influence of gardeners and seed savers in farming pathways of the participants and the links that these seem to have to political concerns about the food and farming system. These gardeners were influential at a socio-political level in terms of the role that seeds and seed saving and sharing play in the food system and the politics of seed ownership. But these gardeners and seed savers were also key sources of practical knowledge on growing and seed saving. Farmer and gardener relationships contributed to a sense of community and connection to the broader food movement assemblage. Some participants spoke to the cross-cultural knowledge sharing that took place between gardeners, seed savers, and farmers:

*The specific knowledge about the crops, days to maturity, what to pay attention to, came from the community garden conversations. So it is very, very recent. And one of the advantages I feel is exactly those conversations. We live in [...] a very relatively low-income neighbourhood and a very multicultural one. So the gardeners are practically coming from all over the world. So they are bringing different experiences. Again, not very professional experiences, but they have an eagerness to share knowledge and learn. (ON10).*

This same farmer went on to speak of the difficulties he found with the market-based transactions in food production:

*I have a more problematic relation with the market in general. I'm not very fond of buying things or selling things. That whole mindset is very alien to me. I realize that is something that is part of farming. There is a market aspect involved, both*

*in terms of looking for areas to sell, the timing, the pricing, the whole package. The practice of farming is more rewarding than the selling. (ON10)*

Similarly, MB8 has a close relationship with gardeners and seed savers and expressed related political and practical concerns. Here he describes the links to the loss of practical food skills and the capitalist and political pressures on the food system:

*[...] I think the deskilling around food, not just what to eat but how to prepare it, that's a huge piece that has to be built and we're always doing that every week in our newsletters and stuff. That requires this kind of a map for everybody who's a sharer. Where do you go to get recipes, who do you talk to about knowledge on canning and preserving stuff? So that's just kind of a culture of deskilling I think, that we're facing. I mean the political pressures in general, I mean of corporate understanding of agriculture and sustainability, that people will question our work on seeds, because they are so thoroughly, they have no idea what the issues of seeds are and why on earth would you not be using something that is a modern variety or that is a hybrid or that is a GMO."*

Finally, a few participants mentioned the need for a greater diversity of race and ethnicities in the food and farming movement assemblage. A farmer in Manitoba indicated the need to ground settler-farmer production in the Indigenous food systems that they had come to colonize:

*"I find that in most organizations I'm part of, the Aboriginal component, partnership, whatever, is an afterthought to actually begin by saying what was the food system here and what can we learn from that, and not only how is food gathered and processed, or harvested and processed, but how did the community oversee how it was distributed. So that Elders were taken care of, and children got what they needed, and so forth. To bring out the best of that, call it best practices if you wish, and how that can be part of the discussion at the beginning."*  
(MB2)

These farmers demonstrate the complex narratives with the alternative food movement and the ongoing challenges in making this movement more inclusive while continuing to resist capitalist ideologies.



## **7.5 Discussion and conclusion**

Overwhelmingly participants preferred using social learning networks and resources provided informally by peers and neighbours, regardless of age, gender, region, or type of farming. The importance of informal networks was well known with new farmers discussing the challenges of initially establishing their social networks, and thus also their learning networks, particularly if they came from non-farming and urban backgrounds. As a result, many found it difficult initially to find like-minded farmers and supportive organizations to enable their networks. At this early stage, they relied instead on independent learning resources, such as print and online publications, as they slowly built their networks by participation in key grassroots conferences like Growing Local in Manitoba and the Guelph Organics Conference in Ontario or local workshops offered by organizations like the Harvest Moon Society in Manitoba or Just Food in Ontario. Farmers used resources such as books, magazines, periodicals, podcasts, webinars and online videos as a way to answer specific questions and as reference material. The learning communities of farming are changing as Internet resources decrease the constraints of physical space and allow for connections to be built virtually more easily and quickly than ever before (Baumann 2016, Lockie 2006). As information and knowledge can be shared more quickly and across larger distances, the online and real life networks of farmers hold greater significance than ever before.

At the same time, formal institutions are no longer the mediators of knowledge and government extension and university research is no longer the only basis of farmer decision-making (Faysse et al. 2012, Lockie 2006). In many ways, the neoliberalization of knowledge has resulted in the formation of informal learning communities in response to the lack of institutional knowledge from universities or governments. This shift away from institutional learning is demonstrated by the infrequency of university researchers or extension services listed in the

learning communities of participating farmers. Importantly, as Hassanein (1997) notes, the personal experiences and backgrounds of farmers affects the kinds of learning they pursue, and that this is often a gendered and gendering process:

*“Like other alternative farmers, they [women farmers] tend to rely less on university and government extension services, and more on movement-generated publications and other farmers. In addition, they stress the value of observation, flexibility, learning by doing, and trial and error; in other words, they generate local, personal knowledge. The content of that knowledge, however, is often shaped by their experiences as women. For example, personal knowledge is sometimes constructed from the experience of encountering gender inequity within agricultural institutions and struggling to overcome those obstacles”* (p. 225).

While technical books such as *The Market Gardener* (Fortier 2014) and *Crop Planning for Organic Vegetable Growers* (Thériault and Brisebois 2010) as well as popular books by Eliot Coleman and Joel Salatin were often listed by name by participants, it is important to note that all of these major reference books are written by men. This is in contrast to the majority (61%) of new farmers who are women in this research (see also Sachs et al. 2015, Monllor 2012). This indicates a gender and power dynamic when it comes to the ways that some voices are silenced in favour of others and could potentially represent a privileging of some forms of knowledge over others (Andersson and Lundqvist 2014, Liepins and Schick 1998), especially since the literature that women are creating is typically denigrated as either gardening or ‘lifestyle’ in nature and continues to perpetuate the myth that only men can be farmers (Trauger 2004, Leckie 1993). The gendered effect of power in farming knowledge systems is significant, such that: *“understanding power relations as embodied and identifying the excluding processes and practices of agricultural space and its situated positions are vital in the development of political actions [...] to create more equal access to knowledge and the agricultural space”* (Andersson and Lundqvist 2014: 310). At the same time, the agroecological farming movement, like many

progressive groups in Canada, has plenty of women leading the way with many of the local organizations mentioned by participants having female executive directors and employees, including Just Food in Ontario and Food Matters Manitoba. Women also have a strong leadership presence in national alternative farmer organizations like the National Farmers Union and Canadian Organic Growers.

The mapping of learning networks is only valuable if it situates these networks in the larger assemblage of government regulations, international legal frameworks, infrastructure, weather patterns, soil conditions, seed genetics, food traditions, and cultural values, as well as knowledge around growing and eating food (Levkoe and Wakefield 2014, Trauger 2009, Mailfert 2007). Farmer participants were aware that learning and knowledge were both context specific and generalized and they were able to read and listen for difference and interpret information that best reflected their own situations. For example, farmers would describe processes of learning and discerning information from farm visits and how to translate this to their own farms even though the contexts may have been dramatically different. The ways that the networks of farmers change across space and time change are important, but so are the ways that these networks are interrelated and the ways that power is diffused within them. Networks are important beyond the learning they provide to farmers, but also how they relate to the wider food system assemblage. For example, the important role of mentor farmers in sharing their learning with a new generation of farming makes this change possible, not only by sharing knowledge, but also by subtly changing the cultural barriers that new farmers face in ways that can be difficult to observe from the outside. This work fits within what Escobar and Osterweil (2010) describe as attempting “*to re-imagine the world’s geographies of power and knowledge by social movements that operate from the epistemic borders of modern colonial world system*”

(207). Many of the farmers interviewed in this research saw their role as farmers as not just providing food, but as contributing to a different socio-political system - one built on values that go beyond corporate interests.

Building networks among farmers, consumers, and advocates, within and across regions, provides resources and energy to parts of the food movement assemblage that need it most (Trauger 2009). As ideas are shared and new projects undertaken as a result of these interactions, the assemblage itself changes shape and nature over time as energy moves through the system through rhizomatic, or in this case mycorrhizal pathways that are otherwise invisible (Funke 2012, Escobar and Osterweil 2010, LeGreco and Leonard 2011, Leake et al. 2004). Mycorrhizae facilitate the uptake of nutrients in vascular plants and in this analogy, they represent the connections among actors in the assemblage that allow energy, ideas, opportunities, and other resources to move to areas where they are needed. There is no formal organization or planning in this mycorrhizal formation, simply an organic spreading of ideas, energy, and resources. The only way to observe it is when fruit, in this case the new farmers themselves, develops. In this research, the mycorrhizal network is the knowledge network that facilitated their ability to gain practical skills. This hidden relationship is demonstrated by the remarkable similarities between learning communities despite differences in gender, region, age, or production practices. These mycorrhizal connections between learning communities may be formed through virtual or online communities wherein farmers can share resources and values without ever meeting each other. These connections provide important social and emotional support for farmers who are often marginalized and have little access to government or institutional support and who may be ostracized by their more conventional farmer peers. It also provides a place for subjectivities to become more politicized as more neoliberal farmers can be exposed to new ideas and discourses

from their more radical peers. These mycorrhizal connections are also demonstrated in the similarity in attitudes of farmers in Canada, particularly the political, economic, and cultural narratives that farmers would share regarding the challenges they have faced.

Finally, the relationship between these networks and assemblages are characterized by what Tsing (2005) calls *frictions*, between the way these ideas and opportunities are shared as universal ideals, and the realities embodied by farmers themselves as examples of agency and difference. So that solutions that worked in one place, at one time, in one context, or for one person, may not work ever again if those circumstances change. Farmers are constantly negotiating this process as they go about learning farming practices. This understanding opens up opportunities for new farmers to shape their own individual destinies, by imagining different ways to organize food systems. Taken collectively, this self-cultivating of alternative subjectivities through new food system imaginaries could potentially challenge the existing food system, as this energy is shared through the mycorrhizal connections. Similarly, the transfer of knowledge along pathways that would otherwise not have been available to farmers is both personally and collectively empowering, and demonstrates the co-creation of food system assemblages and learning communities. This mycorrhizal metaphor acknowledges the importance of both individuals and communities in reimagining food and farming systems.

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## **Chapter 8: A harvest and a replanting**

Contemporary food and farming systems are fragmented and contain dangerous power inequalities: food is not getting to everyone who needs it (Wittman et al. 2010, Koc et al. 2008), farming is exploiting both the physical environment and workers themselves (Akram-Lodhi 2013, Gouveia and Juska 2002), and farmer knowledge continues to be undermined (Sachs et al. 2016, Hassanein 1999). Even within the “alternative” food system, a movement presumably built around community-based economies, sustainability, and social justice, many inequalities and injustices remain apparent (Busa and Garder 2015, McMahon 2013, and Alkon 2011, Slocum 2007, Guthman 2008). The question of how to build a better food system has been dominated by questions of defining local food, why people shop at farmers’ markets (Smithers et al. 2008), or whether or not organic food can feed a global population (Conway 2012), rather than considering the implications of how neoliberalism, industrialism, capitalism, colonialism, and other forms of oppression have insinuated themselves into alternative food movements (Sbicca 2012, Goodman et al. 2012, Mares and Alkon 2011). My research has interrogated the agricultural context of these issues by exploring the potential role farmer knowledge plays in changing food systems.

Currently, Canada relies heavily upon an aging farm population that is dependent on unsustainable farming practices that raid the soil of their nutrients and pollute water systems (Cushon 2003). While most of the world’s global food supply comes from small-scale or peasant farmers (Holt Giménez and Shattuck 2011, Altieri 2002), the rhetoric in agriculture is that only industrial large-scale farms are capable of fulfilling ‘good’ farmer ideals of ‘feeding the world’ (Burton 2004). My research has shown that the next generation of alternative farmers does not necessarily hold the same dominant worldview of Global North farmers and agribusiness

multinationals tied to neoliberal, productivist, industrialized farming methods nor suffer do they experience the path dependency treadmill of previous farming generations. Rather, these new alternative farmers, like their counterparts around the world, are interested in sustainable, community-based food systems (Fernandez et al. 2013, Monllor 2012, Knibb et al. 2012, Shute et al. 2011, Mailfert 2007). The potential to transform the food system has never been greater (Trauger 2009), yet these new and mostly post-urban farmers continue to face many challenges.

While access to land and capital are important, the knowledge of how to farm, the everyday decisions of production and business planning, remain ad hoc and fragmented and farmers are often learning from their peers in informal ways (Ruhf 2013, Faysse et al. 2012, Morgan 2011, Oreszczyn et al. 2010, Warner 2008). Although this social network of knowledge may be critical to overcoming knowledge barriers, it can be difficult for those who are just beginning to set out on their farming journey to build these social connections (Ngo and Brklacich 2014, Mailfert 2007). Ideally, aspiring farmers could learn about farming in a low-risk environment without having to undertake low-paying internships or expensive courses (Niewolny and Lillard 2010). Incubator farms can provide these types of opportunities, but they are regionally limited in Canada. In my research, new alternative farmers indicated that they were unaware of farming as a livelihood before they were in their 20s or 30s and had student loans and an existing career path.

One of the significant barriers to aspiring farmers is that the ‘common sense’ understanding of farming as monoculture agribusiness leaves little room in the imaginations of aspiring farmers for the development of diversified farms using permaculture practices or local flower production, or organic mushrooms, or aquaculture. The way farming practices are tracked, analyzed, and discussed also contributes to this problem as Statistics Canada only recently added

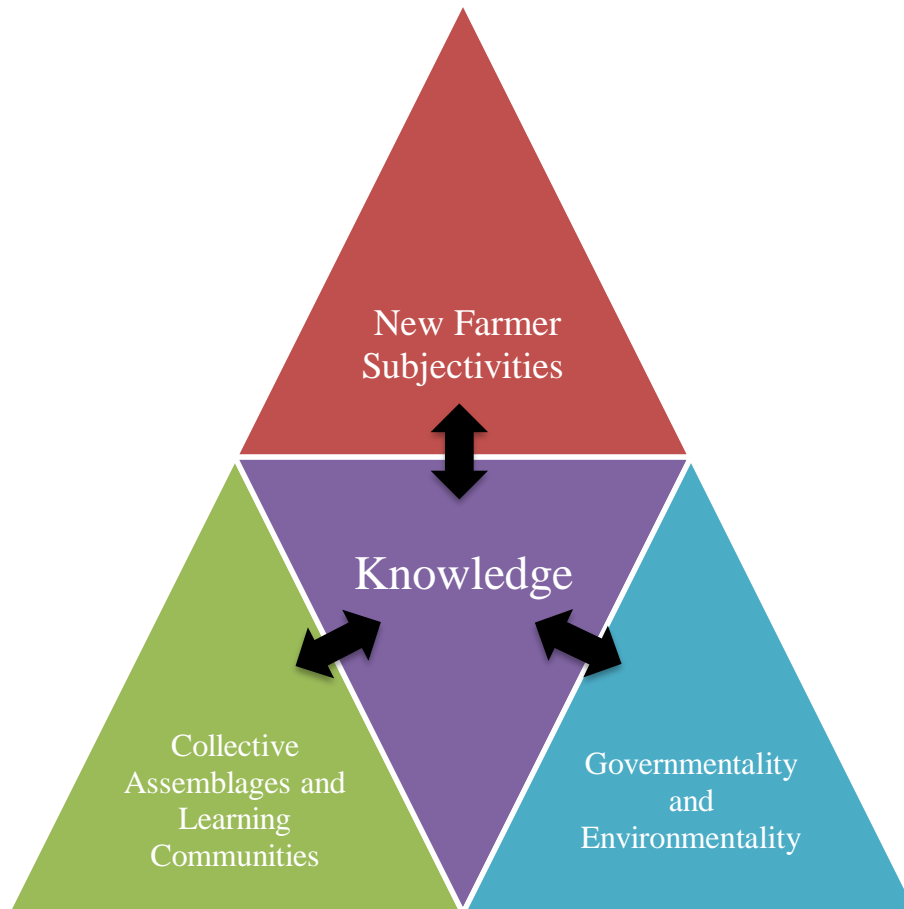
a question on direct marketing (suggesting that this was not previously considered an important or significant type of marketing and that ‘real’ farmers did not use these methods) or the lack of smaller farms participating in the Agricultural Census (Statistics Canada 2016, Statistics Canada 2015). Overall, the respondents to the national survey on new farmers are engaged in a mix of conventional and agroecological practices on their farm, indicating that that actual practices of new farmers are more complex and diverse than the dominant narrative would imply.

Compounding the barriers created by the dominant farmer identity discourse is the image of a farmer as a heterosexual middle-aged white man, resulting in the marginalization of women farmers, racialized farmers, or queer farmers (Sachs et al. 2016, Slocum 2007). Despite this discursive framing, many new farmers are challenging these narratives and are re-imagining farmer subjectivities.

This research variously addressed the role of knowledge as an intermediary between farmer subjectivities, social networks and assemblages, and the state framing of agriculture through governmentality (see Figure 8.1). The ways that ‘good’ farmer narratives and identities are constructed and how new alternative farmers are both resisting and confronting these subjectivities are part of transforming food systems (Thompson and Lockie 2013, McGuire et al. 2013, Harris 2009, Haggerty et al. 2009, Burton 2004). The ways that farmers know themselves and their farms have been shaped by important processes of governmentality which in turn shape ‘common sense’ narratives of farming to fit neoliberal, productivist models (Dressler 2014, Eaton 2013, Burton 2004). Social change facilitated by the collective processes of reimagining the food and farming system is working to counteract the state and corporate influences and encourage knowledge systems based on local farmer knowledge and community-based economies (Sachs et al. 2016, Gibson-Graham 2006, Hassanein 1999). This section will briefly

summarize the theoretical and analytical questions explored by this dissertation before discussion the limitations and future research opportunities.

**Figure 8.1 Revising the theoretical framework**



First, the question of how knowledge and farmer subjectivities are connected at the top of Figure 8.1 was considered in *Chapter 6: Alternative agriculture and new farmer knowledge in Canada*. There, I explored how new farmers are working to change farming knowledge and at the same time changing farmer identities and subjectivities. In particular, I discussed how the increase in women farmers from urban backgrounds has the potential to change the face of farming in Canada, an experience that is mirrored in the US (Sachs et al. 2016). Very little research exists on the experiences of new alternative farmers in Canada (see Ngo and Brklacich

2014, Monllor 2012, Knibb et al. 2012), or even elsewhere in the world (Shute et al. 2011, Niewolny and Lillard 2010, Mailfert 2007) and the fact that this demographic change remains under-researched will have significant policy implications in the future. For example, my research found that a significant number of new farmers are coming from non-farming backgrounds, but the Agricultural Census does not ask a question about farmer origins, therefore policy-makers may be unaware that new alternative farmers are not inheriting agricultural land and equipment. If these new alternative farmers are primarily interested in agroecological practices, they would benefit from increased institutional support and scientific research in these methods including composting and green manure processes, understanding pastured animal health, and developing certified organic plant cultivars.

However, new alternative farmers have the potential to shift both the dominant farming narratives from within the farming community. Using the ‘good’ farmer concept, my research examined how new farmers in Canada come to understand themselves as pursuing ‘good’ farming ideals (Burton and Wilson 2006, Burton 2004). I build on this concept by demonstrating how new alternative farmers and their subjectivities are complex responses to both existing power/knowledge in the food and farming system and their own embodied experiences and expressions of agency. New alternative farmers in Canada have new ideas about what it means to be a ‘good’ farmer, they are less focused on productivist ideals of ‘feeding the world’, and are more concerned about producing food that contributes to improving the biophysical environment and addressing social and economic injustice (Sachs et al. 2016, Monllor 2012, Cushon 2003). This is reflected in their engagement in farmer-to-farmer and other informal knowledge sharing, as well as their interest in community-based economies including direct marketing, which has been found to be increasing beyond Canada as well (Fernandez et al. 2013, Mares and Alkon



2011). Finally, these new alternative farmers are pushing for other ways to conduct science, including participatory practices that could help to address some of the gaps in agroecological knowledge that they have encountered, while also addressing questions of power by emphasizing the importance of local knowledge (Humphries et al. 2012, Mendum 2009).

The implication of the interactions between knowledge and governmentality is explored in two chapters, *Chapter 4: Environmentalism on the Canadian Prairies: Settler-farmer subjectivities and agri-environmental objects* and *Chapter 5: Governments, grassroots, and the struggle for local food systems: Containing, coopting, contesting, and collaborating*. In these chapters, I explore power/knowledge relations and the creation of “common sense” attitudes in agriculture, indicated by the right side of the triangle in Figure 8.1. In particular, I draw upon concepts of environmentalism, governmentality, and biopower developed by Foucault (1990, 1991). Environmentalism has shaped the way settler-farmers saw themselves and how they interacted with the agricultural landscape when they first arrived in Canada to build their farming livelihoods (Daschuk 2013, Russell 2012, Cunfer 2005). The influence of governmentality continues to affect farmers today through the way enforcement of food safety regulations and the limitations imposed on how local farmers can direct market their food (Thompson and Lockie 2013, Miewald et al. 2015, McMahon 2013, Stuart and Worosz 2011, Hatt and Hatt 2011). I present a distinct use of Foucauldian theories by applying them to farmers, and exploring how state and corporate actors are manipulating the ‘common sense’ idea of what it means to be a ‘good’ farmer (Burton 2004). These chapters demonstrate two instances where ‘good’ farmers have been created as productivist, capitalist, agribusinesses that must either internalize increasingly neoliberal narratives or resist this overwhelming subjugation by reimagining their

farmer identities and farming itself. At the same time, collective resistance and individual agency is also important to understanding the formation of farmer subjectivities and knowledge.

Finally, the relationship between knowledge and social networks and assemblages is considered primarily in *Chapter 7: Learning communities: Networks and assemblages of new farmer knowledge in Canada*, but also through the use of the ‘politics of possibility’ in *Chapter 5: Governments, grassroots, and the struggle for local food systems: Containing, coopting, contesting, and collaborating*. While Chapter 5 focused on the influence of governmentality, it also recognized that farmers are not without agency (Thompson and Lockie 2013). Individually and collectively, farmers and consumers have responded to the uneven power dynamics in the food system and are (re)cultivating alternative practices and subjectivities based on values and approaches that reflect priorities negotiated in alternative food economies (Blay-Palmer et al. 2016, Marsden and Franklin 2013, Ballamingie and Walker 2013). These local food systems reflect Gibson-Graham’s ‘politics of possibility’ as these diverse community-based economic initiatives are creating new possibilities for devolved and decentralized alternatives to the dominant food system (Gibson-Graham 1996, 2006). By considering how alternative food systems allow subjects to position themselves in opposition to the dominating narrative of a neoliberal food regime and challenge the ‘common sense’ understandings of good, safe food and create new possibilities for change, I build on Gibson-Graham’s analysis of self-cultivating alternative subjectivities (Gibson-Graham 2006). In particular, I have found that new alternative farmers accomplishing this self-cultivation by participating in broader learning networks and food movement assemblages that acted as social, cultural, and emotional support for this everyday resistance.

In Chapter 7, I explored both networks and assemblages as pathways of learning and social change for new farmers in Canada following similar work (see Levkoe and Wakefield 2014, Escobar and Osterweil 2010, Trauger 2009, Tovey 2009, Lockie 2006). Collective resistance includes facilitating the sharing of knowledge through the production of learning communities, like the ones established by new farmers in this research (Morgan 2011, Oreszczyn et al. 2010, Warner 2008, Percy 2005). These learning communities can also produce new knowledge, as a way to shift power in society by redistributing knowledge and emphasizing local and traditional knowledge (Goodman et al. 2012, Cervero and Wilson 2001, Hassanein 1999). Knowledge contributes to new alternative farmers subjectivities and is also a tool to allow these same farmers to practice the kind of farming that they envision and therefore is key to the transformation of farming and food systems. Knowledge is just one component of the complex food system assemblage. In this chapter, I suggest that the food movement understood as an assemblage supports new farmers in their efforts to gain knowledge as demonstrated by the similarities in the learning networks of farmers of different regions, genders, production types, and years of experience. Mycorrhizal threads provide a useful metaphor to explain the unseen connections that mobilized resources and ideas across time and space and facilitate farmers in their efforts to change the food system (Funke 2012, Ferreira and Devine 2012, LeGreco and Lenard 2011, Le Grange 2007). Thus, knowledge sharing can serve to reconfigure food system assemblages and vice versa through changing the practices, routines, and traditions that shape socio-nature concepts of food (Goodman et al. 2012, Alkon 2012).

This research represents one of the few examples of applying governmentality and environmentality to agriculture, particularly in a Canadian context. Combining the state's influence on farmer subjectivities with civil society and collective resistance through self-

cultivation of alternative subjectivities also represents a unique contribution. This research also considers the role of food, and food system assemblages and movements, can be seen as a way to rebuild false dichotomies between nature and socio-culture through the concept of socio-nature (Alkon 2013). Building farming knowledge on false assumptions of what is natural, and what is socio-cultural (or even political), can result in recreating these dichotomies. However, by employing the concept of governmentality to explore environmental subjects and objects in Chapters 4 and 5, it is possible to understand how socio-cultures and natures are intertwined. For example, as crop varieties are domesticated and selectively bred they change biophysically and genetically while simultaneously requiring changes to the management practices of farmers. Within that formation we can also begin to see changes to the biophysical characteristics of the farmers themselves (Alkon 2013, Eaton 2013, Varty 2004). For example, wheat varieties have been transformed to increase protein content, shifting the composition and balance of the diet of those who consume the wheat, including farmers (Alkon 2013, Varty 2004). Food is a socio-nature object, and its transformation has been influenced by the goal of increasing its economic value for corporate and state actors (Eaton 2013). However, understanding these processes of governmentality and the making of environmental subjects and objects as separate socio-cultural and natural entities also provides opportunities to rebuild these connections and this is where the potential of food sovereignty and alternative food movements can be found (Fairbairn 2012, Patel 2005). Finally, the ways that agroecological farming has the potential to reconnect these binaries is also significant. Since agroecology and local knowledge are based on cultural traditions, particularly those of Indigenous communities, they are built on knowledge systems and worldviews that understand social-nature connections. Altieri (1997) explains that agroecology recognizes the assemblage of knowledge, values, social organization, biological

systems, and technology. This requires a set of farming knowledge and farmer subjectivities that are based on community-based economies and participatory research, a path that many of the new farmers in this research are already walking down.

### **8.1 The Rest of the Story...**

Stevenson et al. (2007) list three types of strategies for changing the food system: warrior, builder, and weaver, all of which are present in this thesis and in the community-based work that is at its heart. Warriors contest corporate influence and work for change politically by doing works of resistance. Builders create alternative food initiatives and work economically by doing the works of reconstruction. Weavers strategically work to mobilize civil society by doing works of connection (Stevenson et al. 2007). This dissertation has contested power systems through academic publications that are critical of government and corporations, yet I was also personally engaged in campaign work around these issues in Manitoba. This dissertation also includes builder work of making recommendations around farmer learning that can be applied by organizations supporting new farmers. My work with the National New Farmer Coalition and other community organizations has promoted this research to other critical food scholars, policy-makers, and to those work on community-based changes. Finally, this dissertation includes weaver work by raising awareness on new farmer challenges, working with organizations and civil society to find solutions, and advocating policy-makers for change. By exploring the partnerships that have developed through this research, the hope is that further partnerships, alliances, coalitions, networks, and assemblages can be formed to continue to work towards building food and farming systems that are sustainable, just, and healthy for all Canadians.

The past five years have included a variety of outcomes that are not formally part of academia (Figures 1.1). These include a variety of media interviews, public meetings and workshops, reports, and research work that have been informed by and have informed this dissertation. Some of these have been mentioned in previous chapters, but I would like to highlight some of these participatory and collaborative outcomes in more detail to demonstrate the connections and relations between these projects. I would like to not only highlight the important contributions that community members made to this research overall, to the dissertation as a document, but also to my own subjectivity as an activist-scholar. These colleagues provided opportunities to act and think reflexively thus facilitating my self-cultivation of my subjectivity as an academic and community-member. This also reflects an important component of collaborative and community-based research, in which neither data nor researchers exist in a social vacuum, but where ‘non-academic’ experiences, practices, and reflections have significant influence on the way I have understood this research (see Charmaz 2005). Most significantly, I would like to discuss the relevance and importance of the Fostering Sustainable Regional Food Systems Project, the Real Manitoba Food Fight, and the National New Farmer Coalition and the ways forward for these community organizations and for researchers who may wish to collaborate.

I have worked with some wonderful colleagues on these projects. Despite the additional time required to engage in collaborative research, the importance of breaking down hierarchical dynamics between researcher and ‘subject’ was a significant motivation for ensuring that my research provided meaningful contributions to research collaborators and partners. Following Gibson-Graham’s (2008) call for academics to use their position of influence to highlight the alternative economic practices that are already taking place as an act of resisting the capitalist

hegemony, I worked with farmers to bring their concerns to the table of the public and their governments. This was not without tension, as I also had to ensure that my research was done without impeding the work of farmers or community organizations. But, as Sbicca (2015) indicates, navigating these ongoing relationships and differing needs between researchers and communities is part of the solidarity work of collaborative food justice research. Additionally, collaborating beyond academia challenged me to work to make language more accessible and ensure that jargon is not used excessively (unfortunately, academic publishing continues to encourage the use of obfuscating language, making this a very difficult balance to achieve (see Foley and Valenzuela 2005)).

In 2012, I prioritized becoming involved with the Manitoba food community and farmers in an effort to build trust and learn more about the food system in the province. This allowed me to develop a collaborative research project, while also gaining lived experiences and familiarity with the local food community in Winnipeg. The first opportunity came from my recruitment to the Fostering Sustainable Regional Food Systems Project, or what we called the “Node Project.” These meetings worked with communities to create a vision of a local food system in rural communities while also emphasizing practical outcomes (Laforge and Avent 2013). Together, Jackie Avent and I facilitated six initial meetings with the communities of Cypress River, Gimli, Swan River, Boissevain, Steinbach, Erickson/Onanole and surrounding regions. These meetings included farmers, chefs, community activists, and anyone else who was interested in local food systems. An overall summary was presented at the March 2013 Growing Forward conference organized by Food Matters Manitoba (Laforge and Avent 2013) and facilitated the next step, which was to work on food safety regulations in Manitoba.

In August 2013, Colin Anderson, Stéphane McLachlan, and I were co-instructors in a field course called Living Rural Communities and the Environment (see also Chapter 5). This week-long course took primarily urban and international students out to rural communities to live, learn, and volunteer in partnership with the Harvest Moon Society based in Clearwater, Manitoba. We were conducting farm visits when we received a call from Pam Cavers telling us that a raid was taking place on her farm. Pam asked if someone could come document what was happening, since she was at the farm alone that day. Two students, Jonathan Ventura and Matt Ramsey, who were working on a film project for the course, and Colin Anderson arrived at Harborside Farms and began recording what was taking place. What unfolded was turned into an online video (<https://youtu.be/H1F6sCPMlm8>) and campaign (<http://realmanitobafoodfight.ca>) that was spearheaded by the students in the course. This event contributed significantly to the writing of Chapter 5, but my ongoing involvement included supporting students as they struggled to understand the regulatory barriers and worked to create a website and increase public attention. I was later interviewed by the local CBC Radio show, provided pamphlets at local events, co-facilitated planning meetings for more campaign work, wrote press releases, and attended ongoing meetings between the province and small-scale farmers like the Cavers. In September 2013, the province continued to refuse to talk and destroyed the product they had previously seized, which further galvanized the community and resulted in the creation of FEAST (Farmers and Eaters Sharing the Table) (<http://realmanitobafoodfight.ca/2013/09/12/farmers-eaters-actively-sharing-table-feast/>).

Later that winter, Jackie Avent and I were invited to coordinate a Regulation and Policy Forum to discuss other challenges in Manitoba. This resulted in the creation of a broader coalition to develop a multi-pronged coalition to address the various regulatory barriers



constraining the development of regional food systems in Manitoba in January 2014 (Laforge et al. 2014). Some of the main concerns continued to revolve around food safety regulations, but also issues of accessing quota and working with supply management. The tone at this meeting was very different than those exhibited during the Node Project meetings even though many of the same people were in the room. There was less willingness to have comments or names recorded and less agreement. The culture of fear was further exacerbated when other farmers reported being visited by inspectors who threatened to have their products confiscated and face fines. As a result, the discussions and minutes from these meetings were rarely made public and it became more and more challenging to recruit volunteers to work with the coalition. Eventually this group became Sharing the Table Manitoba (<https://www.facebook.com/sharingthetablemanitoba>), which continues to advocate and organize around local food issues in Manitoba. While Jackie Avent, Daniel Kanu, and David Neufeld were important organizers early on in this process, it is also important to mention the roles played by Jeanette Sivilay and Lydia Carpenter, as farmers themselves, who have continued to carry on this work in a variety of arenas. These people have also contributed variously as participants and colleagues with whom I would discuss the ideas presented in this dissertation.

Through my involvement in these projects, Food Secure Canada (FSC) contacted me ahead of their National Assembly in 2014. FSC was conducting a scan of projects and initiatives taking place across Canada for new farmers (Graves 2014). I was invited to attend the Roundtable and met members of the National New Farmer Coalition. Thus, began my collaboration with Virginie Lavallée-Picard, Ayla Fenton, Shannon Jones, and Jennie Greven. Together we would write, edit, disseminate, promote, analyse, and present the survey and its findings. This work has continued through 2015 including presentations given at Bring Food

Home and the National Farmers Union Convention and later at the Food Secure Canada assembly in 2016. Since 2015, a draft report has also been written and edited and will be released soon. Media interest in the topic of young women getting into farming has resulted in interviews with CBC Nova Scotia (<http://www.cbc.ca/news/canada/new-brunswick/farmers-women-atlantic-1.3571369>), Farm Focus Atlantic (<http://atlanticfarmfocus.ca/wp-content/uploads/2016/08/Farm-Focus-August-2016.pdf>), and Corporate Knights (<http://www.corporateknights.com/channels/food-beverage/a-taste-of-country-14757336/>).

Other ongoing work that contributed to this dissertation included my own farm project in Saskatchewan, Dragonfly Gardens and my volunteer work with organizing Seedy Saturday in Winnipeg. In 2013, I established a farm on family land in Saskatchewan. Through this experience, I was able to learn more about the kinds of problems and practical issues that new farmers involved in vegetable production are facing. This provided me with the empathy and the understanding to dig more deeply into questions of production decisions, training, and marketing and also build a rapport with participants and partners in this research. While my farm project is currently fallow, I have continued to volunteer on local farms and ‘talk shop’ with farmers whenever the opportunity arises. Similarly, my involvement with Seedy Saturday was an opportunity to connect with gardeners, foodies, and ‘seedies’ in Winnipeg and build knowledge and friendships. Seedy Saturday was a place to discuss technical aspects like isolation distances and also the imperative to protect biodiversity and build a community of seed savers. My colleagues in organizing Seedy Saturday, namely Kenton Lobe, Natalie Dyck and Kaitlyn Duthie-Kannikkatt, were also important people with whom I could have conversations on everyday reflexivity while also providing intelligent and thoughtful insights on this research.

Both of these projects helped to build my understanding around the types of issues that new farmers are working to address.

Opportunities to work collaboratively in academia are often difficult to manage and maintain due to looming deadlines and competitive attitudes (Mountz et al. 2015). Especially since “when institutional subject-making and norms of ideal workloads unfold in the context of ritualized counting exercises, work that can be included in empirical counting models may take precedence over work that cannot easily be counted” (208), including collaborative and collective research. However, I have had two important academic experiences that provided informal collaboration to occur, first while organizing two Pre-Conferences for Emerging New Scholars with the Canadian Association for Food Studies, and second while working as a sessional lecturer for two courses at the University of Manitoba. While teaching required me to refine and practice my understanding of geographical theory, interacting with scholarly colleagues allowed me an opportunity to further the breadth and depth of my understanding of theory. Both of these contexts provided me opportunities to engage in reflexive conversations (both internally and with others) that challenged my motivations and comprehension. They also gave me opportunities to research literature that was beyond the scope of this project and engage with it in new ways. Through these projects, I was able to engage in reflexive conversations with Mya Wheeler, Bryan Dale, and Virginie Lavallée-Picard whose paths were parallel with mine during these projects and whose insights have continued to be valuable beyond the specific tasks we were trying to accomplish at the time. Working collectively, in such a context is as much an act of self-preservation as altruistic, as these relationships with colleagues can provide alternative spaces and ways of working that challenge hierarchies and individualization. Engaging in this anti-capitalist praxis which resisted the impetus to commodify my labour and academic

productivity provided yet another way to build relationships with research participants who are challenged in the same ways, while also working in solidarity to build alternatives (Mountz 2016, Sbicca 2015, Mountz et al. 2015, Gibson-Graham 2008)

## **8.2 Limitations and Future Research**

There are significant opportunities to continue the advocacy and research work of all of these community projects. The following are some theoretical and conceptual contributions, implications for policy, and practical opportunities to engage with new farmers.

My research contributes to the conceptual understanding of the relationship between farmer knowledge and agroecology as well as the formation of farmer subjectivities. I found that how farmer knowledge is viewed and shared is changing with agroecological farmers leading the way in emphasizing the importance of local knowledge in agriculture. This important finding on local farmer knowledge is also worth examining to explore the ways that local knowledge may or may not be recognized by conventional farmers and those who have more than ten years of farming experience. It is likely that many conventional farmers, especially those who come from intergenerational farms, started by learning through local knowledge, but that the importance of this knowledge has been devalued as agricultural technology has resulted in the deskilling of farmers (Diaz and Stirling 2003). There is an opportunity to unite agroecological and conventional farmers around the need to recognize local farmer knowledge, despite their differences in farming practices, politics, or ideologies. This would also contribute to forwarding the principles of food sovereignty, of which one of the principles is to restore respect for food providers and their knowledge (Wittman et al. 2010). There is room for further research on the relationships between farmers and local knowledge in Canada.

New alternative farmers are also acting to shape their own subjectivities in an agriculture industry dominated by ‘common sense’ narratives of productivism, but they are using the social recognition of consumers, of which many are part of existing urban social networks, to support them as they forge these subjectivities. Exploring the experiences of other post-urban farmers, notably the ‘back-to-the-lander’ movement from the 1960s and 1970s, could further develop a conceptualization of the relationship between farmer subjectivities and broader social change. In comparison, farmers today have significantly more support from urbanites, through financial backing as customers and social support as friends, family, and as loyal supporters of community-based economies and sustainable food systems. The virtual and online communities through social media also allow new alternative farmers today to stay closely connected to each other, sometimes with farmers they have never met face-to-face, other times meeting at conferences and continuing their friendships online. This virtual support provides a safe place to self-cultivate alternative farmer subjectivities with a community with similar values and allows these farmers to live rurally without feeling isolated or out-of-place. The extent to which this is or is not happening across Canada deserves further study. In particular, exploring the differences between regions like Atlantic Canada, which have seen overall population decline, but significant increases in new alternative farmers attracted by the relative affordability of land, to regions like the Prairies where land prices are increasingly dramatically and where land-grabbing is becoming more common (Desmarais et al. 2017), and where the number of new alternative farms remains insignificant compared to the dominant productivist farming population.

Secondly, my research has important implications for agricultural and food policy in Canada. This research has highlighted some important findings that require further examination to understand their policy implications fully. In particular the increase in the number of new

alternative farmers from urban backgrounds, especially women, is worth exploring further to determine the extent to which this trend represents a potential demographic change in Canadian agriculture. If an increasing number of new farmers are coming from non-farming backgrounds, this will have significant implications for the potential role of governments and institutions in supporting access to land and capital, two of the most significant barriers facing these new entrants. While the online survey is not generalizable to a broader population and the findings differ significantly in many ways from the Agricultural Census (see Chapter 6), it also highlights voices that may be under-reported in larger studies and surveys. More research on the experiences of small-scale, agroecological farmers in Canada is needed since there is very little information currently available on their experiences navigating a primarily industrial food system.

This research has a number of practical suggestions for food systems advocates throughout Canada. Follow-up research with the eight communities who were involved in the Fostering Sustainable Regional Food Systems workshops would help determine what barriers have prevented them from enacting their community plan, while also exploring their successes and sharing them more broadly. Sharing both the barriers and successes can contribute to broader system change by building connections and sharing resources, ideas, strategies, and motivations (Stevenson et al. 2007). Similarly, Sharing the Table Manitoba has continued to advocate for changes to regulatory and policy frameworks in Manitoba and could benefit from additional research on how these barriers are affecting farmers in the food system. In the absence of state and institutional support, these community organizations often rely on the assistance of scholar-activists and others to lend legitimacy and credibility to their arguments in the media and with policy-makers. Many respondents to the National New Farmer survey indicated that they were

grateful to finally have a place to share their stories, and supporting the ongoing research needs of the National New Farmer Coalition gives voice to many farmers who feel marginalized by current farming systems. An essential part of my academic work is to identify barriers and challenges, but my work as a community-member is much more difficult as it involves addresses these issues and working for change. The opportunities to continue to engage in these questions and look for solutions are boundless and also contribute to changing narratives on collective resistance and social change (Gibson-Graham 2008).

Finally, there is a lack of participatory scientific research in organic and agroecological practices in Canada, which could lead to significant problems for Canada's food system in the future. Many of the farmers in my research indicated that they needed help with technical problems on their farm that the conventional agriculture system was unable or unwilling to investigate. Questions around composting, integrated crop and livestock rotations, or certified organic plant cultivars were largely unanswered or respondents indicated that they were getting information from American universities and making approximate translations for the conditions on their Canadian farms. With the exception of the 37 research activities listed by the Organic Science Cluster II (2013-2018), of which only seven involve partnerships with universities across Canada, there is very little participatory agricultural science research in sustainable practices happening in Canada (Organic Agriculture Centre of Canada, n.d.). The effects of this lack of rigorous agricultural science have been variously observed, for example in Chapter 5, farmers facing food safety regulatory barriers found that they did not have scientific evidence to help them understand the specific animal health and food safety conditions on their farms since most science did not examine small-scale, pasture-raised animals. In Chapter 6, farmers who were seeking knowledge on agroecological practices often found that these questions had not

been explored in a Canadian context. How this lack of participatory and agroecological science is affecting new alternative farmers and their more experienced peers is not well known and is worth further investigation.

This research follows others that have argued for the importance of developing partnership models of knowledge sharing and learning (Goodman et al. 2012, Classen et al. 2008, Percy 2005). These multi-year projects focus on involving participants in early stages of research and incorporate a variety of concerned actors into creating and transferring agroecological knowledge (Warner 2008). The participatory plant breeding and participatory plant selection are becoming more common both internationally and in Canada (Brush 2004, Cleveland and Soleri 2002, Almekinders and Louwaars 1999). In Canada, this work is being coordinated by the Bauta Initiative on Canadian Seed Security (2013) which is partnering with some researchers at the University of Manitoba to work with farmers to breeding potato and wheat varieties using open-pollination processes and selective breeding to find crops plants that are adaptive to changing climatic conditions on organic farms. This initiative differs significantly from the conventional approach to plant breeding, and emphasizes making research decisions through consultations and ongoing partnerships with farmers in a specific biophysical environment and for a specific market, often consumers interested in purchasing organic food. This model of scientific inquiry in agriculture can also be applied to research on pest management, crop and livestock integration, or animal nutrition. In addition, much of the research on sustainable alternatives is taking place at smaller universities in Canada, with smaller research budgets, and are often located within social sciences or humanities departments, including environmental sciences, rather than agricultural science (Francis et al. 2011). While this research is also important, it is limited in its ability to improve agronomic or production knowledge that would help build sustainable food



systems in Canada. The advantage of these types of scientific research projects is that they combine social and institutional research and learning styles and have the potential to be much more inclusive and may result in better outcomes for farmers (Nerbonne and Lentz 2009, Warner 2008, Percy 2005).

This journey is also thanks to food: as a way to share cultural traditions, as a way to meet a biophysical need, as a way to interact with nature, and as a way to build new alternatives to the apparent capitalist hegemony. Food has both symbolic and practical meaning; it provides sustenance for the body while also feeding the soul. Food is a way to rebuild connections between human society and the natural world because it is already an example of socio-nature. It is also a way to address system barriers and inequalities, especially forms of gender and racial oppression, in part because food provides a rare universal commonality. In an era filled with pessimism and fear, food also provides hope. There is hope in the seed sowed in the spring, just as there is hope sowed with the dreams of a better food system. Both require careful tending in order to produce fruit, and both carry their potential within a tiny vessel.

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## Appendices

### Appendix A: Organizations Contacted for the National New Farmer Survey in 2015

Organization	Region
Small Farms Manitoba	MB
Food Matters Manitoba	MB
Harvest Moon Local Food Initiative/Harvest Moon Society	MB
Manitoba Aspiring Farmers Facebook Group	MB
Manitoba Ecological Farmers Facebook Group	MB
Manitoba Young Farmers (CFA)	MB
Organic Food Council (Organic Bytes newsletter), part of COG	MB
MAFRI Young Farmers Initiative	MB
Community Futures Manitoba	MB
Fort Whyte	MB
University of Manitoba agriculture programs	
Slow Food Winnipeg	MB
Southern Chiefs Organization	MB
Réseau des joyeux maraîchers écologique	QC
Coopérative pour une Agriculture de Proximité Écologique	QC
Union Paysanne	QC
Banques de Terres	QC
NFU IPC coordinator	QC
Équiterre	QC
Fédération de la relève agricole	QC
Plateforme Agricole du CREDETAO	QC
Ferme incubateur (Mirabel)	QC
Ferme incubateur Bord du Lac	QC
Incubateur de production maraîchère bio de Coaticook du CIARC	QC
Agri-conseils Outaouais	QC
Kuujujac Greenhouse Project	QC
FIRA (Fond d'Investissement pour la Relève Agricole)	QC
Club Agri-conseils	QC
CÉTAB+	QC
Fonds Coopératif pour la relève agricole	QC
MAC McGill Campus	QC
MAPAQ (Établissement et relève)	QC
Projet Jardins sur les toits	QC
Cégep de Victoriaville (Organic agriculture diploma)	QC
Collectifs régionaux de formation agricole	QC
Fédération biologique du Québec	QC
Institute de Technologie Agroalimentaire (ITA), Campus de St-Hyacinthe et	QC
McGill undergrad/Faculty of Agriculture sciences Farm	QC
Université Laval (agrology undergrad)	QC
Slow Food Lanaudière	QC

Slow Food Montréal	QC
Slow Food Abitibi	QC
Slow Food Vallée de la Batiscan	QC
SADC Papineau	QC
Sustain Ontario Good Food Bytes (newsletter)	ON
Lo Maximo Meats and CKTable	ON
ON NFU Youth Advisor	ON
Farms at Work	ON
Just Food	ON
NFU ON president	ON
EFAO	ON
CRAFT SW Ontario	ON
CRAFT Kawartha	ON
CRAFT Kingston	ON
CRAFT NW Ontario	ON
Everdale Farm/Environmental Learning Centre	ON
Toronto Farmers + Foodshare + Fresh City Farms	ON
OYFF, CFFO, OFA	ON
COG – Ottawa	ON
Fleming College Sustainable Ag	ON
FarmStart	ON
Junior Farmers of Ontario (CFA)	ON
Ottawa/Outaouais COG chapter	ON
Slow Food Wellington County	ON
Ontario Federation of Agriculture	ON
FarmStart	ON
EFAO	ON
Junior Farmers Association of Ontario	ON
Slow Food Lanark	ON
Union des Cultivateurs Franco-Ontariens	ON
Slow Food Pehlam	ON
Slow Food Perth	ON
Slow Food Prince Edward County	ON
Slow Food Sault Ste Marie	ON
Slow Food Superior	ON
Slow Food Toronto	ON
Indian Agricultural Program of Ontario	ON
First Nations 4H	ON
University of Guelph agriculture programs	ON
Seed to Spoon Cooperative	NL
NL Food Security Network Newsletter	NL
NL Ag Future Farmer Initiative + Provincial Agrifoods Assistance Program	NL
NFU NB Executive Director	NB
NFU Youth	NB

New Brunswick Young Farmers Forum (CFA)	NB
Agricultural Alliance - Ferme NB	NB
NB Department of Agriculture - Agriculture by Choice Program	NB
Organic Program - NBDAAF	NB
NB Community Land Trust	NB
Really Local Harvest Co-op	NB
Slow Food Cocagne Acadie	NB
Young Agrarians	Mainly BC
Linking Land and Farmers, COG-VI, Sooke Food Chi, ALM/Full Circle	BC (Sooke)
IAFBC, COABC, Richmond Food Security Project, ALR Watch, Richmond	BC (Comox)
BC Young Farmers Association (CFA)	BC
Co-chair BC Food Systems Network, Vancouver Food Policy Council	BC
BC Food Systems list serv	BC
UBC Farmland project	BC
SOIL and The ruminant blog post	BC
COABC listserv	BC
CR-FAIR list serv	BC
Slow Food	Vancouver
SSI farmland trust/Agricultural Alliance	BC
Mainland Young Milk Producers' Association	BC
Organic Farming Institute of BC	BC
UBC Farm	BC
Linnaea Farm	BC
Beyond the Market	BC
COABC	BC
Kootenay Alpine Cheese Co.	BC Kootenay
Indigenous Food Systems Network	BC
Slow Food Vancouver	BC
Slow Food Invermere	BC
Slow Food Thompson Okanagan	BC
UBC agriculture programs	BC
NFU	NS
ThinkFarm NS	NS
ACORN/Grow a Farmer	NS/Atlantic
ACORN Organic Transition Coordinator	NS
Perennia	NS
Nova Scotia Young Farmers (CFA)	NS
FarmWorks Investment Coop	NS
Dalhousie Agricultural Campus	NS
Dairy Farmers of Nova Scotia	NS
Dalhousie Faculty of Agriculture – Extended Learning	NS
Ecology Action Centre – Food Action Network	NS
Farmers' Markets of Nova Scotia	NS
Horticulture NS	NS

NS Farm Loan Board/Farm Next Program	NS
NS Fruit Growers Association	NS
Organic Agriculture Centre of Canada (OACC)	NS
Annapolis Farmland Trust	NS
Slow Food Nova Scotia	NS
Slow Food Northumberland Shore	NS
Slow Food Youth Atlantic Canada	NS
Slow Food Acadia University	NS
Northern Farm Training Institute	NWT
Northern Farm Training Institute	NWT
Inuvik Community Greenhouse	NWT
Northern Roots	NWT
Northwest territories farmers association	NWT
C&E meats	AB
NFU	AB
Hillhurst Sunnyside Community Association/Farmers market	AB (Calgary)
Alberta Young Farmers and Ranchers	AB
FarmON	AB
Organic Alberta	AB
Alberta Farm Fresh Producers	AB
Green Hectares	AB
Slow Food Edmonton	AB
Slow Food Calgary	AB
Slow Food Southern Alberta	AB
Slow Food Calgary Youth Movement	AB
University of Alberta agriculture programs	AB
University of Saskatchewan Agriculture program	SK
Prairie Permaculture	SK
Saskatchewan Young Entrepreneurs (CFA)	SK
Farm Land Legacies/Saskatchewan Young Ag-Entrepreneur/Farm to Table	SK
Slow Food Saskatoon	SK
Yukon young farmers forum (CFA)	YK
Slow Food Yukon	YK
Yukon Agricultural Association	YK
Growers of Organic Food Yukon	YK
Yukon Young Farmers	YK
PEI Young Farmers (CFA)	PEI
PEI Farm Centre	PEI
Moonlight Foundation	PEI
PEI Ag Business Development Program	PEI
PEI Ag Future Farmer Program	PEI
PEI Adapt Council	PEI
PEI Certified Organic Producers Co-op	PEI
PEI Young Farmers Network	PEI

Iqaluit Community Greenhouse	NT
Nunavut Food Security Coalition	NT
Circumpolar Agriculture Association	North
Canadian Young Farmers Forum	CAN
Food Secure Canada	CAN
NFU Youth email list	CAN
NFU Board	CAN
Greenhorns	US
Canadian Organic Growers	CAN
USC /C-BAN/general contacts	CAN
Sustainable Campus Food	CAN
Meal Exchange	CAN
Canadian Agricultural Resource Council	CAN
Canadian Association for Food Studies	CAN
Holistic Management Canada	CAN
Farm Management Canada	CAN
McConnell Foundation	CAN
Slow Food Canada	CAN
Idle no more	CAN
Canadian-CSA Farmer Discussion FB group	CAN
<b>PRODUCER ASSOCIATIONS</b>	
BCCA: BC Cattlemen's Association ( <a href="http://www.cattlemen.bc.ca/">http://www.cattlemen.bc.ca/</a> )	BC
BCGGA: BC Greenhouse Grower's Association	BC
BCGPA: BC Grain Producers Association ( <a href="http://www.bcgrain.com/">http://www.bcgrain.com/</a> )	BC
BCFGA: BC Fruit Growers Association ( <a href="http://www.bcfga.com/">http://www.bcfga.com/</a> )	BC
BCDA: BC Dairy Association ( <a href="http://bcdairy.ca/">http://bcdairy.ca/</a> )	BC
Mainland Young Milk Producers' Association	BC
BCEPA: BC Egg Producers' Association ( <a href="http://www.bcegg.com/">http://www.bcegg.com/</a> )	BC
BCPPA: BC Pork Producers Association ( <a href="http://bcpork.ca/">http://bcpork.ca/</a> )	BC
BCCGA: BC Cranberry Growers Association	BC
BCCA: BC Cherry Association ( <a href="http://www.bccherry.com/">http://www.bccherry.com/</a> )	BC
BCBC: BC Blueberry Council ( <a href="http://www.bcblueberry.com/">http://www.bcblueberry.com/</a> )	BC
BCGGA: BC Grape Growers Association ( <a href="http://www.grapegrowers.bc.ca/">http://www.grapegrowers.bc.ca/</a> )	BC
BCTGA: BC Turkey Growers Association ( <a href="http://www.bcturkey.com/">http://www.bcturkey.com/</a> )	BC
Dairy Farmers of Canada	CAN
Dairy Farmers of SK	SK
Dairy Farmers of MB	MB
Dairy Farmers of ON	ON
Dairy Farmers of QC	QC
Dairy Farmers of BC	BC
Dairy Farmers of NB	NB
Dairy Farmers of PEI	PEI
Dairy Farmers of NL	NL
Dairy Farmers of AB	AB

Dairy Farmers of NS	NS
Syndicat des producteurs de bleuet du QC	QC
Fédération des producteurs d'agneaux et de moutons	QC
Fédération des producteurs acéricoles	QC
Fédération des agricultrices	QC
Fédération des apiculteurs	QC
Fédération des producteurs de bovins	QC
Fédération des producteurs de culture commerciales	QC
Syndicat des producteurs de chèvre	QC
Producteurs de fraises et framboises	QC
Fédération Québécoise des producteurs de fruits et légumes de	QC
Fédération des éleveurs de grands gibiers du Québec	QC
Le Syndicat des producteurs de lapins du Québec	QC
Association des producteurs maraîchers	QC
Oeufs d'incubation	QC
Fédération des producteurs d'oeufs	QC
Le syndicat des producteurs en serre du QC	QC
Fédération des éleveurs de porc	QC
Fédération des producteurs de pommes de terre	QC
Les éleveurs de volailles	QC
Fédération des producteurs de pommes	QC
Quebec Farmers Association	QC
<b>Ontario Producer Groups</b>	
Chicken farmers of Ontario	
Ecological Farmers Association of Ontario	
Ontario Beekeepers Association	
Ontario Berry Growers Association	
Ontario Cattlemen's Association	
Ontario Commercial Rabbit Growers	
Ontario Corn Producers	
Ontario Dairy Sheep	
Ontario Fruit and Vegetable Growers	
<b>National Livestock Associations</b>	
Canadian Meat Goat Association	
Canadian Swine Breeders Association	
Heifer Canada	
Rare Breeds Canada	
Canadian Honey Council	
<b>National and Provincial Grain and Oilseed Production Associations</b>	
Canada Grains Council	
Canadian Canola Growers Association	
Canadian Hemp Trade Alliance	
Canada Special Crops Association	
Canola Council of Canada	

Flax Council of Canada	
National Sunflower Association of Canada	
Pulse Canada	
Canadian Horticulture Council	
Canadian Seed Growers Association	
Canadian Seed Trade Association	
Canadian Soybean Council	
Grain Growers of Canada	
Canaryseed Association of Canada	
<b>National and provincial Egg and Poultry</b>	
Egg Farmers of Canada	CAN
Chicken farmers of Canada	CAN
Turkey farmers of Canada	CAN
Canadian Hatching Egg Producers	CAN
Egg Farmers of NL and Labrador	NL
Egg farmers of PEI	PEI
Egg farmers of Nova Scotia	NS
Egg farmers of NB	NB
Egg farmers of ON	ON
Saskatchewan egg producers	SK
Manitoba egg producers	MB
Egg farmers of Alberta	AB
BC egg marketing board	BC
BC egg hatching	BC
Alberta hatching egg producers	AB
Saskatchewan Broiler Hatching Egg Producers' Marketing Board	SK
Manitoba chicken producers	MB
Ontario Broiler Hatching Egg and Chick Commission	ON
Chicken farmers of SK	SK
Chicken producers of AB	AB
BC chicken marketing board	BC
Chicken farmers of Nova Scotia	NS
Manitoba chicken producers	MB
Chicken farmers of NL and Labrador	NL

## Appendix B: Social, Independent, and Institutional Learning

Learning Resource	Learning Type	Notes
Print Publications	Independent	Includes books, magazines, and periodicals. Ex. Small Farms Magazine except those by the two others listed or the three books mentioned specifically.
Joel Salatin	Independent	Author on livestock production
Eliot Coleman	Independent	Author on vegetable production
“The Market Gardener”	Independent	Book by Jean-Martin Fortier
“Crop Planning”	Independent	Book by Frédéric Thériault and Daniel Brisebois
“Rodale”	Independent	Book published by the Rodale Institute
Personal experience	Independent	Trial-by-error
Internet	Independent	Any online resource except webinars or podcasts.
Webinars/Podcasts	Independent	Ex. The Ruminant
University	Institutional	Any agricultural or non-agricultural based program
College	Institutional	Any agricultural or non-agricultural based program
Certificate Programs	Institutional	Training programs. Ex. Permaculture Design Certificate
Holistic Management	Institutional	Production practice and business planning/decision-making structure
Farm Companies	Institutional	Ex. Seed companies
Conferences	Institutional	All other conferences except Growing Local and Guelph Organics
Guelph Organics	Institutional	Annual conference held in Guelph, Ontario
Growing Local	Institutional	Previously an annual conference held in Winnipeg. No longer offers significant farmers workshop series.
ACRES	Institutional	Annual eco-agriculture conference in Nebraska
Gov’t	Institutional	Usual refers to provincial government programs and employees.
Researchers	Institutional	Usually to university employees, not necessarily in Canada
Martin Entz	Institutional	University of Manitoba researcher
Mentors	Social	Any ongoing relationship, often informal
Farmers/Neighbours	Social	Valuable for practical assistance
Parents	Social	Strongest for those who grew up on a farm
Non-farming comm	Social	Non-farming friends and family
Farming Networks	Social	Informal networks. Ex. Manitoba Aspiring Small Farmers (Facebook group), farmers at the market
Volunteers	Social	Also includes interns and customer/volunteers
Farmer Associations	Social	Ex. Canadian Sheep Breeder’s Association, Ontario Cattlemen’s Association



Enviro/Comm Orgs.	Social	Ex. Transition Ottawa, Indigenous organizations
NFU	Social	National Farmers Union was used primarily to meet farmers to do conduct advocacy work.
COG	Social	Canadian Organic Growers was used primarily to find out about workshops and to meet farmers.
Just Food	Social	Regional advocacy organization based in Ottawa. Also offers farmer workshops and an incubator farm project
EFAO	Social	Ecological Farmers of Ontario (primarily based in southern Ontario)
CRAFT	Social	Collaborative Regional Alliance for Farmer Training based in Ontario
Everdale	Social	Farm school located in southern Ontario
FMM	Social	Food Matters Manitoba: A regional local food organization based in Winnipeg
SFM	Social	Small Farms Manitoba: A regional farming organization based in Manitoba
HMS/HMLFI	Social	Harvest Moon Society/Harvest Moon Local Food Initiative: A regional food and farming group based in Manitoba
OFCM/OPAM	Social	Organic Food Council of Manitoba/Organic Producers Association of Manitoba: two groups conducting advocacy work in Manitoba around organic food
Wholesale/Customers	Social	Wholesale retailers and farmers market managers
Gardeners	Social	Often through involvement with community gardens.
Seed Savers	Social	Members of the seed saving community

## Appendix C: Consent Forms



### Department of Environment and Geography

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#### Informed Consent Form (Interviews)

- Research Project Title:** Farmer Knowledge in Alternative Agriculture: Community Learning and the Politics of Knowledge
- Researchers:** Julia Laforge (PhD Student, University of Manitoba) – [julia.laforge@umanitoba.ca](mailto:julia.laforge@umanitoba.ca)
- Sponsors:** Social Sciences and Humanities Research Council (SSHRC) and the University of Manitoba

**This consent form, a copy of which will be left with you for your records and reference, is only part of the process for informed consent. It should give you the basic idea of what the communication project is about and what your participation will involve. If you would like more detail about anything mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.**

My name is Julia Laforge and I am a PhD student at the University of Manitoba Department of Environment and Geography. I am contacting you to participate in a research project to share information on your experiences, opinions and concerns regarding educational and learning opportunities for new farmers engaged in alternative agriculture. This research is being done with financial support from the Manitoba Alternative Food Research Alliance (MAFRA), an alliance of community groups and university researchers that are exploring and promoting regional food systems and food justice in Manitoba and elsewhere. MAFRA is funded by a Social Sciences and Humanities Research Council (SSHRC) Community-University Research Alliance (CURA) grant. We are excited about communicating the outcomes of this community project and your involvement in that project on our websites [www.localANDjust.ca](http://www.localANDjust.ca) and [www.RuminationsOnGerminations.com](http://www.RuminationsOnGerminations.com). Moreover, we are interested in highlighting this involvement in our university research. These ends would be achieved through the use of audio recordings that are accompanied by quotes arising from these sessions. The information collected in this project will enable us to share information on your opinions and concerns regarding education and knowledge on alternative agriculture.

The session will take approximately 1 hour. During this time, a series of open-ended questions will be asked in a semi-structured interview form. In the second half of the interview, we will ask you to map (diagram or list) your respective alternative agriculture knowledge network. A follow-up interview will be conducted either in person or over the phone the following year.

An audio recording device will be used while the session is being conducted. The captured information will be used to generate transcripts of the session. If you agree to participate in research, these outcomes would be incorporated into larger research projects that focus on regional food systems and farming knowledge. All of the information that you provide will be kept strictly confidential and will be stored in a locked cabinet, accessible only by the researchers on this project, for the duration of the project (10 years). All audio and originally written records will be destroyed after being transcribed. The University of Manitoba may follow up on the research procedures to see that the research is being done a safe and proper way.

In order to celebrate the importance of your voice and experiences, we will (where possible) identify people by name in any outcomes that arise from these sessions. However, our research, education, and outreach are iterative and you will always be able to choose to remain anonymous, if you so wish. Indeed, you will be free to withdraw at any point in this process.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in this research and agree to participate. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw your participation and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

If you have any questions about the research or the communication outcomes, please contact Julia Laforge or Dr. Stéphane McLachlan at their respective email addresses, [Julia.Laforge@umanitoba.ca](mailto:Julia.Laforge@umanitoba.ca) and [Stephane.McLachlan@umanitoba.ca](mailto:Stephane.McLachlan@umanitoba.ca)

The Joint-Faculty Research Ethics Board at the University of Manitoba has approved this research. If you have any concerns or complaints about this project you may contact the above-name person or the Human Ethics Secretariat at 204.474.7122, or e-mail [margaret\\_bowman@umanitoba.ca](mailto:margaret_bowman@umanitoba.ca). A copy of this consent form has been given to you to keep for your records and reference.

In conclusion, please indicate in the check-off boxes below whether you are interested in participating in this research.

RESEARCH

A	<input type="checkbox"/> Permission to audio-record for communication purposes, which will later be transcribed & analyzed; OR <input type="checkbox"/> No permission to audio-record for research purposes
B	<input type="checkbox"/> Permission to release identity in any research outcomes that arise from these interviews; OR <input type="checkbox"/> No permission to release identity in any research outcomes that arise from these interviews

Also please indicate if you are interested in the following:

<input type="checkbox"/> Yes, I would like to receive a summary (i.e. pamphlet) of the communication outcomes in the future or <input type="checkbox"/> No, I would not like to receive a summary (i.e. pamphlet) of the communication outcomes in the future
---

And

<input type="checkbox"/> Yes, I would like to participate further in similar research (e.g. follow-up survey, interview etc.) or <input type="checkbox"/> No, I would not like to participate further in the research
---

If you indicated that you would either like to receive a summary of research outcomes or participate further in the research, please provide your contact information below

\_\_\_\_\_

Name

\_\_\_\_\_

Affiliation (ex. farm, org., etc.)

\_\_\_\_\_

Address

\_\_\_\_\_

Phone Number

\_\_\_\_\_

Email address

\_\_\_\_\_

Participant's Signature

\_\_\_\_\_

Date



## Department of Environment and Geography

Winnipeg, Manitoba  
Canada R3T 2N2  
Telephone (204) 474-9667  
Fax (204) 474-7699  
environment\_geography@umanitoba.ca

### Informed consent (online survey)

- Research Project Title:** Farmer Knowledge in Alternative Agriculture: Community Learning and the Politics of Knowledge
- Researchers:** Julia Laforge (PhD Student, University of Manitoba) – [julia.laforge@umanitoba.ca](mailto:julia.laforge@umanitoba.ca)
- Sponsors:** Social Sciences and Humanities Research Council (SSHRC) and the University of Manitoba

The purpose of this research project is to explore experiences of new farmers in alternative (non-industrial) agriculture and to get your opinions and concerns regarding educational and learning opportunities for new farmers in Canada. This is a research project being conducted by Julia Laforge at the University of Manitoba, Department of Environment and Geography. You are invited to participate in this research project because you are a new farmer (have been operating your own business for less than five years) or a trainer/mentor for new farmers. Stay up to date on our websites [www.localANDjust.ca](http://www.localANDjust.ca) and [www.RuminationsOnGerminations.com](http://www.RuminationsOnGerminations.com).

Your participation in this research study is voluntary. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time. If you decide not to participate in this study or if you withdraw from participating at any time, you will not be penalized.

The procedure involves filling an online survey that will take approximately 20 minutes. Your responses will be confidential and we do not collect identifying information such as your name, email address or IP address. The survey questions will be about the type of farming that you do and how you have accessed knowledge about alternative agriculture.

All information collected will remain confidential. Data will be stored in a password protected electronic format. To help protect your confidentiality, the surveys will not contain information that will personally identify you. The data collected in this survey will be aggregated and any identifiers eliminated, thus protecting anonymity and enabling us to share information on your experiences, opinions and concerns regarding education and knowledge on alternative agriculture. The University of Manitoba may follow up on the research procedures to see that the research is being done a safe and proper way.

If you have any questions about the research study, please contact Julia Laforge at [julia.laforge@umanitoba.ca](mailto:julia.laforge@umanitoba.ca). The Joint-Faculty Research Ethics Board at the University of Manitoba has approved this research.

Cash prizes of \$500, \$200, and \$100 will be drawn and awarded to those who provide us with their email address. Funding for these prizes is provided from MAFRA, the Manitoba Alternative Food Research Alliance, at the University of Manitoba which is funded by a Social Sciences and Humanities Research Council (SSHRC) Community-University Research Alliance (CURA) grant. This email address will not be linked to your responses in order to ensure confidentiality of your responses. Only those who are selected for a prize will be contacted.

**ELECTRONIC CONSENT: Please select your choice below.**

**Clicking on the "agree" button below indicates that:**

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age

**If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.**

- AGREE      - DISAGREE)