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Original Research Article

New farmers and food policies in Canada

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Abstract

As the demographics of farmers are shifting, the ways agricultural and food policies affect and influence the decision-making and behaviours of new farmers is also changing. At the same time, there is growing interest in contesting and rebuilding Canadian food systems to address environmental and social injustices. Many new farmers are interested in agro-ecological approaches to agriculture, including both ecological practices and community-based economies. This paper examined the findings of a national survey of 1,326 new, aspiring, exited, and experienced farmers, to explore challenges and opportunities in the Canadian food and farming system, as well as the municipal, provincial, and federal policies that they recommended. We also examined which programs are serving new farmers best, and how these successes could be translated elsewhere. We found that an increasing number of new farmers are coming from non-farming backgrounds and are women, potentially challenging the status quo. The most significant barriers concerned affordable land and financing their early farm businesses. In addition, respondents reported facing difficulties in accessing agricultural knowledge and that available institutional resources may not be appropriate to new types of ecological farming practices. Nevertheless, these new farmers are finding diverse ways to develop their livelihoods, potentially transforming Canadian agriculture. A national food policy that works with local and regional partners and that recognizes the changing realities of new farmers is a necessary first step in helping build a sustainable, healthy, just, and resilient food system in Canada.

Keywords: New farmers, food systems, agriculture, food policies, Canada

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Introduction: Trends in Canadian agriculture

Farmers do more than grow and raise the food Canadians eat every day; they contribute to the Canadian economy through local and international markets, they build rural and urban communities, and they can be environmental stewards. Yet there are signs that farmers and the Canadian food system as a whole may be on the brink of several major transformations. The number of farms in Canada has been declining at an increasing rate for the past 70 years (Qualman, 2011). Simultaneously, the average age of farmers in Canada in 2016 was 55 compared to 47.5 in 1991, while the number of farmers in Canada under the age of 35 fell from 77,910 to 24,850 over that same time period (Statistics Canada, 2017a). At the same time, the recent 2016 Agriculture Census found that only 8 percent of farms have a written succession plan, which could indicate a potential gap in farm renewal (Statistics Canada, 2017b). Despite these realities, farming is still considered by policy-makers to be an intergenerational activity with continuing farmers born into farm families with opportunities both to learn about farming as children and to access land through in-family farm transfer (Diaz, 2003; Dumas, Dupuis, Richer, & Louise, 1995). For many new farmers, the neoliberalization and corporatization of Canadian farms has challenged their ability to enter agriculture.

Trends towards neoliberalization[1] have resulted in government withdrawal from rural communities and the agricultural infrastructures they upheld (Eaton, 2008; Kneen, 2011; Pechlaner & Otero, 2008; Qualman, 2011). The resulting increase in deregulation and privatization has put farmer livelihoods at risk through the erosion of supply management and marketing boards (Desmarais & Wittman, 2014; Magnan, 2015). Similarly, the dismantling of federal programs such as the Prairie Farm Rehabilitation Administration and the Rural Secretariat has raised concerns about the loss of services that range from preventing soil erosion to providing internet services to rural citizens (Amichev et al., 2015; Arbuthnott & Schmutz, 2013; Wilson, 2013). The neoliberalization of agricultural policies at the provincial level has differed regionally with some provinces, like Ontario seeing massive declines in funding for agriculture which has contributed to declines in farming populations, consolidation of farmland, and the erosion of support for ecological practices (Eaton, 2008; Friedmann, 2011). While in Québec, the language of food sovereignty has been adopted to justify the promotion of local food and farming within the province (Desmarais & Wittman, 2014). Despite this, the impacts of industrialization and corporatization have encouraged farmers to grow the size of farms which has further exacerbated the decrease in the number of farms (Magnan, 2015; Qualman, 2011).

In many ways, corporations are squeezing out the profits made by farmers through vertical integration, as facilitated by government policy changes (Girouard, 2014; Rotz, Fraser, & Martin, 2017; Sommerville & Magnan, 2015). In particular, the commodification and subsequent financialization of food crops resulted in a spike in agricultural land prices as investors from around the world rushed to capitalize on the food crisis of 2008 (Clapp,

[1] The neoliberalization of agriculture refers to a shift towards more industrial, mechanized, and biotechnology-based agriculture which started in the 1980s. These changes include a reduction in state regulations and emphasis on free markets (Skogstad, 2008).

Desmarais, & Margulis, 2015; Magnan, 2015). This made it difficult for new farmers to afford land (Rotz et al., 2017; Ruhf, 2013; Serkoukou, 2014). Even for established farmers, the increase in input and equipment costs and the concentration of farmland ownership have resulted in stagnating farm income, an increase in farm debt, and limited abilities to evolve their own operations (Cushon, 2003; Qualman, 2011; Sommerville & Magnan, 2015). Agriculture that is premised on increasing mechanization and globalized markets presents technical solutions to wide ranging problems without considering the specifics needs of the land, farmers, or eaters (Argue, Stirling, & Diaz, 2003; Diaz & Stirling, 2003; Qualman, 2011). 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 an emerging and increasingly influential food sovereignty and agroecology movements (Andrée, Ayres, Bosia, & Massicotte, 2014).

Agroecology is the praxis of the food sovereignty movement, but is also the practice and science of ecological farming (Wezel et al., 2009). As defined by *La Via Campesina* (2015), *agroecology* is more than a set of production technologies—it requires the restructuring and localization of markets and the resources required for food production. Agroecology plays a critical role in reimagining and rebuilding a food system as a method to improve the availability, accessibility, adequacy, and sustainability of food as well as increase participation from all sectors of the food system (Schutter, 2010). These agroecology and food sovereignty movements are gaining momentum around the world and new farmers are a key part of bringing these movements to Canada, as they are more able to engage with new practices that their more established farming peers (Monllor, 2012). In addition, new farmers are often interested in developing community-based food economies and using agroecological principles (Fernandez, Goodall, Olson, & Mendez, 2013). As such, the development of a national food policy in Canada should draw from reports calling for the promotion of agroecology, such as reports from the United Nations (2010) and the International Panel of Experts on Sustainable Food Systems (IPES-Food, 2016), and support opportunities to build on the transformative potential of agroecology.

This research brings forward the experiences of new farmers in Canada and draws on survey responses from a 2015 survey of 1,326 new, aspiring, experienced, and recently exited farmers to provide four recommendations for a national food policy. Our recommendations contribute a vision of how a national food policy framework in Canada could support ecological and community-based alternatives by integrating respondents' reflections about obstacles, successes, and recommendations as well as suggestions from the literature and key opportunities to build on existing momentum. The four recommendation areas reflect the need for a democratic food system, improving land access, broadening financial supports, expanding training, and improving community-based infrastructure and scale-appropriate regulations. Our objective is to examine the needs of new farmers and explore how a national food policy that acknowledges these needs while working with local and regional partners can contribute to a just and resilient food system in Canada. We begin by exploring existing literature on the state of new farmers in Canada and their policy needs before presenting the findings of national survey.

Background: New farmers and policies in Canada

Very little is known about new farmers in Canada, since there has not been, to our knowledge, a comprehensive national study. The 2016 Agriculture Census reported 24,850 farm operators under the age of 35 or 9.1 percent of all farmers (Statistics Canada, 2017a), but did not determine how many years of experience they had or if they had a farming background. While the census also showed an increase in certified and transitional organic operations in 2016, to 2.2 percent (Statistics Canada, 2017d), there is no information on those using other ecological practices. The census also does not determine how many of these operators were under the age of 35, their gender, or the barriers they face.

Statistics Canada also admits that small farmers, defined as those making less than $10,000 annually, are under-reported (Statistics Canada, 2017c). Many new farmers would be included in this category. This may occur because aspiring farmers, including interns, are not included in the census. Moreover, new farmers may not yet be reporting farm income, may have exited farming before participating in the census, or may even have felt that the survey questions were not relevant to their small-scale farm. Meanwhile, Canadian and American researchers found examples of poor survey design by governments, for example, ignoring the realities of women or people of colour by identifying them as “farm wives” or “migrant workers” and discounting their ongoing contributions to communities (Desmarais, Roppel, & Martz, 2011; Sachs, Barbercheck, Brasier, Kiernan, & Terman, 2016). This is despite the fact that a number of studies have pointed to women leading the way in alternative and sustainable farming systems (Hassanein, 1999; Sachs et al., 2016; Trauger, 2004).

Existing Canadian research consists of regional studies from Nova Scotia (Mills, 2013), Québec (Serkoukou, 2014), Ontario (Knibb, Learmonth, & Gatt, 2012), and British Columbia (Dennis, 2015); these have relied on small sample sizes or the use of secondary data. Consensus among these studies indicates that the main challenges facing new farmers include rising farmland prices (Serkoukou, 2014), increased costs and difficulties accessing financing (Monllor, 2012; Pouliot, 2011; Wilson & Martorell, 2017), low profitability (Baldwin, 2013), and a need for more education and research especially for agroecological alternatives (Knibb et al., 2012; McLachlan, 2012). Research in the United States and Europe have made similar conclusions (Calo, Teigen, & Master, 2016; Katchova & Ahearn, 2015; Rissing, 2016; Shute et al., 2011).

The recent increase in North American and European farmers from non-rural backgrounds is contributing to a reimagining of food and farming systems (Mailfert, 2007; Ngo & Brklacich, 2014). New farmers are contributing towards the normalization of an alternative food system. They may engage in community-based economies through community shared agriculture (CSAs) and other forms of direct marketing, as well as ecological farming practices such as organic, permaculture, biodynamic, or pasture-raised animals (Monllor, 2012). However, new farmers are a minority and require supportive policies and infrastructures to help them succeed.

New farmers need cooperation between all levels of government as well as non-governmental organizations and associations to build a supportive food system. As the level of governance closest to the community and as a service provider, local governments have

the power to support new farmers through community education and local food initiatives. They can also enact policies and implement programs that address barriers such as land access and knowledge transfer (Ayres & Bosia, 2014). For example, in Québec an incubator program owned by the municipality of l'Ange-Gardien provides training and land access to new farmers (Serkoukou, 2014). At the same time, regional governments are incorporating food systems principles in policies and plans, and can propose actions of municipal or regional scope to address barriers for new entrants. A 2017 policy scan found that Canadian provinces differ significantly in their support and resources for new farmers, particular new ecological farmers (Wilson & Martorell, 2017). New farmers would benefit from a more comprehensive, equitable, and systematic approach that goes beyond the limits of agricultural policies such as the Canadian Agricultural Partnership (formerly the Growing Forward policy framework). We argue that a national food policy could provide support to expand the successes at the local and regional level by working in partnership with community organizations and governments at all levels to protect food and farmland, support new farmers, and increase local food production.

Methods: Listening to new farmers

In 2015, the authors collaborated on the design and dissemination of a national online survey through a partnership between the University of Manitoba and the National New Farmer Coalition. The National New Farmer Coalition (NNFC) is a project of National Farmers Union Youth in partnership with Young Agrarians and Food Secure Canada (National Farmers Union, 2014). We designed the survey using other national and regional questionnaires conducted in Canada and in the US (Dennis, 2015; Knibb, Learmonth, & Gatt, 2012; Shute et al., 2011). The questionnaires were created and made available online in both English and in French through Survey Monkey.[2]

Recruitment was done only using online tools including email and social media. Despite the limitations of online surveys (Fan and Yan 2010), particularly in calculating a response rate, it was determined that this tool was 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). In order to collect as much information from new farmers as possible we encouraged participants to recruit each other by sharing the survey on social media, which is a variation on snowball recruiting that has been found to be helpful in reaching populations that are difficult to identify or recruit (Baltar & Brunet, 2012). This approach to recruitment and the distribution of online surveys has been used successfully elsewhere (Admon et al., 2016; Khatri et al., 2015).

Most respondents to the survey arrived to the website from social media including Facebook (65 percent of all views) and Twitter (3 percent) or from newsletters from farm organizations such as the National Farmers Union (NFU) (4 percent), Union Paysanne (1 percent), and Young Agrarians (1 percent), as well as a popular blog published by one of the

[2] www.surveymonkey.com

survey co-authors and a farmer at Broadfork Farm (18 percent). Emails were also sent out to 289 national and regional organizations, producer 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. 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 to address those gaps. Cash, gift cards, and other prizes were offered to encourage participation; the total approximate value of which was over $1500.[3] The survey was circulated in February and March in 2015, when farmers are less busy. Respondents that had completed less than half of the survey questions were excluded from our analysis; thus, of the 1,621 responses (1,432 in English and 189 in French) 1,326 (82 percent) were completed.

In order to collect a diversity of responses on new farmer experiences the survey consisted of four streams of questions for respondents, depending on whether participants self-identified as "aspiring", "new", "exited", or "experienced." Respondents self-identified in one of these four categories and each stream contained 40-43 closed and open-ended questions, depending on which of the four farmer types participants selected. Questions were designed to discern new farmer 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 understanding of new farmer experiences, while experienced farmers were asked to respond based on their mentoring of new farmers. Of the 1,326 respondents, 54 percent identified as new farm operators, while 22 percent were aspiring farmers, another 20 percent were experienced farmers, and finally 4 percent were exited farmers.

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. Many respondents commented that this level of detail, flexibility, and understanding of the diversity of their operations was something they most appreciated about participating in the survey. Unless stated, the responses presented here represent all survey respondents, not just those who identified as new farmers.

Responses were entered and analysed using Microsoft Excel, SPSS (Statistical Package for the Social Sciences: Version 20), and the qualitative research online software Dedoose.[4] Demographic information on mean responses, standard errors, and distribution were calculated in Excel and 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.

As the first survey to explore new farmer issues across Canada, this research addresses a key gap in the literature. As a result, the decision to use convenience sampling, through an online survey, was appropriate since it facilitated participation of these new

[3] Funding for gift cards and other prizes came from various in-kind donations and cash prizes came from the Manitoba Alternative Food Research Alliance. Three cash prizes of $500, $200, and $100 were drawn at random from survey respondents.
[4] www.dedoose.com

farmer voices from the peripheries. Some of the demographics of survey participants differ from those in the Canadian Agriculture Census. This, in part, likely reflects some self-selection bias in our survey recruitment resulting in an over-representation of women (58 percent), as compared to results from the 2016 Agriculture Censuses (29 percent women). We heard mainly from farmers under age 35 with 54 percent respondents in that category, while the 2016 Agriculture Census had only 9 percent of respondents in this age category. Finally, the other major difference was a higher number of farmers in Atlantic Canada (22 percent) compared to 4 percent from the 2016 Agriculture Census, and fewer farmers from the Prairies (17 percent) compared to 45 percent from the 2016 Agriculture Census, which we believe may reflect land prices and access for new farmers.

Findings: The changing face of Canadian agriculture

Respondents came from across Canada with most from British Columbia (23 percent), Ontario (23 percent), and Atlantic Canada (22 percent) which accounted for more than half of survey participants. Figure 1 shows the distribution of respondents by postal code area.

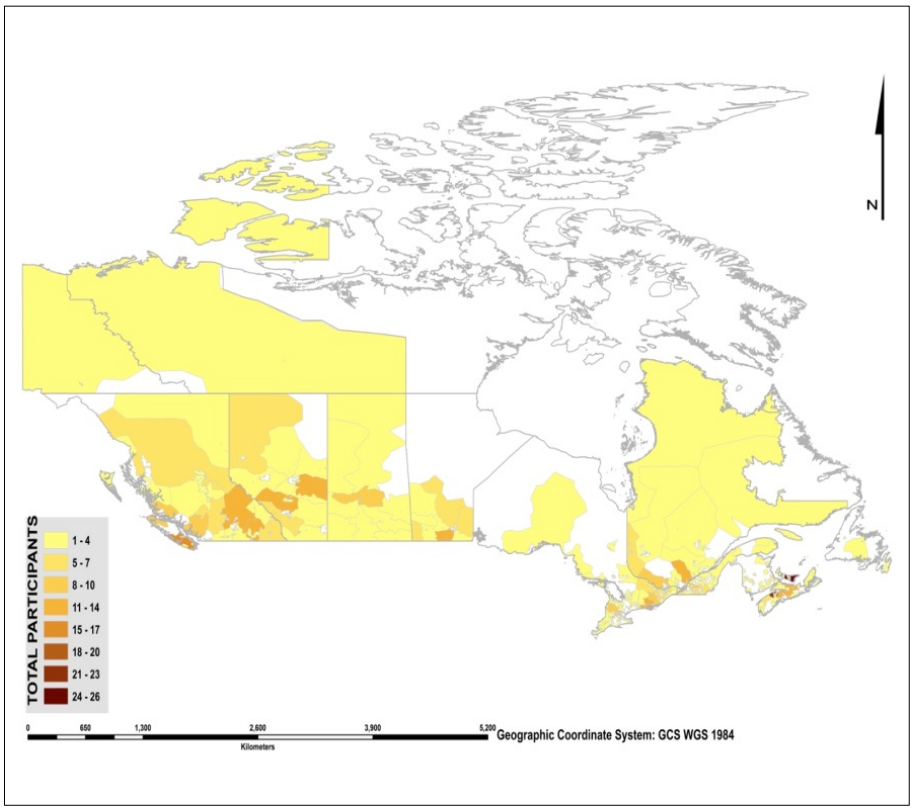

Figure 1: Distribution of respondents by postal code area

Source: Created by authors using ArcGIS

Demographics and farm practices

Our findings found the potential beginning of a transition in new farmer demographics, particularly that more urban youth are entering farming and that many of these are women. In

total, 68 percent of survey respondents did not grow up on a farm. Importantly, 82 percent of those with less than 10 years of farming experience did not grow up on a farm, whereas only 29 percent of those with 11 years or more of experience did not grow up on a farm. These numbers could suggest a potential trend rather than resulting from non-random sampling. Meanwhile, men were more likely to continue farming on a family farm (59 percent) while women were most likely to not have a farming background (60 percent). Regionally, British Columbia had the highest number of farmers from non-farming backgrounds (29 percent) with those on the Prairies being the most likely to continue on the family farm (42 percent).

We also compared the production and marketing practices of respondents who grew up on a family farm to those who did not. Those who did not grow up on a farm were much more likely to engage in direct marketing (49 percent), ecological production practices (89 percent), and production of vegetables (21 percent) and niche products such as berries (8 percent), mushrooms (4 percent), and sheep/goat dairy (4 percent). They also tended to farm small parcels of land with a mode of 10 acres owned and 5 acres leased. Those who grew up on a farm, especially those who are still operating their family farm, were more likely to engage in conventional agricultural practices (32 percent), production of beef (12 percent), grains/oilseeds (12 percent) and dairy (4 percent), and were more likely to sell into export markets (11 percent), supply managed markets (7 percent), or "other" markets such as through contracts, brokers, elevators or auctions (23 percent). They were more likely to be farming larger parcels of land with a mode of 640 acres owned and 160 acres leased.

Those from non-farm backgrounds may be more likely to use ecological practices and direct marketing practices because it is prohibitively expensive to start a farm that requires a large land base and substantial financial investments in equipment and infrastructure. Comparatively, niche production, such as organic horticulture at farmers' markets, is more financially viable on a small parcel of land. Our findings suggest both that men are more likely to inherit a conventional family farm, whereas women are more likely to engage in ecological practices and come from non-farming backgrounds.

Gender also differed significantly from what we expected compared to the 2016 Agriculture Census with 58 percent of survey respondents identifying as female, 41 percent as male, and 1 percent identifying as non-binary or "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. Women in British Columbia were most likely (14 percent) to be involved in the dairy industry, whereas men on the Prairies were least likely (3 percent). Meanwhile, those most likely to produce field vegetables were men in BC (80 percent) and women in Québec (79 percent). These trends are likely the result of provincial marketing boards, existing infrastructure, and soil and climate that make it easier to engage in some kinds of agriculture than others in different regions.

These findings in production practices, production types, and marketing all indicate a potential shift towards local, ecological food especially among women in Ontario, Québec, and British Columbia. However, farmers from across Canada reported challenges in engaging in alternative practices and marketing, as expressed by a 35-year-old female in Alberta producing certified organic field vegetables, poultry, and eggs:

> 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!

Next, we present the obstacles, supportive programs, and the policy recommendations of new farmers from the survey.

Table 1: Ranked importance of obstacles. (N= 1,326, 5 point Likert scale question)

Ranked Obstacles	**Mean**	**Rank**
Affordability of land ownership (L)	4.00	1
Lack of access to capital/credit/other sources of financing (I/C)	3.68	2
Low profitability of the agricultural sector (I/C)	3.45	3
Lack of agricultural infrastructures (abattoir, storage facilities, etc.) (I/C)	3.33	4
Lack of security of demand, markets, or distribution channels (I/C)	3.07	5
Affordability of land leasing (L)	3.01	6
Food safety regulations (I/C).	2.99	7
Affordability of business related training (marketing, accounting, etc.) (K/C)	2.92	8
Lack of appropriate farmland in your region (size, quality, location, infrastructure, etc.) (L)	2. 89	9
Lack of access to extension services (K/C)	2.88	10
Land use and zoning regulations (L)	2.88	11
Difficulty negotiating adequate tenure agreement with landowners (L)	2.88	12
Marketing board regulations (I/C).	2.86	13
Affordability of production related training (K/C)	2.85	14
Affordability of extension services (K/C)	2.76	15
Lack of access to farm production related training (K/C)	2.70	16
Lack of access to farm business related training (marketing, accounting, etc.) (K/C)	2.70	17
Lack of community or social support in your area (K/C)	2.53	18

Land (L) (dark grey); Income and Capital (I/C) (light grey); Knowledge and Community (K/C) (white)

Table 2: Ranking of existing programs (N= 1,326, 5 point Likert scale question)

Ranked existing programs	Mean	Rank
Informal farm workshops, field days, farm tours (K/C)	3.65	1
On-farm training (paid/unpaid apprenticeships and internship) (K/C)	3.64	2
Farmer-to-farmer mentorship programs (K/C)	3.62	3
Workshops and/or Conferences from NGOs (K/C)	3.58	4
Online educational resources (webinars, blogs, etc.) (K/C)	3.48	5
New farmer networking forums (online and in-person) (K/C)	3.37	6
Incubator farms or farmer schools (K/C)	3.20	7
College and/or University agricultural programs or courses (K/C)	3.03	8
Shared initiative (equipment sharing, collaborative marketing or distribution, shared sourcing, etc.) (I/C).	2.99	9
Farm transfer/succession planning programs (L)	2.95	10
Workshops and/or Conferences from governments (K/C)	2.87	11
Farmland protection programs (land reserves, banks, trusts) (L)	2.82	12
Government extension services (K/C)	2.80	13
Land-linking programs (connecting landowners to farmers seeking land) (L)	2.75	14
Government loan and grant programs (I/C).	2.75	15
Development support for co-operatives (I/C).	2.71	16
Alternative financing (crowdfunding, microloans, community economic development investment, etc.) (I/C).	2.70	17
Land access resources (land access guides, lease templates, etc.) (L)	2.70	18
Supply management (I/C).	2.28	19

Land (L) (dark grey); Income and Capital (I/C) (light grey); Knowledge and Community (K/C) (white)

Obstacles

We asked survey respondents to reflect on the barriers they have faced or are facing. The survey questions were categorized under three themes: land, income and capital, and knowledge and community. Table 1 demonstrates the overall ranking of these obstacles. The most significant obstacles participants encountered for each theme were:

- Land: Affordability of land ownership (1st overall)
- Income and Capital: Lack of access to capital/credit/ financing (2nd overall)
- Knowledge and Community: Affordability of business related training (8th overall)

Access to land, capital, and financing represent the most significant challenges facing new farmers (Table 1). For example, this participant highlighted a common challenge for new farmers: “My options for expansion in my immediate area are limited because of a few large farms that are in expansion mode and buying up all the farmland that comes on the market”

(22-year-old male in Nova Scotia producing conventional field vegetables and nursery plants). In addition, this farmer (29-year-old male from Ontario producing pastured eggs and sheep/goats and non-certified field and greenhouse vegetables) explained the impact of financial barriers:

> Financing has also been an issue. We were flatly refused by Farm Credit Canada, and as we wanted to grow well not fast, banks wouldn't look at us, despite having a down payment and one professional income.

Opportunities

Respondents were asked to rate the value and significance of existing programs and opportunities as they relate to the themes of land, knowledge and community, and income and capital (Table 2). The most significant existing programs by category were:

- Land: Farm transfer/succession planning (10th overall)
- Income and Capital: Shared initiatives (9th overall)
- Knowledge and Community: Informal workshops, field days, and farm tours (1st)

The top eight initiatives in Table 2 relate to the theme of knowledge and community, whereas the eight lowest ranked initiatives relate to land and income and capital. This could be due to organizations being capable of supporting knowledge and community needs by addressing the gap left by governments and other institutions. For example, "informal farm workshops, field days and farm tours ranked highest for all respondents, and had the lowest level of provincial disparity, which means that these initiatives are generally considered to be working well for new farmers across the country. This farmer (43-year-old female from Prince Edward Island producing biodynamic field and greenhouse vegetables, fruits, mushrooms, and seeds) praised the informal learning:

> We've created an informal network of farmers who get together in the winter. This is critical for helping us talk about specific challenges on our farms and get advice/suggestions from other farmers. Invaluable!

Organizations such as ACORN (Atlantic Canada Organic Regional Network), the EFAO (Ecological Farmers of Ontario), and Young Agrarians in BC, that support these types of events are likely aware of and better equipped to respond to new farmer needs in the regions where they operate. For example, a 28-year old female farmer from British Columbia who produced non-certified eggs, greenhouse and field vegetables, and fruit explained how Young Agrarians helped them find land:

> We have met numerous farmers through the work of Young Agrarians, which has allowed us to potentially start a lease on a farmer's land who is hoping to succession plan with us.

Programs such as government extension (at 13th, Table 2) ranked lowest in the knowledge and community category indicating that these programs are not doing enough to support new farmers.

Existing initiatives to address the challenges of land and income and capital are less likely be successful as demonstrated by the respondents relatively low ranking of these programs. For example, many respondents were unfamiliar with existing programs supporting succession planning even when these programs existed in their region, such as this farmer, a 36-year-old male from Manitoba producing organic beef and grains/oilseeds:

> I think land linking programs are important, I have never used them and don't know how good they are. We would benefit the most from succession planning, but we haven't done one yet.

Similarly, "shared initiative" including equipment sharing, collaborative marketing or distribution, shared sourcing, etc. ranked highest in the category of income and capital, but was 9th overall (Table 2). Both of these programs are often coordinated by farmers themselves and could be an indication of a lack of adequate and appropriate support from governments.

Due to differences in provincial programs and funding, there were significant interprovincial differences in terms of which programs benefited new farmers. College and university agricultural programs (ranked 8th nationally) were ranked as high as 2nd in Québec but as low as 14th in British Columbia. This is likely due to the numerous agricultural college and university programs offered in Québec, some of which offer the possibility of specializing in organic agriculture, such as the CÉGEP de Victoriaville. This program may also be the reason why respondents from Québec ranked government loan and grant programs 7th (this category was ranked 15th nationally), since graduate of formal training programs like this one have more access to additional provincial grants than other new farmers (FADQ, 2016). Finally, with respect to "farmland protection programs" (ranked 12th nationally), British Columbia ranked this option highest at 9th. This province's Agricultural Land Reserve may provide an important model for other provinces. These differences may point to the value of developing similar programs in other provinces and regions based on the successes in some areas.

Recommendations

Respondents identified what policies and programs they believed would have the greatest impact on their success and should be developed (Table 3). New farmers identified the following key programs by theme category:

- Land: Incentives for landowners to sell or rent land to new farmers (2nd overall)
- Income and Capital: Agricultural infrastructures (4th overall)
- Knowledge and Community: Farmer to farmer mentorship (1st overall)

Table 3: Ranked recommendations (N=1,326, 5 point Likert scale question)

Program recommendations	**Mean**	**Rank**
Farmer-to-farmer mentorship programs (K/C)	4.23	1
Incentives for landowners to sell or rent land to new farmers (L)	4.15	2
Curriculum in primary and secondary schools to promote farming as a career (K/C)	4.10	3
Agricultural infrastructures (abattoirs, machinery coops, other) (I/C).	4.09	4
Direct marketing support and promotion (CSA networks, farmers markets associations, networking with chefs/wholesale purchasers, etc.) (I/C).	4.08	5
Government loan and grant programs (I/C).	4.01	6
On-farm training (paid/unpaid apprenticeships and internships) (K/C)	4.01	7
Informal farm workshops, field days, farm tours (K/C)	4.00	8
Scale appropriate food safety regulations (I/C).	3.99	9
Local food procurement legislation (I/C)	3.98	10
Farm transfer/succession planning programs (L)	3.97	11
Farmland protection programs (land reserves, banks, trusts) (L)	3.96	12
New farmer networking forums (online and in-person) (K/C)	3.93	13
Shared initiatives (equipment sharing, collaborative marketing or distribution, shared sourcing, etc.) (I/C)	3.92	14
Micro-loans and micro-grant government programs (I/C)	3.91	15
Land-linking programs (connecting landowners to farmers seeking land) (L)	3.89	16
Alternative financing (crowdfunding, microloans, community economic development investment, etc.) (I/C)	3.84	17
Workshops and/or Conferences from NGOs (K/C)	3.83	18
Development support for co-operatives (I/C)	3.82	19
More flexible land use/zoning regulations (L)	3.80	20
Incubator farms or farmer schools (K/C)	3.78	21
Income stabilization for farmers in start-up phase (I/C)	3.73	22*
Online educational resources (webinars, blogs, etc.) (K/C)	3.73	23*
Government extension services (K/C)	3.72	24
Land access resources (land access guides, lease templates, etc.) (L)	3.68	25
Insurance programs for various scales and models (I/C)	3.64	26
Workshops and/or Conferences from governments (K/C)	3.44	27
College and/or University agricultural programs or courses (K/C)	3.38	28

Land (L) (dark grey); Income and Capital (I/C) (light grey); Knowledge and Community (K/C) (white).

Interestingly, despite indicating that knowledge was not a significant barrier (Table 1) and listing "farmer-to-farmer mentorship" as the third most successful program in Table 2, the option of "farmer-to-farmer mentorship" ranked as the most important program that should be developed or expanded (Table 3). This may suggest that the demand for farmer-to-farmer mentorship is greater than the availability. Unlike many other professions, the task of coordinating mentorship relationships and the costs associated with establishing these relationships are often the burden of the individual farmers, whether they be mentor or mentee, and respondents may be looking for more support in developing these critical partnerships.

The second overall priority for "incentives for land owners to sell or rent land to new farmers" is consistent with the affordability of land ownership ranked as the top obstacle (Table 1), and land related initiatives ranking low as a successful existing program, (Table 2). The third overall priority to provide "curriculum for primary and secondary schools on farming as a career" is somewhat surprising. This response likely indicates that participants are cognizant that farming is typically neglected as a career path, and that getting young people interested in farming may require exposing them to the sector at an early age by leveraging existing educational institutions. It should be noted that even the lowest ranked options obtained relatively high scores, which are indicative of a need to develop a multitude of initiatives.

We also compared how farmers with 10 years of experience or less and farmers with 11 years or more of experience prioritized their recommendations. Farmers with less experience ranked the importance of support for direct marketing and scale appropriate food safety regulations relatively higher than farmers with more experience. This is consistent with farmers with less experience being much more likely to engage in the direct marketing of animals or value-added products and thus have likely had more experience running up against infrastructure problems relating to access to abattoirs or commercial kitchens. As this respondent indicates (a 44-year-old male from Alberta producing conventional beef, bees, grains/oilseeds using Holistic Management),[5] food safety regulations are challenging for processors and farmers alike:

> Access to processing is the single biggest obstacle to the direct market side of my business and food safety regulations are what is hindering the processing sector.

Many of the food safety regulations differ by province and depend where that farmer intends to sell. However, navigating food safety programs designed for large and industrial scale farmers poses challenges regardless of how experienced a farmer is or in which province they are farming.

[5] Holistic Management originated as a planning tool for rotational grazing on pastureland, but has expanded recently as a farm management practice and decision-making tool to help all farmers make "socially, ecologically and financially sound decisions" (Holistic Management Canada, 2016).

Discussion: Building a national food policy for new farmers

Our survey represents an important first step in discussing what is and is not working for new farmers and highlights the often-overlooked perspectives of new farmers in Canada. Overall, we found that land access, income stability, low profitability (including the lack of appropriate infrastructure and food safety regulations), and high investment requirements emerged as primary obstacles. In contrast, knowledge sharing and community support emerged as areas where existing programs are relatively more effective, but where respondents still saw room for improvement. As such, we draw on our survey results and existing literature from other research in Canada to present a vision of a national food policy that supports new farmers. Our four recommendations come from the intersection of opportunities to build on existing programs and the most impactful changes needed to help all new farmers.

As its overall goal, we suggest that a national food policy should prioritize policies that build a just and sustainable food system by integrating agroecological principles in its mandate in order to build on the momentum of new farmers who demonstrated interest in both ecological farming methods and community-based markets, as demonstrated in our survey results. A national food policy would work in conjunction with existing programs while building on federal, provincial, and territorial partnerships, thus we have prioritized the development of opportunities at multiple levels of government (De Schutter, 2012). We also examine how our recommendations address the four themes presented by the Government of Canada during their consultation process and suggest opportunities to review existing agricultural and food policies and programs. As the overall strategic policy of the Government of Canada, we suggest that the national food policy would set the agenda for various federal and provincial departments and therefore has the potential to change the national context in order to facilitate the entry of new farmers.

Protect agricultural land and ensure accessibility for new farmers

Accessing affordable and quality land was the most significant issue raised by respondents in the survey. New farmers need a national food policy that ensures farmland is protected against non-farm uses and farmland speculation, while being accessible to the new generation of producers. This would meet the Government of Canada's (2017) suggestion that a national food policy should support growing of more high-quality food while also increasing access to affordable food by increasing the number of farmers feeding local communities. We suggest that this will also require de-emphasizing export agriculture and supporting local agriculture which has the potential to be more stable pricing for eaters as it not vulnerable to currency variability (Elton, 2016). While some communities are working to develop farmland trusts (Community Farms Program 2010), Canada needs federal leadership to develop a national farmland succession strategy. Establishing agricultural land trusts could include eliminating non-agricultural development of all classes of farmland, a cap on the price agricultural land

can sell at above agricultural value, and limiting land acquisitions by private investment funds (Desmarais, Qualman, Magnan, & Wiebe, 2017).

Similarly, Québec's Banque de terres offers land-linking services to connect land owners with aspiring farmers and develop rental agreements (Wilson & Martorell, 2017). Initially developed by a local municipality, in 2017 the provincial government announced it was taking over the project so these services would be offered to all regional county municipalities in Québec. These regional and non-profit programs could be supported nationally and expanded to all of the provinces so that new farmers in all provinces have access to locally relevant services and resources.

Incentives and programs that facilitate and encourage the use and transfer of agricultural land from landowners to new farmers would help protect farmland. This may include providing federal incentives for landowners that sell or rent land to new farmers. The Ontario Farmland Trust has an Agricultural Gifts Program that creates incentives for the donation of agriculturally significant lands and which may be worth expanding to other provinces (Community Farms Program, 2010). Exempting capital gains tax on farm property in farm transfers to new farmers, regardless of whether the buyer is a child of the landowner, could encourage farmers to engage in succession planning. Since many older farmers develop a retirement plan around the sale of their farm, developing a national retirement savings program for farmers would help ensure that retiring farmers are not forced to rely solely on land assets for retirement and would allow them to engage in succession planning more freely.

Ensure training and education are available and accessible

Despite growing interest, we found that education and training programs in agroecological practices are unevenly distributed in Canada. The federal government's suggestion that the national food policy include an emphasis on conserving soil, water, and air and improve health and food safety (Standing Committee on Agriculture and Agri-Food, 2017) could be addressed by supporting new agroecological farmers who are committed to ecological practices, human health, and supporting community economies. In particular, we suggest that Canada's new agricultural framework, the *Canadian Agricultural Partnership*, should include a new farmer and farm renewal pillar and associated funding. This could ensure that information on the realities of new farmers are meaningfully researched and barriers addressed.

Supporting training for new farmers could also include extending existing federal trade-related job training programs and funding such as the Canada Job Grant program to farmers, supporting existing training and mentoring programs that recognize the importance of farmer-to-farmer knowledge transfer and that deliver locally adapted services to new farmers by making these more affordable and accessible. Accredited farmer mentors could receive federal funding to conduct internships and be supported by the development of standardized training, educational curriculum and accreditation system(s), and thus support farmer-to-farmer mentorship.

Additionally, existing mentorship programs such as ACORN's Grow a Farmer Mentorship Program and Young Agrarians Mentorship Network could benefit from additional funding to expand their programs. Incubator farms and farm schools are highly rated by those who have access to these programs; however, they are very limited in Canada, therefore more support and funding for the development and sustainment of incubator farms across Canada would benefit new farmers, particularly in regions where these programs do not exist. Finally, not all new farmers are growing in rural communities and more and more farming is happening in cities and peri-urban areas. A national food policy could support the development of urban farming demonstration and training projects to recruit and attract first generation farmers from urban areas.

New farmers are not the only ones who need educational support and resources. Experienced farmers often have production questions that would benefit from access to agricultural consulting and extension services, professional development opportunities, and support for farmer-driven on-farm research. A national food policy could build upon Canada's strong history of regional public research farms by reopening and refunding experimentation farms across the country. At the same time, public research conducted by universities and government research stations would need to be widely disseminated and relevant to the needs of new farmers. This could be complemented by funding for on-farm research programs run by farmers themselves. Additionally, while organic farming is growing, the research funding is not keeping up with demand; thus, an increase in research capacity and technical support pertaining to organic agriculture is needed. In its list of 37 research activities, the Organic Science Cluster II (2013 – 2018) includes only seven partnerships with universities across Canada, indicating a need to develop more participatory agricultural science research in agroecological farming in Canada (OACC, n.d.).

Ensure financial resources are accessible to diverse farmers

Starting a farm is expensive due to the high costs of land, infrastructure, and equipment, but new farmers have difficulties accessing capital to finance the necessary investments. As a federal crown corporation, Farm Credit Canada (FCC) provides financing to farmers, but its mandate needs to be realigned to support food sovereignty and make financing available to a wider diversity of new farmers engaging in different types, scales, and stages of farming operations. In particular, FCC could develop a national micro-lending program and a national grants program that support new farmer investments at the start-up or expansion phase. This would support the Government of Canada's goal to grow more high-quality food (2017) by increasing the number of farmers in Canada.

New farmers face additional financial hardships that make it difficult to establish farms, including growing levels of student debt, low profitability in the agricultural sector, and increasing costs of living. Programs such as a national student loan debt forgiveness program for new farmers, as well as self-employment supports and benefits, would support new farmers in the early years of establishing a business. Three potential strategies exemplify support for new farmers by reducing the financial burdens they currently face: a guaranteed

basic income; implementation of a low cost, nation-wide, universal day care program (especially in rural areas); and improved parental benefits for self-employed individuals. Such programs would require cooperation between all levels of government, but would benefit farmers by decreasing economic uncertainty and providing stability.

New farmers with viable businesses are needed to meet the public demand for a sustainable, healthy, and affordable Canadian food system. By engaging in short, localized distribution chains, good food can be made accessible to eaters without externalizing the environmental, social and health costs of production. In this way, wealth is retained by farm operators, workers, and local input suppliers—not captured by corporate suppliers, processors, and distributors. A national food policy that supports farmer livelihoods should promote direct marketing while re-evaluating regulatory regimes to reduce obstacles to direct marketing. It should also protect supply management systems and farmer-controlled marketing boards by reforming new entrant programs, quota distribution systems, off-quota exemptions and other regulations to promote greater production diversity and to maximize the number of farmers involved (Girouard, 2014; Holtslander, 2016).

Support shared infrastructure and scale-appropriate regulation

The uneven distribution of agricultural infrastructures and scale-appropriate regulations both restrict farm development and make it difficult for new agroecological farmers to produce healthy food (Laforge, Anderson, & McLachlan, 2017; McMahon, 2009). Many of the new farmers in this study make a living by direct marketing, and they often inadvertently push the boundaries of existing regulations. These federal and provincial food safety regulations are usually designed for industrial sized farms and abattoirs. However, the food contamination risks for large operations are different from those of small farms and processors, and adherence to these regulations can present a financial barrier for small-scale farmers (Miewald, Hodgson, & Ostry, 2015). As food safety regulations become more onerous and expensive to adhere to, more and more small-scale processing facilities have been forced to shut down, resulting in increased travel time for farmers, higher costs, and greater stress to animals in transport (Miewald et al., 2015). Additionally, the lack of infrastructure can also be a barrier for vegetable producers who may be forced to invest in private facilities, since public resources are rare.

While provinces and municipalities are more directly engaged with infrastructure and regulations as they apply to new farmers, these policies respond to or are framed by federal priorities and guidelines. Since the provinces must already follow Canadian Food Inspection Agency guidelines, there is the potential for a national food policy to re-evaluate regulatory regimes to ensure that they are not unnecessarily onerous to small-scale producers. For example, these guidelines could recognize the importance of the trust-based relationship between consumers and direct marketers that makes traceability more transparent than in the conventional food system. This could include eliminating labelling and other traceability costs that are required in the current guidelines for direct marketers. A national food policy should also create a provincially-administered funding stream to support the development of

community-owned abattoirs, food hubs, cooperatives, and other enterprises that provide processing and amalgamation services to producers. This could help address the differences in infrastructure and regulations between provinces and create a more even playing field for all Canadian farmers.

Conclusion: Building food systems for all Canadians

Farming identities and behaviours are (re)produced through the power and knowledge dynamics of the Canadian food system and neoliberal, productivist, and industrial influences have resulted in a trend towards fewer farmers and larger farms. However, the rise in female farmers is challenging these conventional farming narratives, as they are more likely to engage in agroecology while their very presence as women already disputes dominant farmer narratives (Monllor, 2012; Sachs et al., 2016; Trauger, 2004). New farmers in this study are interested in building a lifestyle that meets their aspirations for a holistic approach to environment, social, and economic justice. However new farmers must still contend with systemic barriers including difficulties accessing land, applying for financing, and making a livelihood. Their 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 eaters and other producers that contribute to a larger food movement.

In his 2012 report on the mission to Canada, the UN Special Rapporteur on the Right to Food called for a comprehensive national food policy that integrated federal, provincial/territorial, and municipal levels (De Schutter, 2012). We agree that integrating all levels of government, as well as non-governmental organizations and associations, is necessary to create a national food policy that will support new farmers. Our findings found significant variation among the supports available by province depending on provincial and municipal government programs as well as programs offered by other non-profits and universities. These successes could be built on in other provinces, including the building of Local Food Acts such as those developed in Ontario and Québec in 2013 that include food literacy and ecological agriculture programs and support the development of local food economies (Desmarais & Wittman, 2014; Government of Ontario, 2013).

A national food policy should support partnership and capacity-building among community organizations and local governments as they work towards protecting farmland, supporting new farmers, and increasing local food production. Funding to scale-up, expand, replicate and sustain successful programs should be made available alongside funding to innovate and experiment with community-based approaches to supporting new farmers. In addition, because new farmers are increasingly coming from non-farming backgrounds or communities, urban municipalities should also be recognized by the federal government as strategic locations to attract and train new farmers. In addition, the UN report emphasizes that a national food strategy should be regularly updated in order to address changes that may arise over time. Without integrating feedback from a multi-stakeholder governance mechanism and adjusting the policy as needed, we believe that a national food policy will fail to help new farmers whose circumstances are often changing at a rapid pace. We were

pleased to see that a recent Standing Committee on Agriculture and Agri-Food (2017) report recommended that the national food policy include an additional pillar on the next generation of farmers, although it remains to be seen whether this recommendation will be enacted.

The success and relevance of a national food policy for new farmers depends on having an open and ongoing process that incorporates a wide diversity of perspectives on food. For example, a national food policy needs to address ongoing issues regarding Indigenous land rights and self-determination (Wilson & Martorell, 2017). A national food policy also needs to take into consideration issues of racial justice and economic inequality that prevent some aspiring farmers from entering agriculture.

Using a food sovereignty and agroecology framework will help address these injustices by emphasizing the rights of farmers and other food workers, while also protecting the environment and resisting corporate, neoliberal, and productivist food and farming systems (Desmarais & Wittman, 2014; Méndez, Bacon, & Cohen, 2013; Wittman, 2010). Finally, engaging new agroecological farmers means working with all food producers, whether they are agroecological, conventional, or both since it is only through working in partnership that the food system be transformed.

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