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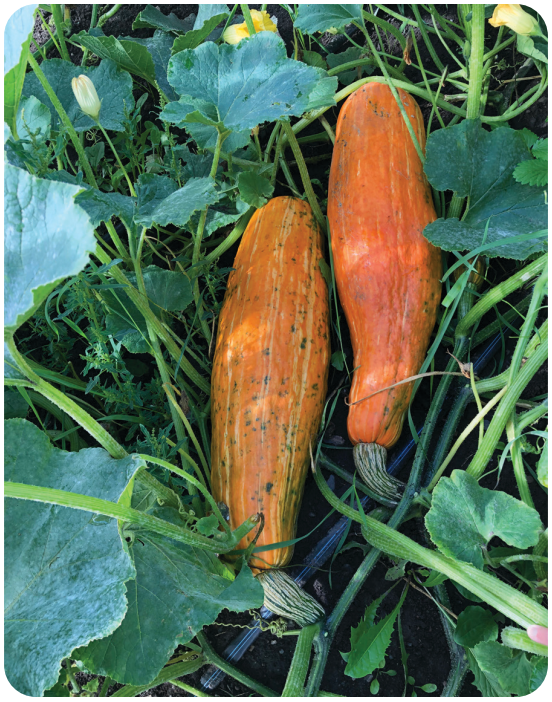
IN THIS ISSUE



The seeds from a Gete-Okosomin squash were gifted to me a few years ago by Audrey Logan, an Indigenous elder living in Winnipeg. Through a partnership with Roots to Harvest and the Indigenous Food Circle in Thunder Bay, they were grown out this summer and prepared with students from Matawa First Nation on an open fire with moose meat and wild rice. We are learning about and experiencing the way this incredible Gete-Okosomin squash weaves together stories of the sacred relationships between people and plants. Its history speaks to the devastation of colonialism but also of a powerful journey of resurgence.

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photo: Charles Levkoe

Canadian Food Studies La Revue canadienne des études sur l'alimentation

Editorial

A problematic of plenty

Alexia Moyer, Charles Z. Levkoe, Alyson Holland

(version française à suivre)

1 kg beets
1.5 kg carrots
1 butternut squash
0.8 kg endives
1.5 kg onions
0.8 kg leeks
3 kg potatoes
0.3 kg arugula
1.2 kg celeriac
2 heads of lettuce
0.3 kg mesclun
1 cabbage

Such are the contents of our CSA box this week as Volume 7, Issue 2 of *Canadian Food Studies / La Revue canadienne des études sur l'alimentation* (CFS/RCÉA) makes its appearance. While the ground begins to harden with the impending winter season, each item is still fresh, its contents ready to chew on. The box and the issue intersect, it seems, in more ways than one.

First, one might consider the individual items on the above list. Green cabbage for one. Ours is destined for the food processor, will keep company with thinly sliced peppers and red onion. There will be a salad, a soup and then perhaps another soup. This is the way of cabbage. Generous and economical. Jennifer O'Connor refers to a cabbage in her review of the 2019-20 *Savour* exhibition at the Gardener Museum in Toronto, yet it is not meant to be eaten. Though remarkably realistic, this eighteenth century cabbage-shaped, tin-glazed earthenware tureen tells us much about the proclivities and preoccupations of people who made it and others that made use of it. O'Connor takes readers along for a virtual tour through this exploration of how eating, cooking, and dining were reimagined in England and France from the 1650s to the 1790s.

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David Szanto reviews the 'cookbook', *The King's Peas*, published as companion to this exhibition. He points to the book's achievement in historical documentation while also asking us to think over its glaring tensions—one of which is its tendency to universalize "our modern dining culture" rather than acknowledge its more heterogeneous realities. In "Ditch red meat and dairy, and don't bother with local food", Ryan Katz-Rosene is also troubled by the ill-effects of this same tendency. Here, the universal takes the form of a "global dietary transition" that proposes to save the planet and your health. Katz-Rosene's close inspection, however, finds this one-size-fits-all solution wanting.

The CSA box—colourful, varied and copious—is also a story about a problematic of plenty. Several of the authors in this issue ask: who has access to it, who does not, and how can this imbalance be rectified. Mikiko Terashima et al. are concerned with the physical accessibility of food. Their mixed methods approach—combining spatial analysis with insights gathered from community members in the form of a Photovoice study—provides a deeper understanding of what the journey from home to grocery store and back again looks and feels like. Barbara Parker looks at food access programs designed to support food insecurity in schools. Based on a case study on school food environments in 50 elementary and high schools in a mid-sized city in Ontario, Canada, the article, and its findings, asks us to reimagine a future national food program. As Parker writes, an instrumental approach that medicalizes and moralizes food preparation and consumption fails to take "the complexity of food practices" into account and "misses key pedagogical opportunities within the school food environment". As Laura Lucas and Fabiana Li's photo essay on the Rainbow Community Garden in Winnipeg, Canada reminds us, plenty can be measured widely and variously. A community garden plot's yield is more than just about the consumption of an agricultural product. These plots for newcomer families provide a space to grow culturally appropriate foods, as well as a place for cultural interaction and for intergenerational learning.

In this issue we offer you a fresh crop of book reviews. Ryan Phillips takes *Plant-Based Diets for Succulence and Sustainability* through its paces; Mindy Jewell Price makes a case for adding *Civil Society and Social Movements in Food System Governance* to your bookshelves; Amanda Shankland weighs in on *Finance or Food? The Role of Cultures, Values, and Ethics in Land use Negotiations*; and Rebecca Ellis gives careful consideration to *Frontline Farmers: How the National Farmers Union Resists Agribusiness and Creates our New Food Future*.

This issue has been crafted by many hands and with its mix of research articles, audio-visual work, event reviews, books reviews and perspectives, it embodies the values of what CFS aims to be: wide-ranging in discipline and subject matter and diverse in the manner in which such work is presented. To our team of contributors, anonymous reviewers, and Associate Editors we extend our gratitude. With thanks to The University of Waterloo Library for its ongoing technical support.

Now that you have perused the contents of this issue, we invite you to taste it for yourselves. *Bonne Dégustation*.

1 kg de betteraves
1,5 kg de carottes
1 courge musquée
0,8 kg d'endives
1,5 kg d'oignons
0,8 kg de poireaux
3 kg de pommes de terre
0,3 kg de roquette
1,2 kg de céleri-rave
2 têtes de laitue
0,3 kg de mesclun
1 chou

Tel est le contenu de notre panier ASC cette semaine alors que le volume 7, numéro 2 de Canadian Food Studies / La Revue canadienne des études sur l'alimentation (CFS / RCÉA) fait son apparition. Alors que le sol commence à durcir avec la saison hivernale imminente, chaque article est encore frais, son contenu prêt à être dégusté. Le panier et le numéro se croisent, semble-t-il, de plusieurs manières.

Tout d'abord, on pourrait considérer les éléments individuels sur la liste ci-dessus. Chou vert pour un. Le nôtre est destiné au robot culinaire, tiendra compagnie à des poivrons émincés et des oignons rouges. Il y aura une salade, une soupe et peut-être une autre soupe. Les choux sont comme ça. Généreux et économique. Jennifer O'Connor fait référence à un chou dans sa critique de l'exposition Savour 2019-20 au Gardener Museum de Toronto, mais il n'est pas destiné à être mangé. Bien que remarquablement réaliste, cette soupière en faïence émaillée en étain en forme de chou du XVIIIe siècle nous en dit long sur les penchants et les préoccupations des gens qui l'ont fabriquée et de ceux (ou celles) qui l'ont utilisée. O'Connor emmène les lecteurs dans une visite virtuelle à travers cette exploration de la façon dont manger, cuisiner et dîner ont été réinventés en Angleterre et en France entre 1650 et 1790. David Szanto passe en revue le livre de cuisine, *The King's Peas*, publié comme compagnon de l'exposition du même nom. Il souligne la qualité du livre en terme de documentation historique tout en nous demandant de réfléchir à ses tensions flagrantes—dont l'une est sa tendance à universaliser « notre culture gastronomique moderne » plutôt que de reconnaître ses réalités plus hétérogènes. Dans « Ditch red meat and dairy, and don't bother with local food », Ryan Katz-Rosene est également troublé par les effets néfastes de cette même tendance. Ici, l'universel prend la forme d'une « transition alimentaire globale » qui propose de sauver la planète et votre santé. Cependant, l'inspection minutieuse de Katz-Rosene trouve que cette solution universelle fait défaut.

Le panier ASC—coloré, varié et copieux—est aussi l'histoire d'une problématique d'abondance alimentaire. Plusieurs auteurs de ce numéro demandent: qui y a accès, qui n'y a pas accès et comment corriger ce déséquilibre. Mikiko Terashima et coll. se préoccupent de l'accessibilité physique de la nourriture. Leur approche de méthodes mixtes—combinant l'analyse spatiale avec des informations recueillies auprès des membres de la communauté sous

la forme d'une étude Photovoice—fournit une compréhension plus profonde de ce à quoi ressemble et comment se ressent le voyage de la maison à l'épicerie et le retour. Barbara Parker examine les programmes d'accès à la nourriture conçus pour contrer l'insécurité alimentaire dans les écoles. Basé sur une étude de cas sur les environnements alimentaires scolaires dans 50 écoles élémentaires et secondaires d'une ville de taille moyenne de l'Ontario, au Canada, l'article et ses conclusions nous demandent de repenser un futur programme alimentaire national. Comme l'écrit Parker, une approche instrumentale qui médicalise et moralise la préparation et la consommation des aliments ne tient pas compte de «la complexité des pratiques alimentaires » et « passe à côté des principales opportunités pédagogiques dans l'environnement alimentaire scolaire ». Comme le rappelle l'essai photo de Laura Lucas et Fabiana Li sur la Rainbow Community Garden à Winnipeg, au Canada, l'abondance alimentaire peuvent être mesurées de manières larges et diverses. Le rendement d'une parcelle de jardin communautaire ne se résume pas à la consommation de ses produits agricoles. Ces parcelles destinées aux familles de nouveaux arrivants offrent un espace pour cultiver des aliments culturellement appropriés, ainsi qu'un lieu d'interaction culturelle et d'apprentissage intergénérationnel.

Dans ce numéro, nous vous proposons aussi un bel assortiment de critiques de livres. Ryan Phillips met à l'épreuve, *Plant-Based Diets for Succulence and Sustainability*; Mindy Jewell Price plaide en faveur de l'ajout de *Civil Society and Social Movements in Food System Governance* à vos étagères. Amanda Shankland considère les contributions de *Finance or Food? The Role of Cultures, Values, and Ethics in Land use Negotiations*; et Rebecca Ellis accorde une attention particulière aux *Frontline Farmers: How the National Farmers Union Resists Agribusiness and Creates our New Food Future*.

Ce numéro a été rédigé par de nombreuses mains et avec son mélange d'articles de recherche, de travaux audiovisuels, de critiques d'événements, de critiques de livres et de perspectives, il incarne les valeurs de ce que le CFS vise à être: un large éventail de disciplines et de sujets, présentés de façon diversifiés. À notre équipe de contributeurs, de réviseurs anonymes et de rédacteurs associés, nous exprimons notre gratitude. Nous remercions aussi la bibliothèque de l'Université de Waterloo pour son soutien technique.

Maintenant que vous avez parcouru le contenu de ce numéro, nous vous invitons à le goûter par vous-mêmes. Bonne Dégustation.

Canadian Food Studies La Revue canadienne des études sur l'alimentation

Perspective

"Ditch red meat and dairy, and don't bother with local food": The problem with dietary advice aiming to save the planet (and your health)

Ryan M Katz-Rosene*

University of Ottawa

Abstract

In recent years, there have been increasing calls for "global dietary transition" in order to save the planet and improve human health. One troubling development associated with this is the attempt to delineate in universal terms what constitutes a sustainable and healthy diet. In this article, I problematize an increasingly popular dietary narrative—one which calls for people to avoid red meat and dairy, and which portrays the local food movement as a romantic distraction. In contrast, I provide evidence for a range of sustainability and health benefits associated with localism and the inclusion of ruminants—the suborder of mammals from which humans derive most of their red meat and dairy—in the food system. Finally, using the neo-colonial subjugation of Indigenous food cultures as an example, I show how universal dietary advice can result in the promotion of culturally-inappropriate foods to the detriment of community health and sustainability. I conclude with a call for a more pluralist and multi-scalar approach to the multifaceted challenges associated with food production and consumption.

Keywords: Red meat; dairy; local food; sustainable diets; dietary transition

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Introduction

In recent years, domestic and international health and environmental authorities have increasingly called for a "global dietary transition" in order to tackle a number of current and foreseen challenges relating to the food system, including food insecurity, various forms of malnutrition, and environmental degradation linked to agricultural production (Searchinger et al., 2019). For instance, in 2019 the EAT-Lancet Commission introduced its "Planetary Health Diet" with the aim of "transforming eating habits, improving food production and reducing food waste" (EAT Forum, 2019). For its part the Government of Canada introduced its new food guide the same year (Government of Canada, 2019), proposing shifts to the content and proportions of food on the typical Canadian plate, as well as changes to how food is typically consumed. These are, in part, welcome interventions, as they help to illuminate the complex challenges faced by humanity within the food system inasmuch as prompting innovative responses. Nevertheless, in this perspective I take issue with one troubling development within the dietary transition literature—the attempt to promote a universal definition for what constitutes a "sustainable and healthy diet". Specifically, a powerful narrative has recently emerged that defines the latter as a diet which necessarily avoids red meat and dairy, and which further implies that local foods offer no real environmental or health benefits. In this article I offer a critique of this emergent narrative, arguing that the universal claims and dietary advice stemming from it are inappropriate given the existence of competing evidence and complexity seen within and between agricultural systems and food cultures around the world and particularly here in Canada. That is, there is absolutely no reason why a sustainable and healthy diet *cannot* include red meat and/or dairy and/or be founded upon locally-sourced foods. Moreover, we ought to be wary of the neocolonial character of universal dietary advice, given its potential to subjugate "other" food cultures and traditions, often to the detriment of community health and sustainability. I conclude by calling for more pluralist and multi-scalar responses to the variety of challenges faced within global food systems—one which supports *all* food producers and consumers who have genuine intentions of adopting more sustainable and healthier practices.

A New Narrative

The logic underlying the new narrative is founded on a set of robust global-scale peer-reviewed comparisons of the health impacts and environmental footprints associated with different foods (Clark et al., 2019; Poore & Nemecek, 2018; Springmann et al., 2016). The underlying logic goes something like this: Data from global epidemiological studies show that the consumption of red meat and dairy is associated with a higher risk of cardiovascular disease (CVD) and diabetes than other common foods. Compilations of life-cycle assessments (LCAs) of different foods

consistently show that red meat (beef in particular) and dairy are especially resource-intensive and emit higher amounts of greenhouse gases (GHGs) per kilogram of food produced than other protein-rich foods, in particular plant-based protein foods. Global LCA data also show that for most commodities, emissions from transportation only serve as a minimal portion of the overall footprint; rather it is emissions at the level of *production* which account for the greatest discrepancy between low-carbon and high-carbon variants of a given food. It stands to reason that if *everyone* changed their diet, replacing red meat and dairy for plant-based alternatives, and overcame biases about local food systems (favouring instead more 'efficient' alternatives sourced from global supply chains), the world would inevitably become healthier and more sustainable.

One of the most celebrated examples of this phenomenon is the aforementioned Planetary Health Diet proposed by the EAT-*Lancet* Commission. The Commission suggests it is "*the optimal diet* for people and planet" (EAT Forum, 2019 *emphasis added*). The proposed diet "largely consists of vegetables, fruits, whole grains, legumes, nuts, and unsaturated oils, includes a low to moderate amount of seafood and poultry, and includes *no or a low quantity of red meat*, processed meat, added sugar, refined grains, and starchy vegetables" (and further allows "moderate dairy consumption *as an option*"; Willett et al., 2019, pp. 485 and 459 *emphasis added*). While the study does not make specific reference to food miles, the authors note that unimpeded global trade in food commodities is preferable to a "food sovereignty" approach since the favouring of local food systems has led to increased environmental pressures (see p.465).

In short, the new narrative implies that any individual around the world can support their own health and planetary sustainability by removing red meat and dairy from their diet and replacing the latter with plant-based or perhaps other non-ruminant animal-based alternatives. Moreover, it implies that an individual who chooses to support local food systems on the assumption that it is better for the environment would be mistaken. Rather, it is highly-efficient global supply chains which ought to be supported for the sake of strengthening global sustainability, food security, and nutrition objectives for all. A recent widely-read blog published by data scientists at *Our World in Data* is characteristic of the universal advice stemming from the new narrative: "You can have a larger difference by focusing on *what* you eat, rather than 'eating local'," and "going 'red meat and dairy-free' (not totally meat-free) one day per week would achieve the same as having a diet with *zero* food miles" (Ritchie, 2020 *emphasis added*).

The Problem(s)

For this perspective I propose that the very idea of a universal diet is anathema to genuine socio-ecological sustainability and good health. I argue that while following the specific dietary claims outlined above may very well enable some individuals to reduce their environmental footprint or

improve their health, it could equally be unsuccessful in other individual circumstances; for instance, in various geographical, cultural, or demographic contexts wherein red meat, dairy, or locally-produced foods make up a vital part of the community's diet, or where alternative forms of protein or imported foods are not readily accessible. Ultimately, a range of underlying contextual factors will determine whether the dietary advice is sound. The remainder of this article offers four main 'cracks' in the logical foundations of the new narrative, with particular attention to the Canadian context for food production and consumption.

1·The broader benefits of local food systems

Local food systems are portrayed as a romantic myth within the new narrative. Local food, it is suggested, is no better for the climate and will not protect people from food-related health problems. Worse, local production is small-scale, and in that sense does not help tackle global food insecurity. Local food systems are thus increasingly subjected to similar criticisms faced by organic food producers; namely, they are accused of being "inefficient" users of natural resources in a resource-constrained world, and for being no better for consumer health than conventional alternatives (for instance, Dangour et al., 2009; Treu et al., 2017). Yet by reducing the notion of sustainability and health to a crude assessment of average GHG footprints, or the statistical likelihood of developing CVD or diabetes, or the number of mouths fed per acre of production, the new narrative fails to incorporate numerous other factors within localized food systems that contribute to sustainability and good health (for a similar multi-dimensional defence of organic foods see Reganold & Wachter, 2016).

After decades of a growing food sovereignty movement, it is clear that community-scale food systems do contribute to practices which support sustainability and good health. One indirect way they do this is by de-centralizing (and re-allocating) control over food production and consumption (Claeys, 2015; Wiebe et al., 2010). Farmer's markets, Community Shared Agriculture (CSA) projects, restaurants supporting local producers, etc.—all of these help to recirculate capital within a given community, in contrast to global food supply chains, which see a larger share of funds leaving their community of origin and concentrating in the hands of multinational corporations (Feenstra, 1997). These types of local food endeavours also help to build positive social relations in the community, which is particularly important in rural communities where food production makes up a larger share of the local economy (Wells et al., 1999).

In Canada, where there tends to be a divide between large industrial farms that typically cater to national-scale and international supply chains and smaller farms which typically supply local and regional foodsheds, the pressures to adopt different ecological management practices at the farm level are evident. Industrialized operations are far more likely to adopt "extractive" practices which have been associated with placing increased ecological pressures on soil, water, and biodiversity (IPBES, 2019). Meanwhile, local-scale projects are more likely to value

"regenerative" practices which build soil carbon, protect water bodies and limit the impact on local wildlife (Qualman, 2019).[1]

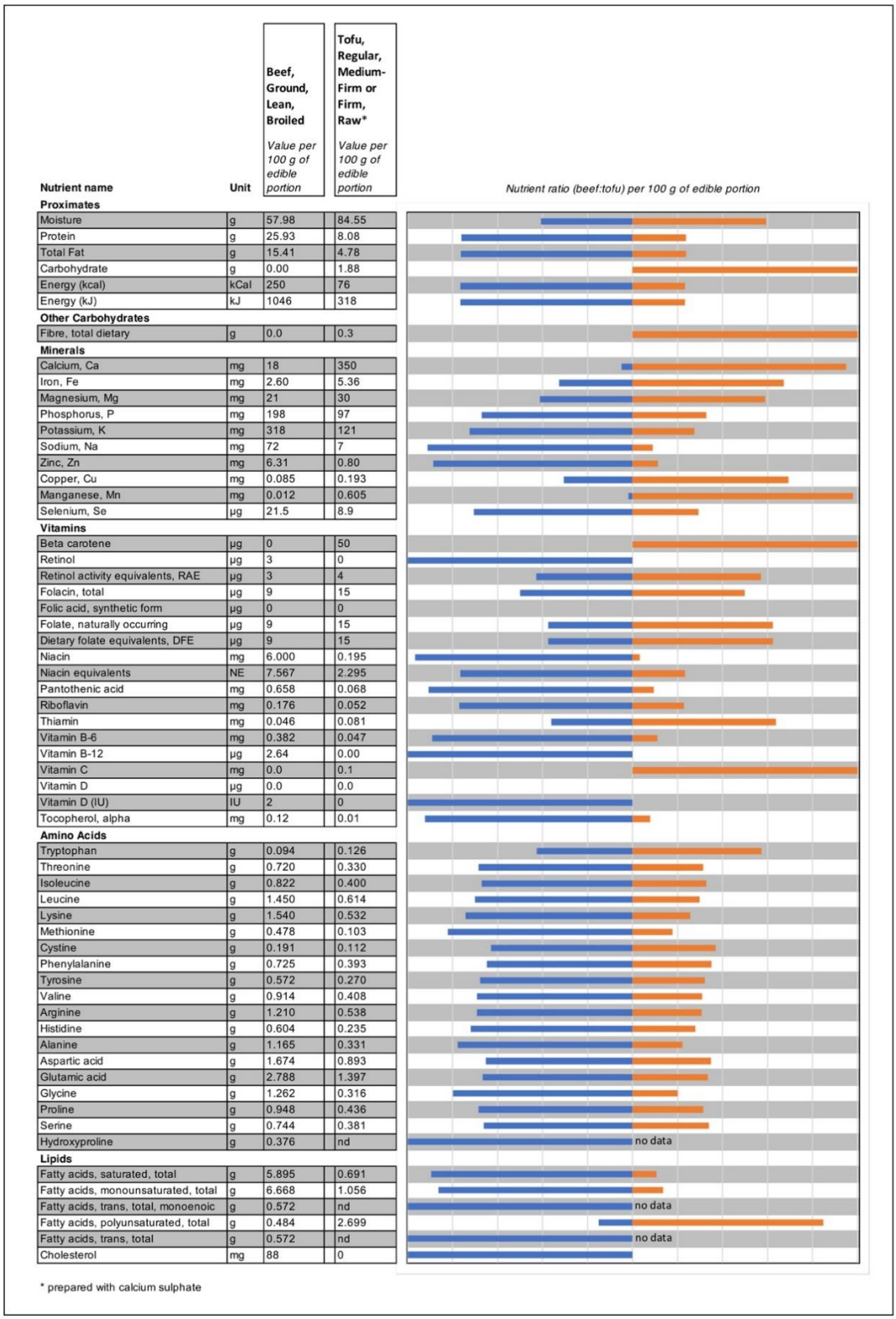
In Canada, the growth of a range of locally-oriented "alternative food initiatives" (AFIs) should be celebrated for contributing to a growing network of increasingly informed actors seeking more sustainable, just, and healthy food structures (Desmarais & Wittman, 2014; Levkoe, 2014; Sumner et al., 2014). To devalue AFIs merely because food miles make up a relatively small amount of the typical food footprint (or because well-functioning global supply chains are more "efficient") seems a narrow basis upon which to guide dietary choices for consumers everywhere.

2. Problematic assumptions about protein interchangeability

By comparing the environmental or health impacts of different foods on a *per unit* basis the new narrative provides a reductionist view of protein. It fails to account for the way that different proteins are made up of different chains of essential and non-essential amino acids and feature different "digestibility scores" (Bailey & Stein, 2019). Moreover, animal sourced proteins and plant-based proteins are nutritionally inequivalent since they tend to be paired with different nutrients. For instance, the former often come alongside higher quantities of heme iron, vitamins B12 and D, and saturated fatty acids, whereas the latter typically come alongside higher quantities of dietary fibre, carbohydrates, and vitamin C (see Figure 1 as an example). This raises questions about what *other* health or ecological impacts might result from a one-to-one exchange of red meat and dairy with plant-based protein alternatives in a given diet.

[1] This is not a hard and fast rule, of course. Some large-scale operations are turning to regenerative practices (particularly no-till crop production, which often requires expensive equipment).

Figure 1: Nutrient comparison of 100 grams of beef and tofu



Nutrient name	Unit	Beef, Ground, Lean, Broiled *Value per 100 g of edible portion*	Tofu, Regular, Medium-Firm or Firm, Raw* *Value per 100 g of edible portion*
Proximates			
Moisture	g	57.98	84.55
Protein	g	25.93	8.08
Total Fat	g	15.41	4.78
Carbohydrate	g	0.00	1.88
Energy (kcal)	kCal	250	76
Energy (kJ)	kJ	1046	318
Other Carbohydrates			
Fibre, total dietary	g	0.0	0.3
Minerals			
Calcium, Ca	mg	18	350
Iron, Fe	mg	2.60	5.36
Magnesium, Mg	mg	21	30
Phosphorus, P	mg	198	97
Potassium, K	mg	318	121
Sodium, Na	mg	72	7
Zinc, Zn	mg	6.31	0.80
Copper, Cu	mg	0.085	0.193
Manganese, Mn	mg	0.012	0.605
Selenium, Se	µg	21.5	8.9
Vitamins			
Beta carotene	µg	0	50
Retinol	µg	3	0
Retinol activity equivalents, RAE	µg	3	4
Folacin, total	µg	9	15
Folic acid, synthetic form	µg	0	0
Folate, naturally occurring	µg	9	15
Dietary folate equivalents, DFE	µg	9	15
Niacin	mg	6.000	0.195
Niacin equivalents	NE	7.567	2.295
Pantothenic acid	mg	0.658	0.068
Riboflavin	mg	0.176	0.052
Thiamin	mg	0.046	0.081
Vitamin B-6	mg	0.382	0.047
Vitamin B-12	µg	2.64	0.00
Vitamin C	mg	0.0	0.1
Vitamin D	µg	0.0	0.0
Vitamin D (IU)	IU	2	0
Tocopherol, alpha	mg	0.12	0.01
Amino Acids			
Tryptophan	g	0.094	0.126
Threonine	g	0.720	0.330
Isoleucine	g	0.822	0.400
Leucine	g	1.450	0.614
Lysine	g	1.540	0.532
Methionine	g	0.478	0.103
Cystine	g	0.191	0.112
Phenylalanine	g	0.725	0.393
Tyrosine	g	0.572	0.270
Valine	g	0.914	0.408
Arginine	g	1.210	0.538
Histidine	g	0.604	0.235
Alanine	g	1.165	0.331
Aspartic acid	g	1.674	0.893
Glutamic acid	g	2.788	1.397
Glycine	g	1.262	0.316
Proline	g	0.948	0.436
Serine	g	0.744	0.381
Hydroxyproline	g	0.376	nd
Lipids			
Fatty acids, saturated, total	g	5.895	0.691
Fatty acids, monounsaturated, total	g	6.668	1.056
Fatty acids, trans, total, monoenoic	g	0.572	nd
Fatty acids, polyunsaturated, total	g	0.484	2.699
Fatty acids, trans, total	g	0.572	nd
Cholesterol	mg	88	0

* prepared with calcium sulphate

Data Source: Canadian Nutrient File, 2015

For its part, red meat serves as a source of digestible "complete protein" (including all essential amino acids), which helps protect against deficiencies in globally challenging micronutrients (Leroy & Cofnas, 2020). Similarly, *all* forms of dairy qualify as what the FAO defines as "excellent/high" quality sources of protein, particularly for children (which is not the case for most plant sources of protein used as dairy alternatives; Mathai et al., 2017). The point here is not to deny the possibility of achieving a nutritious and balanced diet *without* red meat and dairy, but rather to: a) emphasize how substantially different a meal featuring 100 grams of protein from red meat or dairy would be than one featuring exactly the *same* amount of protein from a plant-sourced alternative; and b) note that red meat and dairy are recognized as highly-nutritious foods which can support good health.

In this sense, the new narrative's call to avoid red meat and dairy altogether could possibly have health-related consequences in some communities given the role played by these foods in supporting food security and nutrition (Mottet et al., 2017). It could even have unintended ecological implications if diets are levelized for protein quality, since—contrary to conventional wisdom—beef and milk production require *less land* than beans or peas when compared on an essential amino acid basis (Tessari et al., 2016). Even in a developed economy like Canada's, where *per capita* red meat consumption is much higher than the global average, new research has refuted the claim that reduced meat consumption results in improved health (Johnston et al., 2019). The saturated fatty acids found in animal based foods that concern those calling for avoiding red meat have recently begun to receive more nuanced attention from nutritionists who now suggest there may be a place for saturated fat within healthy diets after all (Alpert, 2020; Astrup et al., 2019, 2020). It is therefore inappropriate to call for universal adherence to a diet centered around *avoiding* these specific foods.

3. The misuse of average global GHG footprint data

There are four main reasons why global average GHG emissions values for ruminant-based foods tend to be relatively high, yet these same factors raise questions about what is being missed in terms of the potential these foods can play in sustainable agricultural systems.

First, ruminants emit a relatively high amount of methane as part of their digestive process and methane is a powerful GHG. However, recent high-level policy guidance hints at the dangers of measuring methane (a "flow" gas) in terms of equivalents of carbon dioxide (a "stock" gas), as this could lead to inaccurate assertions about the overall warming impact of ruminants (Lynch et al., 2020). When methane emissions are on a declining trend (on the order of -0.3% *per annum*), the size of the methane sink will begin to outweigh the source after a period of about a decade, after which the net effect is one of *cooling*, not warming (Cain et al., 2019). This very trend has been observed in Canada over the last 12 years, suggesting the production of red meat and dairy in this country is having a negligible impact on methane-induced warming (Katz-Rosene, 2020).

Second, ruminants also have a very high average land use footprint, particularly in global terms since a considerable amount of forestland in Latin America is being converted to either cattle pasture or soy and maize production used for animal feed (Opio et al., 2013). Nevertheless, while it is true ruminants require more land per kilogram of food produced, it is a mistake to necessarily interpret this as "a form of inefficiency". Much of the world's agricultural land is perennial grassland (around 70% according to the FAO, 2020)—an ecosystem which co-evolved alongside large herbivores. Arguably, one of the most sustainable forms of food production in a grassland is range-ecology including grazing herbivores, in contrast to crop production (especially tillage) that often erodes the soil and negatively impacts biodiversity. This is especially important in Canada's Prairie provinces (where about 80% of Canada's agricultural land is found), since holistically-managed cattle can play a key role in protecting this at-risk ecosystem (Gosnell et al., 2020; Pittman, 2018).

Third, LCAs of the GHG footprint of red meats do not always equitably share portions of the emissions profile with other non-edible products and services associated with ruminant production (such as hides, wool, fats, organs, milk, bone, serum, manure, draught power, etc.). When this is done, the food portion of the GHG footprint shrinks considerably (Opio et al., 2013, p. 173). Already the GHG intensity of beef and dairy is lower in Canada than the global averages (Legesse et al., 2016)—adequately sharing the emissions with the full range of byproducts would reduce Canadian values even further, though additional research is still required to determine more accurate estimates of the GHG footprint of Canadian beef and dairy when these factors are taken into account.

Finally, while some forms of ruminant management are able to draw down carbon dioxide into the soil (Teague et al., 2016), the process is immutably complex. As a result, many LCAs of beef and dairy do not sufficiently *subtract* the carbon dioxide removed from the atmosphere and sequestered into the soil from the GHG tally (see, for instance, the sensitivity analysis in Rotz et al., 2019). This results in relatively high footprint values for pasture-based foods in LCAs. Nevertheless, studies which have attempted to account for the potential soil sequestration of CO2 have found the latter to partially offset emissions from the grazing system, such that carefully managed grazing operations are viewed as a potential tool to support climate change mitigation efforts in the agricultural sector (Stanley et al., 2018; Wang et al., 2015).

In short, global LCA values for red meat and dairy, measured in CO2 equivalents, do not help inform Canadians about the actual climatic or ecosystemic impacts, or production contexts, of domestically-produced red meat and dairy, especially when consumers are purchasing locally-produced meat or dairy from pasture-based systems, or when hunters are acquiring red meat from wild animals.

4. The neo-colonial character of universal dietary advice

The Nyéléni Declaration on Food Sovereignty emphasizes the importance of cultural appropriateness of foods, and the rights of peoples "to define their own food and agricultural systems" (VIA Campesina, 2007). The assertion of authoritative knowledge about what foods are "best" (for one's health, for the environment, or any other reason) can therefore work *against* efforts to secure nutritious and sustainable food precisely because it lacks awareness of the broader contextual factors that shape food outcomes. In Canada, dietary guidance is particularly egregious when it reinforces neo-colonial relations between Indigenous peoples and "Western" authority structures (such as the state or institutionalized Eurocentric expert knowledge); yet the legacy of the subjugation of Indigenous food cultures also serves as an important reminder about the dangers of imposing any universalized wisdom upon others.

Canada has a dark history of colonialism and neo-colonialism with a traumatic legacy of impacts for Indigenous people. The Truth and Reconciliation Commission found that Canada's Aboriginal policy and the state's historical treatment of Indigenous peoples has operated as a form of cultural genocide (Amir, 2018). A significant component of this cultural genocide has been the erasure, devaluation, and subjugation of Indigenous food sovereignty and traditions, which in turn are frequently tied in with ecological and localized knowledge systems (Coté, 2016). In 2007, Health Canada introduced a companion document to Canada's food guide, with specific attention to First Nations, Inuit, and Métis communities, seeking to offer guidance to Indigenous peoples about proper nutrition. Yet this effort—in addition to lumping in all Indigenous peoples together despite vast cultural differences—has led to paternalist government programs (such as Nutrition North) that have sought to tackle food security and nutrition challenges through an imposed market-based Western approach (Mintz, 2019). The results have been disastrous, owing in part to the government's refusal to respect and support Indigenous food traditions and cultures (Chin-Yee & Chin-Yee, 2015).

Pre-colonial food systems in the territory now known as Canada were highly diverse and regionally-specific. Fishing, trapping, hunting, gathering, harvesting, and cultivation were practiced to varying degrees in different Nations depending on local resource and climatic circumstances and cultural traditions. Dark meats high in saturated fats have tended to play a foundational role in many Indigenous food cultures, coming from a diverse array of animal sources, including bison, caribou, moose, deer (all of which are ruminants)—as well as bear, duck, goose, beaver, seal, etc. Dairy consumption, in contrast, was practically non-existent before colonization (Prosekov & Ivanova, 2018). The universal dietary mantra to steer clear of red meat and approach local foods with environmental skepticism is thus largely antithetical to the traditional diets of most Indigenous communities in Canada (with advice on dairy being a moot point). Yet even if it were entirely complimentary it would still be problematic to propose a universal diet for one and all; the point here is to recognize the inherent danger of *devaluing* a given community's cultural food practices, and consequently the role that local knowledge and

culturally-appropriate foods can play in community-based nutrition and ecosystem management (see Milburn, 2004).

A greater appreciation for the range of unique contextual factors involved in nutrition and food sustainability is required—including attention to food combinations within different dietary traditions, broader consumption habits and practices, and a host of geographical and regionally-specific conditions. To assert that the localized cultural context of food is inconsequential to health and sustainability is to follow in the footsteps of a colonial mindset which has been shown to have unjust and unfavourable consequences.

Towards a pluralist multi-scalar approach

Humanity faces a number of challenges relating to the food system: Food production contributes to climate change and biodiversity decline; there are stark inequities between and within different regions in terms of secure access to culturally-appropriate food; and there is presently a "double-burden" of malnutrition, wherein some parts of the world lack basic nutrients while other corners see an overconsumption of unhealthy foods (Canales Holzeis et al., 2019). Such a complex and multi-faceted problem requires an equally nuanced response, wherein different approaches that seek to address aspects of the challenge in specific places ought to be supported, or at least given a chance. In this sense there is wisdom in supporting a multitude of approaches to healthy food and sustainable agricultural systems, as a more diverse set of approaches contributes to greater resiliency, being more inclusive to an array of food cultures.

This perspective has offered a critique of universal claims about what does or does not qualify as "healthy and sustainable" food, particularly as envisioned by an emergent and increasingly popular global narrative that singles-out red meat, dairy, and local food systems. While the diet proposed by the new narrative may qualify as a useful way for a given individual to adopt a healthy and sustainable lifestyle, the underlying narrative's claim to universality is flawed because there are instances where some of its underlying claims do not stand up to scrutiny. This perspective has highlighted four categories of problems with the underlying narrative: First, its targeting of local food systems fails to account for many social, economic, and public health benefits associated with the support of community-scale food structures. Second, the narrative's treatment of different protein-source foods as interchangeable serves as a reductionist interpretation of this essential macronutrient. Third, the global LCA footprint data used as evidence for the high environmental costs of red meat and dairy do a very poor job of contextualizing the broader ecological influence of ruminants in different places, particularly in a Canadian context. And finally, through its neo-colonial approach, universal dietary advice negates the value of culture and traditional localized knowledge in supporting healthy and sustainable food systems. Food studies scholars ought to cultivate awareness about the complexities in the food system; about diverse approaches to production and consumption owing

to different cultures, places, and local traditions; and about the beauty and resilience of diversity—not make generalized claims about which specific foods to avoid based on their origins or type.

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Original Research Article

A spatial analysis of population at risk of food insecurity using the voices from a Photovoice study

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Abstract

It has been widely recognized that income is by far the most important factor affecting food insecurity for individuals and families. For those with low income and without a car, the local built environment they journey through to get to food likely adds to the challenges of accessing healthy and affordable food. Our study focused on understanding the challenges of obtaining food in the local built environment, using insights voiced by community members through a Photovoice study. We then used these insights to inform the assessment of populations without easy access to food outlets in four case communities with relatively high proportions of economically vulnerable individuals and families. Once a few of the relevant factors regarding barriers were incorporated in the GIS analysis, the estimated population outside of areas having access to supermarkets or any type of food outlets dramatically increased in both rural and urban communities. More detailed investigations of the unique built and social environmental conditions in both rural and urban communities are necessary, and the pairing of qualitative insights with a spatial analysis may be helpful.

Keywords: Mixed methods approach; food security; spatial analysis; Photovoice; Geographic Information Systems

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Introduction

A large volume of food security research has thus far uncovered multifaceted factors that influence how people obtain healthy and affordable food. Our understanding of food (in)security issues has been deepened by a number of methods—quantitatively by assessing the association with individual and socio-ecological factors (Breyer & Voss-Andreae, 2013; Dillahunt & Veinot, 2018; Guo, 2011; Huang et al., 2009), qualitatively through understanding lived experiences (Freedman, 2009; Loopstra & Tarasuk, 2013; Meza et al., 2019; van der Velde et al., 2019), and spatially by characterizing presence, density, and proximity to food sources using geographic information systems (GIS) (Allard et al., 2017; Cochrane et al., 2019; Larsen et al., 2015; Zenk et al., 2005). Scholarship has widely recognized that individual economic circumstances, particularly low income, are the most significant contributors to food insecurity in Canada and globally (Loopstra & Tarasuk, 2013; Nord et al., 2007). Various local built and social environmental characteristics have been investigated as other important factors (Glantz et al., 2005) that could exacerbate the challenges for low income individuals and households in acquiring healthy and affordable food, therefore putting them at a higher risk of food insecurity.

For those with low income and without a car, the local built environment they journey through to get to food likely adds to the challenges of accessing healthy and affordable food. However, accounts of these challenges are typically elicited qualitatively, and not often considered in research assessing the spatial accessibility of food outlets in communities (Caspi et al., 2012; Meener, 2019). Our study incorporated the insights of community members from four case communities on barriers to physical accessibility of food through a Photovoice study to better estimate populations potentially at risk of food insecurity.

Background

Food security has been broadly conceptualized by the Food and Agricultural Organization of the United Nations (1996) as "all people, at all times, hav[ing] physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (in FAO, 2008, p.1). As such, an assessment of food insecurity often involves the question of access. In Canada, household food insecurity is measured as inadequate or insecure access to food specifically due to financial constraints (Dachner & Tarasuk, 2018; Tarasuk et al., 2016). Access is a complex concept that includes the multitude of ways that individuals are either enabled to obtain goods and services or hindered from doing so. Penchansky and Thomas' (1981) theory of access includes five dimensions: 1) availability (if an adequate volume of goods/services are there for users to have them); 2) accessibility (locational relationships between goods/services and users); 3) accommodation (the ways in which services are provided, such as hours of operation); 4) affordability (relationships between prices of goods and individuals' ability to pay); and 5) acceptability (related to quality and characteristics of

services). Saurman (2016) suggests that awareness (understanding of local contexts and needs in the population) be added as a sixth dimension.

Perhaps the most commonly studied dimensions within these concepts of access are accessibility and availability. A more sophisticated understanding of healthy and unhealthy food exposure, as well as affordability, has also emerged with a use of comprehensive store audit tools (Freedman, 2009; Horacek et al., 2018; Partington et al., 2015). Spatial accessibility research has also advanced in its conceptual understanding of access in recent years, moving beyond simply identifying low service areas—often described as 'food deserts'—which oversimplifies the possible mechanisms related to socioeconomic, cultural, and political contexts through which the ability of individuals and families is determined (LeClair & Aksan, 2014; Macintyre, 2007; Widener 2018). This area of research has also recognized that people do not always obtain food in their particular residential environment, nor do they necessarily shop at the closest outlets (Hillier et al., 2011). People are exposed to different food environments around their places of work, school, and leisure (Chen & Kwan, 2015). More recent research has therefore shifted from investigation of residential food environments using administrative area units to the evaluation of *activity spaces* by tracking individuals' routine movements (often with GPS) throughout the day to more accurately assess their exposure to different types of food environments and the influence this has on their food purchasing choices and behaviours (Widener et al., 2018). Scholarship is also beginning to assess the accessibility of food outlets by more clearly differentiating types of outlets such as convenience stores, farmers' markets, farm stands, and co-operatives (Jilcott Pitts et al., 2013; Van Hoesen et al., 2013), as well as community gardens, food banks, and community kitchens (Kirkpatrick & Tarasuk, 2010), in their analyses. Further, 'transportation barriers'—including not having affordable transportation options such as public transit—have also been found to significantly influence how individuals (have to) make choices on where and what types of food they obtain (Farmer & Minard, 2016).

Despite the relatively rapid deepening of our understanding of the complex ways individual and environmental factors influence the state of food security/insecurity, it is not yet clearly known how best to evaluate the mechanisms through which local environments influence access to healthy and affordable food for people living in lower income areas. Carter et al.'s (2014) critical review of the literature found that there has been a wide range of methodologies and scopes in research examining the influence of local environmental characteristics (including proximity to food outlets and types of places people live) on food insecurity, resulting in inconsistent findings as to whether local environments are indeed a risk factor.

The role of more physical aspects of access—such as proximity and density of food outlets—has particularly been subject to closer scrutiny (Shannon, 2016). For example, McInerney and colleagues (2016) found a positive association between food destination density in neighbourhoods and diet quality in Canadian adults. However, Kirkpatrick and Tarasuk's (2010) study of low-income families renting in low-income neighborhoods in Toronto showed that proximity to food retail or community food programs did not mitigate the risk of food insecurity, nor did neighbourhoods with poor geographic food access have particularly high rates

of food insecurity. A more recent study by Allard and colleagues (2017) assessed the relationship between spatial access to food and household food security by incorporating multiple measures, including average distance to nearest food retailer, density of food outlets, and transportation mode access. They too found no consistent significant relationship between food security status and spatial access to food retailers between vulnerable and less vulnerable populations.

These studies demonstrate the importance of further untangling complex and compounding relationships between geographic and individual factors, particularly for people living in lower income areas (Breyer & Voss-Andreae, 2013; Dillahunt & Veinot, 2018; Ma et al., 2018). Our study is an attempt to partially fill this research gap through a spatial analysis that reflects on the qualitative insights of community members.

Project context

This study builds on a Photovoice study, which was part of a large-scale community food security research project conducted by the Food Action Research Centre (FoodARC), located at Mount Saint Vincent University in the Province of Nova Scotia, Canada. The *Activating Change Together for Community Food Security* (ACT for CFS) project has had enormous success in bringing a wide range of community and government organizations together to co-create and share knowledge of value with the local communities and province.

Food ARC's ACT for CFS project

The FoodARC has focused on research in partnership with communities tackling food security issues in Nova Scotia. FoodARC has played a pivotal role in influencing policy that seeks to improve Nova Scotians' access to affordable, healthy, safe, and culturally appropriate food that is distributed in socially, economically, and ecologically sustainable and just ways (FoodARC, 2019). For over a decade, FoodARC has produced a multitude of community-based study outcomes, including issues of formal and informal food production, costs of obtaining food, physical accessibility of food, accounts of experiences by vulnerable community members in accessing food, and nutrition education programs across the province.

Between 2010 and 2015, FoodARC conducted a large-scale multi-partnership project, *Activating Change Together for Community Food Security* (ACT for CFS), funded by the Social Sciences and Humanities Research Council, a national research funding agency in Canada. The project involved a partnership with over 70 organizations, including university, government, and community partners at local, provincial, and national levels, with representation from a range of disciplines and sectors. The purpose was to deepen the understanding of community food security (CFS) in the province from the perspectives of diverse interest groups. The project

followed a Participatory Action Research (PAR) methodology using community-directed orientation to address questions that community participants identified themselves.

Part of the ACT for CFS project involved an investigation of poor food access in four selected communities. Three of the four case communities were rural (Eastern Shelburne County, Kings County Northeast, and Pictou County), while one was urban (Community of Spryfield). In general, these case communities were serviced by fewer food outlets and were relatively socioeconomically deprived compared with the provincial average (McNamee & Rainham, 2014). They had lower household income, contained areas with a higher proportion of low-income households than the provincial average, and the three rural case communities had lower employment rates than the provincial average (Table 1).

Table 1: Characteristics of the four case communities

	Nova Scotia	Eastern Shelburne County	Kings County Northeast	Pictou County	Spryfield
Median age	43.7	49.7	44.1	45.1	40.3
% Single parents	17.4%	15.4%	17.4%	18%	29.7%
Average household income (after tax)	$55,883	$45,044	$52,468	$53,175	$48,112
% living in the lowest 25% of median household income DAs	26.4%	36.4%	30.6%	26.9%	37.0%
Employment rates	56.8%	46.7%	53.9%	53.3%	58.7%
Population size	921,727	6,700	33,720	45,640	14,000
Geographic area size	55,284km^2	1,964.6km^2	523.2km^2	2,889.9km^2	14.1km^2

Source: Canadian Population Census 2011 (Statistics Canada, 2011)

Note: Median age and employment rates shown are average values of the Dissemination Areas included in the communities.

The ACT for CFS project also mapped the spatial coverage of existing food outlets in each community based on 10-minute walking and driving distances. The spatial analysis component of the project also identified sub-areas in each community with high socioeconomic deprivation scores and low food outlet access, revealing that many of the sub-areas had high risks of food insecurity (McNamee & Rainham, 2014).

Photovoice: Physical accessibility barriers in the four case communities

A qualitative study of the case communities compiled narratives of the lived experiences of study participants in accessing (or having difficulties in accessing) food outlets through a series of

Photovoice sessions. Photovoice is a type of participatory research method through which community participants use photography and stories about their photographs to represent issues they consider important (Nykiforuk et al., 2011). Twenty individuals from the four case communities participated in the Photovoice session, which generated rich information through personal accounts of challenges faced by the participants, revealing how multiple layers of barriers influence the way participants obtain food. The challenges voiced included considerations related to participants' personal experiences, such as not owning a car, having to carry many bags while walking with their children, and features of the environment itself, such as the distance to food providers, poor road conditions in inclement weather, and a lack of sidewalks.

The findings of the ACT for CFS project questioned the validity of using distance and density alone as spatial access factors without taking into account the factors involved in the journey to food outlets. Without taking these factors voiced in the Photovoice sessions into account, the maps of spatial access to food outlets produced likely underestimated the level of accessibility (i.e., geographic coverage of accessible areas) and food insecurity risks experienced by vulnerable groups. Incorporating these environmental factors highlighted by the participants could reveal a more "real" picture of spatial accessibility experienced by other vulnerable people. Moreover, the project team found that a further evaluation of spatial accessibility reflecting on the challenges pertaining to physical access to food identified from the Photovoice sessions could potentially better inform policy related to the physical environment in a more specific way.

Objectives of this study

The objectives of our study were two-fold: 1. To more fully understand the challenges of physical access to food faced by case communities; and 2. To compare the assessments of the level of spatial accessibility to food with and without incorporating some of the key challenges related to the journey to obtain food that were highlighted by community members.

In order to achieve these objectives, we used the results from the Photovoice component of the ACT for CFS project, derived key barriers from the results of the Photovoice narratives, and incorporated some of these key barriers into the spatial analysis of accessibility by quantifying or *spatializing* them. We then assessed the differences in population coverage by food outlets for each of the case communities before and after incorporating these key barriers in the spatial analysis. Since our primary interest was community members who are often considered vulnerable and at risk of food insecurity, we focused on spatial accessibility from the perspective of those who do not own a car.

Methods

This study took what Creswell (2003) called the "sequential exploratory" approach to a mixed-methods study. This approach utilizes both qualitative and quantitative data, whereby one type of data is collected and analyzed, and additional questions are then asked to build on these initial findings. We extracted some key narratives from the Photovoice sessions that were readily quantifiable across geographic space using available data, and accounted for these factors in calibrating the area coverage by food outlets. Therefore, the qualitative component (narratives from the Photovoice) precedes the quantitative component (assessment of the level of spatial accessibility), and the quantitative phase incorporates data informed by the qualitative, in-depth insights, in order to estimate the potential magnitude of challenges to food access at the population level. The details of this process are described below.

1. Extracting "voices" from the Photovoice data

Under the ACT for CFS project, a rigorous process of coding and participatory data analysis was undertaken to analyze the comprehensive data. The Photovoice component of the project was intended to elucidate challenges and opportunities with respect to the journey to obtain food. Photovoice is an increasingly employed PAR methodology (Nykiforuk et al., 2011) that involves participants as co-researchers who, through photography, "produce visual narratives of their experiences" (Nova Scotia Participatory Food Costing Project, 2013, p. 5). Group discussion sessions then took place in order for participants to speak about their photos. Sessions were guided by the PHOTO method (Latz, 2017, p.84), which frames five elements of the process for participants to consider:

1. P: Describe your photo;
2. H: What is happening in your photo?;
3. O: Why did you take a picture of this?;
4. T: What does this tell us about your life?; and
5. O: How can this picture provide opportunities for us to improve life?

A total of 20 individuals from the four case communities participated in the Photovoice study, which took place in November and December of 2013. The project team developed a clear and detailed manual for conducting a Photovoice study. Following the development of the manual, an extensive training workshop was conducted to ensure that participants were clear about the purpose and process of the activity and that they understood relevant ethical issues, as well as to practice taking photos. Participants then took photos to represent their everyday

experiences, and they later came back for at least one of three facilitated group sessions to discuss and reflect on their photos and stories together. Comments from the Photovoice sessions were then transcribed and coded by theme.

The themes established from the Photovoice sessions—with a particular focus on the physical environmental barriers to accessing food—were then extracted. Some key example narratives were incorporated in the spatial analysis and are presented in the results section. Other factors related to barriers to accessing food that point to individuals' life circumstances prior to the journey to obtain food—such as being short on cash and needing to take care of family members—were not included, as they are not directly related to the physical environment.

2. Quantifying and spatializing the "voice"

The Photovoice sessions yielded rich accounts of day-to-day challenges faced by the participants in each of the case communities with respect to the physical accessibility of food. Although the communities of the participants were identifiable, their comments were not considered as representative of a particular community in Nova Scotia. Rather, they largely pointed to physical elements common to most communities.

Three domains of physical barriers emerged from the Photovoice analysis:

Domain 1—Distance to large-scale, less expensive supermarkets as opposed to other, more expensive corner stores;
Domain 2—Road conditions pertaining to the journey on foot; and
Domain 3—Means of transportation, including public transit and taxi services.

Drawing on the photo narratives under these domains, we collected data that allowed us to depict these barriers using maps.

Domain 1—Distance to large-scale, less expensive supermarkets

For the first barrier identified above, we computed the service area coverage of supermarkets specifically versus all food outlets (excluding restaurants). The ACT for CFS project had already collected and geocoded the data for existing food outlets differentiated by store type. We computed the service area coverage by 10-, 20- and 30-minute walking distances to supermarkets specifically and to all food outlets. We focused only on walking distances as we are interested in population groups who are vulnerable to food insecurity due to their economic circumstances, and who tend not to own a vehicle.

Domain 2—Road conditions pertaining to the on-foot journey

For the second domain, we mapped road steepness and lack of sidewalks, as highlighted in the Photovoice sessions. We calculated the difference in elevation between the ends of each road segment and determined that greater than a five-degree difference causes discomfort (and greater danger of falling when slippery in winter) for pedestrians (Kockelman et al., 2001; Meeder et al., 2017). The digital elevation model data were obtained from GeoNOVA, a geographic data service unit of the provincial government. Sidewalk data were only available (from the same source as data on bus stop location) for Spryfield and were not incorporated in the analyses of the other three communities. If there was no sidewalk on either side of the road, we considered that road to have barriers. After removing the road segments that were steep (in all four communities) and those that had no sidewalks (in Spryfield only), we recomputed the service area coverage.

Domain 3—Means of transportation

For the third domain, we computed the area covered by public transit (bus) and taxis by fee. Bus stop location data were available from the municipal open data source (https://catalogue-hrm.opendata.arcgis.com). Areas that were not covered by a 10-minute walk to a bus stop—about 1km distance based on the average person's walking speed (Daganzo, 2010)—were considered to have a barrier. For taxis, the geographic area coverage was evaluated based on three fare scales (one way)—$20, $30, and $50—using information provided by a taxi company showing fare-by-distance in Halifax as an example (https://www.numbeo.com/taxi-fare/in/Halifax). Among the four case communities, only Spryfield had regular public transit services, and its entire area was covered by a taxi fee of $20. Therefore, public transit coverage was computed for Spryfield, and fare-based taxi coverage was computed for the other three communities (Eastern Shelburne County, Kings County Northeast, and Pictou). The spatial analysis of service coverage was conducted using the Network Analysis function of GIS software (ArcGIS 10.3, ESRI, Redland).

3. Comparing the estimations of population coverage

Finally, we estimated proportions of each community's population who may be at risk of not having access to food, based on the geographic coverage identified in the previous step. We used Canadian Census population data at the Dissemination Area (DA) level—the smallest census geographic administrative area for which population data are available—through the Dalhousie University Library database. Since residents were not uniformly spread across each census area, population covered by a given geographic range (by 10 minutes walking distance, for instance)

was estimated using counts of buildings weighted by an average population size per building as determined for each DA; for the four case communities, this ranged between 1.7 and 2.6 people per building. The building point location data were available through GeoNOVA.

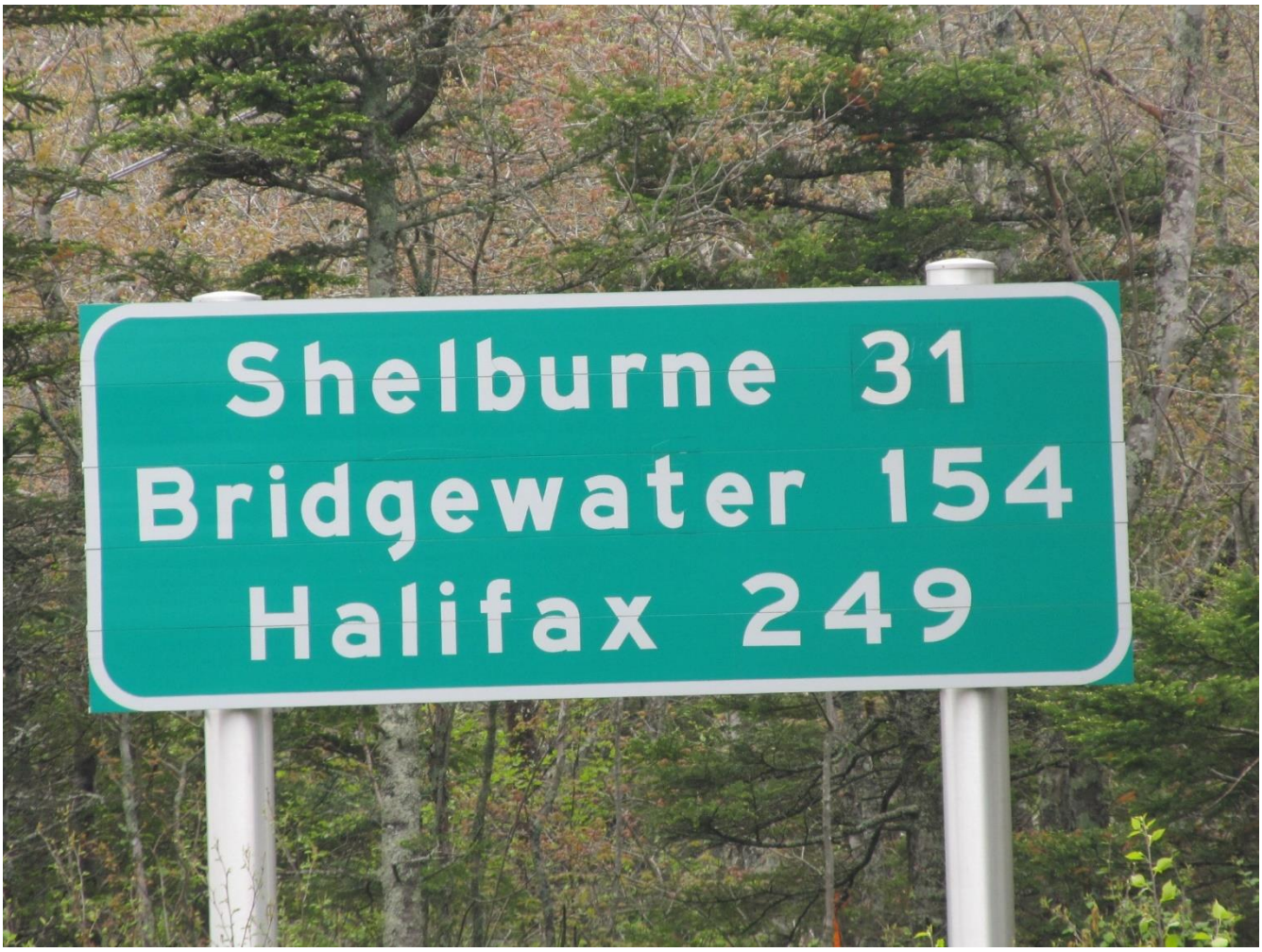
Results

The following section presents the results of the study, first describing the Photovoice results regarding the three domains of physical barriers to accessing food. Then, we present examples of maps for one of the case communities demonstrating population coverage before and after taking into account the spatial data representing the barriers related to each domain. Lastly, we describe how the levels of spatial accessibility (i.e., population coverage) for each case community changed when these barriers were considered for each domain.

Domain 1: Distance to large-scale, less expensive supermarkets as opposed to more expensive stores

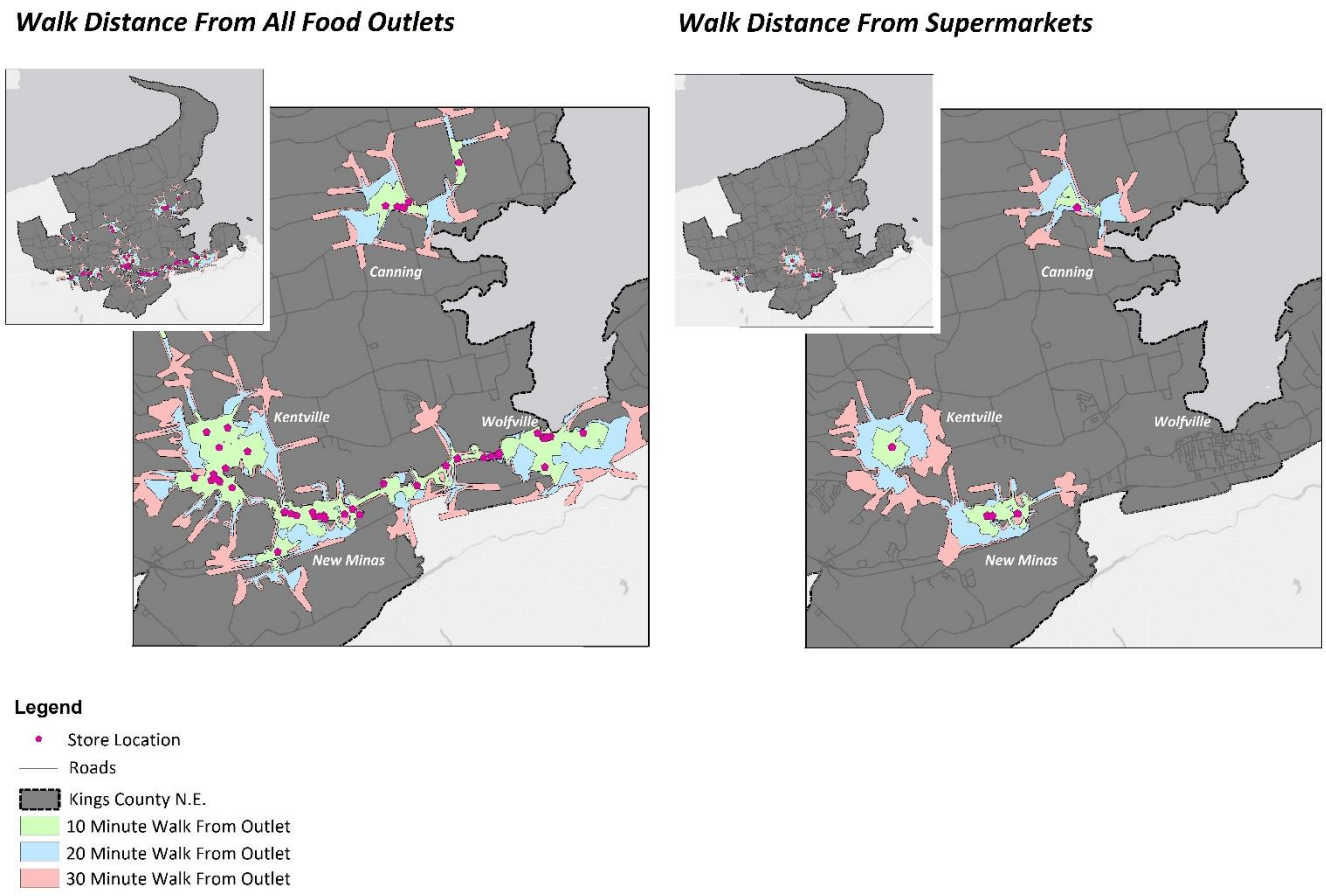
Among the important insights voiced by participants from both rural and urban case communities was the distance to food outlets. This was unsurprising, as the challenges related to distance are consistent with the existing literature on food security (Larsen & Gilliland, 2006; Sharkey, 2009; Slater et al., 2017; Smith et al., 2010; Wrigley, 2002). A photograph taken by one of the rural case community participants (Figure 1) illustrates the point that distance is always an underlying barrier that individuals mitigate through various coping strategies, such as asking friends to drive to the store, walking sometimes long distances, or taking a taxi.

Figure 1: Photo by Cynthia Duncan "*Distance Matters*"



The problem, however, is often not distance to *any* stores, but rather distance to cheaper, higher quality food outlets. For instance, a Photovoice participant commented, "So it's just an example of the accessibility…but for me, if I wanted to buy food that is not in a convenience store that costs twice as much, I would have to drive 27 kilometers really" (Community Member A, Photovoice). This observation is echoed by another member in the same community: "Small corner stores and markets within walking distance carry items which are typically priced higher than similar items in a larger grocery store. Selection and variety are usually diminished as well, especially with regards to fresh meats and produce" (Community Member B, Photovoice). A leader of Northeastern Kings County's Kids Action Program also commented, outside of the Photovoice session, "It's quite a distance to get to a grocery store now. There are still a few other stores in the area, but they're smaller and more expensive. And there's no bus service, so people really need a vehicle or someone else to drive them around" (as cited in ACT for CFS, 2015, p. 61).

Figure 2: Map 1: Area coverage by walking from all food outlets (left) and supermarkets specifically (right)



Map 1 (Figure 2) shows comparisons between the spatial accessibility of all food outlets and large-scale supermarkets specifically in Kings County as an example. Table 2 shows that the proportions of the population outside of 10-, 20-, and 30-minute walking distance from all types of food outlets in the case communities reflect rurality, with Eastern Shelburne County and Pictou having some of the largest proportions of people outside of this range of coverage. Once spatial coverage was computed for supermarkets specifically, the proportions of people outside of this range further increase to nearly 80% or higher in all communities. However, the proportion of people outside the coverage of 10-minute walking distance in Spryfield doubles once supermarkets were specifically considered, becoming fairly equivalent to other more rural communities. In other words, only 10% to 20% of community members have access to supermarkets within 10-minute walking distance, regardless of rurality. Although we also presented coverage for 20- and 30-minute walking distance, it is unlikely that community members would regularly walk for longer periods of time carrying grocery bags.

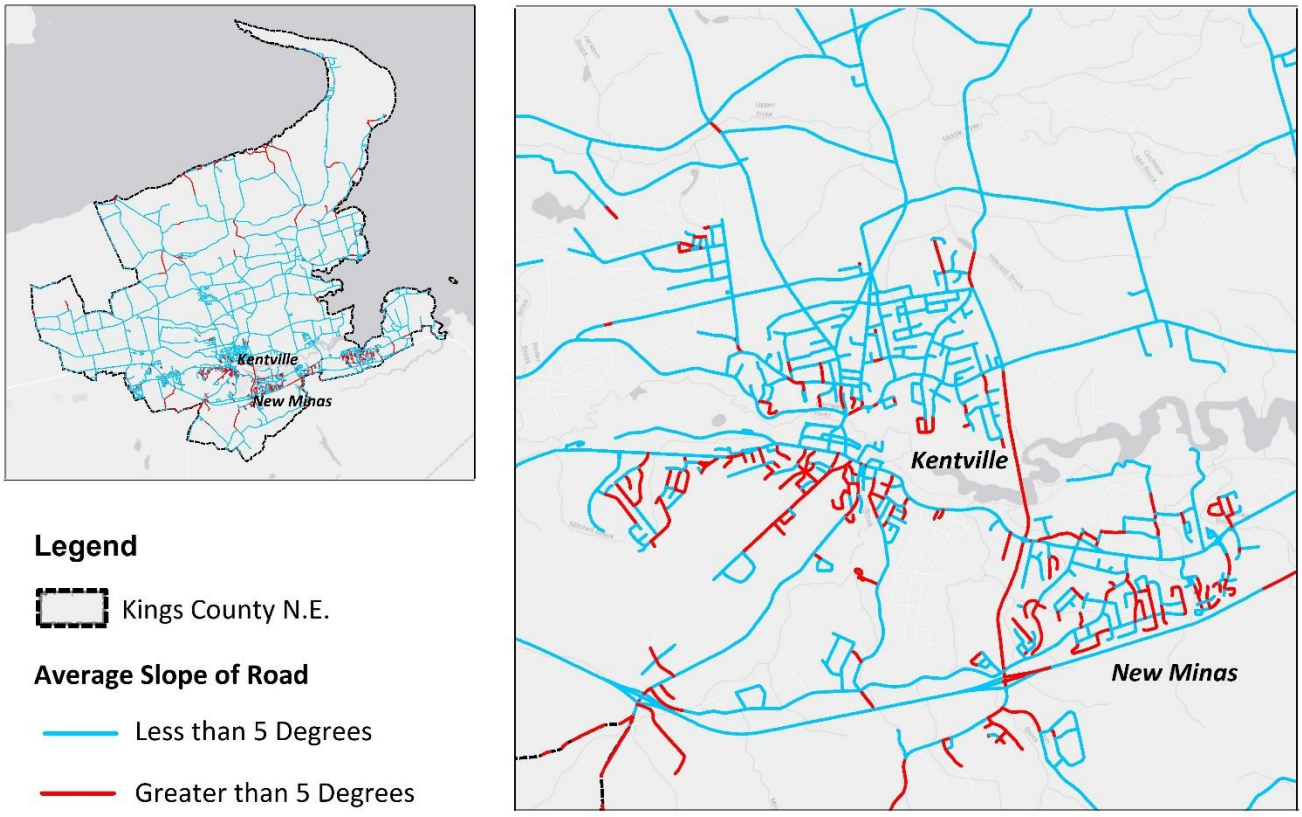
Table 2: Comparison of the proportions of the population living outside of 10-, 20-, and 30-minute walking distance from all types of food outlets versus supermarkets specifically in case communities

		Population outside of coverage by all food outlets			Population outside of coverage by supermarkets specifically		
	Total population size	10-minute walk	20-minute walk	30-minute walk	10-minute walk	20-minute walk	30-minute walk
Eastern Shelburne County	6,700	73.6%	65.2%	59.6%	95.6% (+22.0%)	84.4% (+19.2%)	80.2% (+20.6%)
Kings County Northeast	33,720	60.2%	39.3%	28.6%	91.6% (+31.3%)	74.3% (+35.0%)	61.3% (32.7%)
Pictou	45,640	69.9%	51.8%	43.8 %	88.1% (+18.2%)	70.2% (+18.4%)	60.6% (+16.8%)
Spryfield	14,000	53.0%	5.8%	0.6%	81.5% (+28.6%)	52.2% (+46.4%)	13.0% (+12.4%)

Domain 2: Road conditions for the on-foot journey

The Photovoice participants also revealed that walking for even a short distance to a store is often not a simple matter. The amount of food an individual can carry while walking or biking is influenced by topographic characteristics and maintenance conditions of the roads. The same distance is not necessarily equal in terms of how easy or difficult it is to travel. For instance, if the return journey to a store involves steep hills, it exacerbates the difficulty of carrying groceries, even for a short distance. One community member explained, “I walked… When I lived in […], I had no source of transportation. I’d walk my kids back and forth to the daycare and the grocery store, and lug like six bags up the hill and home” (Community member E, Photovoice).

Figure 3: Map 2: Hilly roads in Kings County Northeast



Map 2 (Figure 3) shows the distribution of roads classified based on slope (greater or less than five degrees) in Kings County. In Kings County, hilly roads are concentrated in relatively more populated areas surrounding its two largest towns, Kentville and New Minas. Sidewalks are critical built environmental features for protecting pedestrians and making them feel safe while walking. Since many food outlets are often located on main streets, sidewalks may be available around them. However, residential streets are often not equipped with sidewalks. Since rural jurisdictions do not routinely collect sidewalk data, we were unable to analyze the levels of sidewalk coverage in rural case communities. Of the four case communities, sidewalk data were therefore only available for Spryfield. As seen in Map 3 (Figure 4), a considerable number of road segments do not have sidewalks, including some of the main streets where automobile traffic is heavy, and the speed limit is high.

Figure 4: Map 3: Roads with and without sidewalks (Spryfield)

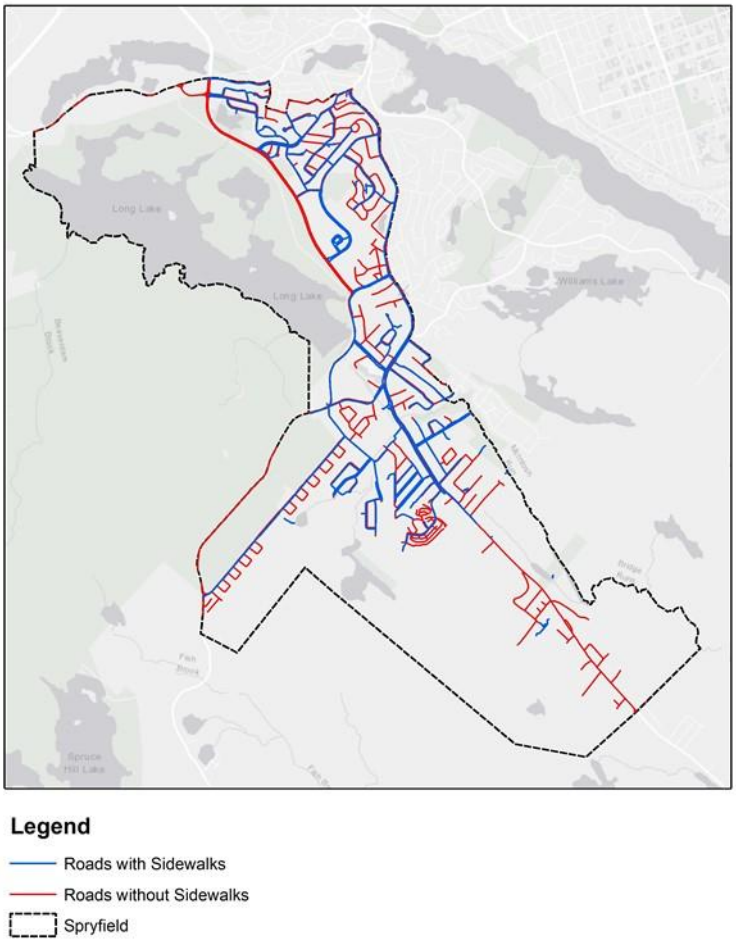


Table 3: Comparisons of the proportion of population who cannot reach food outlets without walking on steep roads (all communities) or roads without sidewalks (Spryfield)

		Population outside of coverage by supermarkets			Population outside coverage requiring trips on roads with greater than 5-degree slopes		
	Total population size	Outside 10-minute range	Outside 20-minute range	Outside 30-minute range	Outside 10-minute range	Outside 20-minute range	Outside 30-minute range
Shelburne County East	6,700	95.6%	84.4%	80.2%	95.7% (+0%)	85.5% (+1.1%)	80.3% (+0.1%)

Kings County Northeast	33,720	91.6%	74.3%	61.3%	94.5% (+2.9%)	87.3% (+13.0%)	80.1% (+18.8%)
Pictou	45,640	88.1%	70.2%	60.6%	93.0% (+4.9%)	81.2% (+11.0%)	74.3% (+13.7%)
Spryfield	14,000	81.5%	52.2%	13.0%	90.8% (+9.3%)	88.3% (+36.2%)	86.7% (+73.7%)
					Population who has to walk on a road without sidewalks or that must traverse greater than 5-degree slopes to get to food		
					94.8%	88.4%	88.2%

Once the slope of roads is taken into consideration, the population outside of supermarket coverage further increases in all of the four case communities. For Spryfield, we were also able to identify the proportion of residents who either have to walk on a street without sidewalks or have to walk on a road greater than 5 degrees in slope (Table 3). It is important to note that, even if sidewalks are present, many of them are not well maintained (ACT for CFS, 2015; Figure 5), which often presents difficulties related to reduced safety for those sharing the road with motor vehicles. As one participant pointed out, "One of the many crumbling sidewalks in […]… It is a constant obstacle course maneuvering up and down street by foot. I cannot even imagine trying to do so with a mobility issue such as needing a cane, crutches, or a wheelchair" (Community Member, Photovoice). While we were unable to include the barriers related to the dilapidated conditions of roads and sidewalks in this analysis, it only worsens the level of spatial access rather than improving it.

Figure 5: Photo by Shelby Caldwell

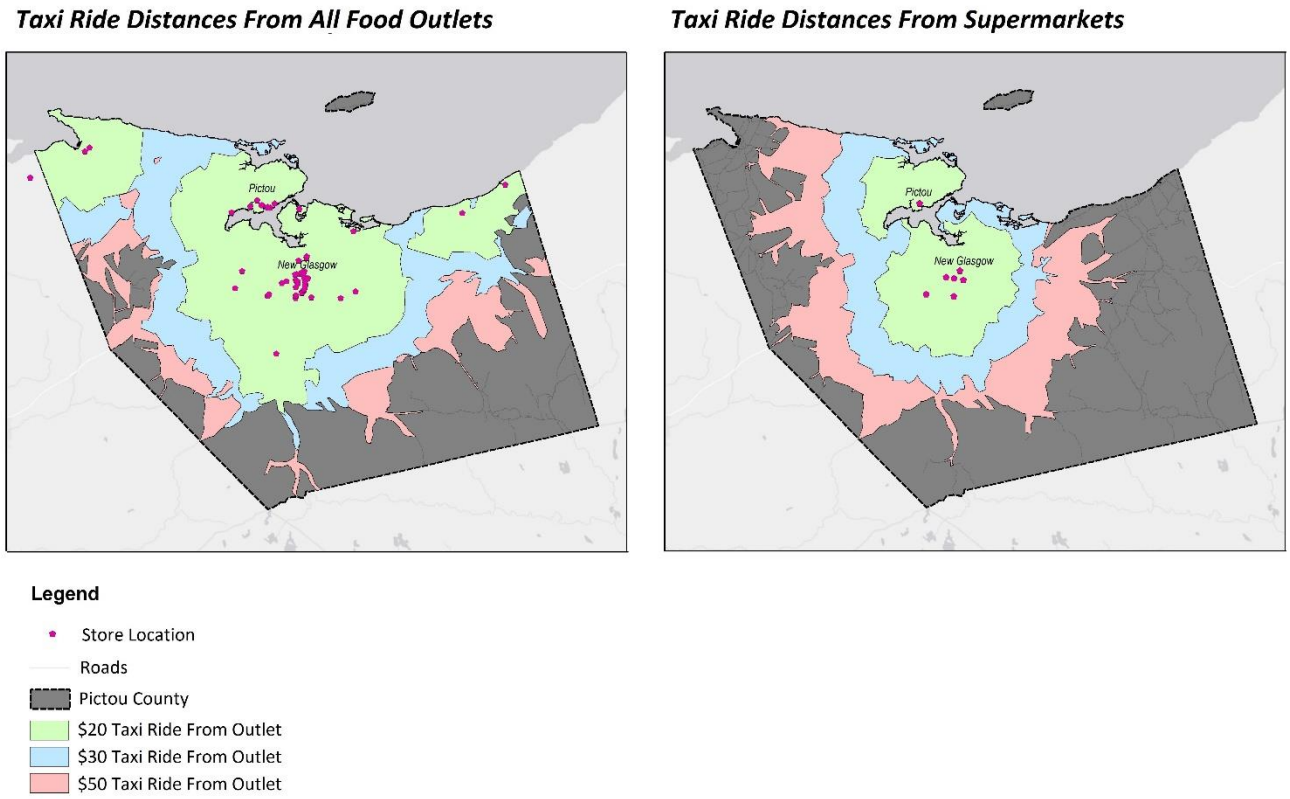
Domain 2· Challenges with means of transportation, including public transit and taxi services·

Accessibility barriers due to distance could be alleviated substantially with residents' improved access to a public transit system. For instance, although high proportions of the residents in Spryfield are outside of 10-minute walking distance to food outlets (53% for all food outlets and 81.5% for supermarkets), all residents live within a 10-minute walk of at least one bus stop. However, there are virtually no public transit services in Pictou, Kings County Northeast, and Eastern Shelburne Counties.

Many participants in the Photovoice sessions discussed the difficulties of affording a car, the cost of taxis, and having limited or no public transit service (ACT for CFS, 2015). A person who does not own a car needs to take a taxi, get a ride with a friend or family member, or access one of the limited (and not well-known or advertised) community transportation services. Taking a taxi is unaffordable for some and reduces money available to spend on food for many people living on low incomes. Some participants elaborated on costs associated with transportation and how this influences their decisions. One community member said, "I try to budget in the fresh fruits and vegetables and I go…the cab was 25 dollars off the mountain to […] and that was a

certain point in […], if you go any further then it's more uh so it was 25 uh dollars there and then if I wanted to go to […] farm market because I really loved going to […] farm market to get my stuff it was an extra thirteen dollars because it was an out of the way trip" (Community Member C, Photovoice). Another participant added, "I spend 250 dollars just on transportation alone in a month just to get my groceries and stuff to and from home and I have to do it a lot now…I find it hard breathe up and down the hill as things progress more and more" (Community member D, Photovoice). According to a third community member, "Well if you live in the municipality as opposed to the town and you want to get to […] to get grocery shopping you're looking at $25, $20-$25-$30 [of taxi rides]" (Community member E, Photovoice).

Figure 6: Map 4: Areas covered by $20, $30 and $50 one-way fares from all food outlets (left) and supermarkets specifically (right)



The lack of regular public transit services in these three rural communities means that residents often rely on taxi services, unless they have family or friends that they can ask to drive them to stores as needed. Residents outside of a $20 taxi fare range must often spend more than $40 to go to a food outlet and back if they do not have a car and cannot ask family or friends to drive them.

Figure 6 (Maps 4a and 4b) shows a comparison of the areas covered by $20, $30 and $50 taxi rides (one-way) in Pictou, where Map 4a includes all food outlets, and Map 4b includes only supermarkets. With the exception of Spryfield, at least some proportion of the residents of each community are outside of the areas in which a food outlet can be reached via a $20 taxi ride (one-way). The proportions of each population outside of the three taxi fee ranges vary across the case communities (Table 4), although the populations in areas outside of a $30 or $50 taxi ride range are relatively small in all four communities. Over one third of the population of Eastern Shelburne County was outside of a $20 taxi ride range of any food outlets, and nearly two thirds were outside of a $20 range from supermarkets specifically. Kings County Northeast has a very small proportion of the population outside of a $20 taxi ride range, as the majority of the population lives in or around the town centre.

Table 4: Comparison of the proportions of each population outside of $20, $30, and $50 taxi ride range from all types of food outlets and from supermarkets

		Population outside of coverage by all food outlets			Population outside of coverage by supermarkets		
	Total population size	Outside $20 range	Outside $30 range	Outside $50 range	Outside $20 range	Outside $30 range	Outside $50 range
Eastern Shelburne County	6,700	36.2%	13.7%	4.4%	62.2% (25.9+%)	48.8% (+35.0%)	24.8% (+20.4%)
Kings County Northeast	33,720	3.9%	1.0%	0.0%	8.9% (+5.0%)	2.0% (+1.0%)	0.0% (+0.0%)
Pictou	45,640	12.3%	4.0%	1.6%	34.0% (+21.7%)	18.3% (+14.2%)	9.3% (+7.7%)
Spryfield	14,000	0%	0%	0%	0%	0%	0%

Note: calculations are based on fee by distance (Casino Taxi, 2019), where a $20 fare is equivalent to approximately 10 km (including the start cost), or about a 10- to 11-minute drive, assuming an average speed of 50 to 60 km per hour. This means that a $30 fare will be about a 15km drive, and $50 will be a 28km drive.

Discussion

This paper aimed to uncover a more realistic depiction of the extent of populations at risk of food insecurity in four Nova Scotia communities by incorporating qualitative insights from

Photovoice data into GIS-based spatial analysis. While individual and family income is one of the most prominent risk factors for food insecurity, challenges in accessing food due to various physical environmental barriers may exacerbate the risk of not being able to obtain sufficient, affordable, and healthy food for individuals and families with low economic means. Our case communities—and likely others in the province—are faced with a myriad of physical barriers that are often not taken into account in the evaluation of accessibility of food outlets. Unsurprisingly, once some of these barriers were incorporated into our spatial analysis, a considerably higher proportion of residents were found to be outside of areas considered to have access to food outlets that are more affordable and provide a comprehensive selection of food items. Residents who live outside of the coverage areas and are in a socioeconomically precarious position are likely to be at a higher risk of food insecurity.

We focused on qualitative narratives from the perspectives of individuals who rely on public transit or walking to access food. With the exception of Spryfield, the case communities studied do not have regular public transit services. While some community-based transportation services exist, they are typically used for transporting the elderly to medical appointments, and do not run frequently enough for routine grocery shopping for many residents in need. While some Photovoice participants mentioned that they would sometimes ask friends and relatives to drive them, reluctance in asking for favours on a routine basis was reflected in one participant's comment: "when you're relying on the kindness of strangers or family members to take you grocery shopping you also don't feel like bringing home bags upon bags of things either" (Community Member, Photovoice). Car-share programs are not yet commonplace. Therefore, walking is likely the main (or even only) transportation option for many. Taxi rides are certainly not the most affordable, yet some residents resort to this option to avoid relying on their friends and neighbours.

Limitations of the Study

While we incorporated some key factors related to physical barriers to accessing food highlighted by the Photovoice participants, we were unable to assess many other factors due to lack of data. For example, participants pointed out that road (whether walking or driving) conditions in Nova Scotia in winter are particularly challenging. For four to five months of the year, icy roads and sidewalks make walking more difficult; people also must navigate rainy, windy, hot, or cold weather year-round. Participants also discussed how barriers related to navigating the built environment could be exacerbated for those with mobility challenges or with young children in a stroller. Data pertaining to snow clearance or general road maintenance were not available for all case communities. Although it was by no means our intention to incorporate a comprehensive list of factors mentioned by Photovoice participants, our investigation was limited by the availability of data that would have enabled more comprehensive investigation.

Incorporating more factors in the analysis would likely reveal an even higher proportion of people without easy access to food.

The barriers felt by community members may also be exacerbated by some time-related factors. For example, having a bus stop nearby does not always mean that bus services are available throughout the day. Food outlets' hours of operation also vary, and uniform treatment of all outlets' hours of operation likely overestimates the availability of food services, which vary depending on day of the week and time of day. Typically, data that are available, including those used in this study, do not differentiate based on time-related factors, which also likely contributes to underestimation of the population at risk.

Our study focused on factors more easily addressed through alteration of the physical environment than those amenable to interventions in a social (welfare) realm. The removal of physical environmental barriers can help with the journey to access food, but this study does not address challenges associated with other individual and family life circumstances. As one community member commented: "(e)verything is accessible if you have a reliable vehicle and a healthy food budget" (Community Member, Photovoice). Thus, improving individuals' and families' economic conditions, alongside provision of affordable transportation, would be crucial to reducing the risk of food insecurity (ACT for CFS, 2015). In addition to difficulties caused by weather conditions and a lack of public transportation services, the Photovoice participants also expressed the need for childcare in order to access food due to the challenge of bringing children on grocery shopping and food bank trips, especially for lone parents (ACT for CFS, 2015).

Previously, the ACT for CFS study arrived at many policy recommendations related to improving community food security in the province of Nova Scotia (ACT for CFS, 2015). These included reviewing and changing by-laws related to transportation and incentivising businesses providing healthy and affordable food; investing in public transportation in rural communities; being creative with food provision methods such as grocery shuttle programs; and keeping the cost of food items down through bulk food programs (ACT for CFS, 2015). Our present findings add urgency to the need for implementing these recommended changes by showing the higher magnitude of potential risks related to a lack of food access faced by the population using this type of analysis compared to a simple density and proximity-based spatial analysis.

Challenges of food access in Nova Scotia's rural and urban communities

Clearly, a higher proportion of the population is outside of walking-distance based food service areas in rural communities. Besides the geographic sparseness of rural residents, market-driven allocation of food services is also inherently biased against less dense areas. A globalized food market characterized by "the trend toward monopsony and vertical integration of the food production and distribution system" (Van Hoesen et al., 2013, p. 2) has largely diminished the viability of small-scale neighbourhood food businesses, leaving many rural communities with only a few chain grocery stores, and meaning that residents must often travel long distances

(Lebel et al., 2016; Sharkey, 2009; Smith et al., 2010). About 40% of Nova Scotia's population lives in rural communities, which adds to the urgency of addressing built environmental barriers in the province. Recognizing the differences between the realities of food accessibility in urban and rural communities, including the presence or absence of large-scale, full-line grocery stores, small general stores, and farmers' markets, studies of food accessibility have started to characterize accessibility to different types of food outlets in rural communities (Bustillos et al., 2009; Lebel et al., 2016; Liese et al., 2007; Sharkey, 2009). However, there is still a limited volume of research articulating experiences related to the lack of physical accessibility of all types of food outlets in rural communities (Ball et al., 2006; Kirwan & Maye, 2013; McEntee & Agyeman, 2010; Rodriguez & Grahame, 2016).

Although urban communities generally have better access to food outlets, they may also face physical barriers that are not captured by studies based solely on distance or food outlet density. Road slope or maintenance conditions, for instance, are not just rural issues. As demonstrated in the Spryfield context, a much higher proportion of the population may be outside of coverage areas once factors like road slope, poor road maintenance, or the need to walk on busy roads without sidewalks are taken into account. A recent study (Zhang & Mao, 2019) found that disparities in spatial accessibility to food outlets between urban and rural communities were narrower when multiple modes of transportation (walking, biking, public transit, and driving) were incorporated in the spatial analysis than when only a single mode was considered. Neither these findings nor findings from our study suggest that rural and urban communities are equally disadvantaged. Rather, they suggest that more detailed investigations of the unique built and social environmental conditions in both rural and urban communities are necessary in order to better understand the challenges relevant to each of these contexts.

Conclusion

Much of current food-related policy research focuses on informing social policy and programs, targeting individuals and families that are at risk of food insecurity by alleviating some of the social and economic hardships they face. Our study looks at necessary changes in the built environment, demonstrating what specific infrastructural conditions—whether natural or anthropogenic—contribute to the proportion of the population facing challenges in accessing food. The study is still simplistic and limited to a narrow scope. Notwithstanding these limitations, our intention was not to incorporate an exhaustive list of potential physical barriers in the analysis, but rather to see how the extent of spatial access in the case communities changed once even a few key barriers were incorporated in the GIS analysis to determine spatial coverage of the population. Therefore, our study is exploratory in nature.

Often, in-depth qualitative narratives are considered 'soft' evidence which is difficult to translate into quantifiable measures. This study also represents an attempt to bridge the quantitative-qualitative methodological division (Warde, 2014) for food research. The additional

value of our study is that we took one step further in showing the collaborative process of enhancing a spatial analysis of food access using community voices as critical attributes, without which the real extent of barriers to accessibility may be grossly underestimated.

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Original Research Article

Beyond health & nutrition: Imagining the school food environment through an integrated approach

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Abstract

In this paper we discuss one case study on school food environments in 50 elementary and high schools in a mid-sized city in Ontario, Canada. The school food environment is conceptualized broadly to capture the food cultures within schools including policies, programs, and food practices. The research used a structured questionnaire and qualitative open-ended questions with administrators about food access programs, priorities for the school food environment including school food philosophies, and their vision for a national school food program. Participant's priorities include: 1) food access; 2) health and nutrition; 3) education and food literacy; 4) the socio-cultural aspects of food; and 5) environment and sustainability. Most participants describe their food philosophies using health promotion discourses and construct food narrowly as either healthy and unhealthy, echoing provincial school food and nutrition policies and an instrumental approach. We suggest that administrator's framing of food through healthy food and nutritionism discourses reproduces wider societal views which medicalize food. We propose that overlapping socio-cultural and environmental priorities suggest that some administrators are also aware of emerging socio-ecological-nutrition frameworks and cultural food practices. We suggest there is a need to consider how an integrated approach to food would look within a future national school food program.

Keywords: School food environment; national school food program; nutritionism; integrated food pedagogies

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Introduction

Canada is currently the only G8 country without a national school food program (Colley et al., 2019; Hernandez et al. 2018). Currently, food provisioning is still largely seen as an individual or family responsibly rather than an integral part of public policy and the education system (Carbone et al., 2018). Different provinces, school boards, and schools have diverse approaches to the school food environment[1] relying on leaders within the schools (teachers, principals, etc.), charitable organizations, volunteers and in some cases, private enterprise to ensure food is available in schools (Carbone et al., 2018). Moreover, food is regulated in schools differently depending on provincial guidelines.

In Ontario, the School Food and Beverage Policy, or PPM150,[2] states, "the nutrition standards embody the principles of healthy eating outlined in Canada's Food Guide, and are intended to ensure that the food and beverages sold in schools contribute to student's healthy growth and development" (Ontario Ministry of Education 2010, section 5).[3] This aligns with the three guiding principles found in the Ontario Student Nutrition Program Nutrition Guidelines (SNP Nutrition Guidelines) as follows, "1) that good nutrition is important for healthy growth and development in childhood and can reduce the risk of health problems in later years, 2) healthy children are better learners; and 3) schools can directly influence children's health" (Ontario Ministry of Children and Youth Services, 2016, p. 5). These school food policies and guidelines direct how food programs (breakfast, lunch, or snack) are administered in schools.

In focusing on health and nutrition, however, these policies overlook the complexity of food practices and food systems. The reductive focus on nutrients and foods that are deemed healthy through nutrition guidelines medicalize food, which is taken up in the school food environment through food access programs and food pedagogies (Poppendieck, 2010; Welch et al., 2012). This framework of constructing food through nutrition in the school food environment reproduces the binaries of healthy/unhealthy foods, which also moralizes individuals as either good or bad based on their food choices (Lupton, 1996) through a Eurocentric lens. This instrumental approach, or viewing food as the sum of its nutrients on bodily functioning, can have significant impacts on how food, health, and bodies are understood in a pedagogical context (Cameron & Russell, 2016; Scrinis, 2013). In particular, the complex social meanings shaping food in the school food environment are neglected at the expense of other ways of knowing food (Best, 2017) and the structural constraints of food access programs remain hidden from policy

[1]The school food environment is conceptualized broadly to capture the food cultures within schools including policies, programs and food practices.
[2] The Policy Program Memorandum #150, or PPM150 is currently under review with no set date for release.
[3] Health Canada released an updated version of the official food guide in January 2019, after we had finished data collection. The new 2019 food guide encourages a more holistic approach to healthy eating incorporating social and environmental awareness alongside nutrition. See https://www.cbc.ca/news/health/canada-food-guide-unveil-1.4987261

makers (Raine et al., 2003). There are missed opportunities to use food as a lens for thinking about the interconnections between health and identity (Guptill et al., 2015).

In order to address the high prevalence of food insecurity among children and increasing concerns about health and well-being, the Coalition for Healthy School Food has been advocating for a national healthy school food program, which the federal government has pledged its intention to work toward (Coalition for Healthy School Food, 2019; Government of Canada, 2019; Ruetz & Kirk, 2019). Hernandez et al. (2018) suggest that any future national school food policy must be based on principles of universality, based in health-promotion, respectful to local conditions, connected to local communities and economies, aware of the cultural diversity of students, and be sustainable both financially, and in terms of schools' capacities (p. 220). Oostindjer et al. (2017) suggest that school food programs promote health and sustainable eating practices through education, which can be integrated with the school meal. This integrated approach echoes Poppendieck (2010) who suggests that we need to consider critical food literacy in addition to health and nutrition within the school food environment. According to Cullen et al. (2016) food literacy is when individuals understand food as relational and contextual (p. 143). That is, there is a need to know or learn about food through a framework that includes the social, cultural, economic, political, health, and nutritional aspects of food in order to be able to develop a positive relationship with it, similar to emerging socio-ecological-nutrition or social justice models, which position food and nutrition as much more than nutrients (Hayes-Conroy & Hayes-Conroy, 2013; Mason & Lang, 2017).

In this paper, we explore school food environments and food access programs across four school boards. Administrators were interviewed about their school's food philosophies, their priorities for the school food environment, and how they might envision a national school food program. Currently, there is limited research on food access programs and the school food environment from the perspective of school administrators.

School food programs

Many countries have national school food programs including the USA, Japan, Finland, Sweden, and the United Kingdom (Harper et al., 2008). These programs vary significantly, from universal free-for-all models in Sweden and Finland, to programs which are moderately subsidized as in Japan (Kimura, 2016; NIER, 2013), to minimally subsidized programs in the US that are only free for low-income students (Harper et al., 2008; Poppendieck, 2010). The purposes and goals of school food programs are not the same in all countries. While providing a nutritional meal is a major goal for national school food programs, some countries take an integrated approach and recognize food programs as an important educational tool with socio-cultural significance (Kimura, 2016; Oostindjer et al., 2017; Persson, 2012).

Some national school food programs position food in economic and instrumental terms, which is evident in the US model (Poppendieck, 2010). When food is approached in an

instrumental way, feeding children is viewed as necessary to ensure that hunger or nutritional deficits do not interfere with learning (Colley et al., 2019). According to Poppendieck (2010), the US National School Lunch Program (NSLP) and School Breakfast Programs (SBP), both of which are available in most elementary and high schools, pursues this mandate (p. 3). Both programs are federal child nutrition programs administered and subsidized by the United States Department of Agriculture (USDA). The lunch program began in the first half of the 20th century, emerging from the Great Depression as a response to increasing malnutrition among young students and agricultural surplus (Poppendieck, 2010). While the two programs are available to all students in most states and school districts, it is not universally accessible as means-testing based on household income enable some students access to free meals whereas others pay subsidized fees or the full price. Although much more complex than there is space here to describe,[4] Poppendieck (2010) argues that the purpose of the NSLP and the SBP have changed little since their inception with feeding food insecure children a nutritious meal and finding a use for agricultural surplus as the main justification for its continuance, which she points out is problematic given that these objectives are often in conflict with each other. The need for cheap and easily prepared school meals often forces cafeterias to sacrifice the quality and rely on cheaply processed, commodity foods such as pizza, French fries, chicken nuggets, or burgers. According to Weaver-Hightower (2011) and Laird (2018), food in US schools is often treated as a utilitarian necessity rather than seeing the potential and value of a more integrative approach and how it might benefit students.[5]

Alternatively, food can be understood as an integral part of the school day and the pedagogical aspects of food and eating are emphasized alongside the provision of food in an integrated model, which is found in Japan, Sweden, and Finland (Oostindjer et al., 2017). Scandinavian countries and Japan take a different approach to universal school food programming in that food is viewed in the context of food systems and food practices, and is seen as a pedagogical tool (Benn & Carlsson, 2014; Janhonen et al., 2016; Kimura, 2016; NIER, 2013; Persson, 2012). Finland, Sweden, and Japan recognize the provision of food as a public responsibility, which stands in contrast to Canada where parents have historically, and still today, largely been responsible for providing their children with bagged lunches (Carbone et al., 2018).[6]

Finland has numerous policies that regulate the provision of food in schools. Central to their model is that every child attending school must be provided a free lunch daily and that the

[4] See Levine (2008) and Poppendieck (2010) for a more complete history of US school food programs.
[5] In addition to the federal policies governing public school food in the US, there are private enterprises that collaborate with some community schools to bring a more integrative model of food pedagogy to schools, such as The Edible Schoolyard Project whose mission is to make a connection between curriculum and food education and uses school gardens and school kitchens as sites of experiential learning (The Edible Schoolyard Project, 2017).
[6] Oostendjer et al., (2017) argue that the education-integrated approach is not working in Sweden because students do not view the food program positively.

school meal is pedagogical in that it should teach "information about national and international food cultures, proper nutrition, good manners and a sustainable way of life" (Pellikka et al., 2019, p.7). Sweden and Japan have similar models which also emphasize school lunch as a pedagogical meal (Kimura, 2016; NIER, 2013; Persson, 2012). For Persson (2012), a pedagogical meal is an opportunity for teachers and students to connect over lunch, which serves as a learning occasion where students can learn about various aspects of food and food systems in an informal setting. Similarly, in Japan, Shokuiku, or the Food Education Law introduced in 2014, "teaches the contributions of various people to the production of food, to deepen understanding of traditional foods, and to foster the spirit of cooperation, in addition to the intake of appropriate nutrition" (Cabinet Office, 2008 in Kimura, 2016, p. 82)

Unlike in the US, educators in Sweden and Japan share lunch with their students, eating together and cleaning up afterwards, in addition to learning where various ingredients for the meal originate, which promotes integrative learning and encourages relationship-building and social skills (Kimura, 2016; NIER, 2013; Persson, 2012)

School food programs in Canada

Carbone et al. (2018) argue that Canada missed an opportunity to start a publicly funded school meal program in the 1940s, when the issue of child malnutrition was seen as a public issue. Rather than implement a national school food program like what was happening in the US at the time, the Canadian government chose to introduce the Family Allowance,[7] which was seen as a solution to the problem of child malnutrition in the context of existing liberal welfare state ideology (Carbone et al., 2018). Thus, responsibility for feeding children stayed with parents rather than the government. According to Carbone et al. (2018), this liberal welfare state ideology has changed little since the 1940s and has become even more focused on family and individual responsibility over governmental responsibility under neoliberalism. Under neoliberal ideology, large-scale government intervention is viewed negatively because it is assumed that the free market economy can respond more effectively than the state to rising problems (Harvey, 2005) such as rising rates of food insecurity. The logical consequence has been the emergence of community-based and charitable programs to address child hunger, which we see in the form of school or parent organized breakfast clubs supported in part through not-for-profit organizations such as Breakfast Club of Canada. This mirrors other charitable approaches to food insecurity in Canada through the growth and institutionalization of food banks across society (Riches, 2018; Tarasuk & Mitchel, 2020).

Although charity has become the dominant approach to food insecurity within schools, a study conducted in Atlantic Canada found that community-based and charitable nutrition

[7] Family Allowance is a federal social welfare program implemented in 1945 to support families financially (Carbone et al. 2018).

programs are insufficient in addressing the needs of hungry children (Raine et al., 2003). While all programs in their study were designed primarily to address the problem of hungry students, they found that most programs did not sufficiently reach the target group because of the stigma children and parents experienced when accessing emergency food programs. Their research demonstrates the need to make school food programs universally available to all children in schools rather than singling some students out as in need of food assistance.

As noted earlier, food is a provincial jurisdiction in Canada and thus approaches, guidelines, regulations, and programs can vary drastically among schools across the country (Phorson, 2015). Yet the general approach to food in Canadian schools appears to mirror the utilitarian and instrumental approach that characterizes the dominant US approach, although there are large variations across the country and there are many examples of school boards or individual schools that aim towards a more integrative approach (Colley et al., 2019; Peterat & Mayer Smith, 2006; Powell & Wittman, 2017; Rojas et al., 2011). However, without a formal national school food policy there is no framework guiding schools to consider how an integrative approach could potentially better serve students.

Methods

A total of fifty (N=50) school administrators participated in the case study. Thirty-eight (38) elementary, eight (8) high schools and four (4) adult and continuing education programs represented schools across four school boards included the public, catholic, francophone, and a local Indigenous education council in Thunder Bay, Ontario, Canada. Participants were recruited with the assistance of the School Food Working Group[8] of the local municipal food council.[9]

Quantitative and qualitative data were collected through in-person interviews. In the first part of the interview, participants were asked structured, close-ended questions about food access programs currently operating in their schools. This was followed with open-ended, qualitative questions about school food philosophies, their top three priorities regarding food in their school food environment, and to describe what a universal school food program would look like in their school.

Descriptive statistics were calculated for the close-ended questions that inventoried school food programs and ranked participant priorities for the school food environment. Following this, both authors worked collaboratively to undertake open-coding, an iterative

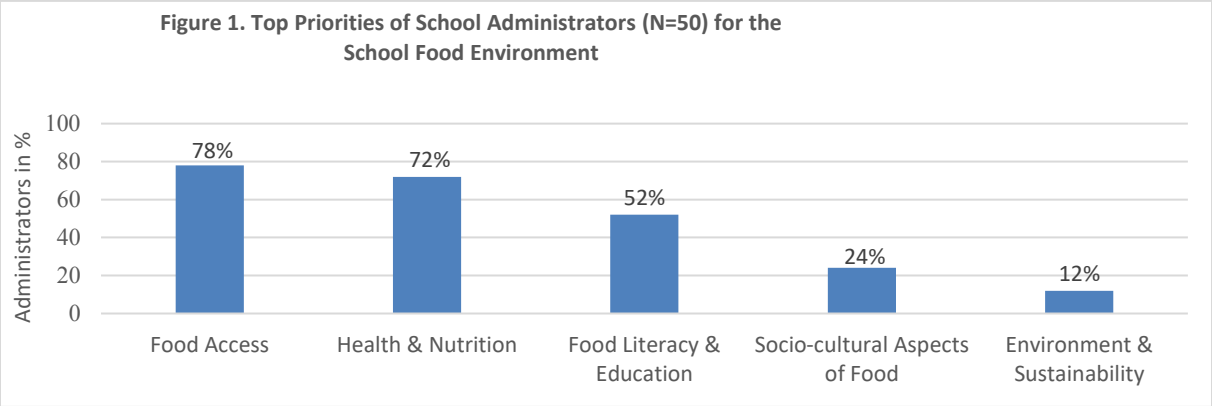
[8] The working group consisted of representatives from the two largest school boards, public health dieticians, and not-for profit organizations who work in schools in various capacities. Both authors are members of the working group.

[9] This research employed a community-based research approach. Community-based research (CBR) is participatory and action oriented, or meant to produce social change (MacKinnon, 2018). In line with CBR, the working group is a member of the national Coalition for Healthy School Food and advocates for a universal school food program and better food environments at the local school boards level.

process of engaging with the qualitative data to identify themes in the participant interview narratives (Creswell & Poth, 2018). Using discourse analysis and building on the thematic analysis we further analyzed the codes with a close reading of the ways in which participants described and talked about food in the school food environment. Discourse analysis is a methodological approach that examines how language and ideas emerge and circulate to reflect wider social structures (Lupton, 1992). Discourse analysis is used to examine contested knowledge and how power is operating through the construction of knowledge (Lupton, 1992). This project received ethics approval from the Lakehead University Research Ethics Board.

Findings

Five interrelated priorities for the school food environment emerged from the interviews with administrators. (See Figure 1[10])

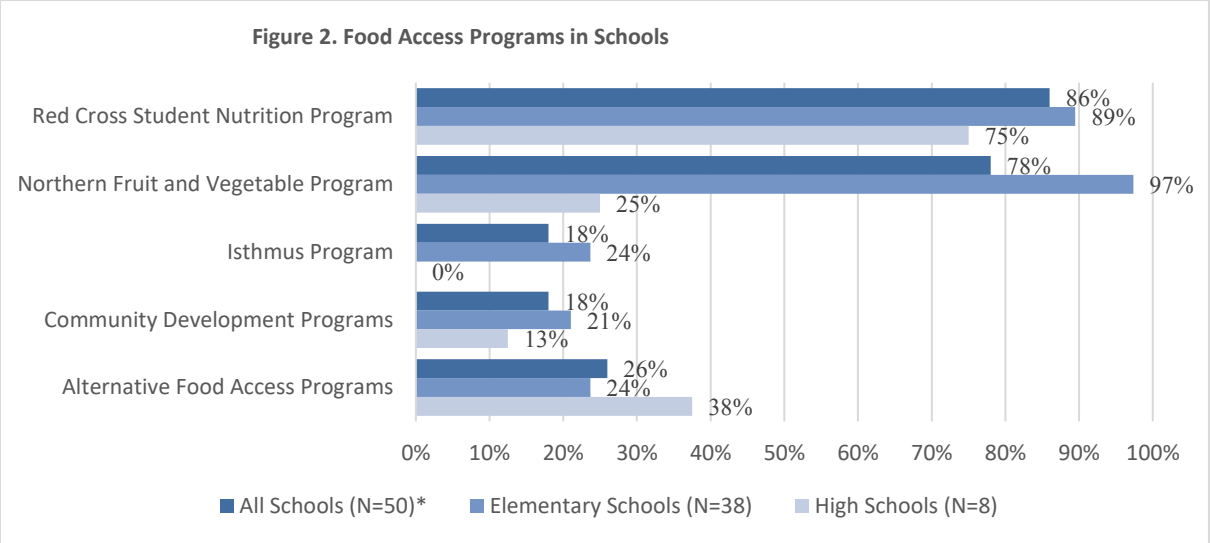


Food access

All schools had food access programs designed to support food insecurity, which participants identified as their first priority for the school food environment (78%). The Student Nutrition Program, administered by the Red Cross, is the main food access program providing food and funding for school breakfast and grab-and-go snack programs. This program is funded by The Ministry of Children, Community and Social Services, the Breakfast Club of Canada, and the Grocery Foundation, and follows the SNP Nutrition Guidelines. Eighty-six percent (86%) of schools rely on the Red Cross Student Nutrition Program as their food access program. Although this program mainly targets students from low-income and food insecure families, several

[10] Figure 1 represents administrators' responses to the question of "What are the top three priorities for your school food environment?

participants explained that the program is designed to be universal. As one elementary school principal shared, "no child goes hungry, everyone has access to food at the grab-and-go table" (0001E).[11] Many participants explained that "food is always available for lunch" even when there are no formal school lunch programs. Students are given food (sandwich, breakfast leftovers, etc.) if they are identified as needing lunch. (See Figure 2[12])



*Includes 4 Adult & Continuing Education Programs

Ninety-seven percent (97%) of elementary schools participated in the Northern Fruit and Vegetable Program. High schools were not eligible for this provincial food access program. The Northern Fruit and Vegetable Program is administered by the local District Health Unit and funded by the Ministry of Health and Long-Term Care and the Ontario Fruit and Vegetable Growers Association. This weekly initiative provides fresh fruit and vegetables to schools to serve to children.

Nine of our thirty-eight elementary schools work with the Isthmus program, a Canadian charity with a local chapter. This program relies on teachers and administrators to identify K-8 children who are food insecure and then sends food home weekly in a discrete backpack handed out on Fridays for the weekend. Additionally, eight elementary schools and one high school collaborate with a local not-for-profit community development organization that provides food literacy and cooking classes in addition to a food access program. Finally, thirteen schools mentioned that they have alternative food access programs other than those mentioned above. One example is a program run by the Ontario Aboriginal Head Start Association, which focuses

[11] Participants are identified by their anonymized number. "E" denotes elementary, "S" is for secondary school and "A" is for adult and continuing education administrator.
[12] Figure 2 represents administrators' responses (N=50) to the question "What food programs or food initiatives are in your school? The graph summarizes data about food access programs.

on the well-being and food security of Indigenous children. As an Indigenous organization, their programming also focuses on ceremony and traditional teachings related to land-based activities such as hunting, gathering, and harvesting.

The issue of food insecurity was central to participant narratives about their school food philosophies. One principal explained, "I receive at least one phone call each week from a parent who does not want to send their children to school as they have no food to pack for lunch... it is often the cause of student distress" (0056E). Most participants shared the view that, “many students are food insecure, but those in need are able to access food at school" (0009E). Most participants shared the belief that the school is a place where students have access to food.

While there are several food access programs designed to combat student food insecurity, programs and solutions are not equitable in terms of delivery across or within schools. For instance, 59% of schools have volunteers to organize or work in food access programs, which enables some schools to provide a sit-down breakfast program while others only have a grab-and-go table. There is also a wide range of differences across K-8 schools who offer hot lunch days, with most schools having no regular hot lunch available other than a weekly pizza day. In a few schools, there was a more substantial hot lunch provided, organized by parent councils, often supervised by volunteers, highlighting the inequities across schools. These also differed from high schools, where hot food was available for purchase in the school cafeteria every day.

Within elementary schools that had hot lunch available, there is usually a fee. One participant shared, "much of the food available is free including snacks and breakfast. Only the hot lunch and milk requires purchasing” (0030E). Although milk and hot lunches require students to pay, some schools subsidize these for students who self-identify as in need, with one principal stating "children know they can ask a supervisor for food” (0047E). As explained by another participant, "we subsidize hot lunches by providing the funding through fundraising. If students opt to have hot lunch, we do not require families to pay if they cannot" (0052E). This was not the case in every school, however, with another participant saying, "there is always food for students through one of the programs, but hot lunch days are extra" (0016E). Another interviewee shared, "the church subsidizes our milk program ... this initiative is informal. Teachers know what students need milk” (0054E), while another participant explained that, “milk cards and pizza cards can be provided to students through fundraising, and the 'It takes $2 Campaign'" (0035E), an employee payroll donation initiative.

As these excerpts highlight, there are many informal responses by administrators, teachers, and community partners who fundraise and find ways to cobble together funding for gaps in current food access programs to meet the implicit goal that, “no child goes hungry” (0001E). Additionally, it was explained that "there are no official or communicated subsidies for students with low SES" (0024E), which illuminates the lack of official policy for students from low income families to apply for support.

Stigma

Many participants expressed their awareness of issues around stigma relating to food insecurity and having to access emergency food programs. One principal stated, "there is always some food available (leftovers from breakfast club, snacks, or pizza) and teachers try to be discrete about giving it out to students in need" (0021E). Across the interviews, principals talked about not wanting to single out students as food insecure. One principal shared that food programs are run as, "a club with no stigmas or barriers. It is sociable, and anyone can go" (0038E), while another stated, "there is no stigma in the way they run programs because everyone has access to food not just food insecure students" (0027E). This underlying attitude was summed up by another principal who explained, "everyone gets food who asks for it—not just food insecure students. This approach reduces stigma" (0017S). Administrators position the school food environment as one in which food access and reducing stigma is central to their priorities and school food philosophies. This carried over to their comments about the need for a national school food program to be universal.

Health and nutrition

Health and nutrition were ranked as the second priority (72%) for the school food environment according to participants. Principals used terms like "healthy choices", "getting healthier alternatives", "message of healthy food", or "healthy living" across the interviews when describing their school food philosophy. Participants explained that provincial and federal guidelines for healthy food in schools was key to their approach. Specifically, across the public, catholic, francophone, and Indigenous schools we heard repeatedly that schools follow "Ministry Healthy Food Guidelines", "nutrition guidelines and policies" and that the "Health Canada Food Guide" is central to how they think about their school food philosophy. The message of health and nutrition is integral to the provincial policies and therefore it is not a coincidence to hear participants see these as a priority for their school food environment.

Health promotion: Knowing healthy food through nutritionism

Following adherence to these guidelines, responses to the question of a school food philosophy further demonstrated that administrators frame food through health promotion language and priorities that center around healthy eating practices and physical exercise. In terms of healthy eating, one principal shared, "students need to eat healthy food from all food groups" (0053E), while another explained that they try to take a "low sugar and sodium approach" (0038E), medicalizing food by focusing on nutrients (Scrinis, 2013). Another principal stated, "students need healthy food first, to stay hydrated, one piece of fruit per day, and we need to explain to kids what they are eating when they bring in foods from home" (0004E).

This notion that “food from home” was unhealthy was shared by another participant who explained, “many of the students from the school come from struggling homes. The school finds that students are less likely to eat healthy food provided to them by the school as they have never seen it before, or don't like it. Food from home is often sugary and unhealthy for the students” (0042E). One principal also mentioned the importance of communicating the message of healthy eating to parents to try to encourage them to pack healthier lunches saying that they, "send notes to parents to encourage healthy choices” (0008E). Similar to what we see across society, food within the school food environment is moralized as either good or bad (Lupton, 2005), and thus some parents are subsequently constructed as either good or bad, reinforcing gendered and classed social differences (Ristovski-Slijepcevic et al., 2010).

Some participants also mentioned the importance of physical exercise with more than one principal making connections between healthy eating, physical education, and healthy bodies. One principal explained, "the school is dedicated to following the concept of being fit and healthy through physical education and nutrition ... we can't be too rigid, kids should be able to have treats once in a while, but food is fuel for the body and convenience is our enemy” (0010E). Similarly, another participant shared, “food and physical activity go hand in hand” (0023E), reinforcing the belief that there is an energy balance equation of “calories in equals calories out” (Scrinis, 2013, pp.112-121). While yet another principal shared their worries about childhood “obesity”[13] stating, “then there is the issue of overconsumption … some students eat too much or eat the wrong foods” (0006E). These excerpts illustrate how ideas about healthy bodies circulate and are pedagogically reinforced through didactic approaches and beliefs about healthy food (Welch et al., 2012), which school administrators take responsibility for by managing the health risks (i.e., childhood "obesity" and diabetes) of student and family food choices.

Although beliefs about healthy food and the provincial policies that regulate food served at school are front and center for administrators, they are not always easy to navigate. One principal shared, "the Red Cross is restrictive: they do audits to check what the money is spent on" (0009E). As another participant explained, “we run into many restrictions that make it hard to run programming" (0028E). For instance, at one hot breakfast program a school served breakfast sausage that was made from locally produced meat, and the parent volunteers were told they could not serve (or be reimbursed for) it because it did not meet provincial nutrition guidelines (i.e., concerns over saturated fat content). Participants explained that the Red Cross follows the SNP Nutrition Guidelines, which delineate those foods that are approved as healthy and thus good or appropriate to serve to students. This reinforces the undercurrent of understanding food through the binaries of healthy/unhealthy and good versus bad foods. These participant narratives show how food is viewed in an instrumental way, that is, food is medicalized and moralized when it is constructed through public health nutrition.

Alternatively, three out of eight high schools were running a Farm to Cafeteria food program, which has at its core connections between locally farmed, seasonal food as healthier

[13] “Obesity” is placed in quotation marks to recognize that it is a contested concept (Campos et. al., 2005).

food for students, while also being good for the environment. Although these schools have incorporated a farm to cafeteria model, they are still required to follow the PPM150. An administrator shared that the PPM150 impacts decisions about the foods they are allowed to use in the preparation of foods for sale in their cafeteria. She explained, "we're required to use 'light' cheese (reduced fat), which is highly processed and not good, compared to regular cheese (full fat)" (0011S). In this example, cheese under the PPM150 is understood by its macro-nutrient content (i.e., fat) as opposed to other ways of knowing food.

Finally, the farm to cafeteria model offers some students opportunities for experiential learning in critical food literacy, which is an integrated pedagogical approach to food.

Food literacy and education

The third priority for participants was food literacy and education (52%), although ideas about what food literacy should focus on varied.

Health promotion: Learning about food through nutritionism

For most administrators, food literacy is teaching students about health and nutrition and is mainly taught through the health studies curriculum. For instance, it was shared that, "food education is about nutrition" (0055E) and "nutrition is part of the health curriculum" (0006E). Further, it was explained that their approach to food was to "build knowledge around food and nutrition as many students lack an understanding about fresh food" (0017S), and that teaching "nutrition awareness" (0039E) was a priority. One principal stated that they wanted to, "continue promoting food literacy to teach kids about healthy food through curriculum and exposure, for example, by making smoothies in the classroom" (0024E).

Education on nutrition as an aspect of food literacy went beyond teaching the students and extended to families. A principal shared, "we have strong relationships with parents and try to educate families on nutrition" (0034E). Similar sentiments were echoed by participants who shared, "at the beginning of the year information regarding food literacy is sent home and in the monthly newsletter, DHU [District Health Unit] tips are included" (0046E) and "the Health Unit helps with nutrition education" (0010E). One principal explained, "At the kindergarten preview day, we provide parents with information about what a balanced meal looks like" (0024E). This emphasis on nutrition and public health as central to food literacy overlaps with the earlier identified priority of health and nutrition as a key element of school food philosophies.

Eco-nutrition and integrated food education

Not all participants viewed food literacy and education as exclusively about health and nutrition. Although not heard as frequently, several participants talked about teaching students about food

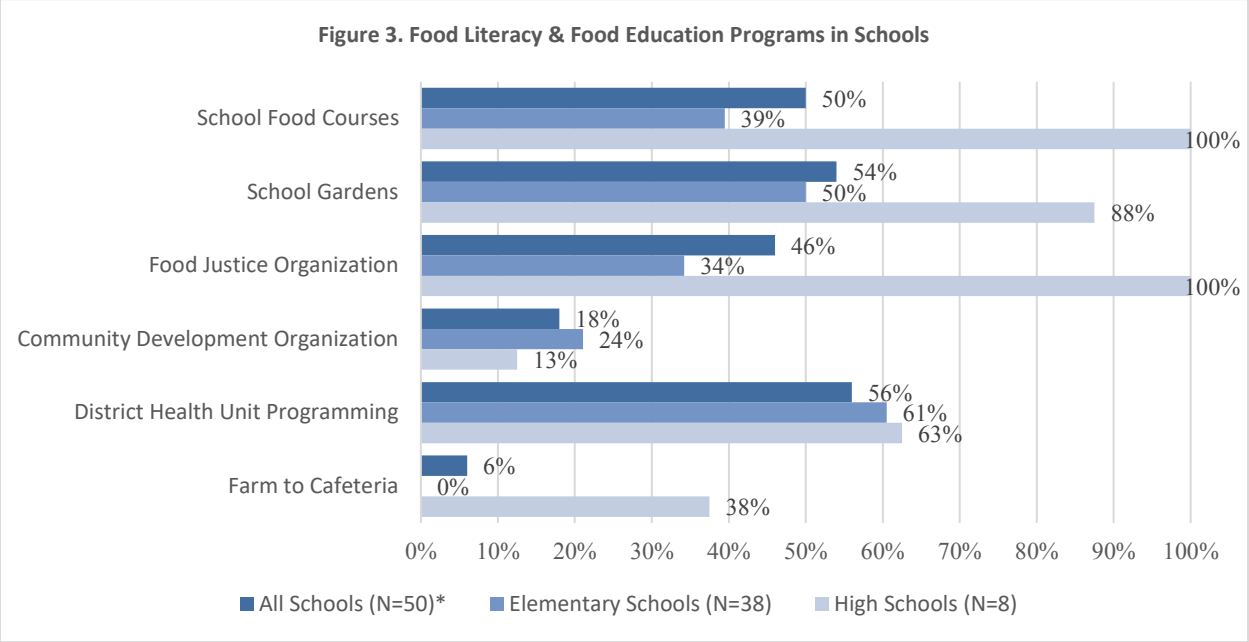
systems, including using school gardens to learn about where and how food is produced and culinary or cooking skills (See Figure 3).

Fifty-four percent (54%) of all schools had a school garden or were in the process of developing one to complement the school food environment. Efforts to create school gardens were often led by leaders in the school (e.g., teachers), many with the assistance of a local not-for-profit food justice organization that runs school gardens, food literacy workshops and in some high schools, a farm to cafeteria model, mentioned above.

Several participants described teaching about food systems using an experiential approach with teachers using the garden as a learning opportunity for students to grow food. In some cases, this was extended to a foods class where students might have opportunities to prepare food through cooking classes. One principal explained, "We really focus on working with and using local providers, chefs, farms, and locally produced food. We also focus on involving our students in all aspects of our food programs at the school as volunteers, planners, prep, cooks, and servers" (0052E).

A few schools combine food literacy using food classes with the provision of food. One principal explained, "some of the food classes make some of the food for the cafeteria, however, the cafeteria manager told me that there could be more coordination with that... maybe in a future hospitality major, with a cultural focus, for students interested in culinary arts" (0026S). The farm to cafeteria approach enables "making connections between locally sourced food and education" (0017S). While the farm to cafeteria model was not in all secondary schools, another high school offered students a unique foods class that had students prepare the daily lunch meal, using fresh ingredients, which was then served in the cafeteria as an unofficial food access program. As an experiential learning experience, students learned culinary arts and about food systems. In addition to having students make the school lunch, which was subsidized by the school, all students had access regardless of their ability to pay. See Figure 3[14]

[14] Figure 3 represents administrators' responses (N=50) to the question "What food programs or food initiatives are in your school? The graph summarizes data about food literacy & education programs



*includes 4 Adult & Continuing Education Programs

Twenty-four percent (24%) of elementary schools worked with a local not-for-profit, community development organization with a community kitchen. Students in every grade are bused on rotation to the community kitchen where they learn how to cook and eat the foods prepared collectively. As these participants stressed, learning about food systems and cooking are critical knowledge and skills. However, without provincially mandated curriculum and/or direction from school boards, administrators explained that they were limited in how they could incorporate food literacy or teach food in their school. One principal stated, "overall, food has to play a more important part at school, we need a policy, we need to connect food to school life through education" (0009E).

These examples across schools highlight the structural inequities within and between schools in terms of what students are learning about food. In particular, some schools are more instrumental in their approach, focusing on health promotion and nutrition, while others take an integrated approach, centering emerging models of eco-nutrition as important for food literacy.

Socio-cultural aspects of food

The socio-cultural aspects of food were identified as the fourth priority by participants (24%), with one principal claiming, "food brings people together" (0030E). This theme sees participants position food as relational and contextual. Food is used as a way to connect and build relationships between school staff, students, and families, as well as imparting cultural identities within the school.

Building social connections using unhealthy foods

Food is integral for events in schools and the celebration of special occasions. As one participant summed up, "food is used for *every* special occasion" (0025S). Participants described in great detail the various foods served and available in their schools for special events. One participant explained, "cookies, hot dogs, chips, pop, salad bar, fruit kabobs ... sweeter foods are served at the carnival and at holidays ... and we try to focus on serving healthy food at events ... or food that is provided by parent volunteers, which can be unhealthy" (0040E), illustrating again that food from home is considered unhealthy. Another participant shared, "we have a family barbeque in fall and spring, and serve hot dogs ... and for movie nights there is popcorn" (0020E), while yet another principal talked about the, "Spring Fling [indoor carnival] where there is pizza, cupcakes, ice cream, juice, milk" (0001E). Many schools described family barbeques in which "hot dogs, watermelon, and freezies" (0049E) are the regular feature foods.

Food is used to build relationships between teachers and students. In a few schools, secondary students are involved in the preparation of the foods served. One principal explained, "for our staff meetings, food will be prepared by one class" (0026S). Food is sometimes used as a reward. For example, one principal explained, "food might be used for perfect attendance (e.g., cafeteria or other food gift cards) ... or used in class competitions with the winning class getting a pizza party" (0026S).

Although food is used extensively to connect with students, the underlying tension between healthy and unhealthy foods persists. For instance, one principal explained, "we focus on healthy foods for events with parents (e.g., fresh fruits, veggies, granola bars) however for the grade six end of the year celebration, there is no specific focus and the food varies" (0006E). Another principal elaborated on this saying, "food is used to draw families in to engage with school through feasts ... achievement nights, and families and relatives are invited to come to most events. 35% of students are First Nation and a large percentage is impoverished... we try to have culturally appropriate food, although we have to conform to ministry guidelines" (0017S). Another participant reiterated, "food is a huge thing to draw families in (chilli, pasta, pizza, etc.) ... and we try to keep it healthy" (0016E). Health and ministry guidelines, in addition to the need to serve cultural foods, is integral. Many of the foods talked about by participants have important symbolic meaning for children and youth (Best, 2017), representing comfort and childhood, and in some cases, cultural identity.

Cultural and Indigenous foods as healthy foods

Food is important to cultural and ethnic identities. Schools are diverse and represent Indigenous students, newcomers to Canada, and the wider population demographics. One participant explained, "there is a need to provide cultural foods (such as fish, moose meat, goose, bannock, etc.) to ease home sickness, as our students leave their home communities to attend school here

and live in boarding homes across the city" (0008S). To this end, several principals described how their school food environment incorporated cultural foods, such as traditional Indigenous foods like moose or bannock. As described by one principal, "at our feasts—we have traditional foods such as turkey, ham, fish, sometimes moose meat, wild rice, vegetables, salad, buns, bannock, dessert, milk, juice, tea, coffee, etc." (0007E). Another participant explained that their school has "pow wows ... and a Fish Fry" (0028E). Serving traditional foods is a means of sharing cultural food traditions, which are connected to identity and are health promoting (Power, 2008). One principal explained, "First Nations celebrations are celebrated with traditional food ... ... food comes from the land and students need to understand how to care for the land so that the land can care for us. At our school, we are well on our way to developing a clear vision that encompasses all the work invested in our school food environment" (0015E). The relationship between land and food overlaps, which we discuss in our final theme on the environment and sustainability.

Finally, when asked what a universal school food program might entail, many participants explained that they would like to see more culturally appropriate food in schools, which is summed up by one participant who shared, "there is a need for culturally appropriate food, programming, and education to allow students to try and experience a variety of different healthy food" (0042E). Another participant explained that they would like to see "culturally appropriate foods, as we have a high number of Syrian refugee families" (0009E), while another participant explained that it ,"would be useful to have experts come in and demonstrate how to make a variety of food from different cultures" (0005A).

The environment and sustainability

Finally, fewer participants raised issues concerning the environment and sustainability as a priority (12%), however, the issues raised intersect with many of the other priorities and offer another perspective on the role food plays in the school food environment.

Environment, health & identity

As discussed in the third priority, teaching about the environment and sustainability through food systems or an eco-nutrition lens illustrates a more integrated food education. For instance, when asked about their school food philosophy, one participant explained, "we're an eco-school with an environmental focus on sustainable food and food systems... and healthy food is accessible to all kids" (0044E). Another participant stated that, "awareness is needed for food safety... the personal environmental impacts of food and large-scale farming, and personal nutrition" (0031A). Here, food risk is constructed as an overlapping responsibility for health and the environment (Parker, 2020). Yet another principal noted that their school food philosophy, "has shifted over the last two years to align with the farm to cafeteria approach, which is homemade,

seasonal, local, and healthy" (0026S). Awareness of the connections between health, the environment, and food systems included "growing one's own food" (0027E).

Participants explained that, "children need opportunities to develop sustainable habits" (0020E) and that "sustainability" (0027E) is a priority. For instance, a few participants spoke about "food waste and recycling" (0029E) and the importance of "more recycling in the cafeteria" (0026S).

Several schools mentioned how they try to prioritize using local food whenever possible. For instance, some schools sell fresh food boxes produced by local growers and farmers as fundraisers, with one participant explaining that they have a "farm to school program where families order groceries fresh from the farm during peak season and the food is delivered to the school and then distributed" (0028E).

Finally, when asked what a universal school food program would consist of in their school, one principal explained, "locally sourced food, a school garden with summer maintenance and water and facilities for starting plants indoors due to short growing season and regular nutrition programming ... integrated learning with our local food producers and farms" (0052E). Similarly, another participant shared, "culturally appropriate, local, sustainable food ... incorporating the produce from our future school garden" (0024E). Finally, another principal explained that a universal school food program should,

> "Continue offering Foods Courses in both semesters of the school year; continue serving culturally appropriate food as well as incorporating more local, sustainable food in all aspects of food programming within the school; and continue providing opportunities to ease homesickness, as well as food education through the Elder's Program/Club, and after school programming in a relaxed and socializing atmosphere. We currently have undertaken the use of Grow Towers in our Foods Lab, Science Lab, and Elder's Room; we also have a greenhouse project in the works to hopefully be usable for the next school year; and we are in the process of revamping our Cafeteria menu." (0007S)

As illustrated, connections between the environment and sustainability intersect with health, critical food literacy, and the socio-cultural aspects of food.

Discussion

The five priorities and discourse analysis above describe how administrators think about their school food environments and the underlying philosophies guiding them. Schools did not have a formal school food philosophy that was officially documented or follow any school board directive other than provincial health and nutrition guidelines (e.g., PPM 150, SNP Nutrition

Guidelines) although it was noted that the gaps in policy left many to determine their own approach to food in the school food environment.

Administrators named food access as their biggest priority, with many noting that levels of food insecurity among their students are high. This is not a coincidence given the prevalence of food insecurity among children, with thirteen percent of households in Ontario and one in six children in Canada experiencing food insecurity regularly (Tarasuk & Mitchel, 2020). Rates of food insecurity are increasing as a consequence of rising social inequality, poverty, and most recently, COVID-19 (Statistics Canada, 2020). Schools have been sites of advocacy to combat food insecurity because of the health and social impacts of inadequate availability and accessibility of food on children's development (Raine et al., 2003).

Stigma is a significant concern that inhibits individuals from reaching out to emergency food programs (De Souza, 2019; Kirkpatrick & Tarasuk, 2009) and this is no different in elementary and high schools (Poppendieck, 2010; Raine et al., 2003) Administrators were aware of the impacts of stigma and strived to ensure that any student who needed food while at school received food, although this was often done at the discretion of individual teachers and not through any specific program or formal process. There was a strong sense that the school should be a place where food is available for all children, with many saying that a national school food program should be universal.

Beyond food access, administrators view health and nutrition as a necessary element of school food philosophies and a priority for the school food environment. This approach fits with the widely accepted culture of healthism (Crawford, 2006), which medicalizes food and positions individuals as responsible for their decision-making about food choice. Administrators show how they assume responsibility for the school food environment by making sure that they follow the school food guidelines, including the PPM 150 and the SNP Nutrition Guidelines to promote healthy eating. In doing so, most principals construct food discursively through the ideology of nutritionism (Scrinis, 2013), which is the approach underlying these guidelines. As many critical dietetic scholars point out, nutritionism is a reductive approach to understanding food and food choice through the lens of nutrients in relation to bodily functioning (Biltekoff, 2013).

Most administrators fully engaged healthy eating discourses and nutritionism taking up the responsibility of health promotion and seeing themselves as responsible for their students' health via the school food environment and making healthy food available. This was evident through their use of healthy and unhealthy when describing foods available, which were unintentionally moralized when referring to “foods from home” as bad. Some parents were subsequently viewed as needing to be educated on proper nutrition or what constitutes good food. Furthermore, healthy bodies are presumed "fit" with an awareness of the need to balance food consumption with physical activity, deepening the moralizing effect of these discourses maintaining ideas about normative thin bodies (Cameron & Russell, 2016).

Yet, food is much more than nutrients—it symbolizes social inequality and social differences through the intersections of gender, race, and social class (Harrison & Jackson, 2009; Johnston & Bauman, 2015; Parker et. al. 2019), which we see above in our example of how

some parents are constructed as Other through the foods they send to school with their children. However, this tension is elucidated through the binary of healthy/unhealthy as administrators also use unhealthy foods such as sweets, popcorn, and hotdogs to bring students and families together to create belonging and a collective school community. Thus, the risks of unhealthy food are also socially constructed and dependent on who is serving them and in what context they are being eaten (Parker, 2020).

The dominant message of healthy eating, with its emphasis on nutrition, is a priority for food literacy and education. However, several administrators recognize that teaching students about the connections between food and the environment or eco-nutrition is critical. As Oostindjer et al. (2017) explain, "the current role of school meals is as a tool for improving food behaviors and population health in a sustainable way" (p. 3943), which becomes possible through an integrated approach. Although environmental concerns and sustainability were mentioned less frequently, some administrators think this should be a priority for the school food environment, which challenges the instrumental approach to food, or seeing food as solely about health and nutrition.

Poppendieck (2010) suggests we need to move beyond the idea of simply providing a universal health or nutrition program while overlooking other crucial socio-cultural aspects of food in schools (p. 279). The symbolic meanings of foods are as integral as accessing cultural foods for a diverse student body (Best, 2017). Integrating cultural foods, land-based education, school gardens, and cooking classes into school food programs and the curriculum ensures that traditional knowledges about the land, foodways, and food procurement are not overlooked (Barter, 2014). Particularly in Canada, and in line with the Truth and Reconciliation Commission (TRC) recommendations, providing opportunities to learn about and eat the traditional foods of Indigenous peoples presents an opportunity to decolonize education through Indigenous food sovereignty (Williams & Brandt, 2019), which positively reinforces health and cultural identity for Indigenous peoples (Martin & Amos, 2017). As several participants explained, this is necessary for any forthcoming universal national school food program.

Conclusion

Participant's priorities for the school food environment included: 1) food access; 2) health and nutrition; 3) education and food literacy; 4) the socio-cultural aspects of food; and 5) environment and sustainability. Although principals' priorities capture the potential for an integrated approach, most administrators describe food in their school food environment using health promotion discourses constructing food narrowly as either healthy or unhealthy, echoing provincial school food and nutrition policies and guidelines, which medicalize and moralize food through nutritionism. This instrumental approach to food does not encompass the complexity of food practices and misses key pedagogical opportunities within the school food environment.

Yet overlapping socio-cultural and environmental priorities reveal that some administrators are aware of emerging socio-ecological-nutrition frameworks and cultural food practices suggesting the need to examine current school food policies and guidelines in greater detail.

With increasing calls for, and the federal government's commitment to a national school food program, the results of this case study raise critical questions about the ideologies guiding the dominant approach to food programs in schools in Ontario. What is the goal of a national school food program? Should the focus be on improving nutrition and health? Can we address growing food insecurity in our schools? We suggest there is a need to consider how an integrated approach to food would look within a future national school food program.

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Canadian Food Studies La Revue canadienne des études sur l'alimentation

Audio-Visual Work

Growing food, sharing culture at the Rainbow Community Garden in Winnipeg, Canada

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With the COVID-19 pandemic highlighting vulnerabilities in a globalized food system, the ability to grow one's own food seems to be more important than ever. The Rainbow Community Garden enables new immigrant and refugee families in Winnipeg, Manitoba, Canada, to do just that. The project started in 2008 as a community initiative, with 16 newcomer families on one acre of land on the University of Manitoba campus. Since 2008, these numbers have grown, and the garden has expanded to include multiple sites across Winnipeg. While gardeners have faced challenges over the years, including inadequate access to water and economic barriers associated with public transportation to the garden sites, this past summer was their best growing season yet. The Rainbow Garden team has big plans for future improvements to help serve the needs of even more newcomer families. These efforts will be timely and worthwhile, as many immigrants and refugees who already suffer from economic and food insecurity have been disproportionately affected by the impacts of COVID-19.

This photo essay is the outcome of qualitative research conducted by student researcher Laura Lucas under the supervision of anthropologist Dr. Fabiana Li, and with the support of a University of Manitoba Undergraduate Research Award during the summer of 2018. Through interviews with gardeners, a review of the literature on urban agriculture, and participant-observation at the Rainbow Community Garden, this work uncovered compelling stories about a community that has been built around growing food and the shared experiences of newcomers in Winnipeg. The Rainbow Community Garden demonstrates the cultural and multi-cultural dimensions of food sovereignty and how community gardens can contribute to more sustainable food systems.

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The sign at the Rainbow Garden reads: “Welcome to the Miniature World.” It’s a reflection of how participants see this small piece of land as encapsulating the cultural diversity of Winnipeg and the wider world. The makeup of the garden participants at any given time is influenced by migration patterns and gardeners currently represent many different parts of the world, from Asia to Africa, and from Latin America to the Middle East. This year, 26 Syrian families joined, bringing the total number of participants in all the garden sites to 324 families. In assigning the plots, priority is given to families and single mothers. The demand exceeds the number of plots available and there is a waiting list of people hoping for a space to open up—or for the garden to expand.

Growing food to feed their families is an obvious benefit of the project, but there are other ways that the garden provides a safe space for families settling into a new city. According to Raymond Ngarboui, the city has been troubled with security issues, gang activity, and violent crimes in neighbourhoods that are home to many immigrant and refugee families: “When they are teenagers and youth, those [immigrant and refugee] kids are the ones who are targeted by gang groups in the downtown area.” The families need a place “where they can take them in the summertime, to be together with them, away from the downtown from time to time.”

Raymond is one of the key people behind the Rainbow Garden, working behind the scenes to ensure its continuity. Born in Chad, Raymond arrived in Canada as a refugee himself. He has been active in various non-profit organizations in Winnipeg, but his involvement with the Rainbow Garden has been a constant part of his community work. Since he came up with the idea for the project, Raymond has helped forge links with organizations that support the garden (including the University of Manitoba, the Winnipeg Foundation, and the Community Education Development Association), whether through funding and resources or by coordinating volunteer work parties at the garden. More than a place to grow food, the garden is about forging community by bringing together newcomers, volunteers, NGOs, and university students. As one gardener put it, “It seems this garden has a lot of friends, and they are interested to bring their input so that we can do better and do more.”

The Rainbow Community Garden works to address some of the unique challenges faced by new immigrants and refugees in Winnipeg. In adjusting to a new way of life in a new country, newcomers face various social, cultural, and economic hurdles. Raymond pointed to mental health as being a significant challenge. When new immigrants remain in their homes and are inactive, it can lead to social isolation, depression, and other mental health issues. The garden helps to combat social isolation by getting gardeners out of their houses and into a community setting. Gardeners can create new relationships with other newcomers while working in their garden plots. There are also events held at the garden, such as potlucks and clean-up days, where newcomers can interact, gain interpersonal skills, and practice English.

Raymond spoke about the garden opening up space for social interaction: “I know many families, family members who, when they start here, it’s hard for them even to say hi to others. But in the middle of the growing season, or by the end, they become so open, laughing, interacting with others from different religious backgrounds, sharing food together.” Gardeners’ physical health can also benefit from participating in the community garden, as it gives them opportunities to get outside and move their bodies, while also going home with some nutritious food to eat. In fostering communal support, strengthening interpersonal relationships among newcomers, and providing healthy food sources, the Rainbow Community Garden provides a strong base for their successful social transition into Canadian society.

The garden allows participants to celebrate their culture with others, which can help them feel connected to their home country as well as their adopted city. Many Rainbow Garden participants have at least some past experience working on a farm or in a garden before moving to Canada, and for many, gardening was a major part of their lives. Agnes Birime (pictured here) enjoys the stress-free environment of the garden and the memories it brings back from her home country of Burundi. Her father was a farmer and she has been gardening since she was a teenager. Gardeners bring with them gardening techniques and cultural practices from their home countries, even as they must learn to cultivate crops in a place with a different climate and growing season. As gardeners adapt their skills and knowledge to Manitoba's climate and soil conditions, there are opportunities for cross-cultural exchange, as gardeners learn new skills and techniques by seeing how gardeners from other countries do things differently. Through interactions with others at the garden, gardeners also often have the opportunity to try new foods, or learn how to consume a different part of the plant that they are not used to eating, such as the leaves. One gardener expressed a positive outlook on the cross-cultural interaction that takes place at the garden: "We are really chatting because you will see someone maybe from Asia, because they are not used to maybe our type of beans, they will come and say 'Oh what is it?' So we are asking questions of one another to understand what type of plants they have here, and it has created really a good relationship. We meet in the buses, we meet downtown, and we meet during potlucks. And we are happy for that."

Another way in which the garden benefits newcomers to Winnipeg is by giving them an opportunity to grow culturally appropriate foods. Newcomers often do not have access to some of the ingredients they used to use in their home countries, and when these foods are available, they are often expensive and not fresh. In this photo, Raymond and Mon Bahadur Gurung, a gardener from Nepal, hold a bag of Nepalese mustard seed pods, which were ordered from a seed company in Nepal. This variety of mustard has a distinct flavour from the other varieties of mustard that can be bought in Winnipeg, which often come from other countries such as India. Using the leafy part of the plant, participants at the Rainbow Community Garden are able to make a popular Nepalese dish called *gundruk*, which is a fermented leafy vegetable dish. With the mustard greens from Nepal, the flavour is closer to what they used to eat in their home country. Often, gardeners will begin to recognize certain vegetables and where they originate. While walking through the many plots at the garden, one participant noted, “When you see mustard leaves like this, that means it’s definitely a Nepalese family. And when you see beans, lots of beans and pumpkin, it’s Africa.”

There is also the opportunity for intergenerational learning at the Rainbow Community Garden. In this photo, the Dahal family from Nepal is harvesting potatoes from their garden. The children help their parents to collect the potatoes and carry them away in a wheelbarrow. When parents bring their children with them to the garden, the children learn where food comes from, how it is grown, and the work that is required to grow it. In emphasizing the importance of the garden for his children, one gardener told of a time when he asked his daughter to tell him where their food comes from. He laughed as he shared her answer: “the freezer.” Along with general knowledge about food, parents can also pass down cultural knowledge through gardening. For families in which the children were born in Canada, parents can teach them about their cultural heritage through food. This opportunity to transfer knowledge provides a pathway for relationships across cultures and age groups, and is also a chance for families to spend time together while contributing to their own well-being.

While the Rainbow Community Garden provides a wide range of benefits for gardeners, they also face various challenges. The main challenge for the garden over the past few years has been getting enough water to grow the crops. The water infrastructure at the garden is insufficient to meet the needs of gardeners. People often fill containers with water at home and bring them to the garden, which can be difficult if participants take public transportation. During the last growing season, the water situation improved because the University of Manitoba delivered water to the garden twice a week throughout the season, but it is an ongoing issue, as this was still not enough to provide water for everyone. Raymond says they are looking to improve their access to water through enhanced rainwater collection and water storage, and by continuing to receive water from the university. Another challenge for gardeners has been transportation to and from the garden. Many participants do not own cars, and often do not live within walking distance of the garden. Public transportation is not always accessible due to the high cost of bus tickets. Raymond expressed that this was especially a concern for single mothers who need to bring multiple children to the garden.

Raymond and the Rainbow Community Garden team have plans to improve the garden in the upcoming growing season. They would like to see enhanced water infrastructure, a seating area for seniors, a playground for children, solar lights to allow families to stay later at the garden, and more raised beds to accommodate more families who are currently on the waiting list. They plan to make these additional raised beds higher, so that they can be more accessible to senior gardeners who are not able to bend down. They also hope to work with the University of Manitoba Architecture Department to implement Phase Two of the infrastructure development, including making improvements to the compost toilet and rainwater collection system. Raymond says the city of Winnipeg could help in terms of improving water infrastructure, delivering compost, and making transportation more affordable for newcomer families who rely on the bus to get to the garden. These improvements will take the Rainbow Community Garden to another level, and will allow them to serve the needs of even more newcomer families in Winnipeg. Even if interactions must take place at an adequate distance due to COVID-19, the Rainbow Community Garden will provide a much-needed spirit of community by bringing people together after an extended period of social distancing.


5

Canadian Food Studies La Revue canadienne des études sur l'alimentation

Exhibit Review

Savour: Food Culture in the Age of Enlightenment

Gardiner Museum, Toronto, ON

October 17, 2019 – January 19, 2020

[For more information about the companion book to this exhibition, *The King's Peas*, see David Szanto's review in this issue]

Review by Jennifer O'Connor*

Asparagus sautéed in olive oil with diced shallots, tarragon, and white wine vinegar. Pinched between the fingers. Soft crunch. Bitter earth. Hunger.

Asparagus, the kind at your grocery store or farmers' market (*Asparagus officinalis*), is a succulent spring vegetable. Plants take three years to mature and can be productive for fifteen years or more. The familiar woody green stalks with small scales (leaves) at the tips are in season for two to twelve weeks. They may be cooked and enjoyed either hot or cold. It is part of the *Asparagaceae* family, which includes up to 300 varieties native to lands from Siberia to southern Africa. Garden asparagus is now grown in many temperate and subtropical regions of the world.

Louis XIV had asparagus cultivated in hothouses at Versailles and is said to have called it the "king of vegetables" (Antonacci, 2014). Extravagant and imperious, the Sun King would inspire a new philosophical movement that forever changed Western politics—and art. A recent exhibition at the Gardiner Museum in Toronto, *Savour: Food Culture in the Age of Enlightenment*, explored how eating, cooking, and dining were reimagined in England and France from the 1650s to the 1790s. Drawing from the Gardiner's collection of ceramics and including works on loan from other museums and private collections, *Savour* combined the functional with the curious, and the historic with the contemporary.

The Enlightenment brought about a new way of thinking about many subjects. Philosophers such as Descartes, Diderot, Voltaire, and Rousseau rejected received beliefs and authority, and looked to knowledge and freedom as a means to improve the human condition.

In art there was a return to the classical traditions of Greece and Rome and their ideals of liberty, morality, and sacrifice. Neoclassism favoured the everydayness of things: domestic

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scenes, simple compositions, realistic stances, and current events. Other works celebrated the deceptive or mysterious to celebrate the human mind's ability to reason.

Much of this was on exhibit in *Savour*. For example, colonial expansion and increased trade brought new foods to England and France, such as tea, chocolate, and sugar. This is reflected in pieces such as "The Good Housewife," a porcelain model by Johann Joachim Kandler. A housewife is seen, surrounded by goods, pouring over her account books. A sugarloaf sits beneath her desk, wrapped in purple paper. The desire for such commodities, of course, bolstered the slave trade, and slavery was legal in French and British colonies until the mid-1800s.

Other foods were cultivated with the help of new technologies, such as hoes, spades, and the seed drill, as well as hothouses and walled enclosures. Indeed, another porcelain figure, "Delicate Cowcumbers to Pickle," shows a country woman with a basket of cucumbers on her head. Gardeners learned to grow cucumbers and melons out of season to supply their clients in London.

Savour also featured a number of tureens shaped as a cabbage, a cauliflower, pigeons, and a turkey. Another, "Boar's Head Tureen" is a tin-glazed earthenware piece, possibly by Johann Wilhelm Lanz. Life-sized and incredibly realistic, its pierced nostrils would allow steam from hot food to escape, appearing as the condensed breath of a living animal. Stag and boar hunting were popular among the nobility and royalty in France—the risk involved in killing a boar making it a worthy trophy.

There was also interest in new ways of eating. Rousseau, for example, advocated for a vegetarian diet. And Hannah Glasse, author of the immensely popular *The Art of Cookery Made Plain and Easy*, advised: "All things that are green should have a little crispness, for if they are over-boiled they neither have any sweetness or beauty" (Glasse, 1802, p. 22).

Here, again, the asparagus has sprouted. Looking at John Atkinson's "Girl Bundling Asparagus" feels like spying. I see her, framed in an archway. She does not look up, but is focused on her everyday task. The only hint of vanity is a ribbon braided into her hair. Nearby are a spade and watering can, and she is surrounded by bounty: cabbages, carrots, leeks, and on a tabletop, some grapes, berries, and other fruit. She stands on a stone floor with baskets hanging above her. Yet despite all this detail, the light and her placement make her the centre of attention.

This scene of tranquil domesticity was juxtaposed with "Asparagus Box," a tin-glazed earthenware piece by Philippe Mombaers. Beneath the neatly sculpted stalks, what would have been hidden inside? In another *trompe l'oeil* piece, a pewter ice cream mould in the shape of a pineapple lay open. Sweet and savory ices were popular at the time, with flavours including violet and Parmesan—though not necessarily in the shape of a bouquet or a wedge of cheese.

Such dishes would have been served at a changing table. The 1700s saw the fabrication of matching dinner services, purpose-specific vessels (such as tureens, sauce boats, and sweetmeat baskets), and alcohol lamps to keep food hot.

In our time, questions about what we eat continue to fascinate. Inserted throughout *Savour* there were also works by contemporary fibre artist, Madame Tricot (Dominique Kaehler Schweizer). A serving piece piled with woolen chicken wings and thighs. A hare bleeding out. "A bundle of asparagus," also hand-knitted in wool, echoing the Atkinson painting with an ironic voice. What is it about these pieces that was so captivating? The detail of the stalks and scales? The use of a traditional crafting technique? The thought of all the labour required to create them? The delight in the unexpected? The everydayness of a common garden vegetable, re-rendered as art?

Having experienced the exhibition as a whole I came to see how we have imagined food over time—and how what we eat has molded our perception of ourselves. Looking closer at a setting for an intimate dinner for two, I see that the imitation Louis XVI chairs are decorated with images of an ice cream sundae and a fast food meal of burger, fries, and soda. All of these objects told a story that is comedic, tragic, and melodramatic, expressed across time and place. I can hear the bustling market and clanking dishes. I can smell the simmering stew. I can feel the knives and forks in my hands, slicing into a wedge of cheese or piercing a piece of meat. And I can taste the foods that nourish, please, and entice us. But this is only one story. How can we hear others? (I am sorry, for example, that I missed an event at the Gardiner, "The Enlightened Feast", an evening of feminist discussion and foods such as seal meat and pickled cattails, prepared by Indigenous and settler chefs.)

This exhibition offered a taste of Enlightenment art and the moment in time that helped create it. I left *Savour* feeling more connected to food and culture, enlightened as to how this history—a wide-ranging melange of the disturbing, curious, and charming—informs our lives today. And I was hungry for more.

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Book Review

Mind your Ps, ask your Qs: A review of *The King's Peas* by Meredith Chilton

Gardiner Museum / Arnoldsche Art Publishers, 2019, 144 pages

[For more about Savour: Food Culture in the Age of Enlightenment, see Jennifer O'Connor's exhibition review in this issue.]

Review by David Szanto*

It is difficult not to like *The King's Peas,* the genteelly designed and generously produced 'cookbook' published as companion to the Gardiner Museum's 2019–20 exhibition, *Savour: Food Culture in the Age of Enlightenment.* At the same time, however, it is also rather hard to like it uncritically, largely because of the celebration of power and colonialism that it represents.

Focusing on the evolution in foodish taste and practice that took place between the mid-seventeenth century and the French Revolution, *The King's Peas* juxtaposes historical recipes, citations, and anecdotes with copious colour images of some of the fascinating and extravagant works that were on display within *Savour.* These include prints and paintings, silver- and glassware, numerous ceramic pieces, and a few contemporary knitted objects. Quotations from food writers of the period dot the text, including culinary exhortations from such authors as Hannah Glasse, Menon, Elizabeth Raffald, and François de la Varenne. Following an introduction by Gardiner curator emerita, Meredith Chilton, the book is divided into relatively conventional recipe categories. Somewhat out of place—and perhaps intended to add a little star power—are four culinary contributions from the executive chef of Toronto's York Club, Markus Bestig.

The producers of this book, like the exhibition curators, have positioned their offering as both historical-cultural assemblage and insight into current foodways. They draw attention to the concerns of the time—culinary and agricultural innovation, local and seasonal consumption, healthful and flavourful eating—noting that these are also present within many contemporary foodscapes. As intriguing a parallel as this may be, they also too easily skip over some rather glaring issues that link the Age of Enlightenment with the Age of the Anthropocene: a profound

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stratification of socioeconomic privilege, the exploitation of natural resources, the assumption of 'common' concerns among eaters, and the problematic power relations that characterize many regions' food systems. By glorifying (and universalizing) "our modern dining culture," the book seems to evade the issue that "we" are heterogeneous, and that so-called *fine dining* is tightly coupled with French, English, and Italian histories of colonialism.

At the same time, *The King's Peas* is a remarkable achievement in historical documentation. The tableware and other pieces that are depicted—tureens, dishes, crystal, gravy boats, dessert moulds, and several trompe l'oeil artworks—reveal the aesthetics and values of the wealthy classes of the time. As Jennifer O'Connor points out in her review of the *Savour* exhibition (this issue), the Enlightenment was characterized by a valorization of human reasoning and an attention to the everyday within art and craft. Indeed, many of the images shown are quite visually humble, even as an extreme attention to detail and production quality are revealed. Nonetheless, several opulent pieces of silverware point to a tension between embellishment and plainness, echoed also in the included texts about the intentionality within French and English cookery.

Several notable images and passages add historical intrigue and prompt reflection for readers. One visual, "*A Table, showing at one View, the proper Seasons for Sea Fish*," lists twenty-seven piscine varieties and the months in which they should be caught. Such indications (this one from the book, *English Housewifery*, by cookery writer Elizabeth Moxon), were generally directed at the (literate) cooks and senior servants of upper-class households, like many works of food-related advice from the period. Notably, while today's Ocean Wise iPhone app may confer similar information, its context, motivation, and audience are very different. Later, a brief text titled *The Agonies of Carving Turkey* includes details about the French naming of the bird, the importance of knife technique (for "gentlemen"), and a snippet from Giacomo Casanova's memoir about a moment of carving shame. It, too, evokes contemporary connections—in this case, memories of family dinners and the often-fraught dynamics among posturing menfolk. Another image, depicting an ornate, marine-themed "pickle stand"—accompanied by an explanation of the late-1700s fashion for eating pickled vegetables—suggests that the recent lactofermentation resurgence among hipster-foodists has long-past historical echoes.

The bulk of the book is dedicated to adaptations of historic recipes, thirty-two in all, divided into sections on soups, eggs and cheese, vegetables, meat, sauces, and sweets. They range from such familiar dishes as butternut squash soup (including the amusingly modern use of kosher salt and an immersion blender) and chicken with cream and mushrooms, to more unusual offerings, such as "Bacchus Sauce" (with white wine, garlic, and beef stock) and brown-bread ice cream. The titular "King's Peas" brings together frozen peas (!) with heavy cream and a bouquet of fresh herbs. Again, tensions aplenty are represented between access and affordability, effort and convenience, eurocentrism and multiculturality. Occasional anecdotes expose some of the sociocultural and political inequities of the time: Caravaggio's violent mistreatment of a waiter; John Evelyn's advocacy of a less meat-centric diet; and the miserable relationship

between sugar consumption and slavery. While these take a partial step toward balancing the adulation of the Enlightenment, they are too slim to add criticality and thus tend to the tokenistic.

Clearly not every cookbook needs to (or can) address the colonialist violence, oppression, and exploitation with which contemporary food and food systems are imbued. Equally evident is that *The King's Peas* is not really intended as a day-to-day cookbook. Its horizontal format, high-quality paper and printing, and juxtaposition of few recipes with much complementary material all place it on a pile with many other coffee-table cookbooks, rather than on the kitchen counter. Instead, it is a loving celebration of a very specific slice of gastronomic history. What makes this troubling, however—and key to the tension that makes the book *hard to like*—is that it traces "our" current foodways back to this history without more fully explicating the deep injustices of those times and places. Moreover, and particularly in a place like Turtle Island/North America, overestimating the influence of this history on what is produced, cooked, and eaten in the here and now tends to reinforce the erasures that colonial culture has already wrought. Given the important efforts that food scholars are making towards undoing this damage, and towards seeking innovative, resilient, and equitable paths forward, it would be nice to see future curators and authors of historical food content make more of a contribution to changing our perceptions and future actions, rather than shoring up a problematic vision of the past.

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Book Review

Plant-Based diets for succulence and sustainability

Edited by K.M. Kevany

Routledge, 2020: 256 pages

Review by Ryan J. Phillips*

As part of Routledge's "Studies in Food, Society, and the Environment" series, Kenavy's recent edited volume provides a timely look at plant-based eating in both research and practice. *Plant-Based Diets for Succulence and Sustainability* (2020) includes fourteen chapters divided into four thematic sections (environmental sustainability, human health, animal rights and welfare, and political economy), and is delivered in an engaging yet accessible way appropriate for academic and general audiences. *Plant-Based Diets* is particularly interesting given its focus on Canadian case studies and persistent social issues, with a noticeable number of cases focusing on Canada's East coast.

The citizen-consumer is a ubiquitous concept throughout the book. Most of the contributing authors attempt to strike a balance between encouraging more educated and compassionate market-based (or at least, market-adjacent) activities while also noting the uphill struggles that plant-based diets face in an industrialized neoliberal food system. In chapter nine, for example, Gibbs and Harris emphasize the fact that the profit-driven logic of capitalism and the global industrial food system (largely based on animal foodstuffs) has inevitably resulted in gross socioeconomic inequalities, environmental degradations, and animal abuses. The authors argue that such deeply ingrained systemic problems suggest that some foundational systemic change is necessary in order to reverse, or at least lessen, the detrimental impacts of current capitalistic practices and beliefs. Gibbs and Harris thus identify veganism and plant-based diets as democratic issues, albeit issues that are entirely possible to resolve. Alternatively, Seth et al.'s chapter on "Integrity Economics" emphasizes the need to better educate consumers about the interconnectedness of our food system in order to ameliorate our current market-driven engagements. Seth et al. trace the local origins and market journeys of several plant-based foods within the Annapolis Valley region of Nova Scotia, in order to provide both a metaphorical and literal framework for a more holistic understanding of the food that appears regularly on our

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plates. The citizen-consumer is thus a persistent subtext throughout the entirety of the book, with some perspectives ranging from critical to cautiously optimistic.

Curiously, plant-based meats and meat alternatives are only sparsely mentioned throughout the book, despite the remarkable popularity of (and sometimes contentious discourses surrounding) these products in recent years. In chapter four, Swartz and Laestadius investigate the potential merits and health-halo effects of substituting animal-based foods with plant-based alternatives (such as plant-based burgers and sausages), especially in order to gradually habituate eaters to more healthy plant-based diets. Though interesting, however, Swartz's and Laestadius' chapter provides the only comprehensive and sustained engagement with plant-based meats. English (chapter two) highlights the increasing consumer demand for plant-based products (e.g., Lightlife, Daiya, Earth's Own) and identifies the recently created Plant-Based Foods of Canada consumer organization, which formed in order to "help support the regulatory and market interests of plant food companies in Canada" (p. 26). Still, no analysis is provided regarding why these products have become so popular, nor is any normative position presented as to the role that these products might play in transitions towards plant-based diets. Mehta, Fergusson, and Ali—in what is perhaps the most directly and immediately relevant chapter overall—do provide a brief overview of the health dimensions of plant-based meats (which the authors refer to as "transition foods"). Echoing some of the points raised in chapter four, Mehta et al. note that, while they are not whole foods and they are "highly variable in terms of nutritional value", plant-based meats are a convenient way for consumers to gradually transition to healthier plant-based diets (p. 89). Overall, it is understandable that plant-based meats do not feature prominently throughout the book, given the overarching themes of health and whole foods diets. Though more focused engagement with the health dimensions of plant-based meat is certainly fertile ground for future research.

While the book's overall scarcity of direct engagements with plant-based meats is somewhat understandable (given the whole foods focus), there are some chapters in which plant-based foods are barely mentioned or addressed at all. In chapter five, Kirk argues in favour of a sort of renewed localism in which consumers "1) reclaim food as a basic human right, 2) restore food as a common good, and 3) reconnect with where our food comes from and how it is produced" (p. 66), though without sufficiently linking these points to plant-based diets. In chapter seven, Kevany and Asagwara address the nexus between healthy eating and active living. However, chapter seven is a bit ambitious in its scope. What could have been a cautious account of the need to balance plant-based diets with active lifestyles ends-up jumping from one dimension of health to another in a broad and generalized way. Plant-based diets are mentioned, but often seem like an afterthought to the chapter as a whole. Finally, in chapter eight, Baur and Kevany provide a historical overview and contemporary assessment of the farm sanctuary movement, yet the link between this movement and plant-based diets is somewhat lacklustre. The farm sanctuary movement has been a significant development in the plight for animal rights (not to mention a literal life saver for thousands of animals). Yet, there is not necessarily a direct topical link between plant-based diets on the one hand (i.e., what foods we ought to be eating),

and farm sanctuaries on the other (i.e., a specific practice of providing refuge for animals that are protected from being consumed). Though well written and informative, the inclusion of chapter eight in this volume seems a few degrees removed from the main topic, and might have fit more seamlessly in an animal rights or vegan collection. Indeed, chapters five, seven, and eight are all interesting in their own ways, but could have been more directly and deliberately linked to the topic of plant-based diets.

Kevany's edited volume is a great introduction to plant-based foods and diets. While some individual chapters feel out of place, they still provide interesting perspectives adjacent to the plant-based movement. *Plant-based Diets for Succulence and Sustainability* is a recommended read for any Food Studies scholars, activists, or citizens interested in gaining a greater insight into some practical ways of reforming our existing food system.

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Canadian Food Studies La Revue canadienne des études sur l'alimentation

Book Review

Civil society and social movements in food system governance

Edited by Peter Andrée, Jill K. Clark, Charles Z. Levkoe, and Kristen Lowitt
Routledge, 2019: 204 pages

Review by Mindy Jewell Price*

It is easy to be discouraged by the ecological damages and social inequities caused by the contemporary food regime. Yet editors Peter Andrée, Jill Clark, Charles Levkoe and Kristen Lowitt resist this temptation. While many scholars focus on critiques of food systems, this collection draws attention to co-governance arrangements that contribute to greater equity and sustainability in food systems. Governance, as the editors define it, refers to the multiplicity of relationships, structures, and processes through which power is exercised and decisions are executed. Toward this end, the collection usefully highlights that alternative and transformative food systems are rooted in a variety of scales and work within a variety of governance arrangements. Following Karl Polanyi's (1944) concept of the "double movement," which describes how political-economic systems swing between periods of market liberalization and corrective social protections, *Civil Society and Social Movements in Food Governance* finds new opportunities in food system neoliberalization for civil engagement and social resistance. Through case studies exploring a number of social movements and governance innovations, this book offers insight—and hope—to those looking to influence and transform food systems.

Navigating the murky waters of social change, Andrée et al.'s (2019) edited volume struggles to address two pressing, interrelated questions: Do we support food movements' radical social and ecological goals of agroecology and food sovereignty? Or, for the chance to influence policy and drive large-scale institutional change, do we participate in governance processes that may risk the co-optation or tempering of our change agenda? The authors' answers fall somewhere in the middle, their cases providing a continuum of engagement and negotiation.

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The book is comprised of eight case studies from around the Global North—or, in Shahidul Alam's formulation, the Minority World[1]—and explores a variety of strategies for exercising governance in the food system. The editors offer the framework of a governance engagement continuum to frame the position of food movements between multi-stakeholderism (weak engagement) and self-governance/polycentrism (strong engagement). They draw on Clapp and Fuchs (2009) and Tourangeau (2017) to describe how civil society actors navigate and execute a variety of powers to gain footing in multi-scalar governance structures. Food movements draw on and work within instrumental power (influence through direct action), discursive power (writing narratives, establishing new norms), structural power (determining agendas and the scope of influence), and constitutive power (defining legitimacy and influence of powers). About half of the cases presented operate at or near the multi-stakeholder end of the continuum, though many have goals of more influential governance. The other case studies fall primarily within a co-governance arrangement, a sort of middle-ground between typically hierarchical governmental processes and self-organizing social movements. The cases demonstrate that, while not always the case, innovative governance arrangements typically emerge at the local level.

Each chapter describes a civil society action or social movement in the food system and situates its engagement along the governance continuum. Case studies explore: NGOs influence in the Northwest Territories, Canada; local food system institutions in Dunedin, New Zealand; cooperative growers and distributers in Calgary, Canada; inclusive dialogues about a national food policy in Canada; civil society organizations addressing food insecurity and hunger at state and international scales; Indigenous fisheries governance in the Great Lakes region in Canada; and rural development through a local organic campaign in Correns, France.

Most closely approaching a self-governance arrangement, Lowitt et al. (Chapter 7) present two cases of Indigenous fisheries governance in the Batchewana First Nation of the Ojibways (BFN) and the Saugeen Ojibway First Nation (SON). The two First Nations approach negotiations with the settler state over fisheries management differently—one entering a co-governance arrangement with Canada as a means of holding the Crown accountable to their treaties, the other rejecting negotiations with Ontario's regulatory body altogether and instead asserting its own practices and laws. Both BFN and SON are seen as exercising sovereignty and self-determination over their food systems. Lowitt et al. discuss, however, that the lack of true Nation-to-Nation relationship between the two sovereign First Nations and Canada hinders true polycentric governance. While exercises of Indigenous self-determination over fisheries management provides the clearest example of self-governance, this contribution is unique in *Civil Society and Social Movements*, given that BFN and SON are not social movements nor civil society organizations but two Nations exercising their sovereignty within a settler state.

[1]Bangladeshi photographer and activist Shahidul Alam introduced the terms Majority World and Minority World, highlighting the fact that a majority of the world's population resides in poorer countries typically referred to as "developing," whiles a minority of global population lives in richer, "developed" countries.

In what is arguably the most promising work of civil society from within a co-governance arrangement, Levkoe and Wilson (Chapter 5) discuss the concept of prefiguration—modeling desired food futures in the present—as a way to advance food system transformation while engaging in discussions of policy development. According to the authors, prefiguration:

> …challenges us to consider the space that can be created through these mechanisms not solely as a means to a predetermined end, but as a site of possibility and transformation beyond a specific policy outcome (p.108).

Prefiguration thus provides an avenue for change, even when larger state governance structures limit radical action discursively and in policy formation.

This volume is not beyond critique. Most notably, missing from the compendium are governance innovations and social movements of the Global South (or Majority World). What about, for example, food security innovations in Belo Horizonte, Brazil, created through arrangements between an influential civil society and state actors (Chappell, 2018)? Or the scaling of agroecology through peasant movements in India (Khadse et al., 2017)? I can't help but wonder: would the simplistic and linear governance engagement continuum appear more nuanced if the editors explored governance arrangements in a wider variety of contexts? As a critical scholar of food systems, I also find concerning the lack of attention to social and ecological damages provoked by neoliberalizing food systems. While the editors acknowledge critiques of the neoliberal turn, they largely present neoliberalism as an opportunity for civil society and social movements to "claim a seat at the governance table" (p. 7). A critical self-reflection of the impacts of NGOs and civil society actors as new governors of food systems is regrettably absent.

Notwithstanding its narrow geographical representation and understated critique of neoliberal governance in food systems, this book is a welcome contribution to food studies literature. Agroecology scholars and activists especially will find *Civil Society and Social Movements in Food Governance* an encouraging read and useful for thinking about the interstices of power within food governance. While the authors explore opportunities in food systems governance, they also address challenges translating their goals into governmental agendas, particularly at regional and national scales. Few publications offer such balanced discussions of civil society 'wins,' and this contribution offers useful civil society and social movement examples to assess, influence, and resist the dominant food regime.

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Book Review

Finance or food? The role of cultures, values, and ethics in land use negotiations

Edited by Hilde Bjorkhaug, Philip McMichael, and Bruce Muirhead
University of Toronto Press, 2020: 308 pages

Review by Amanda Shankland*

Throughout the latter half of the twentieth century, we saw a major shift in populations from rural areas to cities, and the development of large-scale farms mainly geared toward export markets. The neoliberal discourse of comparative advantage and the ensuing dramatic increases in food supply served as thin justification for this turn. The recession of 2008, however, put food security fears back on the menu and countries began to worry about the availability of arable land available for food production. At the same time, agricultural land was becoming hyper-commoditized. Countries with excess farmland, like Canada and Australia, recognized the opportunity to profit off land investments, while speculators saw an opportunity to profit. A rush on agricultural land reduced supply and this was coincident with a rising demand for biofuels, all of which caused the value of farmland to rise steeply. Meanwhile, the discourse of neoproductivism reinforced the idea that producing enough food requires industrialized agriculture, a reliance on agrichemical corporations, large-scale value chains of producers and distributors, and a capital-intensive export-orientated system (Bjorkhaug et al., p.5). We have today a highly capitalized and complex agricultural system that contorts the global food system into a collection of financialized assets to be bought and sold, traded and swapped—a food system within which food has become an ancillary afterthought.

The important collection of essays in *Finance or Food?* looks at the kinds of values that have influenced investment decisions over land since the 2008 food crisis. As discussed in each of the essays, there are significant challenges with regard to the management of agricultural land. McMichael and Carson discuss issues around land grabbing and who should govern land. Essays by Clapp and Lawrence et al. look at private financial investment in agriculture and whether investment decisions should be left to the market. Brobakk and Muirhead ask if the rights of

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corporations should be considered to be as important as the rights of established farming communities in terms of land access. Ronningen discusses the key role smallholder farmers play in land management. Muirhead examines what role government plays in regulating investment regimes. Finally, Alvarez and Thorseth ask us what responsibility we have to future generations in terms of land use policy. The book also explores some of the important cultural dimensions around the issue of land use. The current emphasis on financialization of land and the industrialization of agriculture challenges the cultural values of many societies (Vinge & Sorensen). Significantly, the book advances the important notion of a "socio-ecological commons culture", which is becoming an increasingly important alternative ontological approach to land management (McMichael et al., p. 282). Cultures that support community-centered outcomes and strong ties to the environment provide a much stronger foundation for decision-making around land management.

Philip McMichael explores the consequences of "land grabbing" in efforts to secure land for food and biofuel production since the 2008 food crisis. He highlights the ways that the World Bank and the UN have often favoured the expansion of industrial agriculture over small-farmer agriculture (while often claiming to do just the opposite). Small-scale farmers are more concerned with long-term sustainability and they tend to better recognize ecological capital and the problem of "commodifying" nature. For instance, soil is recognized as a natural resource that not only needs to be preserved but built up. McMichael makes the important point that while the UN Committee on World Food Security (CFS) routinely recognizes the importance of small-scale agriculture, they frequently push farmers toward participating in the industrialized food value chain. The standard is to try to help small farmers participate in global value chains but given the regulations and international standards it is impossible for most small farmers to compete. They are then forced to sell their land (pp. 27-29).

Siri Granum Carson explains the ways that sovereign wealth funds, particularly pension funds, have accelerated financial speculation and land grabbing. She questions the ethical basis for the decisions made by many of these private investment firms. Similarly, Jennifer Clapp questions what is considered responsible or ethical agricultural investment. As voluntary guidelines begin to take over the investment environment, the limitations of those guidelines become increasingly clear. The authors remind us that small-scale farmers cannot access the credit they need to expand and compete in international markets. Further, they cannot afford to pay to meet the kinds of regulations that are imposed on them by other countries, particularly in Europe. Farmers have been forced to compete in the global supply chains through specialization, "value chaining", and contract farming; often with limited success.

Katrina Ronningen points out in her chapter on multifunctionality of agriculture in Europe, that we cannot ensure long term ecological restoration projects without societal support in maintaining land title for smallholders. The neoliberal narrative of "efficiency", neoproductivism, and "sustainable intensification" fails to draw attention to the multifunctionality and value of smallholder farms. There is a tendency to use the neoliberal discourse of "investment" to try to legitimize the devaluing of smallholder agriculture.

Ronningen explains how pastoralists have taken on the language of environmentalists in order to challenge this discourse and gain the attention of the world. The social and cultural consequences of industrializing agriculture have been largely ignored, and so farmers look to highlight their role as "investors" in the biophysical welfare of land. McMichael, Carson, Clapp, and Ronningen all highlight the significant role that small famers can play in sustainable land management and the barriers they face. The focus on small-scale farmers in the book brings an important ethical dimension to the discussion around land rights.

The chapter by Lawrence, Sippel and Larder on investment in Australian agricultural land draws attention to the concern that foreign investors simply do not have enough of a stake in Australian rural communities or the environment. The Australian government has accepted heavy investment from companies in Canada, England, and the United States but has questioned the motives of Chinese and Gulf States investment because "food security" was cited as a reason for investment. The authors write that "when contestation occurred it was less directed to the geographical origin or motives of the companies but directed toward their interactions with local communities (p. 169)." In other words, they were not seen as a good "fit" (Lawrence et al., 2020, p. 169). The authors of the chapter seem to skirt around what is becoming a significant issue; the preference given to companies whose owners and operators are predominantly of European descent. The same unspoken truth holds in Canada, where the majority of farmers are white and entrance to farming is heavily guarded by barriers that have historically been imposed through the legacy of colonization.

Looking toward the future, the question of what is considered "ethical" land use investment is made all the more complex when we consider the possible implications for future generations. As Allen Alvarez and May Thorseth explain in their chapter, future generations and other species deserve to be included in any potential economic and ecological calculus of ethical land use practices. This final substantive chapter reminds us of our significant responsibility to future generations.

Speculation is identified as a major problem in the book. Blocking land grabs from some countries is often based on "cultural considerations." Many farmers and rural land holders in Australia, Canada, and the United States, however, want to see ownership remain primarily in the hands of white landowners. There is increasing recognition that these decisions often have racial undertones, but this issue is not discussed in the book. Nonetheless, the book still raises questions about the lasting impacts of colonization on our perceptions regarding what appropriate uses of farmland are, private ownership rights, and the financialization of agriculture. However, it does not go into any detail about the urgency of preserving agricultural lands based on cultural considerations. The preservation of Indigenous knowledge as being deeply tied to the land, for instance, is not discussed in the book. The case studies also generally deal with issues present within countries of the Global North. This is a noteworthy limitation for those looking for a more thoroughly global perspective. While the introduction and conclusion reference cognate issues in Africa, Asia, and South and Central America, the Global South remains largely absent from the case studies that comprise the bulk of the book.

Jacob Muirhead writes that, “Neoliberalism is the political rationality of the current era, and it is no secret that it’s guiding intellectual principles revolve around efficiencies of the market, the reduction of all social phenomena and choices to market-economic ones (p. 87).” A new ethical approach toward land reform must look to the social and ecological implications, for now and in the future. The book draws considerable attention toward this concern and as such is a significant contribution to the literature on agrarian land management.

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Book Review

Frontline farmers: How the National Farmers Union resists agribusiness and creates our new food future

Edited by Annette Aurélie Desmarais

Fernwood Publishing, 2019: 276 pages

Review by Rebecca Ellis*

The new book *Frontline Farmers: How the National Farmers Union Resists Agribusiness and Creates Our New Food Future* edited by Annette Aurélie Desmarais is an important first-hand account of the activism of the National Farmers Union (NFU) over the past five decades. Written for a general audience, this book is organized by chapters based on various struggles in which the NFU has been involved. Each chapter begins with an introduction that includes contextual information necessary to understand the issues. The majority of each chapter is devoted to a transcribed conversation between NFU members involved in that struggle. This conversational approach allows nuances to emerge and complexity to be explored. It also allows small-scale farmers to share their considerable expertise based on their intimate, lived experiences on the land. This exploration of the diverse struggles and campaigns waged by NFU members against the corporatization of the food system provides an important account of the agrarian movement in Canada. The NFU's steadfast commitment to ecological and social justice, and to working in solidarity with other social movements, is a common thread throughout *Frontline Farmers*.

The NFU represents thousands of small-scale farmers across Canada. The campaigns that the NFU has waged against the corporatization of the food system are noteworthy due to both the scale of organizing and their impact. Although a much smaller organization than commodity-based farmer organizations, the NFU has engaged in highly effective campaigns that utilise a diversity of activist tactics and strategies including direct action, rolling blockades, mass leafletting, and the building of alliances that cross divides, most notably the urban/rural divide. For example, during the Boycott of Kraft Foods in the 1970s, NFU activists employed mass picketing in cities across the country as well as urban-based protests and actions. The chapter on the closing of the prison farms in Kingston, ON in 2010 is especially illustrative in detailing the

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trajectory of a highly transformative campaign. Meaningful alliances were made between farmers and prisoner rights activists and tactics were undertaken, in some cases by first-time activists, that included blockading prison entrances and risking arrest. The Save the Prison Farm movement was successful in reversing some of the closures but perhaps more importantly, forced a national conversation to occur about prison farms and prisoners' rights.

While reading this book, I was struck by the NFU's deep commitment to solidarity beyond campaign-based alliance building. This is especially clear in the chapter on the NFU's international work with La Via Campesina, the international peasants' organization of which they were a founding member. In the chapter on building Indigenous-settler solidarity, NFU activists grapple with the contradictions and tensions of farming in a colonial-settler state. This conversation is especially important given the murder of Colten Boushie, a young Indigenous man who was shot in the back of the head by a Saskatchewan farmer, Gerald Stanley, in 2016. Stanley was acquitted of murder, an indication of the deep-rooted racism towards Indigenous people in rural Saskatchewan. The commitment by NFU activists to act in solidarity with Indigenous people against continued acts of colonialization is essential for the creation of a just food system.

This book does not shy away from detailing the struggles that occurred within the organization, something illuminated in the chapter on agrarian feminism. Although a progressive organization from its inception in 1969, the women in this chapter discuss encountering sexist attitudes and behaviours within the NFU, including being confronted by men about the legitimacy of their leadership. This chapter is very effective at bringing young women into conversation with women who were struggling for a place and voice in the NFU in the 1970s and 1980s, providing a rich and dynamic history of the NFU and of the feminist movement.

Throughout the book, several farmers discuss the negative impact on NFU members and campaigns when universities in Canada began to cut research and extension work with small-scale farmers. There is a general feeling expressed throughout the book that academic research has become increasingly corporatized. This neo-liberalization of the academy has directly impacted farmers who, in struggles over pesticides such as neonicotinoids and genetically engineered seeds, are often confronted with scientific studies directly commissioned and strategically deployed on behalf of agribusinesses. There is clearly a need for more research to be conducted with and about small-scale farmers in Canada.

Although there are chapters of the book that seriously grapple with the concept of solidarity, very little was mentioned (or asked) about migrant farm workers who make up a significant portion of the workforce on farms, particularly crop production in Ontario[1]. Although NFU farmers may employ significantly fewer migrant farmworkers than large-scale agribusiness operations, it seems like a missed opportunity to discuss workers' rights, migrants' rights, and racism within the food system and within rural communities. One minor critique of the book is

[1] Agricultural sector workers from the Temporary Foreign Workers Program, 2015

that it would have been useful to conclude with a chapter that explores some of the future challenges and possibilities for small-scale farmers in Canada. I am interested to know what NFU activists think about the growth in urban agriculture, the challenges presented by climate change, and strategies for countering high-tech venture capitalist-backed approaches to farming.

Frontline Farmers is an important read for activists, students, and scholars. It provides an especially rich history of the agricultural system in Canada in the late 20th century and early 21st century from the perspective of grassroots activists and small-scale farmers. It would be an excellent addition to any food systems course. The activism and advocacy conducted by NFU members over the past five decades has given me a new perspective on farming and rural life in Canada, one that is hopeful about the possibilities of the creation of an agricultural system that is ecologically regenerative and socially just. Highly recommended.

Rebecca Ellis is currently completing her PhD in Geography at Western University. Her PhD dissertation is about the relationship between urban bees and people in cities, with a focus on the practices of urban beekeeping and pollinator gardening. She is also working on a book about capitalist agriculture and pollinator health. In addition to academic work, Rebecca is a permaculture practitioner, community activist, and beekeeper.

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