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# ON RESILIENCE, ADAPTABILITY, COOPERATION & INNOVATION

**canadianfoodstudies.ca**

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# IN THIS ISSUE

The groundhogs in the community garden in central Montreal are thriving this year. Their population has bounced back after a forced migration by way of live traps, thus proving their resilience. They change their diets based on available produce, demonstrating their adaptability. In other words, having devastated the brassica, they have turned their attention to the Swiss chard. Active in all corners of the garden, the groundhogs are cooperating (amongst themselves at least) and innovating: climbing fences, burrowing under netting, waiting until a volunteer steps away from a task to fetch a pair of secateurs from the shed and then quick-as-they-can making a grab for the peppers. The cover photo represents some of the produce we gardeners managed to wrest away from them. We are calling this harvest a triumph. At the very least, we are contributing to the biodiversity of this one-acre plot of land. The groundhogs (and along with them the rabbits and likely the fox) are both intellectually stimulated and well fed.

The groundhogs—while a fascinating subject in their own right—are being used here as a narrative device to introduce the material to come. True to the adjectival descriptions above, groundhogs are indeed resilient, adaptable, cooperative and innovative. Not to mention persistent. And also audacious. The articles in this issue display similar preoccupations with these characteristics.

Sutter et al. unpack the results of an anonymous, province-wide survey about food-related concerns in Saskatchewan, keeping an eye to the norms and practices needed to build and maintain resilient local food systems. Regnier-Davies and Edge are also interested in resilience, unpicking as they do the rhetoric around the term. They want to know who is expected to be resilient within food systems and at what cost.

On the matter of cooperation, the article by Dutta et al. emerged out of a community-based symposium "aimed at synthesizing reflections on the connections between climate actions, food security and (im)migration" (Dutta et al., 2025, p. 103). The library at which the symposium took place represents just one space that facilitates their looked-for learning alliances.

As for innovation, a field report by Clarke et al. describes the development of the Arctic Food Innovation Cluster, as well as its primary goal: to "help instill a sense of pride, empowerment, health, and wellbeing in Arctic communities through the sustainable development of Arctic food industries" (Clarke et al., 2025, p. 120).

A handful of articles look to the adjustments key actors are making in their bid for better, more equitable, less wasteful school foods. Maximova et al. delineate the existing patchwork of School Food Programs in Canadian schools as a means of informing national school food program development. Seko et al. seek to uncover what Asian immigrant families are feeding their children at lunch, the kinds of parameters they follow and set for themselves and the moments of adaptation or adjustment. Vader et al. set their sights on another educational setting, measuring the amount of food wasted by university students, examining the reasons why, and determining ways in which a particular dining hall at Brescia University College can reduce this waste.

We have three book reviews on offer by Aqeel Ihsan, Jennifer Sumner, and Ethan Shapiro. The first is about Mennonite foodways as they have been "shaped by migration, adaptation, and cultural exchange" (Ihsan, 2025, p.131). The second looks at the "public plate" or the good food revolution in schools, hospitals, and prisons. We suggest that you wash the first two down with the third: a global history of beer. The temperature at which said beer is served is up to you.

And finally, for those who have been wondering what kind of garden Bryan Dale likes best—with or without groundhogs—look no further than our Choux Questionnaire. *Bonne dégustation!*

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***cover image: Alexia Moyer***

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

Editorial

# News from *Canadian Food Studies / La Revue canadienne des études sur l'alimentation*

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Over the course of 2025, the *Canadian Food Studies / La Revue canadienne des études sur l'alimentation* (CFS/RCÉA) Management Team has been working on two important projects: a new podcast, *Digesting Food Studies / Concentré d'études sur l'alimentation* (DFS/CÉSA), that draws on journal articles and issues, and a new Artificial Intelligence (AI) policy aimed at addressing the effects of this transformational technology and offering guidance on its use throughout the editorial process.

## Introducing the CFS/RCÉA podcast!

Launched in September, 2025, *Digesting Food Studies / Concentré d'études sur l'alimentation* is a podcast series that extends the reach of CFS/RCÉA, bringing our authors' great work into the ears (and hearts and stomachs) of new and existing audiences. Each episode features three segments, all focussed on a specific article or themed section from the journal's archives. Starting things off, David Szanto and Alexia Moyer (the journal's co-Managing Editors) talk about a cultural object or historical text that is related to the article or theme in question. This segment—titled the "Amuse Bouche"—brings in a food humanities perspective, which then leads into David's conversation with the episode's featured author(s) or editor(s). "Chewing on Research" unpacks the article or issue in a high-level way, showing how key concepts in Food Studies can be understood in

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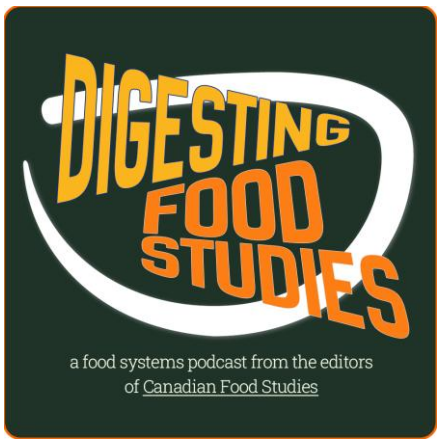
classrooms, boardrooms, or dining rooms. A final segment, the "After Taste," features a Food Studies graduate or undergrad student responding to the article in their own words—a further interpretation (and example) of how to use journal content in different spaces and to diverse ends.

As wide-ranging as the journal itself, the first season of 20 episodes covers themes from food justice to sustainability to intercultural identity, from the technologies of agriculture to the relationships embedded in Indigenous foodways. A variety of formats are highlighted—research articles, artworks, audio-visual works, and perspectives. Two of the author conversations are presented in French—with English transcript translations provided—and authors and readers come from across the breadth of Canada and Indigenous Territories.

As a tool for teaching, a guide for new researchers, or inspiration for practitioners and activists, DFS/CÉSA aims to bridge the gap between academese and everyday eating, while also reaching new readers and authors, broadening the impact of our community's work.

Funding for the podcast is provided in part by the Social Sciences and Humanities Research Council of Canada, Lakehead University, and the Canadian Association for Food Studies. Listeners can access the episodes at foodstudies.info/podcast or through their favourite podcasting platforms.





## AI Policy

Generative AI entered the world of academic publishing at a rapid pace over the last two or three years. While tools such as ChatGPT and Copilot are fairly new, their impacts on thinking, writing, editing, and publishing are already fundamental and undeniable, as well as unclear. In this context, all actors within the sector are grappling to find the best way to deal with a rapidly evolving technology, adopting postures ranging from an enthusiastic embrace to a quiet refusal. It is a complex field, invested in by a diversity of entities including: private actors who have financial interests in pushing for a more intensive use of

CFS/RCÉA, who seek to find their way through the complex AI landscape, often with few resources.

Reflections on the impact of AI in general and ChatGPT in particular emanate from the editorial committees of journals. These include both large and small publications, from a wide variety of disciplines such as medicine (e.g. Dupps, 2023; Wenn and Wang, 2023), accounting (Gendron et al., 2022; 2024; Ghio, 2024), education (Atkinson, 2025), energy research (Grimaldi & Ehrler, 2023), information science and technology (Lund & al., 2023), and now Food Studies. Some commentaries point towards the advantages of AI, mostly in terms of efficient knowledge production and writing, the capacity to effectively translate among languages, and the potential to streamline the publishing process as a whole. Discourses related to the risks of AI tend to be more diverse and nuanced, and are closely tied to the specificities of each discipline. Plagiarism and factual inaccuracies in AI-generated text are one concern. The risks of cultural and political biases that distort the ideas generated have also been noted. More critical voices also point out the fundamentally negative impacts on publishing, like the mechanization of processes that were originally more organic, such as the selection of reviewers (Gendron et al., 2024).Other voices note the decline in human involvement at all stages of publication (Gendron et al., 2022), as well as  effects on the integrity of knowledge production. There are also significant worries tied to the major environmental impact of AI—electricity and coolant usage—its political instrumentalization, issues of copyright and authorship, and inequalities in its access and use, just to name a few.

If there is one thing that everybody agrees on, it is that the landscape is evolving quickly in terms of the available technology, the way it is used by different groups, and the policy adopted by universities and other institutions. It is within this context that the CFS/RCÉA Management Team, in consultation with the Editorial Collective and the CAFS Board of Directors, have put in place a policy on the use of AI for the journal. The policy applies both to submissions for publication and to peer-reviewer reports. Efforts were made to remain open to the benefits of using AI tools—improving article structure and writing style, for example—largely in acknowledgement of the wide range of usages already in place. At the same time, the policy is intended to maintain the centrality of human criticality, relationality, and intersubjectivity, while mitigating the evident problems that generative AI embeds—cultural and political biases, invented references, and falsehoods, among others.

The policy, which can be read on the CFS/RCÉA website, includes a requirement to complete a disclosure statement if AI tools are used in the creation of a given submission or review. We wish to remain flexible and as our collective relationship to AI changes, we will also adapt the policy as necessary.

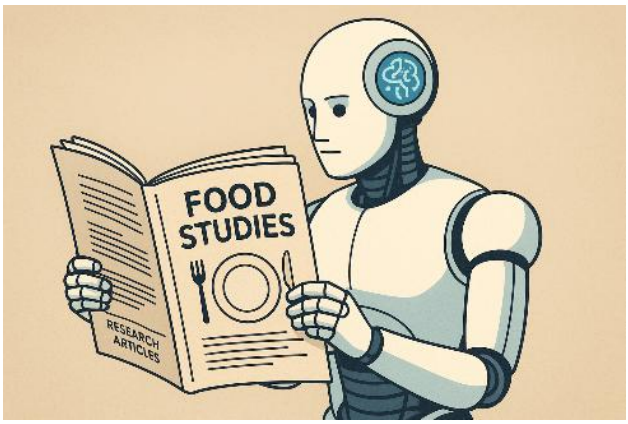



Image: Developed by ChatGPT.
Prompt: create an image of artificial intelligence running an academic journal about food studies called CFS/RCÉA

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Perspective

# Toward a national school food program in Canada: Understanding current landscape and context

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## Abstract

**Introduction:** In Canada, there is a growing commitment to developing a national school food program (SFP) to improve children's diet and address existing and widening health inequities. Having an understanding of the current landscape of SFP offerings and context is essential to inform the national SFP development.

**Methods:** Available data are scarce; we drew from three unique school-based surveys: a provincially-representative sample of elementary schools from the Raising Healthy Eating and Active Living Kids in Alberta study (2008-2014), a sample of elementary schools with active whole-school health promotion intervention called A Project Promoting Active Living and Healthy Eating Schools (intervention years 1-6), and a convenience sample of secondary schools from the Cannabis, Obesity, Mental Health, Physical Activity, Alcohol, Smoking, and Sedentary Behaviour study (2016/17-2021/22). Descriptive analyses assessed the temporal trends in SFP availability, characteristics, and enablers/barriers.

**Results:** Secondary schools reported a decrease in SFP availability, while the opposite trend was observed in elementary schools, particularly those with a whole-

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school health promotion intervention in place. Elementary schools with an active health promotion intervention also demonstrated improved awareness, incorporation, and compliance with provincial nutrition guidelines. Barriers to SFP included funding constraints and infrastructure challenges, and these remained consistent over the years.

**Conclusion:** Given the complexity of factors that impact SFP availability, there is an urgent need for a national SFP and harmonized school food policy to help improve Canadian children's diet, ensure lifelong healthy eating habits, and promote health equity.

Keywords: Children; diet; health equity; nutrition guidelines; school food policy; school food program

**Introduction** : On observe au Canada un intérêt croissant pour la mise en œuvre d'un programme d'alimentation scolaire (PAS), à l'échelle nationale, afin d'améliorer l'alimentation des enfants et de lutter contre les inégalités croissantes en matière de santé. Pour guider l'élaboration d'un PAS national, il est d'abord essentiel de bien comprendre le panorama des offres actuelles de PAS et le contexte dans lequel elles s'inscrivent.

**Méthodes** : Les données sur le sujet sont rares. Nous avons puisé dans trois enquêtes scolaires uniques : un échantillon représentatif à l'échelle provinciale d'écoles primaires issu de l'étude « Raising Healthy Eating and Active Living Kids » qui a eu lieu en Alberta (2008-2014), un échantillon d'écoles primaires ayant réalisé, dans l'ensemble de l'établissement scolaire, une intervention active de promotion de la santé appelée « A Project Promoting Active Living and Healthy Eating Schools » (intervention touchant les années 1 à 6), et un échantillon de commodité d'écoles secondaires issu de l'étude « Cannabis, Obesity, Mental Health, Physical Activity, Alcohol, Smoking, and Sedentary Behavior » (2016/17-2021/22). Des analyses descriptives ont évalué les tendances temporelles dans les programmes d'alimentation, en ce qui a trait à leur disponibilité, leurs caractéristiques, les facteurs favorables et les obstacles.

**Résultats** : Les écoles secondaires ont signalé une diminution de la disponibilité des PAS, tandis que la tendance inverse a été observée dans les écoles primaires, en particulier celles qui ont mis en place une intervention de promotion de la santé à l'échelle de l'établissement. Les écoles primaires ayant mis en place une intervention active de promotion de la santé ont également démontré une meilleure sensibilisation, une meilleure intégration et un meilleur respect des directives provinciales en matière de nutrition. Les obstacles aux PAS comprenaient des contraintes financières et des défis liés aux infrastructures, qui sont restés constants au fil des ans.

**Conclusion** : Considérant la complexité des facteurs qui influencent l'accès à un PAS, il y a un urgent besoin d'un programme national et d'une politique d'alimentation scolaire harmonisée pour aider à améliorer l'alimentation des enfants canadiens, assurer des habitudes alimentaires saines pour toute la vie et réaliser l'équité sur le plan de la santé.

## Introduction

Poor diet of Canadian children has received much attention in recent decades: the majority of children and adolescents (aged 4 to 18 years) do not meet established recommendations for vegetables and fruit intake, their diets contain too much sugar and sodium (Hack et al., 2021), and close to half of their total daily energy intake comes from ultra-processed foods (Polsky et al., 2020). Poor diet places children at a higher risk for chronic diseases, including type 2 diabetes, obesity, heart disease, and some cancers (Uauy et al., 2008). Poor diet has also been linked to impaired cognitive functioning, and poor academic performance and mental health (Haapala et al., 2017; Faught et al., 2017; Loewen et al., 2019). Notably, children from low socioeconomic status (SES) households report worse diets compared to their counterparts from higher SES households (Haapala et al., 2017; Faught et al., 2017). Effective dietary interventions are urgently needed to promote healthy eating while also addressing health inequities.

Children spend most of their waking hours at school where they consume approximately one-third of their daily energy intake (Tugault-Lafleur et al., 2017). School food programs (SFPs), which encompass initiatives such as breakfast, lunch, snack, and milk programs, are being advocated as an effective strategy to foster children's dietary habits by improving access to nutritious meals, exposing children to diverse foods, and teaching cooking skills and food literacy (Guio, 2023). Importantly, these programs also show great potential for ameliorating health inequities by addressing food insecurity and ensuring all students have access to regular and nutritious meals regardless of family SES (Tugault-Lafleur et al., 2017; Olstad et al., 2021). It is estimated that free or subsidized SFPs, implemented in 161 countries, benefited more than 388 million children in 2020 (World Food Programme [WFP], 2020). These programs have demonstrated remarkable success in improving children's health outcomes and academic performance, tackling food insecurity, and boosting economic growth by creating new jobs (Hernandez et al., 2018; Godin et al., 2019; Fung et al., 2012; APPLE Schools, 2024). Importantly, SFPs are estimated to generate impressive returns on investment of $3 to $10 for every dollar spent (WFP, 2020).

Considering the vital role that SFPs play in improving children's diet and reducing health inequities, the federal government committed to developing a national SFP and accompanying school food policy (Liberal Party of Canada, 2024; Stechyson, 2024). Understanding the current SFP offerings and their characteristics is essential to inform the national SFP development. The patchwork of existing programs, funded by municipal and provincial/territorial governments and non-governmental organizations (Ruetz & McKenna, 2021; Ruetz et al., 2023), is complex as these SFPs differ in their mandates and characteristics (Ruetz & McKenna, 2021). At present, available data at the school level are scarce and there is a lack of reliable, representative data on SFPs collected in Canadian schools. Indeed, there is no single school-based data source that would provide comprehensive information on the current SFP offerings in Canada. In this study, we relied on several unique school-based surveys to describe existing SFPs in terms of their availability, characteristics (accessibility, cost, frequency of offerings, location), and enablers and barriers in a sample of Canadian schools.

## Methods

We drew data from three school-based surveys: a large convenience sample of secondary schools from the Cannabis, Obesity, Mental Health, Physical Activity, Alcohol, Smoking, and Sedentary Behaviour study (COMPASS), a provincially representative sample of elementary schools that participated in the Raising Healthy Eating and Active Living Kids in Alberta study (REAL Kids Alberta), and a sample of elementary schools with an active whole-school health promotion intervention called A Project Promoting Active Living and Healthy Eating Schools (APPLE Schools).

Launched in the 2012/13 school year, COMPASS is a longitudinal hierarchical research platform that annually collects comprehensive data in a convenience sample of secondary schools located in Alberta, British Columbia, Ontario, and Quebec (Leatherdale et al., 2014). School administrators complete a questionnaire built on the previously validated Healthy School Planner (Joint Consortium for School Health, 2007), to report on school policies, practices, or resources available to support student health and healthy lifestyle behaviours. Specifically, the questionnaire asks school administrators about the availability of school breakfast programs and their characteristics (offered daily, free, universal, and location), and enablers/barriers (Vermeer et al., 2023). We analyzed data from 95 school administrators in 2016/17, 122 in 2017/18, 136 in 2018/19, 102 in 2019/20, 132 in 2020/21, and 182 in 2021/22 school years.

***REAL Kids Alberta*** was a large, provincially representative, population-based survey that collected school-level data from school administrators (Ofosu et al., 2018). School administrators were asked to report on: (1) SFP availability, characteristics (offered daily, free, universal), and alignment with Alberta provincial nutrition guidelines [Government of Alberta, 2012]); (2) presence of school nutrition policies; and (3) adherence of SFPs to Alberta provincial nutrition guidelines (awareness, incorporation, compliance). Surveys were administered biannually between 2008 and 2014. The sampling frame included more than 1400 elementary schools (private, Francophone, on-reserve federal, charter, and colony schools were excluded). To achieve a provincially representative sample, these schools were first stratified based on the geographical area (i.e., metropolitan [~1 million residents], city [>40,000 residents], rural-town [<40,000 residents]), and then randomly selected within each stratum. Overall, 120 to 150 schools participated in each wave.

APPLE Schools is an evidence-based Health Promoting School (HPS) intervention designed to improve student lifestyle behaviours (healthy eating, physical activity) and mental health and wellbeing (Vander Ploeg et al., 2014a; Vander Ploeg et al., 2012; Bastian et al., 2015; Maximova et al., 2015; Tran et al., 2014; Roberts et al., 2016; Vander Ploeg et al., 2014b). APPLE Schools successfully tackles health inequities by targeting elementary schools in socioeconomically deprived neighbourhoods (Vander Ploeg et al., 2012; Vander Ploeg et al., 2014b). Since its launch in 2008, APPLE Schools has been implemented in more than one hundred schools across western Canada (Alberta, British Columbia, Manitoba, Northwest Territories) and has plans to scale-up nationwide. School administrators are asked to fill out the same survey as the one used in the REAL Kids Alberta study to report on school-level policies and practices. This study analyzed data collected from school administrators in 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2016, 2018, and 2021. Baseline data are collected before or during the first intervention year. Given the changing intensity

of the APPLE Schools intervention, data were analyzed by intervention year.

For all three studies, school geographic location was categorized using Statistics Canada's classification: rural or small population centre (PC) with population <29,999, medium PC with population 30,000 to 99,999, and large PC with population ≥100,000 (Statistics Canada, 2017). We used school postal codes to derive material deprivation index from 2016 Canada Census data, with higher quintiles indicating higher material deprivation (more information is available elsewhere (Pampalon & Raymond, 2000). The quintiles were combined to create a binary variable indicating less vs. more deprivation (1-3 vs. 4-5).

### Data analysis

Frequencies were calculated for SFP availability, characteristics (accessibility, cost, frequency of offerings, location), and enablers and barriers. Trends in COMPASS and REAL Kids Alberta were examined by calendar year. For REAL Kids Alberta, frequencies were weighted to accommodate the design effect and represent the provincial estimates. Trends in APPLE Schools were examined by intervention year. Stata/SE 17 (Stata Corp., College Station, TX) was used for data management and analyses. Percentages may not add up to 100 percent due to missing values.

### Ethics

All data collection procedures in COMPASS were approved by the University of Waterloo Office of Research Ethics (#30118) and REAL Kids Alberta and APPLE Schools studies by the Health Research Ethics Board at the University of Alberta (Pro00049436 and Pro00061528, respectively) and all participating school boards. Consent from school administrators to participate in the APPLE Schools, REAL Kids Alberta, and COMPASS studies was implied through their completion of the surveys. Analyses in the current study were approved by the Research Ethics Boards of the University of Toronto (#42290) and the University of Alberta (Pro00116888).

## Results

Most schools participating in the three studies were located in rural/small or large PCs (Table 1). The majority of COMPASS and REAL Kids Alberta schools were located in less materially deprived areas (quintiles 1-3 of the material deprivation index) whereas more than one-third of APPLE Schools were located in areas of higher material deprivation (quintiles 4-5), which reflects the APPLE Schools' focus on socioeconomically deprived neighbourhoods.

Table 1: Characteristics of schools that participated in COMPASS, REAL Kids Alberta, and APPLE Schools studies.

| | COMPASS | | | | | | REAL Kids Alberta | | | | APPLE Schools | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2008 | 2010 | 2012 | 2014 | Year 1 | Year 2-3 | Year 4-5 | Year 6+ |
| Number of schools, n | 95 | 122 | 136 | 102 | 132 | 182 | 144 | 132 | 129 | 130 | 46 | 66 | 37 | 26 |
| *Geographic area[a], %* | | | | | | | | | | | | | | |
| Rural/small PC | 39 | 43 | 49 | 42 | 48 | 54 | 46 | 45 | 48 | 52 | 40 | 32 | 35 | 27 |
| Medium PC | 19 | 10 | 8 | 10 | 8 | 9 | 23 | 23 | 20 | 16 | 18 | 20 | 22 | 35 |
| Large PC | 42 | 47 | 43 | 48 | 44 | 38 | 31 | 32 | 32 | 31 | 42 | 49 | 43 | 39 |
| *Material deprivation[b], %* | | | | | | | | | | | | | | |
| Less deprived | 53 | 57 | 56 | 59 | 53 | 39 | 65 | 63 | 61 | 61 | 48 | 50 | 55 | 52 |
| More deprived | 39 | 33 | 34 | 30 | 29 | 22 | 28 | 28 | 30 | 32 | 41 | 41 | 40 | 48 |

Abbreviations: COMPASS: The Cannabis, Obesity, Mental health, Physical activity, Alcohol, Smoking, and Sedentary Behaviour; REAL Kids Alberta: Raising healthy Eating and Active Living Kids in Alberta; APPLE Schools: A Project Promoting Healthy Living for Everyone in Schools; PC: population centre.

[a] Rural/small population centre (PC): population <29,999; medium PC: 30,000-99,999, and large PC: ≥100,000.

[b] Material deprivation index categorized into quintiles 1-3 (less deprived) vs. 4-5 (more deprived).

Notes: Percentages may not add up to 100 percent due to missing values.

More COMPASS secondary schools in materially deprived areas reported providing a breakfast program than those in less deprived areas (Table 2). However, the availability of breakfast programs among these schools declined steadily over time, from 86 percent in 2016-17 to 45 percent in 2021/22. In schools with breakfast programs, most programs were offered daily (>78 percent), at no cost (>88 percent), and to all students (>88 percent), which remained consistent over time with few differences based on material deprivation. Most breakfasts in secondary schools were provided as a grab-and-go bin located in or outside the homeroom, particularly during the COVID-19 pandemic in the 2020-21 school year, with some schools providing breakfast as a sit-down meal in a designated location.

In elementary schools, the availability of breakfast or morning snack programs increased over time. Provincially, the proportion of REAL Kids Alberta schools offering breakfast or morning snack programs increased from 24 percent in 2008 to 48 percent in 2012, and even more so among schools located in materially deprived areas (from 25 percent in 2008 to 54 percent in 2014). In APPLE Schools, a breakfast or morning snack program was available in 41 percent of schools in Year 1 of the intervention, and this increased to 73 percent in Year 6+, reaching 78 percent and 69 percent in schools located in more vs. less materially deprived areas, respectively. Not all meals served in Alberta elementary schools complied with provincial nutrition guidelines of including 3 to 4 food groups in meal offerings (59 percent in 2008, 77 percent in 2012, and 58 percent in 2014).

Compliance with this provincial recommendation in APPLE Schools increased from 53 percent in Year 1 to 68 percent in Year 6+ of the intervention, with more schools in deprived areas reporting compliance after Year 1. The availability of lunch programs in Alberta also increased from 49 percent in 2008 to 84 percent in 2014 in REAL Kids Alberta schools. This positive

trend was also observed in APPLE Schools (46 percent in Year 1 to 85 percent in Year 6+). However, compliance of *lunch* programs with this recommendation remained suboptimal in both samples (58 percent of REAL Kids Alberta and 55 percent of APPLE Schools).

Table 2: School food program availability and characteristics in schools that participated in COMPASS, REAL Kids Alberta, and APPLE Schools studies.

| | COMPASS | | | | | | REAL Kids Alberta | | | | APPLE Schools | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2008 | 2010 | 2012 | 2014 | Year 1 | Year 2-3 | Year 4-5 | Year 6+ |
| **Breakfast or morning snack is[a], %** | | | | | | | | | | | | | | |
| Provided by school | 86 | 71 | 62 | 56 | 47 | 45 | 24 | - | 33 | 48 | 41 | 52 | 54 | 73 |
| Less deprived[b] | 86 | 70 | 59 | 52 | 46 | 52 | 25 | - | 29 | 42 | 32 | 45 | 48 | 69 |
| More deprived | 94 | 78 | 74 | 57 | 51 | 64 | 25 | - | 38 | 54 | 58 | 63 | 63 | 78 |
| Offered daily | 84 | 78 | 87 | 86 | 93 | 87 | 82 | - | - | - | 16 | - | - | - |
| Less deprived | 86 | 77 | 91 | 84 | 94 | 95 | 70 | - | - | - | 14 | - | - | - |
| More deprived | 82 | 77 | 82 | 82 | 100 | 88 | 100 | - | - | - | 18 | - | - | - |
| Composed of 3-4 food groups | - | - | - | - | - | - | 59 | - | 77 | 58 | 53 | 62 | 65 | 68 |
| Less deprived | - | - | - | - | - | - | 52 | - | 74 | 55 | 71 | 53 | 60 | 64 |
| More deprived | - | - | - | - | - | - | 80 | - | 67 | 59 | 45 | 65 | 70 | 71 |
| Provided for free | 96 | 93 | 93 | 89 | 95 | 93 | - | - | - | - | - | - | - | - |
| Less deprived | 95 | 94 | 93 | 90 | 97 | 95 | - | - | - | - | - | - | - | - |
| More deprived | 100 | 97 | 97 | 94 | 100 | 88 | - | - | - | - | - | - | - | - |
| Available to all students | 98 | 92 | 95 | 89 | 88 | 90 | - | - | - | - | - | - | - | - |
| Less deprived | 98 | 94 | 95 | 90 | 91 | 89 | - | - | - | - | - | - | - | - |
| More deprived | 97 | 94 | 97 | 88 | 89 | 96 | - | - | - | - | - | - | - | - |
| Provided as a sit-down meal in a designated location | 36 | 42 | 41 | 38 | 10 | 21 | - | - | - | - | - | - | - | - |
| Less deprived | 36 | 45 | 39 | 32 | 9 | 19 | - | - | - | - | - | - | - | - |
| More deprived | 35 | 39 | 44 | 47 | 11 | 24 | - | - | - | - | - | - | - | - |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Provided as a grab-and-go bin in/outside the homeroom | 75 | 62 | 65 | 65 | 93 | 84 | - | - | - | - | - | - | - | - |
| Less deprived | 79 | 60 | 68 | 68 | 88 | 84 | - | - | - | - | - | - | - | - |
| More deprived | 71 | 65 | 62 | 59 | 100 | 84 | - | - | - | - | - | - | - | - |
| **Lunch program is**, % | | | | | | | | | | | | | | |
| Provided by school | - | - | - | - | - | - | 49 | - | 83 | 84 | 46 | 82 | 51 | 85 |
| Less deprived | - | - | - | - | - | - | 49 | - | 78 | 82 | 45 | 76 | 48 | 88 |
| More deprived | - | - | - | - | - | - | 53 | - | 90 | 88 | 47 | 85 | 56 | 78 |
| Offered daily | - | - | - | - | - | - | 41 | - | - | - | 19 | - | - | - |
| Less deprived | - | - | - | - | - | - | 35 | - | - | - | 30 | - | - | - |
| More deprived | - | - | - | - | - | - | 52 | - | - | - | 0 | - | - | - |
| Composed of 3-4 food groups | - | - | - | - | - | - | 52 | - | 57 | 58 | 67 | 69 | 79 | 55 |
| Less deprived | - | - | - | - | - | - | 46 | - | 63 | 55 | 50 | 68 | 90 | 50 |
| More deprived | - | - | - | - | - | - | 67 | - | 60 | 53 | 89 | 65 | 67 | 71 |
| Students are permitted to eat lunch in the cafeteria | - | - | - | - | 47 | 93 | - | - | - | - | - | - | - | - |
| Less deprived | - | - | - | - | 49 | 96 | - | - | - | - | - | - | - | - |
| More deprived | - | - | - | - | 43 | 87 | - | - | - | - | - | - | - | - |
| Students are permitted to eat lunch in the classroom | - | - | - | - | 71 | 45 | - | - | - | - | - | - | - | - |
| Less deprived | - | - | - | - | 70 | 44 | - | - | - | - | - | - | - | - |
| More deprived | - | - | - | - | 73 | 46 | - | - | - | - | - | - | - | - |
| Students are permitted to eat lunch in other area on school grounds | - | - | - | - | 40 | 69 | - | - | - | - | - | - | - | - |
| Less deprived | - | - | - | - | 42 | 65 | - | - | - | - | - | - | - | - |
| More deprived | - | - | - | - | 35 | 77 | - | - | - | - | - | - | - | - |
| Students go home for lunch | - | - | - | - | 60 | 69 | - | - | - | - | - | - | - | - |
| Less deprived | - | - | - | - | 61 | 68 | - | - | - | - | - | - | - | - |
| More deprived | - | - | - | - | 60 | 72 | - | - | - | - | - | - | - | - |
| Students are permitted to eat lunch in other area off school grounds | - | - | - | - | 50 | 69 | - | - | - | - | - | - | - | - |
| Less deprived | - | - | - | - | 49 | 66 | - | - | - | - | - | - | - | - |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| More deprived | - | - | - | - | 51 | 74 | - | - | - | - | - | - | - | - |
| School allows meal delivery services (e.g., Uber Eats, Skip the Dishes) | - | - | - | 42 | - | - | - | - | - | - | - | - | - | - |
| Less deprived | - | - | - | 38 | - | - | - | - | - | - | - | - | - | - |
| More deprived | - | - | - | 50 | - | - | - | - | - | - | - | - | - | - |

Abbreviations: COMPASS: The Cannabis, Obesity, Mental health, Physical activity, Alcohol, Smoking, and Sedentary Behaviour; REAL Kids Alberta: Raising healthy Eating and Active Living Kids in Alberta; APPLE Schools: A Project Promoting Healthy Living for Everyone in Schools.

[a] The question is limited to breakfast only in COMPASS.

[b] Material deprivation index categorized into quintiles 1-3 (less deprived) vs. 4-5 (more deprived).

Notes: Percentages may not add up to 100 percent due to missing values.

Table 3 reports on the positive trends among Alberta elementary schools in school policies and practices that promote healthy eating in schools (i.e., SFP enablers). These improvements were particularly notable in APPLE Schools: in Year 6+ of the intervention, almost all schools provided professional development of staff, communication with staff and parents, accessed expertise from health authorities or other professionals, and established committees to promote healthy food in schools. There were some disparities between APPLE Schools in more vs. less materially deprived areas, particularly at baseline: 47 percent vs. 82 percent of schools incorporated healthy eating into their policies or guidelines, 74 percent vs. 82 percent communicated with staff, and 84 percent vs. 91 percent communicated with parents. However, these differences decreased substantially over the course of the intervention.

Table 3: School food program enablers in elementary schools that participated in REAL Kids Alberta and APPLE Schools studies.

| | REAL Kids Alberta | | | | APPLE Schools | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 | 2010 | 2012 | 2014 | Year 1 | Year 2-3 | Year 4-5 | Year 6+ |
| **Healthy Eating is, %** | | | | | | | | |
| Reflected in school's mission statement and/or strategic plan | 32 | 62 | 64 | 62 | 52 | 79 | 81 | 77 |
| Less deprived[a] | 35 | 67 | 63 | 54 | 55 | 82 | 95 | 75 |
| More deprived | 23 | 49 | 65 | 62 | 53 | 78 | 63 | 78 |
| Incorporated in policies or guidelines | 67 | 64 | 87 | 85 | 65 | 77 | 68 | 81 |
| Less deprived | 69 | 65 | 88 | 82 | 82 | 82 | 71 | 81 |
| More deprived | 65 | 62 | 86 | 89 | 47 | 70 | 63 | 78 |
| Included in professional development of staff | - | - | 95 | 92 | 24 | 73 | 57 | 96 |
| Less deprived | - | - | 93 | 93 | 23 | 24 | 52 | 100 |
| More deprived | - | - | 95 | 89 | 21 | 67 | 63 | 89 |

| | REAL Kids Alberta | | | | APPLE Schools | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 | 2010 | 2012 | 2014 | Year 1 | Year 2-3 | Year 4-5 | Year 6+ |
| Communicated with staff | 82 | 77 | 81 | 83 | 76 | 92 | 81 | 96 |
| Less deprived | 81 | 76 | 82 | 83 | 82 | 97 | 86 | 94 |
| More deprived | 88 | 81 | 78 | 81 | 74 | 85 | 75 | 100 |
| Communicated with parents | 94 | 92 | 92 | 93 | 85 | 97 | 95 | 100 |
| Less deprived | 96 | 89 | 89 | 92 | 91 | 100 | 95 | 100 |
| More deprived | 98 | 95 | 95 | 97 | 84 | 93 | 94 | 100 |
| Addressed by committees | 32 | 58 | 54 | 59 | 41 | 79 | 78 | 89 |
| Less deprived | 35 | 58 | 50 | 60 | 45 | 73 | 90 | 81 |
| More deprived | 28 | 57 | 54 | 49 | 42 | 81 | 63 | 100 |
| Access expertise from health authority or other professionals | 92 | 92 | 93 | 95 | 91 | 97 | 97 | 96 |
| Less deprived | 91 | 89 | 93 | 93 | 86 | 94 | 95 | 94 |
| More deprived | 98 | 100 | 92 | 97 | 95 | 100 | 100 | 100 |
| **Provincial nutrition guidelines are,** % | | | | | | | | |
| Aware | 62 | 95 | 95 | 95 | 87 | 99 | 95 | 100 |
| Less deprived | 63 | 94 | 92 | 93 | 82 | 100 | 100 | 100 |
| More deprived | 63 | 95 | 100 | 100 | 95 | 96 | 88 | 100 |
| Incorporated in school/district policies | 10 | 32 | 61 | 60 | 28 | 55 | 62 | 77 |
| Less deprived | 9 | 27 | 59 | 58 | 27 | 58 | 67 | 75 |
| More deprived | 13 | 43 | 68 | 65 | 32 | 52 | 56 | 78 |
| Complied for most food choices | 10 | 27 | 54 | 50 | 26 | 71 | 62 | 73 |
| Less deprived | 11 | 24 | 59 | 57 | 27 | 79 | 76 | 75 |
| More deprived | 8 | 35 | 51 | 51 | 26 | 59 | 44 | 67 |
| Complied for special food days | - | - | 73 | 61 | 17 | 62 | 51 | 73 |
| Less deprived | - | - | 72 | 57 | 14 | 61 | 48 | 63 |
| More deprived | - | - | 78 | 62 | 21 | 59 | 56 | 89 |
| Not complied | 3 | 25 | 10 | 14 | 17 | 3 | 5 | 0 |
| Less deprived | 3 | 25 | 8 | 17 | 9 | 3 | 5 | 0 |
| More deprived | 3 | 19 | 11 | 5 | 26 | 4 | 6 | 0 |

Abbreviations: REAL Kids Alberta: Raising Healthy Eating and Active Living Kids in Alberta; APPLE Schools: A Project Promoting Healthy Living for Everyone in Schools.

[a] Material deprivation index categorized into quintiles 1-3 (less deprived) vs. 4-5 (more deprived).

Notes: Percentages may not add up to 100 percent due to missing values.

Similarly, there were improvements in the awareness, incorporation, and compliance of SFPs with provincial nutrition guidelines for children and youth among Alberta elementary schools. In REAL Kids Alberta schools, awareness increased from 62 percent to 95 percent between 2008 and 2014, incorporation from 10 percent to 60 percent, and compliance for most food choices from 10 percent to 50 percent, but the

proportion of schools not following Alberta provincial guidelines increased from 3 percent to 14 percent (Table 3). Differences between schools in more vs. less materially deprived areas were small and decreased over time. In intervention schools, awareness of Alberta provincial nutrition guidelines was already high (87 percent) in Year 1, but only about a quarter of schools incorporated or complied with provincial guidelines at baseline. By Year 6+, all APPLE Schools reported being aware of Alberta provincial nutrition guidelines, and 77 percent and 73 percent reported incorporating and complying with the guidelines for most food choices, respectively. While schools in less deprived areas reported higher compliance with provincial nutrition guidelines for most food choices, schools in more deprived areas reported higher compliance for special food days. Finally, data on SFP enablers/barriers were only available in COMPASS (Table 4). The most common barriers reported included: limited control over food available (33 percent to 46 percent), loss of revenue due to food restrictions (25 percent to 48 percent), and lack of resources to support the implementation (16 percent to 32 percent). No consistent patterns were observed based on material deprivation.

Table 4: School food program enablers and barriers in secondary schools that participated in COMPASS.

| | COMPASS | | | | | |
|---|---|---|---|---|---|---|
| | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
| **Enablers** | | | | | | |
| School offers cooking classes, % | 86 | 79 | 76 | 76 | - | - |
| Less deprived[a] | 88 | 77 | 76 | 78 | - | - |
| More deprived | 83 | 83 | 76 | 70 | - | - |
| School offers media literacy on special topics related to healthy eating, % | 68 | 66 | 69 | 39 | - | - |
| Less deprived | 65 | 63 | 65 | 37 | - | - |
| More deprived | 72 | 70 | 74 | 43 | - | - |
| **Barriers** | | | | | | |
| Lack of resources to support guideline implementation, % | 24 | 31 | 29 | 16 | 17 | 32 |
| Less deprived | 20 | 32 | 31 | 17 | 19 | 27 |
| More deprived | 28 | 30 | 28 | 17 | 14 | 31 |
| Loss of revenue due to food restrictions, % | 48 | 39 | 34 | 25 | 25 | 29 |
| Less deprived | 59 | 29 | 33 | 23 | 23 | 34 |
| More deprived | 39 | 50 | 39 | 23 | 24 | 38 |
| Limited control over food available, % | 46 | 45 | 40 | 36 | 40 | 33 |
| Less deprived | 45 | 45 | 40 | 48 | 35 | 41 |
| More deprived | 47 | 40 | 43 | 47 | 38 | 38 |
| Confusion about how to apply the guidelines, % | 17 | 14 | 15 | 15 | 11 | 14 |
| Less deprived | 10 | 14 | 9 | 17 | 9 | 11 |
| More deprived | 25 | 13 | 28 | 10 | 11 | 10 |

| | COMPASS | | | | | |
|---|---|---|---|---|---|---|
| | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
| Lack of feedback on guideline implementation within the school, % | 11 | 10 | 13 | 6 | 10 | 15 |
| Less deprived | 12 | 10 | 12 | 8 | 13 | 11 |
| More deprived | 11 | 13 | 17 | 3 | 3 | 18 |
| Other barriers, % | 12 | 12 | 10 | 12 | 14 | 15 |
| Less deprived | 10 | 14 | 13 | 13 | 20 | 17 |
| More deprived | 8 | 8 | 9 | 10 | 11 | 10 |

Abbreviations: COMPASS: The Cannabis, Obesity, Mental health, Physical activity, Alcohol, Smoking, and Sedentary Behaviour.
[a] Material deprivation index categorized into quintiles 1-3 (less deprived) vs. 4-5 (more deprived).
Notes: Percentages may not add up to 100 percent due to missing values.

## Discussion

We used data from three school-based surveys to describe the current SFP offerings in a sample of Canadian schools. Our findings reveal a decrease in the availability of SFPs in Canadian secondary schools, in contrast with a notable increase in elementary schools, particularly those with an active whole-school health promotion intervention in place. The observed disparities in the availability and characteristics of SFPs and their enablers/barriers contribute to the limited and sporadic access of Canadian children and adolescents to nutritious meals essential for their growth, health and wellbeing.

Our findings revealed that the downward trend in the availability of breakfast programs in secondary schools began before the COVID-19 pandemic, suggesting that other factors are likely at play. For example, most schools in Canada lack the infrastructure and trained staff to prepare and serve meals on-site (Ruetz & McKenna, 2021). Moreover, rising food prices (Dalhousie University et al., 2023) hinder SFP availability, given the lack of adequate and sustained government funding (Employment and Social Development Canada, 2023; Ruetz & Engler-Stringer, 2014). A recent study revealed that only 35 percent of JK to 12 schools in Canada received government funding sufficient to serve only one in five students and often covering only 25 percent of the costs (Ruetz & McKenna, 2021; Ruetz et al., 2023). On the other hand, we observed a positive trend in the availability of SFPs in elementary schools in Alberta, particularly those with an active whole-school health promotion intervention (i.e., APPLE Schools). This could be partly attributed to a larger proportion of APPLE Schools located in more materially deprived areas (Ruetz & McKenna, 2021). According to the *People for Education's 2022-2023 Annual Ontario School Survey* report, 96 percent of schools located in low-income areas provide SFPs, compared to only 53 percent of schools located in high-income areas (People for Education, 2023).

The increasing availability of SFPs in APPLE Schools also hints at its effectiveness in improving the school food environment (Veugelers et al., 2005). Existing evidence supports this: SFPs implemented in the U.S. were shown to improve children's diet quality (Chen et al., 2021), health (Jia et al., 2020), and educational outcomes (Hinrichs, 2010). Previously, we have reported on the effectiveness of the APPLE

Schools intervention in improving students' dietary habits, with students reporting eating more fruits and vegetables, consuming fewer calories, and having a lower likelihood of being overweight and obese compared to their peers in REAL Kids Alberta schools (i.e., provincial average) (Fung et al., 2012). The current study suggests that an important enabler for these positive outcomes may be the improvements to the school food environment. This finding reinforces the importance of whole-school health promotion programs to encourage SFP implementation, particularly in schools located in socioeconomically disadvantaged areas (Ekwaru et al., 2021).

SFPs are advocated to be free and universal (i.e., available to all students) (Russell et al., 2008; Leos-Urbel et al., 2013). The universality of SFPs encourages student participation by minimizing the social stigma around receiving free food (Employment and Social Development Canada, 2023; Koc & Bas, 2012; Valaitis et al., 2014; Basch, 2011). However, insufficient funding is recognized as the main reason for not providing universal SFPs (Employment and Social Development Canada, 2023), with pay-what-you-can or fixed-fee SFPs emerging as important alternatives. Previous studies estimate that about one-third of SFPs in Canada target low-income households and/or operate on a pay-what-you-can basis (Employment and Social Development Canada, 2023; The Coalition for Healthy School Food, 2023). It is encouraging that breakfast programs offered in most COMPASS schools were free and universal. A school administrator that participated in one of the three school-based surveys reported herein commented: "As someone who works in schools, it's hard to see some children come to school without lunches or haven't eaten breakfast. Some families cannot afford groceries, let alone fresh and healthy items. With the rising cost of groceries, what is going to happen?! I would love to see more schools offer breakfast programs and lunch. I wish it was affordable and reasonable for all schools to have a kitchen and staff that would make and serve these options." Apart from allocating more funding to SFPs, other strategies to improve access and student participation (e.g., promoting SFPs to all students, serving breakfast in a common location, involving parents and students as the program champions) should also be considered (Employment and Social Development Canada, 2023; Godin et al., 2018).

Nutrition guidelines are based on current research and best practices in healthy eating and are developed to help schools provide nutritious foods to children and youth. Awareness, incorporation, and compliance with nutrition guidelines are important enablers of SFP availability. In this study, we found positive trends among Alberta elementary schools in awareness, incorporation, and compliance with current nutrition guidelines, particularly in schools with an active intervention in place. The improvements were evident throughout the intervention period in APPLE Schools, reaching peak prevalence beyond the sixth intervention year. This is not surprising given that HPS interventions yield the best results if implemented and sustained over a longer period (Jia et al., 2020; Hinrichs, 2010). A decline in awareness, incorporation, and compliance with nutritional guidelines in years four and five could be attributed to the decrease in the intervention dose and intensity whereby dedicated School Health Facilitators (SHFs) in each school are replaced with *volunteers* known as School Health Champions (SHCs). This finding highlights the importance of having experienced and dedicated SHFs and SHCs who work closely with students, parents/guardians, school staff and community partners to collaboratively identify goals, tailor the program to the specific needs of each school

community, maintain the long-term effectiveness of the intervention, and foster a healthy food environment.

Finally, this study revealed major barriers to implementing healthy eating practices and policies in schools, including lack of resources to support guideline implementation, loss of revenue due to food restrictions, and limited control over food available. This finding highlights an urgent need to devise strategies addressing these barriers.

This study contributes to the scarce evidence on SFPs in the Canadian context. Given the lack of reliable, representative data on SFPs in Canada, we used best available data from several unique sources to examine the current SFP offerings and characteristics in a sample of elementary schools from 2008 to 2021 and secondary schools from 2016 to 2021. Several limitations warrant consideration. The surveys were completed by school administrators and may be subject to social desirability bias (Blasius & Thiessen, 2015; Beare et al., 2014). While the COMPASS questionnaire was based on a validated tool (Leatherdale et al., 2014), the survey instrument used in REAL Kids Alberta and APPLE Schools was not consistently validated. While REAL Kids Alberta recruited a representative sample of schools, COMPASS and APPLE Schools are based on convenience samples of schools. Further, data collection in REAL Kids Alberta ended in 2014 and therefore, may not represent recent trends (Fung et al., 2012). Given the disparate nature of these data, results are reported as frequencies and no statistical analyses of differences were conducted. Finally, in-depth interviews and direct observations could add rich contextual information about SFP enablers and barriers, but these data were not collected in any of the three studies. Given these limitations, and the fact that APPLE Schools is an intervention study, generalisations of the current findings should proceed with caution.

Using disparate but best available data sources, this study provides an overview of the current SFP offerings and characteristics in a sample of Canadian schools. The findings underscore the complexity of factors that impact the availability of existing SFPs. The decline in breakfast program availability among secondary schools is a major concern that highlights the need for sustained SFPs to improve the deteriorating quality of Canadian children's diets and increasing inequities in our society. Greater availability of school breakfast programs in deprived areas speaks to the higher demand and underscores the importance of addressing financial barriers to offering nutritious foods to mitigate health inequities. Overall, results support the urgent need for a national SFP and a harmonized school food policy to help improve Canadian children's diet, ensure lifelong healthy eating habits, and promote equitable access to nutritious food.

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Research Article

# Assessing and addressing plate waste in university dining: A dual-design study at Brescia University College in Ontario, Canada

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## Abstract

In Canada, approximately 35.5 million metric tonnes of food are wasted annually, with avoidable food loss and waste costing Canada $49.5 billion (Nikkel et al., 2019). The volume of food waste in Canada harms environmental sustainability and leads to economic inefficiency and social inequality (Soma, 2022). This study at Brescia University College explored methods to reduce plate waste in a university restaurant. Using two research designs, this study first analyzed and categorized all plate waste, finding non-food waste predominantly during breakfast (59.8 percent) and lunch (54.3 percent). Edible waste was highest during dinner (51.0 percent); carbohydrates contributed to the most waste (54.5 percent) and plant-based protein (3.1 percent) the least.

The second design involved student participation in waste weighing and completing questionnaires. Results showed a median edible waste of 19.0g, with fullness, poor taste, large portion size, and inability to bring home leftovers as the main reasons for waste. Meal plan students had a significantly higher amounts of plate waste than non-meal plan students ($p<0.001$).

Recommendations include serving smaller portions, improving food taste, and offering storage solutions for leftovers.

Keywords: Consumer attitudes; consumer behaviours; food waste; plate waste; university dining hall; university restaurant; university students

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## Résumé

Au Canada, environ 35,5 millions de tonnes métriques d'aliments sont gaspillées chaque année ; les pertes et le gaspillage alimentaires évitables coûtent 49,5 milliards de dollars au Canada (Nikkel et al., 2019). Le volume de déchets alimentaires au Canada nuit à la conservation de l'environnement et conduit à l'inefficacité économique et à l'inégalité sociale (Soma, 2022). Cette étude menée au Brescia University College a exploré les moyens de réduire les restes d'assiette jetés dans un restaurant universitaire. Suivant une première méthode de recherche, nous avons d'abord analysé et catégorisé tous les restes d'assiette jetés. Nous avons constaté que les déchets non alimentaires prédominaient au déjeuner (59,8 %) et au dîner (54,3 %) ; les déchets comestibles étaient les plus nombreux au souper (51,0 %) ; les glucides y contribuaient le plus (54,5 %) et les protéines d'origine végétale (3,1 %) le moins.

La seconde méthode de recherche a impliqué des étudiants et étudiantes dans la pesée des déchets et le remplissage de questionnaires. Les résultats ont montré que la médiane des déchets comestibles était de 19,0 g. Les principales causes de gaspillage étaient la satiété, le mauvais goût, la grande taille des portions et l'impossibilité d'apporter les restes à la maison. Les étudiants bénéficiant d'un menu préconçu jetaient une quantité de restes significativement plus élevée que les étudiants n'en bénéficiant pas ($p<0,001$).

Les recommandations qui découlent de l'étude sont de servir des portions plus petites, d'améliorer le goût des mets servis et de proposer des options de conservation pour les restes.

## Introduction

Food waste has received increased global attention in the past few years due to its high volume and adverse environmental, economic, and social consequences (Wu et al., 2019). Globally, approximately one-third of all food produced for human consumption is lost or wasted (Tarczyńska et al., 2023). Food waste relates to land use, greenhouse gas emissions, and water consumption (Wu et al., 2019). In Canada, approximately 35.5 million metric tonnes of food is wasted annually, with avoidable food loss and waste costing Canada $49.5 billion (Nikkel et al., 2019). The volume of food waste in Canada negatively affects environmental sustainability and leads to economic inefficiency and social inequality (Soma, 2022). Almost 60 percent of the environmental footprint created by the food industry comes from food loss and waste, of which a significant portion is avoidable. Discarded food in landfills produces methane gas, which is 25 times more damaging to the environment than carbon dioxide (Nikkel et al., 2019). Not only does food waste in Canada affect Canadian consumers, it also impacts global agriculture (Soma, 2022). Therefore, two key issues of food supply chain management are the reduction and prevention of food waste (Tarczyńska et al., 2023).

*One definition of plate waste* is "the uneaten quantity of edible food remaining on the consumer's plate after a meal" (Wu et al., 2019). This preventable waste depends on consumer characteristics such as appetite, preference, adequacy of portion size, and a meal's sensory attributes (Martinho et al., 2022). Food waste is categorized as edible or inedible and can be both avoidable or unavoidable (Wu et al., 2019). Avoidable food waste is

considered edible under normal circumstances, whereas unavoidable food waste, such as bones and peels, is inedible under normal circumstances (Deliberador et al., 2021a). Effective food waste prevention strategies must target avoidable food waste (Deliberador et al., 2021a). However, what is considered edible and inedible under normal circumstances differs between individuals and is impacted by culture, religion, and various social norms (Filho et al., 2021).

Determining the amount of food and plate waste can lead to effective intervention implementation, resulting in financial savings and having a beneficial effect on environmental sustainability (Deliberador et al., 2021a**).** According to the Food and Agriculture Organization of the United Nations, a sustainable food system is "a food system that delivers food security and nutrition for all in such a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised" (FAO, 2018). A key component of sustainable food systems is the reduction and redistribution of food waste to provide access to food to those experiencing food insecurity. Food waste encompasses nutrition loss as the foods most often wasted are those with a higher nutritional profile. One of the most wasted food items is fruits and vegetables (Brennan & Browne, 2021). Therefore, food waste reduction is crucial to create sustainable food systems that ensure food security and provide all populations with access to sufficient nutrients (Martinho et al., 2022).

Research indicates that in developed countries, most food waste occurs at the consumption stage, while in developing countries, it primarily results from losses during production (Qian et al., 2021). Previous research has also shown that individuals between the ages of 18 and 24 years tend to waste more food compared to individuals from other age groups, making university students a vital population for study (Tarczyńska et al., 2023). University canteens in various countries report high food and plate waste with values ranging from 25 to 135 g of plate waste per consumer per meal (Martinho et al., 2022). These high waste values make university restaurants a primary target of waste reduction strategies. University canteens also significantly contribute to students' out-of-home food consumption (Martinho et al., 2022; Zhao & Manning, 2019). Wiriyaphanich et al. (2021) highlight the importance of investigating common drivers of students' food choices and waste behaviours in university dining settings as they begin to form independent long-term food habits. Students' behaviours and perceptions can help inform which food/plate waste reduction strategies could be incorporated into students' long-term food habits (Wiriyaphanich et al.; 202, Zhao & Manning, 2019). University restaurants are also viable locations for food waste research as both meal and waste occur in one location (Wilkie et al., 2015).

Food waste behaviours are complex; an understanding of consumer perspectives is needed to inform prevention strategies (Wiriyaphanich et al., 2021). Plate waste reduction solutions require an in-depth understanding of the factors that influence consumer food loss behaviour (Filho et al., 2021). Globally, developed countries have greater food and plate waste than developing countries (Filho et al., 2021). Many solutions to Canada's food waste crisis have been implemented (Soma, 2022), including educational approaches such as the Love Hate Waste Canada awareness campaign and policy approaches such as Ontario's Food and Organic Waste Framework Action Plan (Soma, 2022). However, many universities in Canada lack consumer food waste prevention strategies (Soma, 2022).

Wu et al. (2019) find a significant portion of food wasted at a consumer level can be attributed to the large volume of plate waste generated by university students.

A study by Ellison et al. conducted in 2019 finds that students from American universities waste approximately 88.2 g of food per meal. Plate and food waste on university campuses mainly occur in student restaurants/canteens (Qian et al., 2021). Menu variety, composition, and daily variation in the number of consumers impact both consumer demand and level of food waste and are affected by the weather, holidays, and student activities, making this a very complex issue (Martinho et al., 2022). Filho et al. (2021) estimate that universities generate 540 million tons of food waste worldwide each year. Within universities, plate waste is the most significant contributor to the amount of food waste at the consumer level (Filho et al., 2021). Decreased options, palatable special dishes, and reduced portion size are all shown to minimize plate waste (Filho et al., 2021). Large amounts of food waste are shown to indicate an operational deficiency and may result from poor quality or taste of food, inappropriate portion size, or menu inefficiency (Deliberador et al., 2021a).

Previous studies examine university students' behaviour and food waste awareness, but few are conducted in Canada (Tarczyńska et al., 2023). Despite increased investigation into student plate waste in university canteens, research specific to Canada is lacking (Qian et al., 2021). Previous studies were conducted in China, Poland, Portugal, the United States, Brazil, Switzerland, Thailand, and Germany (Qian et al., 2021; Wu et al., 2019; Tarczyńska et al., 2023; Martinho et al., 2022; Aires et al., 2021; Wiriyaphanich et al., 2021; Deliberador et al., 2021b; Visschers et al., 2020; Thongplew et al., 2021; Gabriel et al., 2021).

Many universities conduct food waste audits for statistical and economic purposes. Conversely, this study did not simply evaluate how much food was wasted but sought to establish why students wasted food, which student characteristics were associated with plate waste, and which meals generated the most waste. This study aimed to answer how dining halls could minimize plate waste and asked students directly what their dining hall could do to reduce plate waste. Because this research occurred in a developed country, plate waste was the primary waste of interest.

This study had two objectives: The first was to quantify and compare estimated food plate waste during major meals at the dining hall. The second was to identify causes and factors related to plate waste at the dining hall and student demographics associated with increased individual edible plate waste. Specifically, the study looked at differences in the amount of plate waste between meal plan and non-meal plan students and between food and nutrition students and non-food and nutrition students.

## Methods

This study was conducted at Brescia University College, an affiliate of Western University in London, Ontario, Canada. Brescia University College is a women's university founded in 1919 and is committed to the educational development of women (*Food Services—Brescia University College,* n.d.). Research took place in Brescia's dining hall at the Clare Hall residence building (WR), the Mercato (*Food Services—Brescia University College*, n.d.). The Mercato consists of a salad bar, stone pizza oven station, grill, rotisserie, sandwich station, and a global station that offers different cultural dishes every day (*Food Services—Brescia University College*, n.d.).

Meal options include vegetarian, vegan, gluten-free, dairy-free and halal (*Food Services—Brescia University College*, n.d.). Each station offers students a customizable meal of the day where they can choose their own protein, fruits, vegetables, and grains.

Students living in residence must purchase the meal plan, whereas students living off campus can choose to buy it if they wish. The meal plan is valid for any item purchased at the Mercato or at the Brescia Starbucks kiosk.

This study consisted of two separate study designs, each conducted at different times. Data collection for both excluded weekends and reading weeks as many students were off campus during these times.

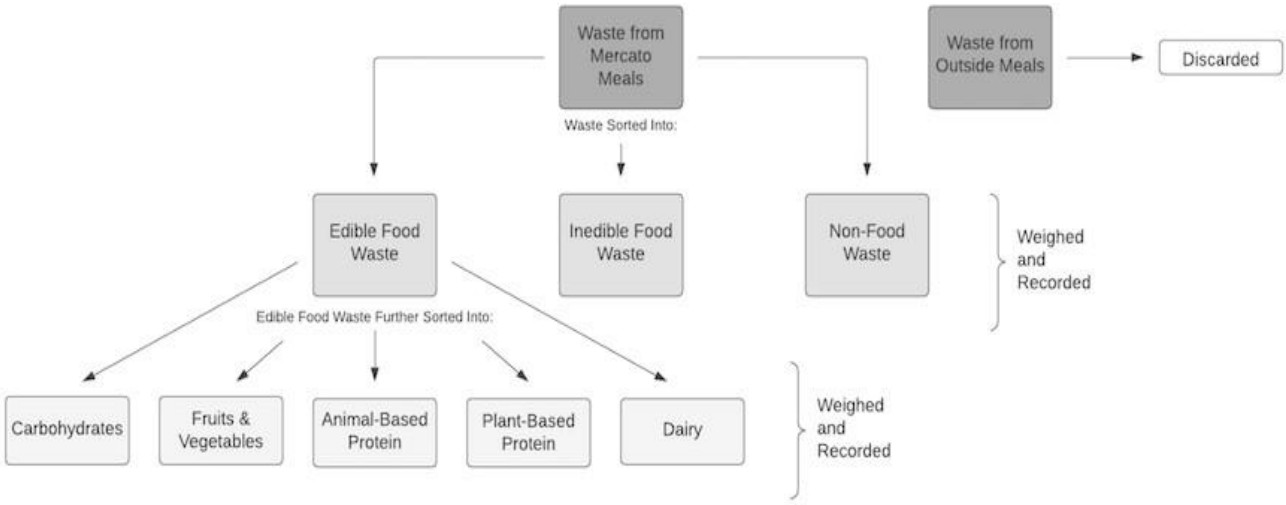
### Study design 1: The food waste audit

The first study conducted was a waste audit. Researchers collected all garbage disposed of at the Mercato during major mealtimes. Food waste was collected three times during breakfast between 7:00 am and 9:00 am, three times during lunch between 11:30 am and 1:30 pm, and three times during dinner between 4:30 pm and 6:30 pm. To account for day-to-day changes in consumption and waste volume, collection occurred on nine different days and covered every day of the week. Participants included staff, students, and the public, as all individuals who disposed of waste in the labelled garbage bins were included.

At the beginning of each designated mealtime, researchers labelled half of the garbage bins in the Mercato with the following label: "GARBAGE FROM MERCATO MEALS ONLY. If you are disposing of trash from outside meals, please use labelled garbage bins in the Mercato." The remaining garbage bins were labelled "GARBAGE FROM OUTSIDE MEALS ONLY." The labels were taped on one side over the opening of the garbage bin and required the individual to lift the label to dispose of waste. Consent was not collected as there was no researcher interaction with participants. Following the designated mealtimes, researchers and volunteers collected the trash bags from the bins labelled "GARBAGE FROM MERCATO MEALS ONLY" and sorted the contents into edible, inedible, and non-food waste. In this study, *edible food waste* was defined as any food that humans can consume. *Inedible food waste* was defined as any food not usually consumed by humans, including peels and bones. *Non-food waste* was classified as any waste that was not a food item (e.g., napkins, containers, and straws). The sorted contents of each category were weighed and recorded by the researcher and volunteers. In total, nine samples (three from each mealtime) were collected.

Edible food waste was sorted into fruits and vegetables, animal protein, plant-based protein, carbohydrates, and dairy. These categories were weighed and recorded. A summary of this design is shown in Figure 1. Fruits and vegetables are also included in the carbohydrate category as they are a type of carbohydrate. Similarly, dairy was included in the animal protein category as it is a type of animal protein. Fruits and vegetables and dairy were also weighed separately as this aligned with methods from similar studies. Therefore, they were counted twice, once individually, and once as part of their respective category.

Figure 1: Study design 1: Food waste audit methodology




## Study design 2: Measurement of individual plate waste and distribution of questionnaire

The second component of this study was a cross-sectional design with a convenience sample. Data were collected on weekdays during lunch (between 11:30 and 2:30 p.m.) and dinner (between 4:30 and 7:30 p.m.) as these were the busiest times at the Mercato and when recruiting participants would be more likely. A researcher station was set up at the Mercato to weigh students' individual plate waste and have them complete the questionnaire. Recruitment posters advertising the chance to win one of four $25 gift cards were taped on one side of the opening of the garbage bins to encourage students to participate. Posters were placed to recruit students before they discarded leftover, as recruiting before meals could influence behaviour. A recruitment poster was also posted on the bins near the dish pit to recruit students who ate their entire meal.

The poster instructed participants to approach the research station with their leftovers, where they read and signed an information letter and consent form. Researchers sorted students' plate waste and weighed the edible waste. Participants then filled out a five-minute questionnaire that asked demographic questions, their reasons for throwing food away, whether they were on the meal plan, and whether they were studying food and nutrition, as a comparison of waste among different student demographics was of primary interest to this study.

Participants' individual edible waste weight, in grams, were identified on their questionnaire with a number. Consent forms were kept separate from questionnaires to maintain anonymity.

This study design included undergraduate and graduate students who purchased a meal at the Mercato. Staff and outside visitors were excluded. Participants from the food waste audit were excluded from participating again.

## Statistical analysis

Data analysis was conducted using SPSS® (Statistical Package for the Social Sciences) software, version 29.0. Based on our literature review, we chose 35 g as the detectable difference based on sample size calculations using an expected standard deviation of 63 g, a power of 0.80, and a significance level of 0.05. At a 35 g difference between means, the required sample size dropped to 51 per group compared to 100 per group for a 25 g difference. This made recruitment more feasible. We recruited 121 participants, of which there were 63 meal plan students, 58 non-meal plan students, 54 students studying food and nutrition, and 67 students not studying food and nutrition. This study determined a probable impact of education on reducing food waste. With over 51 participants in each interest group the sample size calculation results were met and statistical analysis proceeded as planned.

### Study design 1: The food waste audit

We ran descriptive statistics to compare average total waste during mealtimes, average edible plate waste during busy mealtimes, and average waste in each food category. Two separate two-way ANOVAs were used to compare the mean weight of each waste type at different mealtimes, classified by meal type (breakfast, lunch, and dinner). Waste type represented edible, inedible, and non-food waste as well as different edible waste types: fruits and vegetables (FV), carbohydrates, plant-based protein (PBP), animal-based protein (ABP), and dairy. The first two-way ANOVA compared mean weight of edible food waste to inedible and non-food waste. The second two-way ANOVA compared types of edible food waste. Parametric statistics were used as there were minor variations between the means and medians in each of the above categories.

### Study design 2: Measurement of individual food waste and distribution of questionnaire

Descriptive statistics were used to analyze participant demographics, their reasons for throwing away plate scraps, and how to reduce plate waste. Normality testing indicated that the data did not fit a normal distribution; therefore, median was reported in place of mean and non-parametric statistics were used.

The non-parametric equivalent of the independent samples t-test (independent samples Kruskal–Wallis test) was used to compare weight of edible plate waste with participant demographic data. Separate tests were run to compare weight of edible plate waste to students' year of study, whether students were on the meal plan, number of meals participants consumed per week at the Mercato, whether students were in a food and nutrition program, and their ethnic background.

To identify common themes among participants' responses, qualitative analysis reviewed responses to the open-ended question, "what could the Mercato do to reduce food waste from plates?"

## Results

### Study design 1: The food waste audit

#### *Descriptives*

Out of the overall weight of waste collected, non-food waste contributed the greatest volume during breakfast and lunch and edible food waste was the most significant contributor during dinner. Inedible food waste contributed the least to the overall weight of sorted waste across all three mealtimes. Mean values of sorted waste are in Table 1. Analysis revealed a significant difference in the amount of edible, inedible, and non-food waste across breakfast, lunch, and dinner. The amount of edible waste was significantly lower during breakfast compared to lunch and dinner, where dinner had the greatest ($p<0.001$). Similarly, inedible waste was minimal during breakfast but increased significantly at lunch and dinner, where dinner had generated the greatest amount ($p<0.001$). Breakfast showed significantly lower values of non-food waste than lunch and dinner, which were not significantly different from each other. Several studies that examined food waste patterns across different mealtimes provided valuable comparative insights. Wang et al. (2017) investigated restaurant food waste in Chinese cities and found that dinner services generated significantly more waste than lunch services; this aligned with our finding of higher edible waste at dinner. Silvennoinen et al. (2015) analyzed food waste in Finnish households, reporting that the largest volume of food waste was associated with dinner preparation and consumption. This further supported the observed trend of increased edible waste during dinner. Additionally, Betz et al. (2015) examined food waste in the Swiss food service sector; dinner contributed to the highest levels of both edible and inedible waste compared to other mealtimes. A report by the Natural Resources Defense Council (Hoover, 2017) also highlighted that, per guest, food waste at lunch and dinner was more than double that of breakfast, reinforcing the significant difference in waste generation across meals. Similarly, a study of snack frequency and food waste found that lunch and dinner significantly increased the likelihood of food waste compared to breakfast, with per capita waste measured at 22.39 g at breakfast, 55.28 g at lunch, and 54.24 g at dinner. Collectively, these findings reinforced the significant difference in food waste across meals and emphasized the need for targeted waste reduction strategies, particularly for dinner services where waste was highest.

The similarity between mean values and standard deviation may indicate that reporting the median would be more appropriate. Standard deviation represents how dispersed data points are in relation to the mean. Low standard deviation indicates that data are clustered close to the mean, whereas high standard deviation means data are more spread out. In cases where the standard deviation is low, the median is the most appropriate measure of central tendency. However, we used the mean as the measure of central tendency, as when testing for normality the Shapiro–Wilks test showed an overall non-significant difference between the data and normality. This meant the data fit the normal curve enough to report the mean and to use parametric statistics.

Table 1: Mean weights of edible, inedible, and non-food waste from all mealtimes.

| *Waste Type* | Breakfast | Lunch | Dinner | All Mealtimes |
|---|---|---|---|---|
| | Mean ± SD (g) | | | |
| *Edible* | 199.1 ± 16.1 | 1982.5 ± 638.9 | 2620.8 ± 166.5 | 1600.8 ± 1136.1 |
| *Inedible* | 8.6 ± 7.5 | 141.4 ± 79.8 | 193.0 ± 106.2 | 114.3 ± 105.9 |
| *Non-Food Waste* | 309.7 ± 91.8 | 2519.8 ± 2635.5 | 2383.8 ± 713.7 | 1737.8 ± 1736.8 |
| *All Waste Types* | 172.5 ± 139.9 | 1547.9 ± 1734.1 | 1732.6 ± 1216.9 | 1150.9 ± 1374.8 |

When comparing the types of edible food waste evaluated in this study, carbohydrates were the most significant contributor across all three mealtimes, contributing an average of 57 percent of edible food waste. Fruits and vegetables were the second largest category at breakfast and dinner, contributing 22 percent and 29 percent of edible food waste. However, the second largest category at lunch was animal protein, contributing 20 percent. The results indicated that more animal protein (14.8 percent) was wasted than dairy (3.3 percent), which was wasted more than plant-based protein (3.1 percent) across all three mealtimes. A breakdown of the mean values of the sorted waste is shown in Figure 2. Again, though the mean values and standard deviation are similar, the mean was reported as the Shapiro–Wilks test for normality indicating an overall non-significant difference. A breakdown of the percentages of the types of edible waste across all mealtimes is shown in Figure 3.

Figure 2: Mean amount of each waste type per mealtime

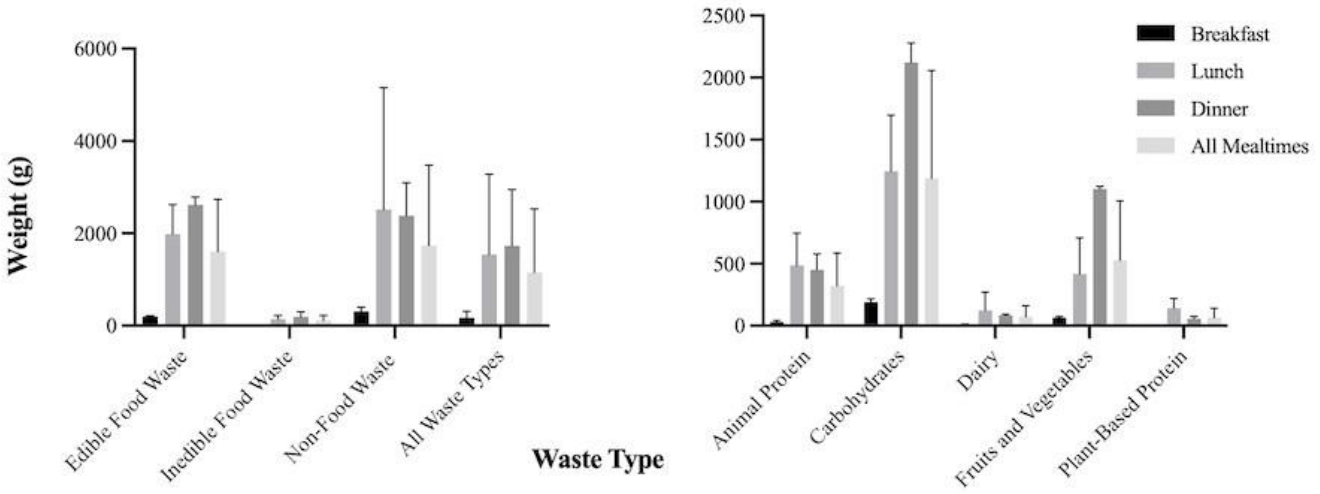
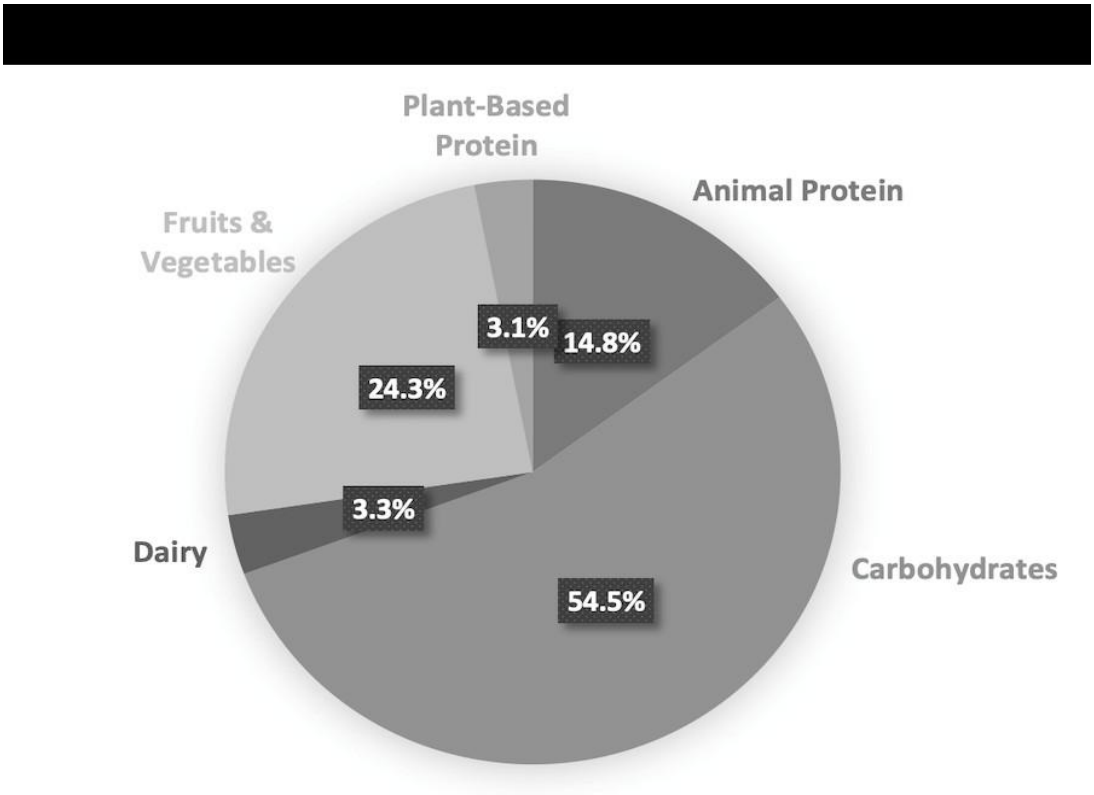


Figure 3: Percentage of edible food waste types at all mealtimes




### *Weight comparison of edible, inedible, and non-food waste*

When comparing the mean weight of edible, inedible, and non-food waste using a two-way ANOVA, there was a significant difference between meal type and weight and waste type and weight ($p = 0.004$ and $p = 0.003$). However, there was a non-significant difference between meal type and waste type. Post hoc analysis found that the amount of edible, inedible, and non-food waste at breakfast significantly differed from lunch and dinner ($p = 0{,}006$, $p = 0.016$). However, lunch and dinner were not statistically different ($p = 0.909$).

### *Weight comparison between types of edible food waste*

A two-way ANOVA was used to compare the mean weight of each type of edible food waste (fruits and vegetables (FV), carbohydrates, animal protein (AP), plant-based protein (PBP), and dairy). Significant results were found between meal type and waste type when compared together and individually ($p<0.001$). A statistically significant difference was found between meal type and weight ($p<0.001$) and between waste type and weight ($p<0.001$). A significant difference was also found when meal type and waste type were compared to weight ($p<0.001$).

Similar to the results when comparing edible, inedible and non-food waste, a significant difference

was found between breakfast and lunch as well as breakfast and dinner ($p<0.001$). Again, a non-significant difference was found between lunch and dinner ($p = 0.078$).

## Study design 2: Measurement of individual plate waste and distribution of questionnaire

### *Demographics*

A total of 121 female students from Brescia University College participated in the study. Slightly more participants were on the meal plan than not, and a greater proportion were non-food and nutrition students, which is consistent with Brescia's overall enrollment demographics. Most participants were in their first year of study; graduate students were underrepresented.

In terms of ethnicity, just under half of the participants identified as white, followed by Chinese, Arab, South Asian, and Black. A small number of students identified as Latin American, Southeast Asian, West Asian, Japanese, or multiple ethnicities. These responses were grouped into the "Other" category for analysis along with mixed and written-in responses.

Meal frequency at the Mercato dining hall varied; the largest group consumed only one to five meals per week, even though many participants were on the meal plan. Fewer participants than expected reported a higher meal frequency at the Mercato.

A detailed breakdown of the demographic data is presented in Table 2.

Table 2: Demographic characteristics of study participants (n = 121).

| Characteristics | Variable | *N* (%) |
|---|---|---|
| **Gender** | Female | 121 (100) |
| **Ethnicity/Race** | White | 60 (49.6) |
| | South Asian | 8 (6.6) |
| | Chinese | 21 (17.4) |
| | Black | 7 (5.8) |
| | Arab | 10 (8.2) |
| | European | 4 (3.3) |
| | Korean | 3 (2.5) |
| | Other | 8 (6.6) |
| **Meal Plan** | Yes | 63 (52) |
| | No | 58 (48) |
| **Study Subject** | Food & Nutrition | 54 (45) |
| | Non-Food & Nutrition | 67 (55) |
| **Current year of study** | First year | 34 (28.0) |
| | Second year | 21 (17.4) |
| | Third year | 28 (23.1) |
| | Fourth year | 22 (18.2) |
| | Fifth year or later | 14 (11.6) |
| | Graduate | 2 (1.7) |
| **Meals Per Week Consumed in the Mercato*** | 1-5 | 50 (41.7) |
| | 6-10 | 16 (13.3) |
| | 11-15 | 19 (15.8) |
| | 16-20 | 14 (11.7) |
| | 21-25 | 21 (17.5) |

*- n=120, one participant did not respond

*It is important to note that data reflecting demographic proportions of the entire Brescia population were not available for comparison.

## Perception/opinion of food waste

Ninety percent of participants indicated having left one-quarter or less of their plate of food uneaten. Only 2.5 percent indicated having left three-quarters to a whole plate of food uneaten. The most common reasons participants identified for having wasted food or having plate waste were fullness or lack of hunger, poor taste, too large of a portion size, and inability to store/bring home leftovers. Lack of awareness surrounding food waste was the least cited reason for wasted food. Twelve percent of participants indicated that a poor ratio/balance of carbohydrates to vegetables to meat was a reason for having thrown food away. At the Mercato, carbohydrates are typically provided in a larger portion; therefore, they are thrown away. If meals were better balanced, this may eliminate additional carbohydrate waste. Sixteen participants answered "other." The least common theme from responses was not having an awareness of plate waste. A summary of the responses is found in Figure 4. Approximately half of participants (54.6 percent) indicated that they thought students on the meal plan would have more waste than those not on the meal plan. A summary of participants' perception and opinion of food waste is found in Table 3. Qualitative analysis revealed the most common responses participants gave to the question "what could Mercato do to reduce food waste from plates?" were to reduce portion size, provide storage for leftovers, improve the taste of the food, and offer more self-serve options. A summary of the responses to this question is found in Table 4.

Table 3: Participants' perception and opinion of food waste

| Category/Question | Variables | *N* (%) |
|---|---|---|
| **Average amount of uneaten food remaining on plate** (N=120) | None | 52 (43.3) |
| | ¼ of plate | 56 (46.7) |
| | ½ of plate | 9 (7.5) |
| | ¾ of plate to whole plate | 3 (2.5) |
| **Reasons for wasting food/having plate waste** (N=119) | Portion served by staff too large. | 39 (32.8) |
| | Portion served by me too large. | 15 (12.6) |
| | Full/lack of hunger. | 54 (45.4) |
| | Poor taste of food. | 48 (40.3) |
| | Time restraints. | 9 (7.6) |
| | Not aware of food waste issue. | 3 (2.5) |
| | Cannot take/store leftovers. | 38 (31.9) |
| | Cold food. | 5 (4.2) |
| | Poor ratio/balance of carbohydrates to vegetables to meat. | 15 (12.6) |
| | Wanted full amount regardless of how much I wasted because already paid. | 7 (5.9) |
| | Other | 16 (13.4) |
| **Predicted effect of the meal plan on the amount of food wasted by students in the Mercato** (N=119) | More waste | 65 (54.6) |
| | Less waste | 24 (20.2) |
| | No effect on waste | 30 (25.2) |
| **Willing to purchase imperfect fruits and vegetables** (N=119) | No | 38 (31.7) |
| | Yes | 82 (68.3) |
| | Yes without discount | 30 (36.6) |
| | Yes with discount | 52 (63.4) |
| | 10% discount | 18 (34.6) |
| | 25% discount | 20 (38.5) |
| | 50% discount | 11 (21.2) |
| | 75% discount | 1 (1.9) |
| | 90% discount | 1 (1.9) |
| **Willing to purchase a meal that does not meet perfect visual standards** | No | 23 (19.2) |
| | Yes | 97 (80.8) |
| | Yes without discount | 64 (66) |
| | Yes with discount | 33 (34) |
| | 10% discount | 13 (39.4) |
| | 25% discount | 14 (42.4) |
| | 50% discount | 6 (18.2) |
| | 75% discount | 0 |
| | 90% discount | 0 |
| **Willing to purchase product close to the best before date** | No | 29 (24.2) |
| | Yes | 91 (75.8) |
| | Yes without discount | 54 (59.3) |
| | Yes with discount | 37 (40.7) |
| | 10% discount | 12 (32.4) |
| | 25% discount | 11 (29.7) |
| | 50% discount | 13 (35.1) |
| | 75% discount | 0 |
| | 90% discount | 1 (2.7) |

Table 4. What can the Mercato/Brescia do to reduce plate waste? Open-ended question responses

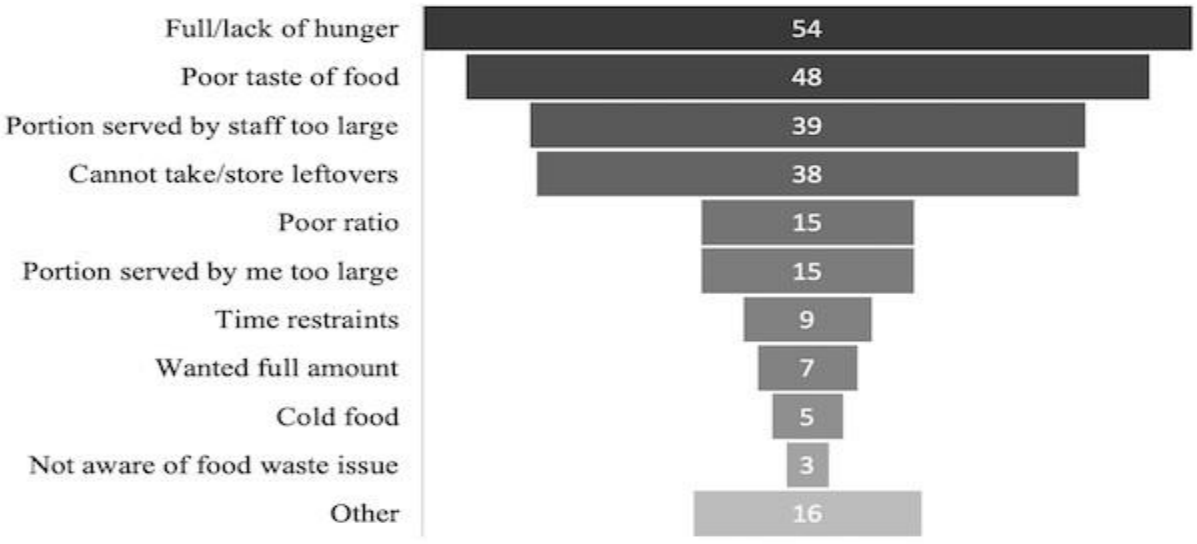
| Theme | % of Responses | Participant Response Examples |
|---|---|---|
| **Portion Sizes** | 51% | "Have portion size to choose."<br><br>"Either smaller portions or more weighted options."<br><br>"Offer various different portion sizes to choose from rather than one serving size."<br><br>"Sell meals in different portion sizes i.e., small, medium, large."<br><br>"Reduce the portion, increase the selection of sizes to allow everyone to get the portion size best for them." |
| **Improve Taste** | 16% | "Improve the taste of food."<br><br>"Make the food taste good."<br><br>"Make the meal flavourful."<br><br>"Make food taste better, add salt and seasonings, meals are sometimes bland." |
| **Self-Serve** | 8% | "More self-serve stations."<br><br>"Offer a buffet."<br><br>"Let students serve themselves." |
| **Storage Solutions** | 7% | "Provide mini fridges in study spaces so food can be stored when students are in class."<br><br>"Give students a place to store leftovers when in class." |

## Comparison of plate waste weight according to participant demographics

The median weight of edible plate waste of participants was 19.0 g, with a minimum of 0 g and a maximum of 298 g.

The independent sample Kruskal–Wallis test indicated a statistically significant difference in the weight of edible plate waste between meal plan and non-meal plan participants ($p<0.001$); participants on the meal plan had more edible plate waste than those not on the meal plan. There was no statistically significant difference in weight of plate waste of food and nutrition students and non-food and nutrition students ($p = 0.844$) nor in participants' ethnic background ($p = 0.870$). A statistically significant difference was found between number of meals consumed at the Mercato per week and amount of edible plate waste ($p<0.001$). The more meals consumed per week at the Mercato, the higher the amount of edible plate waste. Meal plan students typically consumed more meals at the Mercato than non-meal plan students. As meal plan students had high amounts of edible plate waste, this may contribute to the correlation between number of meals eaten at the Mercato per week and a higher amount of plate waste. There was no statistically significant difference between participants' year of study and and amount of edible plate waste ($p = 0.145$). However, there was a significant difference between fourth-year and first-year students, fifth-year and first-year students, and third-year and first-year students ($p = 0.016$, 0.049, 0.047, respectively). Therefore, it is concluded that first-year students had higher levels of plate waste than third-year or later students. Within the sample, there were more first-year students on the meal plan than in other years of study. As meal plan students generated more plate waste than non-meal plan students, this may be a reason why first-year students had higher levels of plate waste than students in their third year or later.

Figure 4: Participants' reasons for plate waste



## Discussion

### Study design 1: The food waste audit

Our results indicate that the most frequently discarded edible food products were carbohydrates (54.5 percent), FV (24.3 percent), and animal protein (14.8 percent). This aligns with results from Tarczyńska et al.'s (2023) study, conducted at two universities in Poland, in which mainly vegetables, bread, and fruits were thrown away.

Similarly, in a study conducted at six universities in Beijing, China, vegetables were among the most wasted products (Wu et al., 2019). In a report by the Food and Agriculture Organization of the United Nations (FAO, 2019), FV had the highest wastage rate, between 40 and 50 percent of total edible plate waste, which is higher than the results obtained in this study at 24.3 percent (accounting for all meals). This may be related to the customization options offered at the Mercato that allow students to choose which fruits and vegetables they wish to include with their meal.

Our results also indicate that dairy (3.3 percent) and plant-based proteins (3.1 percent) represent a minor proportion of total edible food waste. The higher amount of animal protein waste compared to plant-based protein waste may be due to lower rates of plant-based protein selection; it is unclear whether plant-based protein is wasted less or purchased less.

Similar to our findings, a study comparing edible food waste types at a university in Portugal found that pasta-based meals generated more waste than meat-based meals, which generated more waste than plant-based meals (Martinho et al., 2022).

### Study design 2: Measurement of individual plate waste and distribution of questionnaire

#### *Perception/opinion of food waste*

The median weight of edible plate waste between all participants was 19.0 g, with a minimum of 0 and a maximum of 298 g. This value was significantly lower than similar, previously conducted studies. Ellison et al. (2019) estimated that students generated approximately 88.23 g of edible plate waste per meal. In another study conducted by Wu et al. (2019) in Beijing, China, the average edible plate waste of students was 73.7 g per meal. A study conducted at a Portuguese university canteen reported an average of 44 g of edible plate waste per meal per student (Martinho et al., 2022).

One reason this study may yield a lower weight of edible plate waste per meal per participant is the customization options available to students allow them to get the items they want, which may decrease the amount of edible plate waste they generate. It is important to note that the median is reported for our results as they did not align with a normal curve. However, comparable studies reported the mean. The mean is impacted by extreme values, whereas the median is not. This may have contributed to our finding a significantly lower level of plate waste among participants.

#### *Poor taste*

Participants indicate poor taste as one of their primary reasons for wasting food. This result aligns with Thongplew et al. (2021), whose plate waste study looked at students' opinions from three canteens at Ubon Ratchathani University (UBU) in Thailand.

Their results indicated that students were discouraged from finishing their food when the taste was uninviting (Thongplew et al., 2021). Wiriyaphanich et al. (2021) also found that satisfaction with a dish's taste was a key factor for consumers finishing their meals and having a lower amount of plate waste. Mirosa et al. (2916) highlighted poor taste as the leading cause of plate waste. Visschers et al. (2020) also found that disappointing meal taste was an essential reasonfor students to leave leftovers.

### *Portion size*

In a systematic review of how to fight food waste in university restaurants, researchers found that portion size was the most significant cause of waste (Deliberador et al., 2021a). Thirty-three percent of participants indicated that too large portion size was a contributing factor to their food waste, which aligns with the results found by Wu et al. (2019), who found that 21 percent of students from six universities in Beijing thought that university canteens provided too much food. Reducing portion size may be an effective way for the Mercato to minimize the amount of edible plate waste produced at Brescia University.

### *Fullness/lack of hunger*

Our results indicate that fullness, or lack of hunger, is a key reason why students waste food. A systematic review conducted by Deliberador et al. in 2021a also found that satiety before the end of a meal was a cause of waste in university restaurants. A study conducted at a large Swiss university, reported lack of hunger resulted in plate waste (Betz et al., 2015).

While both large portion size and lack of hunger contribute to plate waste, they are distinct factors. Large portion size leads to waste because the amount served exceeds what an individual can consume, whereas lack of hunger results in waste because the individual is not physiologically inclined to eat in that moment, regardless of portion size.

### *Comparing participant demographic data to weight of edible food waste*

When comparing participants' year of study to weight of edible food waste, we found a significant difference between fourth-year and first-year students, fifth-year or later and first-year students, and third-year and first-year students ($p = 0.016, 0.049, 0.047$, respectively). Based on these results, it appears that first-year students generate a higher level of waste, which aligns with results from similar studies. However, no statistically significant difference was found between first-year and second-year students. One reason for this may be similarity in their level of maturity during these years as well as living in residence. Many students live in residence and, therefore, are on the meal plan in their first and second years; however, few students in higher years of study live in residence or are on the meal plan. No statistically significant difference was found between participants' year of study ($p = 0.145$). This contradicts previous findings of Wu et al. (2019) that edible plate waste decreased with an increase in year of study.

We found a statistically significant difference between meal plan status and weight of edible plate waste ($p<0.001$). Participants on the meal plan generated higher levels of waste compared to participants not on the meal plan. This aligns with results from the questionnaire, where 54.6 percent of respondents believed that the meal plan would lead to more plate waste. Similarly, a significant difference was found between the number of meals consumed per week at the Mercato and edible plate waste, where more

meals eaten at the Mercato led to more waste ($p<0.001$). Meal plan students produce more plate waste since they have prepaid meal; receiving less food does not impact them financially. Finally, no significant difference was found between food and nutrition students and non-food and nutrition students regarding amount of edible plate waste ($p = 0.985$). Previous research has not examined differences between meal plan and non-meal plan students or food and nutrition and non-food and nutrition students.

### *Suggestions for the Mercato*

Our results indicated that carbohydrates were the most wasted edible food item at all three mealtimes. Twelve percent of participants also reported that poor ratio/balance of carbohydrates to vegetables to meat was a reason for having thrown away food. Many participants suggested that better-balanced meals would effectively reduce food/plate at the Mercato. Based on these results, we suggest that the Mercato lessen the amount of carbohydrates provided at each meal (keeping Canada's Food Guide recommendations in mind) to provide a balanced plate. Our results indicate that the Mercato should offer smaller portions, improve food taste, and consider implementing storage spaces for students' leftovers, as these were identified as common reasons for throwing food away.

Finally, based on the significant finding that meal plan students generate more plate waste, we suggest that Brescia University and the Mercato look at the specifics of the meal plan to determine which changes would reduce the high level of plate waste of their students. For example, the remaining balance of the meal plan at the end of the academic year is currently non-refundable. Allowing this balance to roll over into the following academic year may reduce unnecessary purchases in an effort to use up any remaining funds. Reducing purchases may lead to reduced plate waste as students will only purchase meals they want and plan to eat. A future research study should examine how carrying over meal plan funds can impact plate waste.

### *Limitations and future research suggestions*

Although this study contributes to Canadian food waste literature, there are limitations that should be noted. First, the tested population was female; second, the study was conducted at a small university. A larger sample size from a more populous university may provide better insight into university plate waste and the behaviour surrounding it. Another limitation comes from the difficulty of sorting some food items. Some food items were difficult to separate, and there was cross-contamination between categories. For example, melted cheese was often incorporated into a carbohydrate product, making it difficult to separate the components. Social desirability bias creates the potential for participants to report inaccurate information Participants may not have reported their honest reactions, attitudes, or beliefs in the questionnaire, responses which may not align with the weighted waste. However, no significant difference ($p = 0.753$) was found between the amount of waste reported by participants in the questionnaire and the waste weighed by the researcher. Therefore, it is unlikely that this significantly impacted the results. This study looked specifically at plate waste generated by students at the consumption stage; it did not investigate the amount of food service waste that may have occurred during preparation. This will be an essential consideration for future research. One way in which future research may inform which portion sizes to offer students is to determine the percentage of waste from each meal by calculating how much of the meal was initially consumed. Finally, another important area for

future research will consider how education on food waste may decrease plate waste.

## Conclusion

This study examined the amount of food wasted by university students, their reasons for throwing food away, which student demographics were associated with plate waste, and which mealtimes and waste types produced the highest levels of waste. The study aimed to determine what the Mercato can do to reduce food/plate waste. The research question was informed by two objectives: (1) quantify and compare an estimate of plate waste during major mealtimes at the Mercato and (2) identify causes and factors related to plate waste at the Mercato. This study consisted of two study designs. The first design was a food waste audit, where food waste was collected, sorted, weighed, and recorded during major mealtimes at the Mercato. The second study design measured individual plate waste and distributed a questionnaire to participants. In this design, we recruited participants, weighed and recorded participants' edible plate waste after eating at the Mercato, and compared the result to demographic data from the questionnaire.

The first study design found that non-food waste was predominant at breakfast (59.8 percent) and lunch (54.3 percent) and edible waste was highest at dinner (51.0 percent). Carbohydrates (54.5 percent) were the major contributor and plant-based protein (3.1 percent) contributed the least.

The second design found a median edible waste of 19.0 g, with fullness, poor taste, large portions, and inability to bring home leftovers as the main reasons for waste. Meal plan students generated significantly higher levels of plate waste than non-meal plan students ($p<0.001$).

Based on our findings, we suggest that the Mercato reduce the amount of carbohydrates in each meal, offer smaller portions, and improve the taste of the food.

Future research should examine a larger sample size from a more populous university to gain better insight into university plate waste and food waste behaviour. The methodology used in our study is applicable to other universities. The first study design can be expanded by collecting plate waste from multiple cafeterias/restaurants, leading to more diverse and larger samples of food waste. The second study design can be scaled up to have research stations in multiple cafeterias/restaurants, also leading to a larger sample size.

Another area for future research is to investigate food waste during preparation as well as the percentage of food wasted at each meal by considering portion size before and after consumption.

The results and methodology of this study contribute to the advancement of scientific knowledge by providing insight into the most significant categories of plate waste, student behaviour, contributing factors of plate waste, and characteristics of students associated with a higher level of plate waste. These findings can be used to create informed and effective plate waste reduction strategies for university dining settings. Investigations of these findings on a larger scale in future research will provide additional insight into plate waste, specifically if conducted with a more diverse sample population, and will lead to further refined and more effective plate waste reduction strategies.

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Research Article

# "We shouldn't always have to be resilient": A critical discourse analysis of food system resilience and equity in Toronto, Ontario, in an era of global polycrisis

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## Abstract

In recent years, resilient food systems have become a policy priority for municipal governments, especially given concerns about climate change, the impacts of COVID-19, and rising food insecurity in Canada. The term resilience is often used to describe the ability of individuals, communities, nations and systems to recover from disruptions. However, resilience is frequently employed within policy discourse without clear definition or communication as to who or what should be resilient. The ambiguous use of the term can lead to inadequate policy and often fails to address systemic issues that create food system and social inequities in municipalities. Our analysis examines how the City of Toronto has framed resilience within food system policy discussions and compares these framings with the perceptions of resilience held by local community-based food system actors. Through an analysis of sixteen (n=16) municipal documents and twenty-eight (n=28) key informant interviews, our findings suggest that the rhetoric of resilience has little actual influence on food policy. Instead, it is often used to describe an idealized food system and indirectly places the responsibility on individuals to be resilient amid ongoing and multifaceted crises. The study contributes to critical discussions on resilience in food systems literature, arguing that resilience often reinforces a neoliberal mindset that prioritizes economic system resilience over the well-being of populations. The momentum towards community-driven, culturally responsive, localized food initiatives in Toronto is a positive step. However, we suggest that

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food system scholars, practitioners and policymakers engage with the concepts of 'resilience' more critically and with more intention, being mindful of the systems of oppression and exploitation inherent to the concept.

**Keywords**: Canada; food policy; food systems; food system resilience; inequity; Toronto

## Résumé

Ces dernières années, la résilience des systèmes alimentaires est devenue une priorité politique pour les gouvernements municipaux, notamment en raison des préoccupations liées aux changements climatiques, aux effets de la COVID-19 et à l'augmentation de l'insécurité alimentaire au Canada. Le terme « résilience » est souvent utilisé pour décrire la capacité des individus, des communautés, des nations et des systèmes à se remettre d'une perturbation. Cependant, dans le discours politique, il est fréquemment employé sans définition ou explicitation quant à qui ou quoi devrait être résilient. L'utilisation ambiguë du terme peut conduire à des politiques inadéquates et, souvent, ne permet pas de résoudre les problèmes systémiques qui créent des inégalités d'ordre social et alimentaire dans les municipalités. Notre analyse porte sur la façon dont la Ville de Toronto a fait intervenir la résilience dans les discussions sur les politiques touchant le système alimentaire et compare le portrait qui s'en dégage avec les perceptions de la résilience qu'ont les acteurs du système alimentaire de la communauté locale. L'analyse de seize (n=16) documents municipaux et de vingt-huit (n=28) entrevues avec des informateurs clés révèle que la rhétorique de la résilience a peu d'influence sur les politiques alimentaires. Au contraire, elle est souvent utilisée pour décrire un système alimentaire idéalisé et fait indirectement porter aux individus la responsabilité de la résilience dans un contexte de crises permanentes et multiformes. L'étude contribue aux discussions critiques sur la résilience qui ont cours dans la littérature sur les systèmes alimentaires, en soutenant que souvent, la résilience renforce la mentalité néolibérale qui privilégie la résilience du système économique au bien-être des populations. À Toronto, la mise en œuvre de projets alimentaires locaux, culturellement adaptés et dirigés par la communauté constitue une étape positive. Cependant, nous suggérons que les chercheurs, les praticiens et les décideurs du système alimentaire recourent au concept de « résilience » de manière plus critique et avec des intentions plus précises, en étant conscients des systèmes d'oppression et d'exploitation inhérents à ce concept.

## Introduction and objectives

In recent years, scholars and practitioners have been actively involved in initiatives to transform or create alternatives to the current industrialized food system. Given the looming challenges presented by climate change, global pandemics, and growing inequalities in an era of "poly-crises," the focus on realizing resilient and equitable food systems remains ever more urgent (Favas et al., 2024; Ross & Mason, 2020; Weinkauf & Everitt, 2023). Greater food system equity is a goal in which all members of society share the benefits and risks of how food is produced overall (Alkon & Agyeman, 2011; Gottlieb & Joshi, 2010) and is viewed as both an essential condition for, and an outcome of, a resilient food system (Miles & Hoy, 2023).

Food studies practitioners have long sought to achieve and maintain resilient food systems, with more recent interest emerging amongst those in government and policymaking more generally. Many municipalities have developed resilience strategies as part of policy and program planning and/or have engaged in international collectives to promote urban resilience, such as the Resilient Cities Network (see Rockefeller Foundation, 2022). For example, the City of Toronto has long used "resilience" to frame an idealized food system towards which municipal staff and community actors have strived. However, food system resilience in Toronto has recently come into question as the COVID-19 pandemic magnified pre-existing issues of food insecurity and food system inequity, highlighting systemic and structural racial inequities that have underpinned the city for generations (CABR, 2022; Elsharkawy, 2024; Roberts, 2020). Growing food insecurity among racialized communities is one of the most significant signals of inequitable food system resilience (CABR, 2022).

Within policy discourse, food system resilience is optimistically framed by policy makers as the ability of individuals, communities, cities, and nations to bounce back from societal disruptions if adequately prepared and equipped to deal with looming threats and system shocks (Bergström, 2018). However, despite increasing usage, the term resilience is often employed without clear definition or deliberation on what comprises a resilient food system, which can lead to unintended consequences. Ungar (2012) argues that ambiguities in how resilience is defined and framed in policy enable biases to inform what "desired outcomes" are attached to resilient subjects. Ambiguous rhetoric about resilience discourse(s) can also lead to a failure of municipal policy, inadequate solutions to inequities, and/or an overemphasis on the responsibility of impacted individuals (Bhuyan & Leung, 2022). To address these challenges, this paper utilizes critical discourse analysis of policy materials and key-informant interview to examine how "resilience" has been framed by government and policymakers in Toronto, and, in contrast, how local community-based food system actors perceive this concept in relation to equity principles and policy in action.

Although several scholars have examined Toronto as a leader in food policy (Blay-Palmer, 2009; Stahlbrand & Roberts, 2022; Welsh & MacRae, 1998), to our knowledge, scholars have not yet examined or unpacked how the city has framed and, in turn, operationalized what it means to harness a resilient food system through policy mechanisms. This paper draws attention to where the City of Toronto has built momentum in these respects and offers insights into how the City of Toronto and other Canadian municipalities might incorporate strategies to realize more equitable practices to support resilient food systems. It considers the trajectory of food system policy in Toronto over twenty-two years, examining City of Toronto websites, staff reports,

commissioned reports, background files, and other grey literature, and it compares governmental framings of food system resilience with the perspectives of community-based actors. This research begins with an overview of the literature on resilience and the use of critical discourse analysis in food systems and food security research. Our findings suggest that, throughout our timeline of analysis, the city engaged with discursive framings of resilience. The loosely defined and inconsistent framing of resilience makes it unclear *who* or *what* is to be resilient in times of crisis and beyond. In practice, the rhetoric of resilience has little influence on food policy; instead, it is used to describe an idealized food system as an end goal and places the onus of being resilient on individuals who are most vulnerable to inequitable food systems.

## Background

### Food system equity and resilience

The concept of "resilience" encompasses diverse meanings that span various academic disciplines, yet it is rooted in the diverging fields of psychology and ecology. In psychology, resilience is considered the ability of a subject to "thrive despite adversity" (Garmezy & Streitman, 1974). Originating in the study of childhood trauma, resilience theory placed its focus on the capacity of an individual to return to a normal state following a traumatic event (Bergström, 2018). Resilience, as Luthar and Cicchetti (2000) articulate, is "a two-dimensional construct that implies exposure to adversity and the manifestation of positive adjustment outcomes" (p. 858). Within ecology, the study of resilience is informed by systems theory, which conceptualizes predictable relationships between risk and protective factors and the stability of ecological systems amidst perturbations (Folke et al., 2010; Ungar, 2004). As Folke and colleagues (2010) describe, the concept is utilized significantly to describe the ability of ecosystems to maintain stability in light of perturbations. Today, systems theory and resilience discourse have been adopted within food system discussions and, for many scholars, serve as guiding principles to foster equitable and sustainable food systems (Tendall et al., 2015).

In municipalities across Canada, discourse around urban resilience has become salient given unpredictable patterns of climate change (Zeuli et al., 2018) and the impacts of food system shocks visible in the early stages of the COVID-19 pandemic (Blay-Palmer et al., 2021). A resilient food system is often described as one that is capable of absorbing disturbances, adapting to shocks and vulnerabilities, and reorganizing or transforming as necessary to maintain functionality in changing environments (Béné et al., 2016). However, within municipal policy, the term is often used with little communication given to *who* or *what* is to be resilient (Soubry & Sherren, 2022). Policymakers have fervently adopted the language of resilience, using it vaguely and apolitically, and, in many situations, hampering genuine efforts to mitigate the damage of system shock and crisis (Soubry & Sherren, 2022). Some scholars maintain that it is problematic to prioritize resilience in urban policy as it is little more than a mechanism to address short-term disaster recovery, leaving little room for considerations of the places-based roots of vulnerability that create inequity amongst populations in the first place (Cannon & Müller-Mahn, 2010). In practice, resilience tends to "emphasize self-organization and agency" (Meriläinen 2019, p. 126) of the individual

and overlooks the unequal distribution of power across society.

## Critical discourse analysis and municipal food policy

This research uses critical discourse analysis (CDA) to examine municipal food policy in Toronto, with an emphasis on *framing* in policy discourse. Frame theory has a long history across the social sciences and has found particular footing in communications studies (Matthes, 2009), environmental studies (Kurtz, 2003), and, more recently, in the arena of Canadian food policy (Mah et al., 2014; McIntyre et al., 2018). Frame analysis focuses on understanding how problems are defined and discussed in agenda-setting and public policymaking realms (Daviter, 2011)—operating as a way of selecting, organizing, interpreting, and making sense of complex and ill-defined concepts utilized in policy discourse (Rein and Schön, 1996). This approach also brings attention to the implied elements of a policy issue by making them more explicit, naming the competing frames within the discussion, and bringing attention to how reframing occurs over time and is influenced by changing broader social discourse (Schön & Rein, 1994).

Mah et al. (2014) utilize CDA to examine how household food insecurity is framed in federal policy discourse. They unpack the underlying story of food insecurity as a policy problem and how it fails to signal importance on the federal policy agenda because of discursive policy framings. McIntyre et al. (2018, p.149) also grapple with household food insecurity as part of parliamentary and legislative sessions, and they consider how it has been rendered an "intractable" problem that perpetuates policy inaction by federal-level government actors. The authors highlight that moral claims and condemnation within rival political discourse drive political posturing around household food insecurity, creating a stalemate situation where little or no progress is made on the issue of food insecurity in Canada (McIntyre et al., 2018).

Research from Mah et al. (2014) and McIntyre et al. (2018) demonstrates some of the broader contentions that Canadian food policy scholars grapple with. Food system issues like food insecurity remain ongoing policy problems, perpetuated over forty years in Canada. Economic recession, industrial decline, and mounting social inequities through and following the 1970s severely impacted the livability of cities across North America and beyond (Coburn, 2000). These socioeconomic shifts eroded confidence and investment in the social welfare system, bringing a rise in fiscal austerity, cutbacks to state programs, and an increased reliance on the market to bring stability to the Canadian economy (Lightman & Riches, 2000). Today, socioeconomic inequalities and exacerbated health outcomes continue to deepen and persist in an era of poly-crises. Despite Canada's ratification of the Universal Declaration of Human Rights in 1976 (within which the right to food is embedded), federal- and provincial-level programs and policies remain woefully inadequate and have not prevented experiences of severe poverty and food insecurity across the country (Rideout et al., 2007). In practice, the response to food insecurity continues to reflect neoliberal patterns of minimal federal and provincial government intervention and an increasing reliance on municipalities and community-level actors to respond to the ongoing impacts of food insecurity and other food system inequities (Duncan & Claeys, 2018; Regnier-Davies & Edge, 2024).

As food system issues become increasingly apparent in Canadian cities, municipalities have developed strategies and policy commitments to improve food access and household food security in urban regions

(Mendes, 2017; Morley & Morgan, 2021; Sonnino, 2016). Although power is often somewhat downplayed in municipal politics, the range of food system levers that can inform local policies within municipal jurisdictional control is significant and worthy of attention. For example, municipalities can address a range of food system issues through zoning, bylaws, land-use regulation, and planning, not to mention partnerships with other governance actors, to support and respond to the impacts of food system issues (Mendes, 2017; Sonnino, 2016). How policy actors frame food system issues within political discourse affects how plans are implemented.

Understandings and framings of food system issues on a municipal level can also influence zoning protocols that integrate local food production and urban agricultural projects or mixed-use planning and design with small-scale ethnic food retail spaces in redevelopment projects (McClintock et al., 2021). The way municipalities discuss and prioritize food policy can influence governance measures that encourage or dissuade civic engagement in food policy in practice, including the language used in food charters that detail municipal priorities or the allocation of staff and resources (Sonnino et al., 2019; Spoel & Derkatch, 2020). Policymakers and local interest groups employ place-based framing to define and explain food system problems within municipal policy, which significantly influences how place-based solutions are proposed and dealt with over time (Daneri et al., 2021).

## Methods and analysis

In this paper, we engage in qualitative policy analysis using a CDA, as modelled by Mah et al. (2014) and Schön and Rein (1994) and influenced by a practical guide as developed by Nixon et al. (2017). Our analysis examines how the Toronto government and policymakers have framed "resilience," and, in contrast, how local community-based food system actors perceive these concepts in relation to local food policy. We examine the framing of food system resilience within sixteen (n=16) City of Toronto reports, websites, staff reports, commissioned reports, background files, and other grey literature that have been made publicly available over twenty-two years (from 2000 to 2022). Documents included in the study were found on the City of Toronto website through keyword searches, including "food system" or "food policy" and "resilience." Early documents that used terminology of food self-sufficiency and self-reliance were included to demonstrate changes in food system language and discourse over time. Documents analyzed fit within the inclusion criteria of being Toronto-specific, publicly available, and municipally authored or commissioned.

We developed a five-step CDA as follows: (1) We first contextualized each of the documents, indexing meta-information on the date of publication, structure, authorship, and format. (2) We then coded excerpts based on assumptions made about resilience, including who benefits and who is disadvantaged by the term, and, in some cases, where it is ambiguous *who* or *what* is considered "resilient" in the excerpt (Nixon et al. 2017, pp. 251-252). (3) We then drew connections between the shifting concepts of resilience and discourse with broader social changes taking place in time and the given space. This process helped to (4) narrow the focus on some of the embedded values and shifting understandings, perspectives, and approaches to resilience in urban policy. Text extracts were

qualitatively coded by the first author, and emergent themes and patterns were debriefed and discussed on an ongoing basis by both authors of this paper. (5) We then analyzed the findings across time to identify the dynamics of frames in action, encompassing three key patterns: resilience as self-reliance, resilience for climate preparedness, and equity in resilience (see Table 1).

In addition, we analyzed interviews with twenty-eight (n=28) community-based actors working within organizations that deliver food programming on the community level. These key informants included staff serving as upper managers and frontline workers of organizations and initiatives that delivered emergency food responses throughout the COVID-19 crisis and were actively involved in food programming before and since the pandemic. The researchers made efforts to engage representatives from diverse service organizations, including grassroots initiatives focussed on food sovereignty for Black communities, multi-service community organizations, newcomer settlement services organizations, cultural centers, and Indigenous service organizations (see Table 2).

Interviewees were asked a range of questions, including those regarding their involvement in the food security response during the initial stages of the COVID-19 pandemic, the opportunities and challenges that arose from their efforts, and their perceptions of how the municipality could overcome system vulnerability and avenues for ensuring food system resilience. Interviews were conducted virtually, recorded, and transcribed verbatim. Interview data underwent analysis using NVivo14 software and employed open, axial, and selective coding techniques. Researchers derived codes through deductive and inductive approaches. Two researchers analyzed both municipal documents and the key informant interviews, comparing and reconciling codes they generated. Coding sessions resulted in adjustments to the coding scheme and helped to establish a shared understanding of code meanings.

Table 1: Compiled Materials for Critical Discourse Analysis and their Shifts in Resilience Framings

| | **Title, link and document type** | **Year published** | **Prominent resilience framings** |
|---|---|---|---|
| 1 | Food and Hunger Action Committee Phase I Report, "Planting the Seeds" (Report) | 2000 | Self-reliance |
| 2 | Toronto Food Charter and Food and Hunger Action Committee Phase II Report, "The Growing Season" (Report) | 2001 | |
| 3 | Toronto Food Charter (Charter) | 2001 | |
| 4 | Toronto Food Policy Council (Website) | 2003 | |
| 5 | Cultivating Food Connections: Toward a Healthy and Sustainable Food System for Toronto (Report) | 2010 | |
| 6 | Resilient City – Preparing for a Changing Climate (Staff report) | 2014 | Climate preparedness |
| 7 | Milan Food Policy Pact, City of Toronto (Staff report attachment) | 2015 | |
| 8 | Toronto Food Strategy Report, 2018 (Report) | 2018 | |
| 9 | Resilient food systems/Resilient Cities: A high-level vulnerability assessment of Toronto's food system (Commissioned report) | 2018 | |
| 10 | Food Systems Transformation, Toronto Food Strategy (Background file) | 2019 | |
| 11 | Toronto's Resiliency Strategy (Strategy report) | 2019 | |
| 12 | Resilient Toronto (Report) | 2019 | |
| 13 | Report on emergency food preparedness and building urban food resilience (Commissioned report) | 2020 | Equity |
| 14 | City Council approves first Black Food Sovereignty Plan. (City news release) | 2021 | |
| 15 | Confronting Anti-Black Racism Unit (CABR). Toronto Black Food Sovereignty Plan. City of Toronto. (Background file) | 2021 | |
| 16 | Toronto Reconciliation Action Plan (Plan report) | 2022 | |

Table 2: Key informant organization type and position

| | **Organization type** | **Interviewee role** |
|---|---|---|
| **1** | Community health center (NIA located) | Community Dietitian |
| **2** | Community health center (NIA located) | Community Dietitian |
| **3** | Multiservice community hub (Immigrant focussed; NIA located) | Director |
| **4** | Multiservice community hub (Immigrant focussed; NIA located) | Community service coordinator |
| **5** | Grassroots organization (Black-led; NIA located) | Executive Director |
| **6** | Grassroots organization (Black-led; NIA located) | Director |
| **7** | Multiservice community services (children and youth focussed; NIA located) | Executive Director |
| **8** | Grassroots organization (immigrant focussed) | Director |
| **9** | Grassroots organization (immigrant focussed) | Community service coordinator |
| **10** | Multiservice community services (Immigrant focussed) | Director |
| **11** | Multiservice community services (Immigrant focussed) | Community service manager |
| **12** | Multiservice community services (Immigrant focussed) | Community service coordinator |
| **13** | Grassroots organization (NIA located) | Director |
| **14** | Grassroots organization (NIA located) | Community service manager |
| **15** | Multiservice community services (Indigenous women focussed) | Community service manager |
| **16** | Faith-based grassroots organization (NIA located) | Director |
| **17** | Grassroots organization (NIA located) | Director |
| **18** | Multiservice community services (NIA located; refugee focussed) | Community service coordinator |
| **19** | Grassroots organization (NIA located) | Director |
| **20** | Non-governmental organization | Community service coordinator |
| **21** | Multiservice community services (NIA located; immigrant focussed) | Director |
| **22** | Non-governmental organization | Director |
| **23** | Non-governmental organization | Community service coordinator |
| **24** | Multiservice community services (NIA located) | Director |

| | | |
|---|---|---|
| **25** | Multiservice community services (NIA located) | Community service coordinator |
| **26** | Multiservice community services | Director |
| **27** | Faith-based grassroots organization | Community service coordinator |
| **28** | Multiservice community services (Indigenous focussed) | Community service coordinator |

## Findings

### Resilience frames in municipal policy and discourse in Toronto, Ontario

The City of Toronto has an international reputation in food system policy and has been touted as a leader and model-maker for other municipalities worldwide. The Toronto Board of Health launched a civic engagement group, the Toronto Food Policy Council (TFPC), in 1991 (TFPC, 2003). In the latter months of 1999, the City of Toronto formed the Food and Hunger Action Committee (FHAC) to study food security inequalities in Toronto's neighbourhoods and to "find ways to reduce hunger and improve nutritional health among Torontonians" (City of Toronto, 2000, p. 2). Between 2000 and 2001, the FHAC published two reports that surveyed the existing "patchwork" of food programs across the city and inventoried policies and programs related to food, nutrition, and anti-hunger efforts (City of Toronto, 2000, p. 2). These reports provide foundational records of food policy discussions in the city, which is where our critical discourse analysis begins. This section unpacks the evolution of resilience framings in food policy discourse between 2000 and 2022. The compiled documents demonstrate various uses and framings of resilience, including individualized notions of self-reliance and self-sufficiency, urban climate responsiveness, and, more recently, food system equity and community resilience.

Between 2000 and 2008, many of the compiled documents did not use the specific language of resilience. Instead, they utilized adjacent terms such as "self-sufficiency" or "self-reliance" to explain why local programs should attempt to improve food literacy and individualized food access. For example, the second FHAC report, *The Growing Season*, highlights that, by bolstering urban agriculture and community gardens, the city can ensure that "ethnocultural communities" become more self-reliant and newcomers build social connections and social capital in their new communities (City of Toronto, 2001a, p. 32). The report also details that, financially, an "average [garden] plot can produce about $100 worth of fresh produce a year, which is a $300,000 contribution to food self-reliance in the city" (City of Toronto, 2001a, p. 32). Investment and support for urban agriculture and community gardens is framed as an avenue to instill food self-reliance and self-sufficiency in communities.

*The Food Charter*, published in 2001, is a prominent document and statement that details a broad set of goals to promote food security within the City of Toronto (City of Toronto, 2001b). The Charter utilized rights-based language to articulate the need for equitable access to an adequate supply of nutritious, affordable, and culturally-appropriate foods and advocated for income, employment, housing, and transportation policies that support secure and dignified access to the food people need (City of Toronto, 2001b, p. 1).

However, the Charter places much of its focus on the economic inequities related to income that may lead to food insecurity while overlooking the underlying causes within the urban region—without recognizing or addressing solutions to diverse and intersectional forms of inequity (including race, gender, ability, and age). For example, several statements detailed below hint at an understanding that inequalities exist but provide little direction in how to (re)shape policy to ensure that these inequities can be addressed:

> Toronto tries to be a city where everyone belongs, feels part of a larger community and has an opportunity to contribute. It does not want to be a city torn between haves and have-nots. The decision to make Toronto a food-secure city acknowledges that each of us is affected by the well-being of others. (City of Toronto, 2001b, p. 2)

> Some elderly or disabled residents rarely enjoy eating with friends and neighbours...find[ing] it difficult to get around, and so often eat alone. In a food-secure Toronto, they will enjoy more opportunities to join others for a meal. (City of Toronto, 2001b, p. 4)

The Charter also does not use the specific language of "resilience" but rather frames activities aimed at improving food insecurity (such as urban agriculture and nutrition programs) as strategies for individualized self-reliance to reduce the burden of diet-related disease on the healthcare system:

> A healthy diet is the most cost-effective form of health care available. Heart disease, strokes, diabetes and cancer, all of which are related to diet, cost Toronto $491 million a year in medical bills and lost productivity....To protect Canada's health care system, especially as the population ages and chronic diseases peak, nutrition needs to be treated as a first line of defense. (City of Toronto, 2001b, p. 3)

Initiated in 2008, the Toronto Food Strategy (a Steering Group within Toronto Public Health) led and guided many programs and initiatives delivered in collaboration with various partners across the social service sector, academia, and City departments (Toronto Public Health, 2010). The language of resilience is directly used in its first report, *Cultivating Food Connections,* to describe a functioning food system:

> Resilience can apply to a system as a whole or to individuals, neighbourhoods and cities. A resilient food system is able to meet the needs of consumers in the face of short-term crises, and resilient people are able to cope with adversity in ways that are not only effective but [also] enhance their capacity to deal with future problems. No government can ensure or instill resilience, but public supports can be put in place to facilitate it at every level of society. At the individual level, a food system that values resilience would empower people with a broad range of food skills and information. It would foster strong neighbourhoods with a sense of community where people feel they can rely on each other in difficult times. (Toronto Public Health, 2010, p. 14)

This framing of resilience places the onus of responsibility on individuals, who should be informed and educated about their food to ensure their resilience in the face of stressors, thus directly removing governmental responsibility from the equation. While the importance of societal or communal supports is hinted at, they remain vague. The excerpt also highlights the neoliberal and capitalist view of populations as *consumers* —of food as an economic commodity. Despite the questionable use of resilience in its definition, the Toronto Food Strategy report *was* a purposeful effort to develop a coherent and systems-focussed action plan to improve the local food system. It mobilized efforts to bring coherence to urban policy by initiating the use of the term "food systems lens" in food policy discussions and framing food "as a lever" to bring diverging actors together in situations where overlapping interests amongst City departments were

not always apparent (Toronto Public Health, 2010, p. 16).

In the years following the launch of the Food Strategy, the city honed its focus on environmental sustainability and placed emphasis more broadly on the resilience of food systems in light of the climate crisis. In a staff report on its Resilient City initiative, the city incorporated the language of resilience as defined by the Rockefeller Foundation: "resilience is the ability of a system, entity, community, or person to withstand shocks while still maintaining its essential functions and to recover quickly and effectively" (City of Toronto, 2014, p. 7). The City of Toronto emphasizes concerns over disrupted food supply chains in light of unpredictable weather patterns (City of Toronto, 2016). For example, in staff reports on climate change preparedness, it is not uncommon to see sentiments such as:

> Toronto's climate has changed and will continue to change into the foreseeable future. Recent studies anticipate more variable weather including drought, extreme rain and windstorms and heat, which will have impacts on our residents, businesses, built infrastructure, services, food supplies and natural environment. (City of Toronto, 2014, p. 26)

Toronto's commitment to several international pacts and declarations positioned the food system as a vital vulnerability to climate crises. The city first signed onto the Milan Urban Food Policy Pact in 2015, then became a part of the 100 Resilient Cities network in 2017, and more recently included food systems resilience as part of its list of priorities (City of Toronto, 2019). In 2019, the city declared a climate emergency and accelerated efforts toward climate action plans (City of Toronto, 2019). The city concomitantly signed onto the C40 Good Food Cities Declaration and the World Resources Institute's Cool Food Pledge in 2019 (City of Toronto, 2019).

The momentum of climate response and preparedness efforts bolstered the use of food system resilience in municipal documents, though increasingly as an adjective to *describe* the City's idealized food system and food policy goals. For example, in the City of Toronto's (2015) Milan Food Policy Pact overview, the word resilient is used repeatedly but with little explanation of how resilience would be achieved:

> Recognizing that family farmers and smallholder food producers play a key role in feeding cities and their territories, by helping to maintain **resilient**, equitable, culturally appropriate food systems. (p. 1)

> We will work to develop sustainable food systems that are inclusive, **resilient**, safe and diverse, that provide healthy and affordable food to all people in a human rights-based framework....We will review and amend existing urban policies, plans and regulations in order to encourage the establishment of equitable, **resilient** and sustainable food systems. (p. 2)

In comparison, the Toronto Resilience Strategy, launched in 2017, shifts away from framing resilience as a descriptive ideological outcome and points to specific interconnected areas of vulnerability that must be addressed to garner broader urban resilience, including social inequality and the city's capacity to respond to rapid environmental and weather pattern changes (City of Toronto, 2019). In developing the Resilience Strategy, the project team consulted over *8,000* community members about their perspectives on urban resilience in an era of climate crisis (City of Toronto, 2019). The Resilience Strategy focussed more explicitly on equity issues, which emerged from community discussions in the consultation processes. The Resilience Strategy states:

> Making Toronto more resilient requires a focus on equity. We know that residents experience resilience differently based on which neighbourhood they live in, and who they are, including in terms of their race, income, and gender. We also know that access to safe

> and livable homes and reliable infrastructure is not equitably distributed across the city. (City of Toronto, 2019, p. 7)

The report highlights the inequitable climate stress that communities in the City of Toronto experience and how chronic stress impedes the wellbeing of individuals, households, and communities and their ability to be resilient in light of sudden system shocks (City of Toronto, 2019, p. 22). The report directly communicates and problematizes racial inequity, which, until this point, had been skirted around or left out entirely in municipal documents on food systems and resilience.

Nonetheless, despite being considered a key area of focus and a foundational goal of urban resilience, the Resilience Strategy's focus more specifically on *food system* resilience remains limited. The Resilience Strategy defers much of the ongoing work to the Toronto Food Strategy when discussing steps towards improving food system resilience. It highlights the importance of incorporating a food systems approach to understanding and addressing "access, supply, experience, quality, and affordability" (City of Toronto, 2019, p. 107). It also recommends further investigation into the "last mile" of the food distribution system, investment to improve the Ontario Food Terminal's physical infrastructure, and the adoption of a "food lens" into emergency planning. The authors of the report conclude by suggesting that a "sustainable food system" falls under the jurisdiction of Public Health, guided by Toronto's Food Strategy, but it does not detail any budget requirement that would be needed for the recommended action items listed. Although the Resilience Strategy budget is not fully detailed in publicly available reports, it is apparent that resources for this short-term project were largely placed on research and consultation, whereas few resources were allocated or redistributed towards action items or recommendations to address existing vulnerabilities and inequities. Further, considering the many pacts and declarations signed by the City of Toronto, there is no clear communication about budget allocation toward improvements to food system policy to enhance resilience specifically. In practice, the City of Toronto actively *defunded* the key areas where food system policy, planning, and programs were taking place (the Toronto Food Strategy and the Toronto Food Policy Council) shortly after the Toronto Resilience Strategy report was published (see Halliday, 2022).

In recent years, there has been a tangible shift in discourse and food system resilience framing, where the inequitable and racialized experience of food insecurity has become much more commonly recognized. The emergence of the COVID-19 pandemic and interconnected broader calls for social change (e.g., related to the surging Black Lives Matter movement and greater attention to Indigenous reconciliation) have brought about greater recognition and acknowledgement of racial inequality in Toronto (Regnier-Davies & Edge, 2024). A city-commissioned report authored by retired councillor Joe Mihevc (2020), *A Report on Emergency Food Preparedness and Building Urban Food Resilience,* details the magnified experience of food insecurity within Toronto and the importance of aiming for longer-term food system resilience to address underlying racial inequities across the city. The report brought attention to the intersection of racial inequity and the goal of resilience and recommended that the city "play a leadership role in addressing food insecurity and promoting resilient and sustainable food systems to support vulnerable communities and residents" (Mihevc, 2020, p. 2). The report also emphasizes the city's role in developing policy to address the inequities head-on: "It is clear that this is an important moment for a robust, policy-driven response to chronic food insecurity

compounded by racism and poverty in Black communities" (Mihevc, 2020, p.11).

Since the early stages of the pandemic, when discourse around racial and social inequality was magnified, the city has taken positive steps to rectify some of the structural and systemic racial inequities that communities have been calling for. For example, in 2021, the City of Toronto approved its first Black Food Sovereignty Plan (BFSP). The BFSP was born from a partnership between the City of Toronto's Confronting Anti-Black Racism Unit and Afri-Can FoodBasket, a community-based organization with a twenty-year history advocating for food justice in Toronto (CABR, 2021; City of Toronto 2021). This five-year strategy and food system approach includes investing in Black-owned small businesses, developing alternative food procurement networks, and understanding food's importance to culture, identity, and broader well-being beyond nutrition (CABR, 2021; City of Toronto 2021). In addition, the goals of food sovereignty and broader resilience in Indigenous communities have also been incorporated into the city's Reconciliation Action Plan, which aims to address colonialism's residual impacts on Indigenous communities and their relationships to the land, food, and medicine (City of Toronto, 2022). However, even within this progressive plan to realize Indigenous reconciliation, it is implied that resilience is the responsibility of Indigenous communities. The report includes quotes from community members, reinforcing the idea that the noble work of being resilient is central to Indigenous pride, and it is also work that benefits the rest of society, protecting us from climate crisis. These quotes highlight that, on some level, resilience is a trait that has evolved from oppressed people, which is a strength. But it is still placed on the individuals to maintain that resilience for the benefit of broader society:

> The City of Toronto will…prioritize Indigenous worldviews and relational views of land protection and Indigenous community leadership to enhance climate resiliency. (City of Toronto, 2022, p. 51)

> Our ways of knowing are ancient….Our contributions are boundless….Our resilience is powerful….Our hope is real. (City of Toronto, 2022, p. 62)

> Resilience is hard work, exhausting work. I'd love to see the work we do now create space for rest, joy and celebrating Indigenous excellence. (City of Toronto, 2022, p. 63)

## Community perspectives and actions towards food system equity and resilience

Resilience is often signified as a symbol of pride and community strength, particularly considering the many community-driven initiatives in Toronto that have fostered positive social and environmental change or bolstered community food security. Yet conversations with community-based leaders and front-line workers reveal that many have reservations and concerns about how resilience is often discussed in the city as a definitive objective, while for many the concept of resilience can be perceived as dismissive of the traumas individuals endure and the fact that communities are often forced to be resilient with little choice. Several interviewees felt that the problem with the concept of resilience is that its goal is not for people to thrive or to be supported through social and environmental conditions but rather that people are expected and required to tolerate a certain level of agitation and stress in their daily lives.

Throughout the pandemic, significant emphasis was placed on population resilience in the media and in municipal discussions, especially during the early months of lockdown in 2020. Community members highlighted that being resilient, in practice, is often about the lowest expected level of wellbeing and can be

solely about survival. Several interviewees spoke to conflicting notions of resilience in that it is often celebrated on the one hand, yet does not protect people from the harms that cause them to be resilient in the first place:

> Resiliency is often talked about as obviously a desirable attribute. But the goal is not to continue to focus on the resiliency of individuals and communities, while ignoring a system that continues to put people under stress. Resilience is not just living...we need to also be able to thrive to our full potential. (Director, multiservice community hub)

Another participant discussed the inequitable experience of Black communities in having to withstand stress in a way that is normalized within broader society. This interviewee stated:

> In the context of Black folks, I feel like we're all just resilient, just naturally, because we have no choice. We have to be resilient. So, resilience is something that is powerful, but you know it's not fair. It's also exhausting. (Community service coordinator, non-governmental organization)

Others argue that framing resilience as an optimistic goal for society "really overlooks the sheer violence that people have to swallow and live with in order to be resilient" (Community service manager, multiservice community services).

Some interviewees brought attention to the problematic language of resilience, not only in policy and municipal government discourse but also in how organizations have been expected to communicate the impacts of their work to funders and financial institutions, often in terms that reinforce neoliberal ideals of resilience. One director expressed frustration with how they were forced to engage in the discourse when applying for resources while also struggling with the stress of the shock of the pandemic and navigating overwhelming emergency response programs within their own communities. They shared: "resilience looks good on paper for funders...okay, but why are we resilient? Because we came together and did something to help each other....But, at the same time, we've lost people in the process." They explain that the language masks compassion and understanding of the experiences of real people: "I think with talk of resilience, there is a lack of empathy. Because you know, during the pandemic, people lost their loved ones...and why did they? Maybe someone went to work and caught COVID...that person came home, and then there were actually six more family members, including two seniors. Then they lost them, right? So, how do we achieve resilience when it comes to community loss?" (Director, multiservice community hub).

Many of the interviewees expressed anger in reflection of resilience. Several saw the concept of resilience as an apolitical way of accepting status quo systemic and structural forms of racism that are threaded through Canada's social fabric. One Indigenous-identifying program manager shared that the concept of resilience was "based on a lot of the withstanding of harm." When discussing the issue of food insecurity within their community, they explained:

> I feel like exposing food insecurity for what it is, which is a literal form of bureaucratic violence against people. If food is a right, and we know this is true, then who is responsible for upholding that right? So, I think that we need to ensure that community members are kept safe and are not forced to feel responsible for not being able to be food secure and illuminating for everybody, including the government and regular people who don't know about food security, that marginalized communities are victimized by food insecurity. It's not a personal failure. It's not because they can't cook or don't know how to eat properly; it's years of systemic disenfranchisement from systems of wellness and health. (Community service manager, multiservice community services)

Interviewees also discussed that they found the city overindulged in research and consultations and put limited resources or energy into action to address the underlying inequities across Toronto. Long-time advocates and community leaders found it particularly frustrating that it took a major pandemic to bring attention to the issues that community members had communicated for decades. One interviewee shared:

> So, with COVID, it's not so much what we've learned; it was more about fortifying what we already knew. We've been long overdue as a city to move beyond our food strategy mapping and reporting, and it's really time for us to take action. (Executive Director, multiservice community services)

The interviewee highlighted that the resources invested in understanding the problems within the city far outweigh the amount of resources that have been invested in addressing the problems they continually investigate:

> I think if the city were to do an audit on all of the work they've done or the research they've supported, and in doing consultations and reports, we would see that there is a huge lack and a need to further invest in the *action* pieces in the recommendations that come out of those reports. (Executive Director, multiservice community services)

Another interviewee shared similar sentiments about the lack of resourced responses to the issues that are raised by community members through community consultation:

> At the end of the day, it's just conversations. These conversations are great, and they're happening, but at some point, we need action. But we keep doing research, and the research findings are very similar every time. But still, there are no actions taken, right? (Director, non-governmental organization)

In reflecting on what is needed as a city to move beyond the current state of social inequality in Toronto and the racialized experience of food insecurity in many parts of the city, interviewees reflected on the lack of representation and a historic lack of political voice/visibility of racialized community leaders:

> When we talked about food justice and inequity in food, especially those of us who are part of a racialized community, we're constantly advocating for this work. We constantly have to prove why this should be a topic of discussion. (Executive Director, multiservice community services)

> I think the main thing here is to focus on the communities…it's Indigenous sovereignty that we're talking about….So, I think that if we're going to rebuild better, we have to rebuild along the lines of Truth and Reconciliation….We definitely have to include the voices of Indigenous folks who haven't been taken into account when doing city planning. (Director, multiservice community services)

> When I think about long-term interventions around food insecurity, at the end of the day, it's about recognizing community voices and giving them more. The approach has historically been more top-down, and what we're trying to do right now with a food justice intervention is recognizing that communities should be at the centre of decision-making processes and that communities already know what their struggles are and where they are rooted, and that they're able to drive. So, I see that many of the solutions to these issues have community at the centre. (Director, non-governmental organization)

Community actors recognize that there have been shifts in the ways the city is currently responding to calls for social justice and change and see the value in supporting the goals of Truth and Reconciliation and developing plans to realize Black food sovereignty:

> A lot of people may not realize this, but just even five, six years ago, race was something you had to fight to speak about….And for me that really shows the paradigm we were working in and the shift that we have gone through more recently in terms of it now being something that everyone is looking at and how they can embed equity into the work that they're

> doing. (Executive Director, multiservice community services)

However, community leaders are also cautious about municipal actors co-opting the language of the community, and they question their commitment to following through with meaningful investment and to proving those commitments beyond performative, tokenistic gestures. In reflecting on the goal of resilience, these conversations underscore the need to critically reassess what resilience truly signifies and for whom. When discussing what is needed for greater food equity with community leaders, interviewees contend there is little space for resilience in that conversation:

> We shouldn't always have to be resilient. And what does that look like? What's the opposite of resilience? We shouldn't always have to be fighting, and we shouldn't always have to be exhausted thinking about what we're doing with our future. (Community service coordinator, non-governmental organization)

## Discussion and conclusions

This research makes visible that the term resilience is often employed without clear definition or deliberation on what comprises a resilient food system, which can lead to unintended consequences. The ideology of resilience can and does have an inequitable and negative impact on the lives of racialized individuals. Although resilience can be framed as an expression of pride and community strength in some contexts, the drive for ongoing resilience can be particularly demoralizing and insensitive to the ongoing and historical traumas experienced by racialized individuals. As our findings demonstrate, for community-level actors responding to the crisis of food insecurity in Black, Indigenous, and racialized communities, the language of resilience often covers up stress and traumas that individuals are forced to withstand to maintain the status quo. Warner (2019) brings attention to the intersectional experience of the pressure to be resilient and argues that the pressure to be resilient can have particular implications for the lives of racialized women. They discuss in their dissertation, *Examining Resilience in the Lives of Black Women*, that Black women "have an increased likelihood of experiencing social and biological challenges" because of their common experience of "enduring the historical context of oppression, devaluation, and inequality" (p. xiv). Warner (2019) conveys that Black women have historically had to "deal with acute and chronic stressors across time and space" and "have demonstrated historical and contemporary patterns of rebounding from adversity, positively adapting, and competently functioning" (p. 44).

This paper draws attention to the equity considerations associated with the discursive framing of resilience. We observe that there is still limited discussion within food system literature that brings into question the ideological underpinnings of food system "resilience" and the implications that resilience discourse may have on racialized individuals. Scholars highlight that the food studies community and the broader "food movement" have been dominated by cis-gendered, able-bodied, white scholars/activists (the authors of this paper are not exempt from these classifications), leading to the exclusion of Black, Indigenous, and "other" marginalized voices from food system and policy discussion (Elliott et al., 2023; Swenor, 2021). The utility of seemingly neutral language, such as "resilience," demonstrates this invisibility and, at times, a lack of representation within these discussions. Similarly, the reliance on ongoing research and evaluation to understand systemic racial

equity issues in Toronto's food system have resulted in a lack of *action* that the community has been calling for over many years. Within policy literature, scholars emphasize the need for more meaningful community participation in local governance (Kiss et al., 2022; Nelischer, 2020), while placing less attention on the problem of *overindulgence* (i.e., the over-allocation of resources to municipal consultation processes). Community members explain that repeated consultations on the issues that impact them can not only induce trauma but also cause heightened frustration when little change or action is taking place.

As our findings highlight, the concept of resilience is often used in policy and municipal strategies without significant recognition of who or what is expected to be resilient. In light of climate crisis, pandemics, and other looming crises, the language of resilience used in policy discourse can indirectly reinforce the neoliberal perspective that individuals are assumed to withstand some level of shock or vulnerability to enable the resilience of broader status quo systems (Bergström, 2018; Chandler, 2014; Kałwak & Weihgold, 2022). In practice, the repercussions of adaptation to uphold resilience are locally situated and become the responsibility of individuals who often hold limited power and, in many cases, limited resources (Kalwak & Weihgold, 2022).

However critical we are of the term, we see value in "resilience" when articulated in tangible terms and associated with specific policies, resources, and infrastructure that can be accessed and utilized for downsizing/eliminating the vulnerabilities that communities are exposed to. Our recent work points to a conceptual model and temporal framework that incorporates the voices of local community actors in realizing short-term coping capacity and medium-term adaptive strategies, which can influence and support longer-term system transformations (see Regnier-Davies et al., 2022). We see the existence of a range of actors and initiatives contributing to both adaptation and system change through enacting community efforts *and* utilizing municipal strategies.

We recognize a changing tide in Toronto's approach to addressing food system inequities within and across its urban geographies. In Toronto's past, food policy discourse leaned toward efforts to bring about food security for communities within the context of existing and status quo food system practices, paying little attention to the racial inequities embedded across its wards. In practice, proponents of self-sufficiency in Toronto's early policy documents focussed on the ability of individuals to be self-reliant to avoid burdening a broader system. Through community-based efforts to realize models of food sovereignty in Toronto, the approach and vision have evolved to be more about championing greater self-determination through policy mechanisms, resource allocation, and infrastructure that results in true food system alternatives (Elsharkawy, 2024). The community-led food sovereignty approach directly opposes individualism and short-sighted mechanisms that do little to address the underlying causes of inequity. Rather, it calls for more radical systemic change by identifying food system pathways that depart from capitalist systems, such as emphasizing equitable land ownership and a community's influence over food production, food retail, and distribution for ongoing self-determined food access (Elsharkawy, 2024; Nyeleni, 2007). The degree to which the shift in discourse and food policy approach will result in systemic and structural change over time remains to be seen. However, we are optimistic that the momentum to support community-led and community-serving initiatives is a step toward enabling more culturally responsive, localized, and (ultimately) resilient food systems.

In our analysis, our aim is not to critique the work of city staff in Toronto or to diminish the tremendous amount of work that many individuals have contributed to the community in realizing a more equitable food system for Toronto. We recognize the limitations of individual staff within the confines of a broader system that makes significant change difficult to achieve, as well as the parameters that staff and departments contend with in terms of planning, zoning, funding, the confines of municipal structures, changing departmental mandates, and redeployment of both human and economic resources. However, our contributions are useful for discussions within the city as it continues to grapple with growing food insecurity rates and ongoing racial inequality, as well as questions on how to best mitigate these issues through policy and programs that support those most impacted. With talk of revising the Toronto Food Charter (see Cressy, 2022; Duhatschek, 2022), we see our contributions in this paper as timely and applicable, not only for the City of Toronto but also for other Canadian municipalities grappling with similar challenges. We suggest that food system scholars, practitioners and policymakers engage with the concept of "resilience" more critically and intentionally—being mindful of the systems of oppression and exploitation inherent to the concept.

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**Jenelle Regnier-Davies:** This research engages in an interpretivist methodology. I, the corresponding author, acknowledge my positionality in this work. I have firsthand experience with household food insecurity and have a professional background in food system research and community food security. As I present my research intentions today, I understand that my knowledge is socially situated and reflects my race, gender, education, and other constructions of identity. I do not claim that what I observe, analyze, and communicate in this paper will fully represent the perspectives or experiences of the research participants; instead, it is my interpretation of these perspectives.

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Research Article

# Food security, food sovereignty, and the neoliberal food system in Saskatchewan: Insights from an online survey

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## Abstract

Disruptions due to the COVID-19 pandemic threatened to bring many local, regional, and global food systems to a standstill, as production capacity, supply chains, and distribution networks were all impacted. Researchers responded by documenting a wide range of consequences and reinforcing the importance of fostering food security based on local cultures. As the pandemic started to ease, we examined how cultural knowledge, stories, and other aspects of living heritage helped Canadian prairie producers and consumers navigate and recover from the crisis. As part of a larger Food, Culture, and Heritage project, we conducted a province-wide, anonymous survey that asked about food-related concerns in Saskatchewan, policies that might alleviate these concerns, and steps that could be taken to enhance the resilience of local food systems. Based on 168 responses, with 36 percent coming from rural or peri-urban areas, affordability was a major concern, especially because of rising food prices, low incomes, and transportation costs. The ability to access safe and healthy food was another top issue, partly because of a lack of rural grocery stores and the sensitivity of food-related supply chains. A third concern involved the loss of local knowledge, precipitated by an overreliance on imported and processed foods, limited time, and the effects of colonization. Overall, the results

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pointed to cultural norms and large-scale practices associated with neoliberalism, implying that localized principles aimed at food sovereignty are important for building a sustainable food system.

**Keywords**: Food security; living heritage; rural food systems; Saskatchewan; urban food systems

## Résumé

Les perturbations dues à la pandémie de COVID-19 ont menacé de paralyser de nombreux systèmes alimentaires locaux, régionaux et mondiaux, car les capacités de production, les chaînes d'approvisionnement et les réseaux de distribution ont tous été touchés. Le monde de la recherche a réagi en documentant un large éventail de conséquences et en insistant sur l'importance de favoriser la sécurité alimentaire sur la base des cultures locales. Lorsque la pandémie a commencé à s'atténuer, nous avons examiné comment les connaissances culturelles, les récits et d'autres aspects du patrimoine vivant ont aidé les producteurs et les consommateurs des Prairies canadiennes à faire face à la crise et à s'en remettre. Dans le cadre d'un projet plus vaste sur l'alimentation, la culture et le patrimoine, nous avons mené une enquête anonyme à l'échelle de la province sur les préoccupations liées à l'alimentation en Saskatchewan, les politiques susceptibles d'atténuer ces préoccupations et les mesures qui pourraient être prises pour améliorer la résilience des systèmes alimentaires locaux. D'après les 168 réponses reçues, dont 36 % provenaient de zones rurales ou périurbaines, l'accessibilité financière est une préoccupation majeure, notamment en raison de la hausse des prix des denrées alimentaires, des faibles revenus et les couts de transport. La capacité d'accéder à des aliments sains et sûrs est un autre problème majeur, en partie à cause du manque d'épiceries en milieu rural et de la vulnérabilité des chaînes d'approvisionnement dans le domaine de l'alimentation. Une troisième préoccupation concernait la perte des connaissances locales, accélérée par une dépendance excessive à l'égard des aliments importés et transformés, le manque de temps et les effets de la colonisation. Dans l'ensemble, les résultats ont mis en évidence des normes et des pratiques culturelles à grande échelle associées au néolibéralisme, ce qui implique que des principes locaux visant la souveraineté alimentaire sont importants pour la construction d'un système alimentaire durable.

## Introduction

Every day, as millions work to grow, distribute, sell, and use agricultural and garden products, their activities create complex food systems that depend on fossil fuel energy, organic or chemical inputs, and distribution networks that link farms to distant markets. During the COVID-19 pandemic, many of these systems proved to be highly sensitive, with some falling dormant and others being propped up as essential services (Béné, 2020). These systems are also being impacted by climate change, with effects that may be less acute than the pandemic but are equally pervasive (Vermeulen et al., 2012). In western Canada, climate change is affecting the quality and quantity of water supplies and strategies used for hunting, gathering, and fishing (Spence et al., 2019).

Agricultural impacts include an increased risk of drought and changes in the seasonal timing of precipitation, which affects food crop production, and warmer winters that affect the abundance and distribution of damaging insects and disease vectors (Sauchyn et al., 2022).

Throughout the settlement period of the late 1800s and early 1900s, agriculture in the western Canadian province of Saskatchewan featured cooperation and communitarianism amongst farmer-settlers (Müller, 2008), as illustrated by its political history of agrarian protest and cooperative movements (Fowke, 1957). Saskatchewan communities often engaged in collective food processing and distribution practices, such as chicken processing teams and beef-sharing rings (Widdis, 2006). At the same time, however, agricultural settlement was also premised on violent acts of colonization that dispossessed Indigenous nations of their land, undermining their own food production practices (Tang, 2003).

The 1980s brought a shift toward more large-scale, industrialized, and financialized agriculture, driven in part by the onset of neoliberal agricultural policies (Beingessner et al., 2023; Fletcher 2013). As industrialized farming became the dominant mode of production on the Great Plains, farms have grown ever larger, with the average farm size increasing from 952 acres in the 1981 Census of Agriculture to 1766 acres in 2021 (Statistics Canada, 2022). With this shift, the image of a successful farmer also shifted from someone who is part of a collective towards rugged individualism (Dibden et al., 2013; Fletcher, 2013). This has reduced the number and influence of farming cooperatives (McCollom, 2018) and contributed to high levels of producer stress, depression, and anxiety seen both in Canada (Canadian Agricultural Safety Association [CASA], 2005) and in the U.S. (Newman, 2019). Many food producers are also concerned about the growing concentration of farmland in the hands of a small number of large-scale investors (Magnan et al., 2022).

Recently, other ventures have brought small-scale producers and vendors together around a mutual interest in food that is good (fresh, flavorful), clean (minimal environmental impact), and fair (affordable, reasonable return). Examples include a Slow Food node in the city of Saskatoon, grocery stores that feature local products, and producers who provide vegetables and meat directly to their customers through community-supported agriculture (Devlin & Davis, 2016). These practices show that people can be innovative and proactive where food is concerned. They also suggest that policies and actions aimed at alternative agriculture may lead to more resilient food systems and enhanced food sovereignty.

Food sovereignty is a political paradigm that supports local people's control over their food system, emphasizing the wellbeing of food producers, consumers, and the environment (Wittman, 2011). Sustainability and equity are at the heart of food sovereignty movements, which challenge the neoliberal values of productivism and deregulation in food markets while simultaneously supporting localization, culture, and heritage as pathways to democratizing food systems (Wittman et al., 2010). As such, the food sovereignty concept facilitates structural critique of the dominant neoliberal food system (hereafter NFS).

Food sovereignty is distinct from food security, as the latter focuses mostly on ensuring people's access to safe and healthy food (Food and Agriculture Organization of the United [FAO] et al., 2020), regardless of the nature of the food system or source. With its focus on equity, food sovereignty may facilitate and enhance food security, especially for those currently marginalized or disadvantaged within the dominant system, but the concept of food security can also undermine food sovereignty movements. As McMahon (2014) notes, food security is a limited concept that may manifest as

"an individualist, consumer-focussed, and administrative discourse of food redistribution and safety, even when conjoined with the more recent strategy of food localization" (p. 113). Food security may be deployed by large agri-food corporations as part of a "feed the world" discourse, thereby facilitating the neoliberal political-economic structure that undermines food sovereignty (McMahon, 2014).

This article draws on the results of an anonymous, province-wide survey, which aimed to examine Saskatchewan residents' views and experiences of food (in)security in their households and communities, and their involvement with local food-related traditions—like canning, gathering (e.g., berries, mushrooms), and hunting—that can help support household and community food security. The purpose was to identify current concerns about food insecurity, the role of local food-related practices in relation to food security, and the meaning ascribed to such practices.

The survey was part of a broader Food, Culture, and Heritage (FCH) project, which was designed to identify food-security concerns, policies that would help alleviate these concerns, and steps that individuals, communities, organizations, and municipal authorities could take to enhance the resilience of local food systems. The survey results were used as a springboard for separate in-depth interviews and rural case studies, which are presented elsewhere (Ogie, 2023). While food sovereignty was not a guiding concept for the FCH, it emerged as a particularly salient concern as the results were analyzed (Antonini et al. 2023). Here, we examine the survey findings by drawing connections to the deeper and more complex food sovereignty paradigm.

## Methods

As an exploratory tool, the survey was designed to identify food-related issues inductively. However, we drew upon the United Nations Food and Agriculture Organization's (FAO) definition of food security to organize the survey into broad thematic sections, addressing food availability, access, utilization, and stability (FAO et al. 2020). The survey was divided into sections exploring: the respondents' household food-related activities (e.g., practices like gardening, beekeeping, and fishing); community-level food activities (e.g., processing, distribution); traditions related to obtaining, processing, and preparing food; views and experiences of food security at household and community levels; and effects of the pandemic and environmental change on food availability. The survey also collected demographic information about the respondents, including their postal code, age, gender, ethnic affiliation, and level of education. There were 38 closed questions with yes/no or multiple-choice answers, many with room for elaboration, and 22 open-ended questions, also with room for people to elaborate. The survey questions were reviewed and pre-tested by the project partners at Heritage Saskatchewan.

The survey, administered with Qualtrics, was open from February to June 2022. To distribute the survey, the FCH team developed a list of individuals and groups to whom invitations could be sent, including food banks, charities, municipal governments, farmers, and producers. The survey link was emailed to these people and organizations, along with details about the project, and many were telephoned to encourage their participation. The survey was also actively promoted

through our professional contacts and food-related networks in the province.

After the survey closed, we used descriptive statistics to identify trends from the fixed-response questions. As part of the broader FCH project, we used a hybrid thematic coding approach to analyze qualitative survey and interview data together (Fereday & Muir-Cochrane, 2006). The current paper focuses on the survey findings specifically; therefore, only qualitative data from the survey are included in the current analysis. Seeing many responses from urban centers or their satellite communities, we classified respondents as urban or peri-urban/rural based on postal codes and used this to examine urban-rural differences.

Ethics approval for this project was provided by the University of Regina Research Ethics Board (REB# 2021-204).

## Results

### The Sample

The survey received a total of 167 responses. Based on postal codes, at least 57 percent were from large urban centers (Saskatoon and Regina) and their satellite communities, with at least 36 percent from peri-urban or rural areas. These percentages are approximate since 12 respondents (7 percent) did not provide postal codes, but they suggest that the survey respondents constitute a reasonable reflection of the provincial population, where the percentage of rural residents in 2016 was 33.2 percent (Statista, 2016).

Based on demographic questions, respondents ranged from 25-84 years of age, with the largest group being 41-55 years old (30 percent), followed by 25-40 years old (28 percent), 56-69 years old (26 percent), and people over 70 (16 percent). There were no respondents between the ages of 18 and 24, so we are unable to comment on young people's interest and understanding of food security issues. This group merits further study, since interview data collected for the larger FCH project suggests that local food systems could be strengthened by raising awareness in the younger generation.

Most (89) respondents self-identified as women, with 21 identifying as men, 4 as non-binary/non-conforming, 3 preferring not to answer, and 50 giving no answer. The over-representation of women may reflect historically engrained gender roles associated with certain food-related practices such as cooking. Alternatively, as noted in Krajewski's (2022) study on community gardens, women may be more engaged in subsistence food production to fill financial gaps as part of the "social reproduction regime of unpaid labor" (p. 67). Where this occurs, food insecurity issues may affect women more, enough for them to lend a voice to end food insecurity.

A large majority of respondents (89) identified as people of European descent, with 10 identifying as Indigenous, 3 as Asian, 2 as African, 10 as an ancestry that was not listed, and 53 giving no answer. This distribution means that we are unable to say much about the food concerns and challenges facing Indigenous or racialized communities. Respondents generally reported high levels of education, with over 100 having post-secondary education, including 26 with a graduate university degree.

## Perspectives on food security

An early question in the survey asked whether participants agreed with the United Nations (UN) definition of food security, where "all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO et al. 2020, p. 254). A large majority of respondents felt that this perspective was somewhat (21 percent) or very close (66 percent) to their views. Only 7 percent were neutral or held a somewhat (4 percent) or very different perspective (2 percent). An open-ended question asking about the UN definition also sparked dozens of long and thoughtful comments, with calls for food to be nutritional and locally produced, for policies and actions aimed at self-sufficiency, and for people to have control over the kinds of food available to them. These assertions are clearly aligned with a food sovereignty perspective, showing how questions about food security provoke thoughts about the broader, cultural challenge of food sovereignty. Responses from 5 different participants reflect the breadth and nature of these challenges and their links to the community. One noted that "I volunteer on the board of a community garden and also have a community garden plot that I tend for our own consumption and to give away to family and friends. I have raspberry bush in my yard and also pick berries when I find them in nature on camping and hiking trips. My spouse does a lot of fishing in summer and winter and keeps some of the meat for our own consumption. Our household doesn't hunt, but friends do, and they share some of the meat with us." Another mentioned that "Our organization started and maintained a community garden for the past 4 years for our Food Bank, which distributes the vegetables in our food hampers. Although we grow just regular vegetables, they are all named in 3 Indigenous languages: Cree, Salteaux, and Dakota." A third said "We raise beef for a local online market serving customers from Regina-Saskatoon-Yorkton and places in between. I have also milled flour and processed garden vegetables for the same market." A fourth commented that "My husband hunts in deer season annually, elk and moose when drawn. We [also] have a relatively young fruit orchard and grow our own produce. We sold those products through our on-the-farm summer kitchen. We changed over to greenhouse production and now sell garden starts and pot/basket vegetables. At the end of the greenhouse season, I donate extra garden starts to a local community garden." And a fifth noted that "We own our own restaurant and catering company that sources 90 percent of our product from local producers and suppliers. We have catered events large and small and helped to get a farmers market off the ground in our local area, we also help connect our producers with other restaurants and chefs throughout the province."

While most survey respondents (77 percent) did not have concerns about food security in their own households, a similar proportion (75 percent) were concerned about food security in their community. Overall views about food security were mostly similar between urban and rural respondents, except that the percentage of respondents voicing concern about their communities was much higher in urban areas (85 percent for urban compared to 61 percent for rural areas). The specific concerns were mostly similar, with cost of food being the most prevalent in both urban and rural settings, but quality was a larger issue in rural areas, and access was a bigger concern for urban residents (Fig 1).

Figure 1: Food security concerns identified by survey respondents.


The fact that respondents tended to be more concerned about their communities than their households is likely due to the demographics of our sample. As noted, a larger proportion of survey responses came from well-educated people of European descent, a group that tends to enjoy high levels of food security. By comparison, several studies (Batal, 2022; Batal et al., 2021; Tarasuk et al., 2016) have shown that low-income earners and people on social assistance are likely to experience food insecurity, with Indigenous populations and newcomers being overrepresented in low-income categories. This is reflected in survey responses from people who were facing challenges at the household level. One Indigenous participant described not eating for five days so she could feed her children, stating that "we are literally starving." Others said, "I had to rely on food bank when out of work," and "I have often made the decision to not go to the grocery store, despite needing supplies, because I did not want to spend that much money on food." These comments confirm that some Saskatchewan households are facing periodic, possibly daily concerns about food security, despite the province being a wealthy, agricultural region, often viewed as Canada's breadbasket. When the survey asked what actions might be taken to address these concerns, some responses focussed on policies, like providing a livable minimum wage, food supplements, grants aimed at household gardening, and pricing guidelines that require bulk purchases of fruit and vegetables to be cheaper than pre-cut, pre-packaged or frozen options. Other suggestions were more cultural, from helping people grow more food locally and creating seed programs and places where young people can learn to prepare healthy food, to providing foodbank access on reserves and making it easier for farmers to sell food directly to customers.

When asked about food security concerns at the community level, respondents mentioned a range of economic, societal, and infrastructure issues. These included: high food prices, low incomes, high rates of poverty, homelessness, addiction, poor access to healthy food, limited mobility, especially for seniors, and a lack of knowledge and garden spaces. Other responses reflected high levels of cultural awareness and caring, with one person noting that "the loss of cultural transmission means many families are now eating primarily highly processed and pre-made foods with no cultural value and little tradition." Another remarked,

"I am aware of the privilege I have, to be able to afford most things we want/need, and to provide healthy choices for my young kids. I feel sad for the mothers who cannot provide the same."

Some participants underscored the potential of community gardens as a positive cultural response to community-level food insecurity. One respondent noted that "We are encouraging our community to 'Grow an Extra Row' to help others out who are facing food insecurity," while another envisioned "a community initiative to harvest waste heat...and make community gardens covered so as to create a longer-period for garden growth, if not a full-year operation."

In the qualitative results, several respondents called for more localized and subsistence-oriented production. One commenter urged communities to "stop relying on importing our food from other countries and concentrate more on food production here." Others echoed this statement but were clear about how challenging that would be, including one respondent who outlined the following personal situation:

> When I said I wanted to start a renewable-energy-powered greenhouse operation that capitalized on the abundant sunshine, wind, and easily accessible geothermal resource of our local aquifer, I may as well have been laughed at.... There is only financial assistance for businesses that export massive volumes of industrially produced staple crops, yet these staples make up so little of our local diet. I am three years into my venture ... and have matched typical commercial yields per unit acre of every crop I grow without using any chemicals and using less water. I had hoped to have long-since proven this model and to share it with young agrarians, but this province has made its bed and chosen to invest in corporate farms over local food security.

This comment demonstrates the potential of localized, environmentally responsible production to help address food security. However, as the participant notes, the Saskatchewan food system is heavily oriented toward large-scale export production, leaving relatively few supports for alternative and small-scale food producers (Beingessner & Fletcher, 2020). Indeed, in 2023, Saskatchewan exported more goods per capita than any other province, at double the national average, and agri-food exports comprised 41 percent of these exports (Saskatchewan Trade and Export Partnership [STEP], 2023).

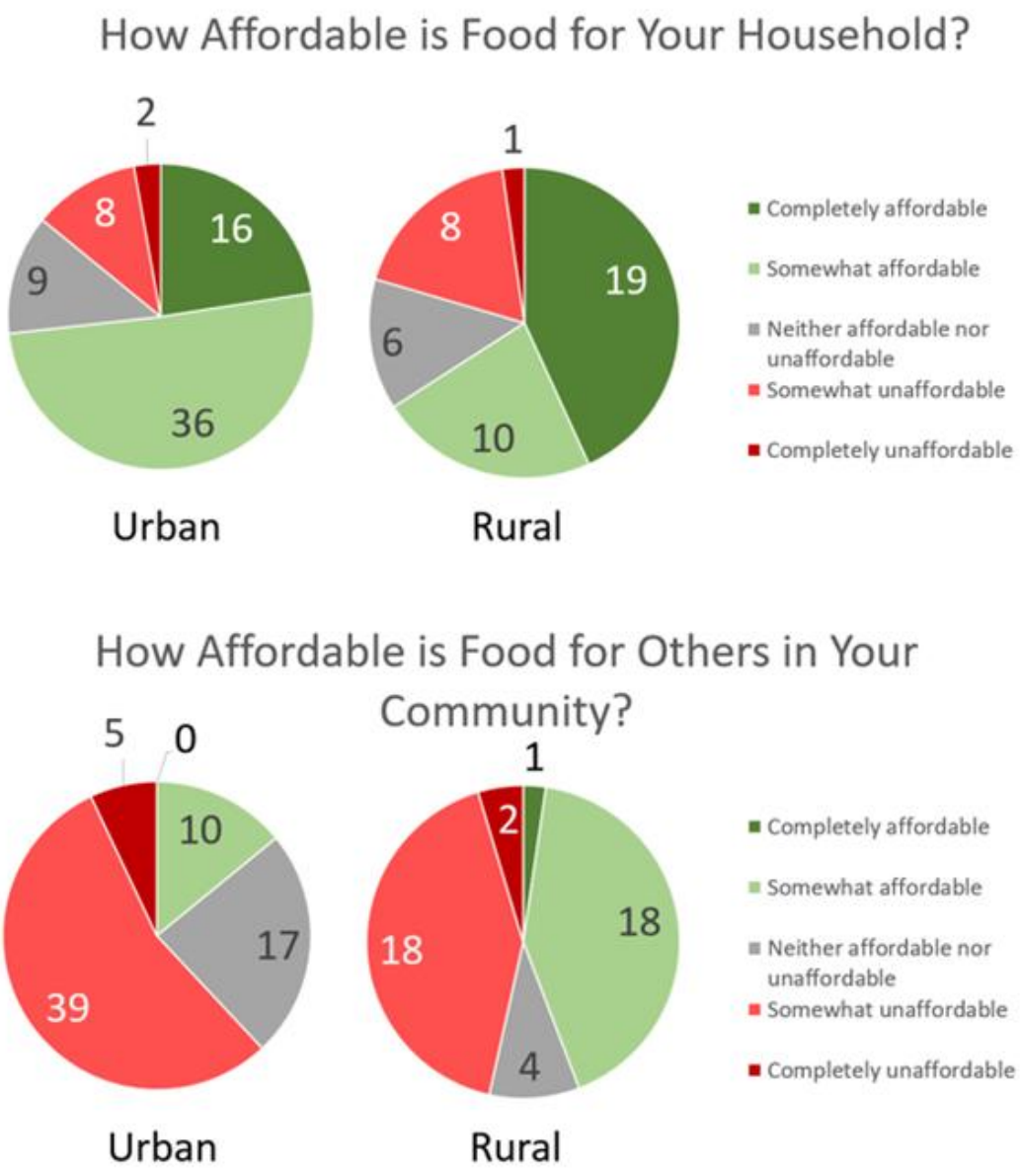
## Affordability

Food affordability was a deep concern in the survey, with many respondents pointing to rising food prices, low income, and low minimum wage as factors affecting the food security of their households or communities. One respondent, who identified as a senior, noted that "supper is leftovers from a restaurant lunch. Prices have greatly increased lately, so I must cut back on what I eat." Another, who claimed to have a good income, observed that "if the prices and availability keep going in the direction that they are going now, there will be a lot more people learning to make soup instead of throwing out the leftovers." This supports other studies (Batal et al., 2021; Bitto et al., 2003; Tarasuk et al., 2016) where seniors and low-income earners are the main groups vulnerable to food affordability issues. One respondent summed up the situation by noting that "People on social assistance are forced to choose between shelter and food because the amount given for shelter is not enough.... You get a pittance extra on social assistance but not even enough to buy a week's worth of groceries."

Levels of concern about food affordability were similar between urban and rural respondents at the

household level, with 14-20 percent reporting that food was somewhat or completely unaffordable for their household (Figure 2). Responses differed when people were asked about their broader communities, where reports of food being somewhat or completely unaffordable were much higher in urban areas (62 percent for urban vs. 47 percent for rural, Figure 2).

Figure 2: Responses to questions about food affordability at the household (upper panel) and community levels (lower panel).



## Accessibility and availability

Given that accessibility partly depends on affordability, it was not surprising that food accessibility was the next most common concern in this survey. Accessibility concerns included issues with grocery stores, such as the limited availability of healthy and cultural foods, the difficulty in getting fresh and traditional foods due to store locations, and transportation issues, especially for people without cars. One rural respondent reported that they could not access some foods locally, noting that "our grocery store is more convenient, [but] if we need to buy more food generally, we have to go to the city." Another commented, "There is only one grocery store in our town and not many market gardens in summer. If you do not grow your own, you might not get it."

Concerns about food availability are likely to become especially acute during a crisis or emergency, with one respondent noting the "shelves [are] empty on certain days; no cereal, no milk, etc. – different things on different days." The fear in this case was exacerbated by events around the COVID-19 pandemic, where store shelves were emptied and consumers scrambled to get basic food and groceries, a situation that exposed the fragility of the global food system (Clapp & Moseley, 2020; van Ginkel & Biradar, 2021). Even with the effects of the pandemic subsiding (Deaton & Deaton, 2021), our study suggests that some consumers were shaken by the impacts it had on food availability. While the pandemic appeared to have significant impacts in both urban and rural areas, the percentage of people reporting impacts was much higher in urban areas (77 percent for urban compared to 55 percent for rural).

Accessibility was also affected by distance and a lack of traditional food. Several respondents talked about living in a "food desert," where "the grocery stores are at the edge of the city. For families without reliable transportation, it is another $20 for a cab to go to the store and back with their groceries. It is not feasible to shop for a family of five and walk with those groceries four kilometres across the city." On traditional food, one respondent noted that "we used to live in an Indigenous community in [another province] and learned to can, fish, gather and prepare food traditionally. Not much opportunity for that in Southern Saskatchewan."

Views about accessibility and availability were similar between urban and rural, with 29 percent of rural respondents reporting that food was somewhat-to-very inaccessible, compared to 27 percent for urban, and 91 percent of rural respondents saying that food was somewhat-to-very available, compared to 87 percent for urban residents. Where urban and rural responses differed was around culture. Several respondents pointed to a shift in rural attitudes, in which people have come to depend on grocery stores and lost connections to traditional ways of growing food, perhaps because of a lack of time and a lack of knowledge. One noted that people have "abdicated the task of cooking and preserving food. They allow foreign companies to prepare their food and make their food choices for them." Another respondent focussed on cultural challenges in urban areas, noting that "our Métis culture and diets are based on the land and animals in the areas, [but] for many urban people, they are not able to go hunt, fish, pick berries, or take medicines."

## Knowledge, local food, and environmental changes

The survey questions about reliance on local or traditional knowledge and the importance of local food uncovered similar patterns in rural and urban areas, with some notable exceptions. While roughly a third of

rural (33 percent) and urban (31 percent) respondents indicated they often depend on local or traditional knowledge about food, the percentage who always rely on it was twice as high in rural areas (21 percent rural vs 10 percent urban). At the same time, the number of rural respondents who rarely (33 percent rural vs 40 percent urban) or never rely on this sort of knowledge (12 percent rural vs. 19 percent urban) was relatively low. Similarly, when asked about the importance of locally sourced food, comparable percentages of rural and urban respondents deemed it very (29 percent rural vs 33 percent urban) or extremely important (19 percent rural vs. 21 percent urban), with only a few seeing it as not or slightly important (7 percent for rural vs. 8 percent for urban). The largest group of respondents saw local food as moderately important, especially in rural areas (45 percent rural vs. 37 percent urban).

The qualitative comments elaborated on local and traditional food practices. Respondents described practices associated with hunting, berry- and mushroom-picking, subsistence animal production (e.g., chickens), canning and preserving, and gardening. Traditional practices included reading weather signs and animal behaviour and giving thanks to the earth with tobacco. In many cases, respondents had learned effective practices and locations from older family members, such as parents, grandparents, or Elders, and several emphasized the importance of giving thanks and respect. For example, one Indigenous participant wrote, "hunting and harvesting—always offering tobacco. Use all of the animal."

When asked about food-related environmental changes, a comparable percentage of urban (30 percent) and rural (36 percent) residents reported having no experience with them. The percentage of respondents who had experienced such changes was higher in rural areas (47 percent vs 33 percent for urban), while the percentage who were not certain if changes had happened was over twice as high in urban areas (37 percent vs 17 percent for rural). Similarly, 60 percent of urban respondents were not aware of recent changes in the abundance or distribution of wildlife and other food-related animals, compared to only 36 percent in rural areas. These results suggest that education about environmental changes and wildlife populations should be aimed mostly at urban centres, where experiential knowledge of environmental changes is relatively low.

## Discussion

This project focussed on Saskatchewan food security as it relates to contemporary issues, including impacts associated with the COVID-19 pandemic and environmental change. Our findings show that the respondents, the majority of whom were well-educated people of European descent, tend to be more concerned about food security in their communities than in their own households, particularly in urban areas. The survey confirmed affordability as a major concern, especially because of rising food prices, low incomes, and transportation costs. Accessing safe and healthy food was also an issue because of the need for more grocery stores in rural communities, and the sensitivity of global, regional, and local supply chains. The loss of local knowledge was another recurring theme, precipitated by an overreliance on foreign and processed foods, limited time and busy schedules, and the effects of colonization. Urban respondents reported less awareness of environmental changes than their rural

counterparts, perhaps due to the former's relative disconnection from the land and natural environment.

Some of these concerns can be linked to the dominance of the NFS in Saskatchewan. The rising cost of food, for example, is partly associated with food commodification for profit maximization, combined with the loss of local knowledge due to industrialized modes of production, and an over-reliance on global supply chains (Friesen, 2017). At the same time, some of the ways that the Saskatchewan agri-food system responds to economic pressures may be maladaptive. The drive toward farm size expansion, economies of scale, and export production may shift both production and consumption away from local and cultural foodways, cementing the dominance of the NFS and potentially rendering the food system vulnerable to global market shocks. As one illustration of the export emphasis, in 2023, more than $20 billion of agri-food products were exported from the province, setting a new record (STEP, 2023).

Maladaptive practices are central to what evolutionists have identified as Anthropocene "traps" where, like moths being attracted to a flame, people engage in cultural activities or economic strategies that seem beneficial but are actually restrictive or damaging (Søgaard Jørgensen et al., 2024). Examples in the NFS include the use of high-tech specialized machinery to grow massive monoculture crops solely for export, which can reinforce traps associated with complex infrastructure and specialization. No respondent talked about food-related challenges in these terms, but several voiced concerns about dependence on export markets, and others alluded to traps associated with complex chemical inputs, physical and psychological disconnections from nature, and the loss of local knowledge and social capital (Søgaard Jørgensen et al., 2024). Further research is required to clarify how these and other traps might be operating within local Indigenous and non-Indigenous food systems, and what might be done to minimize their effects.

Some rural and food studies scholars have posited the food sovereignty paradigm as an alternative to the neoliberal, industrialized food system (Desmarais, 2007; Wittman, 2011). For example, Desmarais and Wittman (2015) promoted fundamental transformations that would have food sovereignty principles playing a central role in Canadian food policy agendas, including those that apply to Indigenous food systems. Other studies (Batal et al., 2021; Beingessner & Fletcher, 2020; Coté, 2016; Fletcher, 2013; Lucantoni, 2020; Seminar et al., 2017) have shown that the NFS has failed to curb food insecurity in Canada and has instead created concerns and challenges for rural community dwellers, in part because local food-related knowledge is considered archaic or irrelevant from a neoliberal standpoint. Hence, the NFS can be at odds with local food initiatives such as community gardens, holistic management, agroecology, or farmers' markets.

Our results suggest that local food systems should be given attention and that food sovereignty principles, such as the active participation of local farmers, and the rights of people to consume culturally appropriate food, are important in building a sustainable food system that can meet the needs of Indigenous and non-Indigenous people. While the NFS has facilitated the import of products that cannot be produced in Saskatchewan due to climatic limitations, our findings show that local production, processing and procurement are critical and meaningful activities, adding substantial social, economic, and cultural value to food systems. To enhance this value, food policies and support programs need to strike a balance between local and global food systems rather than focussing mostly on export markets.

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**Positionality**: The members of the team behind this project are all researchers and administrators interested in sustainability, food security, and heritage conservation. Ogie is a recent immigrant from Nigeria, who contributed to and built on this project as part of her graduate research program. The others are Canadians who can trace their ancestry to waves of Eurasian settlement that occurred on the North American prairies. We recognize and have worked to limit the assumptions and bias we bring to this work based on our cultural backgrounds, e.g., by getting colleagues to provide independent assessments of the survey questions.

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Research Article

# Feeding children while Asian: Immigrant families' experiences with school lunches in Canada

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## Abstract

In feeding children in a new country, immigrant parents engage in continuous and ongoing adaptation. Children's exposure to new food practices outside the home can sometimes conflict with parents' efforts to maintain traditional foodways. This qualitative study explores the factors that influence Asian immigrant parents' everyday decisions about packing cultural food in their children's school lunches in Toronto, Canada. Through arts-informed interviews, 19 elementary school children (ages 7 to 13) and 17 parents from Indian and Chinese backgrounds shared their experiences. Findings reveal that family's food identity and the convenience of cooking familiar recipes encourage the inclusion of cultural foods, while direct and indirect experiences of lunchbox shaming and school food environments discourage it. Factors such as children's preferences, parental perceptions of healthy food, and classroom demographics influence parental decisions in both directions. These findings indicate that homemade school lunches communicate both immigrant families' cultural heritage and their changing food habits in Canada. We argue that the upcoming national school food program carries high stakes: if not thoughtfully implemented with cultural inclusivity at its core, it risks further marginalizing non-dominant foodways and undermining the cultural agency of immigrant families.

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**Keywords**: Asian immigrants; family food practice; lunchbox shaming; national school food program; school lunch

## Résumé

Pour nourrir leurs enfants dans un nouveau pays, les parents immigrés doivent continuellement faire preuve d'adaptation. L'exposition des enfants à de nouvelles pratiques alimentaires à l'extérieur de la maison peut parfois entrer en conflit avec les efforts des parents pour maintenir les habitudes alimentaires traditionnelles. Cette étude qualitative explore les facteurs qui influencent les décisions quotidiennes de parents asiatiques immigrés concernant l'intégration d'aliments culturels dans les boîtes à lunch de leurs enfants à Toronto, au Canada. À l'aide d'entretiens par l'art, 19 enfants fréquentant l'école primaire (âgés de 7 à 13 ans) et 17 parents d'origine indienne et chinoise ont fait part de leurs expériences. Les résultats révèlent que l'identité alimentaire de la famille et la facilité à cuisiner des recettes familières encouragent l'inclusion d'aliments culturels, tandis que les expériences directes et indirectes de honte quant au contenu de la boîte à lunch et l'environnement alimentaire de l'école la découragent. Des facteurs tels que les préférences des enfants, la perception des parents de ce que constitue une alimentation saine et les caractéristiques démographiques de la classe influencent les décisions parentales dans les deux sens. Ces résultats indiquent que les repas scolaires faits maison manifestent à la fois l'héritage culturel des familles immigrantes et l'évolution de leurs habitudes alimentaires au Canada. Nous soutenons qu'il y a là des enjeux importants pour le prochain programme national d'alimentation scolaire : s'il n'est pas mis en œuvre de façon réfléchie en tenant compte de l'inclusion culturelle, il risque de marginaliser davantage les modes d'alimentation non dominants et de miner l'agentivité culturelle des familles immigrantes.

## Introduction

Parents and caregivers of school-aged children often juggle numerous responsibilities as they navigate school routines. For many Canadian families, this includes tackling the daily task of packing school lunches. Canada is the only member of the Organization for Economic Cooperation and Development (OECD) without a nationally funded school food program (Black et al., 2022). Instead, a "patchwork" of programs exists across Canada, funded by provinces, municipalities, not-for-profits, donors and parent organizations (The Coalition for Healthy School Food, n.d.). Although one in five Canadian students have access to some form of school food program, including breakfast, snack, or hot lunch programs (Ruetz & McKenna, 2021), parents and caregivers remain primarily responsible for feeding children during school hours. In April 2024, the federal government announced plans for a new national school food program, committing $1 billion over five years to serve 400,000 students annually with a starting date marked for the 2024-2025 school year (Government of Canada, 2024a). Yet, until this initiative actually takes effect, most school-aged children will continue bringing home-packed lunches.

While providing children with healthy and nutritious food at school is vital for supporting their growth and development, this crucial task can sometimes feel

overwhelming for families (Shwed et al., 2023). Given that domestic foodwork—the multifaceted labour involved in feeding oneself and one's family—is highly gendered (Beagan et al., 2008), mothers often hold disproportionately higher responsibilities to plan, prepare, and manage everyday lunch packing. Studies in the United Kingdom, United States, Australia, and Canada commonly indicate that preparation of "good" lunches is tied closely with moral accountability of "good" mothering (Brenton, 2017; Harman & Cappellini, 2015; Harman & Cappellini, 2018; Niimi-Burch & Black, 2024; Tanner et al., 2019; Seko et al., 2021). Mothers safeguard children's health and well-being by holding themselves accountable for packing nutritious lunches. Some mothers feel scrutinized by the content of school lunches they pack for their children, while judging other parents who they deem to be less diligent (Brenton, 2017; Niimi-Burch & Black, 2024).

For immigrant families raising children in a new country, packing school lunches can involve additional complexities. Although some families may wish to preserve their cultural identities, adjustments are often inevitable as they experience financial, social, and cultural changes in the land of settlement. Moffat and colleagues (2017) emphasize the need to investigate cultural dimensions of immigrant food insecurity, particularly the role traditional foods and foodways play in maintaining one's ethnocultural identity and supporting smooth adaptation to a new country. Through interviews with a group of newcomers and refugees in Canada, the researchers identified a prevalent concern among the participants over the access to culturally preferred or satisfying food. While general food access was not a concern for most participants, several of them faced challenges in accessing traditional food items due to financial, transportation, and language barriers. Many also noted limited availability of fresh and less processed food from their cultures, which leads to nostalgia for food from their countries (Moffat et al., 2017). As food holds both material and symbolic meanings intricately connected to people's identity, having access to food that satisfies hunger alone does not necessarily satisfy one's psychosocial needs.

In the meantime, the degree to which immigrant families maintain traditional foodways varies. For some, integration of new food practices into their day-to-day life presents a unique opportunity for constructing new identities and expressing a positive marker of assimilation to the host country's culture. This opportunity can be particularly salient among women, who are often the primary caregivers and nourishers within immigrant households. For example, a study with Arabic and South Asian immigrant women in Edmonton, Canada, highlights how these women, as important conduits of their family's culinary acculturation, flexibly balance between keeping traditional food practices with adjusting to new foods and foodways (Vallianatos & Raine, 2008). Most of the study participants live in nuclear households post-migration, where they can take on a greater responsibility for daily food planning and have increased opportunities to incorporate their own and children's preferences into family's food practices (Vallianatos & Raine, 2008). In another study, immigrant mothers of African and Caribbean backgrounds express willingness to learn how to cook healthy Canadian meals and add them to their culinary repertoires for their children, as their children's preferences shift from traditional foods to Canadian foods (Blanchet et al., 2018). Similarly, one Australian study revealed that Chinese immigrants have often adapted a "bicultural" eating pattern due to convenience, time, and personal health beliefs and food literacy post-migration (Lee et al., 2022). They tended to preserve elements from their Chinese culture while integrating Western-style meals and snacks in their diets.

In immigrant households, children often exert significant influence on their family food practices, as they bring home new food norms and values from school (Blanchet et al., 2018; Moffat, 2022). For many young children, school provides the first opportunity for learning dominant ways of thinking, acting, and eating in a public space. Some of them learn that their home food culture is not always congruent with dominant food culture at school. This "food culture mismatch" (Agaronov et al., 2019), a discrepancy between home and school food cultures, can have a considerable impact on children's food identity, which then has reverberating effects on their family's food practices.

Divergent food preferences can be a source of contestation between different generations in a household (Beagan et al., 2014). For parents and caregivers, traditional foods and foodways can be a platform for passing tradition down to children and maintaining material and psychosocial connections with "home." In contrast, for children growing up in Canada, traditional foods can be a marker of difference that prevents them from fitting in with their peers and Canadian culture. Immigrant mothers have lamented that after settling in Canada their children became reluctant to bring home-cooked traditional foods to school for lunch due to a fear of standing out and concerns with food odours (Blanchet et al., 2018; Lane & Vatanparast, 2023;). Some children stopped eating traditional food at school, which forced some parents to learn about, purchase, and start packing "Canadian" foods, such as pizza, burgers, and packaged snacks in children's lunchboxes to school (Lane & Vatanparast, 2023).

Prior to this study, we conducted a study with 25 Canadian young adult children of Asian migrant parents (ages 17 to 25) in Toronto, Canada, about their childhood experiences at school over homemade lunches (Seko et al., 2023). Many shared heartbreaking memories of lunchbox shaming when they felt ostracized for bringing traditional foods that were perceived as deviant from Western food norms (Seko et al., 2023). Their favourite home food sometimes received repulsion from classmates. In response, they tried to hide their food under the table, throw away their lunches, or asked their parents to pack "normal" sandwiches or Lunchables (prepackaged snack) to fit in (Seko et al., 2023). The study illuminated complicated relationships young Canadians with Asian backgrounds have with their "home" food.

Lunchbox shaming at school stems in part from an intrinsic fear of unfamiliar food. When facing new food and foodways, some children may feel the need to validate their own food culture as "normal" by ostracizing unfamiliar foodways as "deviant." But this fear may also arise from historically constructed stereotypes and discriminations against foodways of ethnocultural minorities. Williams-Forson (2022) notes in her book *Eating While Black: Food Shaming and Race in America* how anti-Black racism has operated in the practice and culture of eating. Gastronomic surveillance over Black foodways has often stemmed from systemic oppression and distrust of Black Americans. Similarly, Asian cuisines has long represented a distinct "Otherness" in the White imagination (Sugino 2021). Mannur (2006), in her analysis of a 1908 document authored by two American Federation of Labor members, identifies how the expression "you are what you eat" was employed to differentiate between White "hearty meat eaters" and Chinese "rice eaters." This "Meat vs. Rice" metaphor fueled anti-Asian sentiment, portraying Asian workers as undermining the American labor force. In this context, food became "a metonymic index for understanding Asianness," reinforcing the idea that Asians could not be considered American (Mannur 2006, p. 2). Mannur argues that from the early nineteenth century to the present, Asian Americans

remain closely associated with their food traditions, which continues to marginalize them.

In the present study, we shift our focus from young adults to children currently attending elementary school in Toronto, Canada, and explore how their school lunch experiences influence immigrant parents' everyday decisions about whether to pack foods from their culture (called "cultural food"[1] hereafter) in their children's school lunchbox. Specifically, we focus on families with parents who have migrated from two Asian countries, China and India, and have children currently attending elementary school in Toronto, Canada. Children's perceptions of their home-packed lunches were key variables of interest to us, as their school experiences would have considerable impacts on their family's food practices. By examining feeding decisions of immigrant parents from a cultural perspective, we aim to understand how immigrant families navigate food practices while raising children in a land of settlement. This knowledge has significant implications for the upcoming national school food program, because such programs hold considerable power in shaping children's, and by extension, their families' understandings of which food practices are considered normal and acceptable in Canada. Our study seeks to contribute to ongoing conversations about how school food environments can respond to and reflect the cultural diversity of the communities they serve.

## Methods

### Study location: Toronto

The study was conducted in Toronto, traditionally known as Tkaronto [Tuh-kaRONto], Canada's most populous city. Toronto has been a popular immigrant destination, with 46.6 percent of the total population of Toronto Census Metropolitan Area (CMA) born outside Canada (Statistics Canada, 2022b). Over the past 50 years, immigration from Asian countries (including the Middle East) has steadily increased, reaching a record 62.0 percent of newcomers between 2016 and 2021 (Statistics Canada, 2022b). Toronto's public-school demographics closely reflect the city's demographic. In the most recent Toronto District School Board (TDSB) student census, 72 percent of students (JK to Grade 12) self-identified as non-White, with South Asian and East Asian groups being the largest category (Toronto District School Board, 2023). The proportion of TDSB students self-identifying with one or more racialized groups has increased since 2016.

[1] What should we call "food from immigrant families' cultural backgrounds?" Our team had an intense discussion over this mouthful and complicated concept. We intentionally avoided the term "ethnic food," as it often implies food associated with a group different from one's own, reinforcing a sense of otherness. "Traditional food" and "heritage food" were considered, but these terms did not always capture the full range of foods that are current and habitual choices for immigrant families. "Culturally appropriate" or "culturally preferred" food were the terms often used by public health institutions (e.g., Centers for Disease Control and Prevention, 2024), but these did not appear to us clearly communicating our intent. After a long discussion, we settled on "cultural food" as it reflects the diverse, dynamic nature of food practices tied to cultural backgrounds, without the implications of food being from the past or outside one's own community. We do recognize this is not the perfect terminology and hope to continue this conversation.

## Recruitment

The study focussed on the first-generation immigrant families with children ages 7-13 (Grades three to eight), attending school in the Greater Toronto Area (GTA).[2] We focussed on this age group because in most publicly funded elementary schools, students bring home-packed meals for lunch or go home to eat lunch during lunchtime. Most elementary schools do not allow young students to go out for lunch, while secondary school students (Grade 9 to 12) often have access to cafeterias or food venders at school or are permitted to leave the school perimeter during breaks to buy food.

Our study inclusion criteria required parents to: 1) have immigrated to Canada from China or India; 2) have at least one child currently attending elementary school in the GTA; and 3) have ever packed cultural foods for their children's school lunch. We focussed on immigrant families from China and India, because these two countries represent Toronto's largest immigrant groups, comprising over 38 percent of all newcomers (i.e., immigrants who have been in Canada for less than five years) to the Toronto CMA in 2021. Between 2016 and 2021, 102,245 immigrants, or 26.6 percent of all those settling in the Toronto CMA, came from India. Another 44,770 newcomers, making up 11.4 percent of the total, arrived from China (Statistics Canada, 2022a). As we relied on participants' self-reports about their nationality, participants who self-reported to have immigrated from China included those from Hong Kong, although Canadian census data often treats Hong Kong separately.

Ethics approval was obtained from our institutional review boards before recruitment. Due to the study's exploratory nature, we employed convenience and snowball sampling. Recruitment involved emails, the project website, posters, and outreach to Saturday language schools for children, faith groups (e.g., churches, temples), traditional dance schools, online family support groups, and the research team's personal and professional networks. To support informed consent for children, an animated recruitment video was created. Chinese-language recruitment materials were also created, and translation accommodations were offered upon request.

## Data collection

An arts-informed approach was used to explore children's experiences around cultural foods and school lunchtimes. From June 2022 to May 2023, we conducted four in-person art workshops with children along with four focus groups with parents. Two research team members (CJ-P and YS) with expertise in arts-informed research methods designed and co-led the children's art workshops with research assistants (JY and NH-N) who share the same cultural backgrounds as research participants. At these art workshops, children created their lunchboxes using a variety of visual materials that included magazines, photographs, illustrations, as well as coloured and textured papers, stickers, and tapes. Along with drawing, the method of collaging was used to invite de-constructing, imagining, and re-constructing participants' school lunchtime (Graham & Gussak, 2023). During the workshops, parents joined focus groups in a separate room to share their experiences.

[2] In Canada, public education is a provincial responsibility. In the province of Ontario, education is divided into three stages: early childhood education for children from birth to age four; elementary school for students from kindergarten to grade eight (typically aged 4 to14); and secondary school for students from grade 9 to 12 (typically aged 14 to18). We focussed on families that have elementary school-aged children.

Within one to two months, follow-up online interviews were conducted with families to reflect on children's artwork and parental focus groups. Additionally, we conducted 14 online interviews with families (parent-child dyads) who preferred to join the study remotely. In those online interviews, parents shared photographs of their children's school lunches to stimulate discussion. Child and parent interviews were conducted separately to avoid undue influence. Two interviews were conducted in Cantonese with translations provided by bilingual researchers in our team (VW and JY). All interviews were transcribed verbatim and translated into English as needed.

Our choice to use an arts-informed method was epistemologically grounded in critical early childhood and youth studies (Lomax, 2015), which advocate for conducting research *with* children rather than *on* them. As others have noted (Leavy, 2015; Roberts & Woods, 2018), arts-informed methods not only invite expression, but also support young participants in shaping the research process itself. Unlike traditional adult-led interviews, which follow a researcher's structure and pace, art-making allows children to express themselves safely and comfortably at their own pace. It stimulates creativity and supports young participants in sharing their experiences through visual and narrative means. Our previous studies using collage and mixed-media—a pilot study with Japanese immigrant children aged 6 to12 (Seko et al., 2021), and a research-creation project with youth aged 14 to19 (Juando-Prats et al., 2024)—demonstrated how collaborative art-making fosters reflection, peer dialogue, and emotional engagement. Drawing and collaging were specifically chosen in this study to stimulate children's creativity, spark peer discussions, and promote their agency as active knowledge creators.

## Analytic approach

For data analysis, we took a critical realist perspective, which views language as constructing social realities within the confines of the material world (Moore & Kelly, 2024). Data collected through art workshops, focus groups and online interviews were analyzed thematically, following Saldaña's (2015) open coding method. Our analysis focussed on finding patterns across data to identify factors influencing parental decisions about everyday school lunch making. First, two researchers (YS and VW) immersed themselves in the data by reading all interview transcripts three times each. The researchers independently engaged with inductive coding, generating initial codes relevant to parents' experiences with packing school lunches, children's lunchtime experiences at school, and families' perceptions of their cultural foods. The two researchers then compared their codes and discussed emergent patterns across the initial codes. The two authors then engaged in theming the data (Saldaña, 2015) by weaving initial codes into integrative themes. Instead of simply generating themes based on the frequency of codes, the researchers generated themes vis-à-vis perceived factors influencing parental decisions about everyday lunch making.

Throughout the analytic process, the two researchers regularly engaged in discussions to check the validity of interpretations, reflect on and refine the initial codes, and the developed themes collaboratively. Following Braun & Clarke's (2020) proposition that in thematic analysis researchers' subjectivities should be treated as a resource, a particular attention was paid to each researcher's positionality. One researcher (YS) brought her experience of migrating to Canada from Japan in her early 20s and raising a child born in Canada, while the other researcher (VW) brought her experience migrating to Canada from Hong Kong at a

young age and growing up in the Canadian educational system. Both researchers self-identified as Asian while being acutely aware of the enormous heterogeneity within "Asian" subgroups. Keeping our positionality intact during the analytic process was quintessential in treating the data as both unique products of interactive co-construction between the participants and us, the researchers, and as evidence for real phenomena (Moore & Kelly, 2024).

### Member checking

Preliminary findings were shared with all participants via a newsletter-style summary, inviting feedback through an anonymous survey. The summary provided an overview of the project, demographic information about the study participants, data collection activities, and key findings from the study. Participants were given three weeks to review and complete the member checking survey. In total, six participants from three families (three parents and three children) responded and completed the member checking survey. Their reflections were discussed further by the two researchers (YS and VW) and incorporated into the final analysis.

## Findings

### Participants

Table 1 presents the demographics of study participants. A total of 36 individuals (15 families) participated in the study, which comprised 19 children (ages 7-13, Grade 2-8) and 17 parents (14 mothers and 3 fathers). The 19 children included three sibling dyads, and 17 parents included two couples (father-mother dyad). All participants, except one child, were attending public schools at the time of the study. One child had transferred to a private school just before participating in the study. During the interview, the child shared their previous public school experience. All parents were first-generation immigrants to Canada, with six parents having migrated from India, five from China, and four from Hong Kong (all of the latter participants self-identified as Chinese). Among the children, ten identified Canada as their place of birth, followed by six born in China and Hong Kong and three born in India.

The majority of the participants had Canadian citizenship (11 parents & 14 children). There were two parents who held Permanent Resident (PR) status and four parents who were visa holders. Similarly, two children held PR status and three had visa statuses. The length of stay in Canada varied among participants. Seven out of 15 families had been in Canada for 16 years or longer, five families were recent immigrants[3], two families had been in Canada between six to ten years, and one family had been in Canada between 11-15 years.

[3] Following census data where "recent immigrants" are defined as individuals who have "obtained a landed immigrant or permanent resident status up to five years prior to a given census year" (Statistics Canada, 2017, p. 8), this study categorized the family's length of stay in Canada in five-year periods.

Table 1: Participant Demographics

| **Place of Origin** | | |
|---|---|---|
| | **Parents** | **Children** |
| **India** | 6 | 3 |
| **China** | 5 | 2 |
| **Hong Kong** | 6 | 4 |
| **Canada** | 0 | 10 |
| **Immigration Status** | | |
| | **Parents** | **Children** |
| **Canadian Citizen** | 11 | 14 |
| **Permanent Resident** | 2 | 2 |
| **Visa Holder** | 4 | 3 |
| **Length of Time Parents have Spent in Canada** | | |
| **0-5 Year(s)** | 5 | |
| **6-10 Years** | 2 | |
| **11-15 Years** | 1 | |
| **16+ Years** | 7 | |

## Frequency of packing cultural foods for children's school lunches

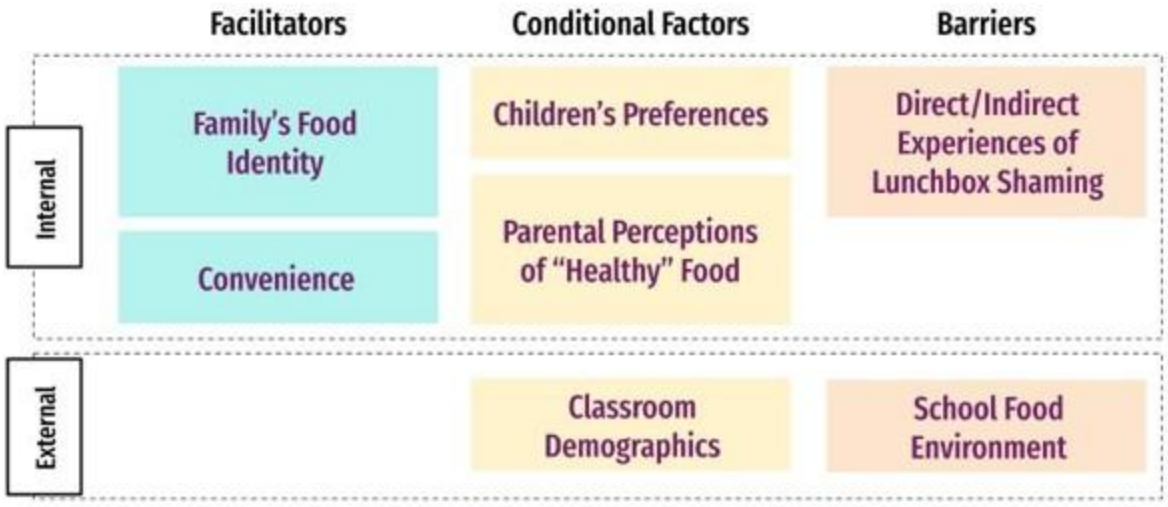
The families noted the frequency that they packed cultural foods for their children's school lunches. Seven of the 15 families (46 percent) reported packing cultural foods for their children's school lunches five days a week. Four families (27 percent) noted that they packed cultural foods most of the time (three to four days per week) with the remaining four families (27 percent) reporting packing cultural foods some of the time (one

to two days per week). Notably, none of the families interviewed stated that they rarely packed cultural foods (zero to one day per week).

## Factors influencing parental decisions regarding cultural food

Our analysis identified several internal and external factors that influence parental decisions around packing cultural food in their children's school lunch. Internal factors refer to families' perception, beliefs, values, and preferences, while external factors are the school food environments, systems, policies and other surroundings that are external to families' control. Among the identified factors, some encouraged the inclusion of cultural foods in school lunches ("facilitators"), including the family's food identity and convenience of cooking familiar recipes. On the contrary, other factors deter parents from packing cultural foods in lunches ("barriers"), including school food environment (i.e., short lunchtimes, food regulations) as well as direct or indirect experiences of lunchbox shaming. There were also factors that worked in both directions ("conditional factors"), as in they could either facilitate or hinder parental decisions depending on the specific context. Notably, while there were two internal facilitators, two barriers (one internal and one external), and three conditional factors (two internal and one external), there was no external facilitator for parents that would encourage them to pack cultural food in school lunches. Figure 1 addresses the overview of these internal and external factors. In what follows, we provide detailed descriptions of each factor with quotes from participant interviews.

Figure 1: Factors influencing parental decisions regarding packing cultural food in their children's school lunches



## Facilitators of parental decision to pack cultural foods

### *Family's food identity*

Parental desire to maintain and pass their food tradition to their children is one of the salient internal factors motivating parents to pack cultural foods in children's school lunches. For these parents, everyday food, including school lunches, serves as a reminder of their cultural roots. It is also a conduit through which to transfer their cultural heritage to children growing up in Canada. Some parents expressed a strong sense of commitment to regularly feeding their children with cultural food:

> "The food we cook at home... because my kids don't speak our language, and we don't have our community people... I feel like if they don't eat food, they won't know what's gonna happen to the next generation, right? They might not even recognize what Indian food is. What's important for us [is?] to keep that tradition flowing for the next generation, so they know what lemon rice is, they know what roti is, they know what the chicken biryani is, so my kids can teach their kids, right?" (Parent 04, from India)

Other parents echoed this view in stating that cultural food can connect their children with their grandparents and extended families when they visit their home countries:

> "If [my children] didn't know what Hong Kong or Cantonese food is, when they come back to Hong Kong, they cannot connect with my family members, for example my father, my mother, my wife's father and her mother. I think the food is a connection for them, for my parents and for them." (Parent 17 from Hong Kong)

Additionally, for newcomer families who had recently moved to Canada, cultural food can help mitigate hometown nostalgia during the initial phase of settlement in Canada. A father who immigrated from Hong Kong about ten months prior to the time of the interview mentioned that his son requested barbecue pork with honey to bring to school for lunch. The father thought this "Hong Kong cultural food" reminds his son of the taste of Hong Kong and alleviates his homesickness (Parent 17 from Hong Kong).

While for some families, cultural foods are vital to maintaining their food identity, for other families cultural food may also help construct and strengthen a bond among family members from different linguistic backgrounds:

> "We don't speak Chinese at home because my husband speaks one dialect, and I speak another dialect. So, we speak English to each other. So, I find Chinese food brings us together. And it brings us closer to our family as well, like very typical Chinese." (Parent 14 from China)

In this household, homemade Chinese food serves as a symbolic connector that ties family members together. By sharing cultural meals as "typical Chinese" families would do, this family constructs—rather than maintains—their cultural identities through their Chinese meals.

### *Convenience*

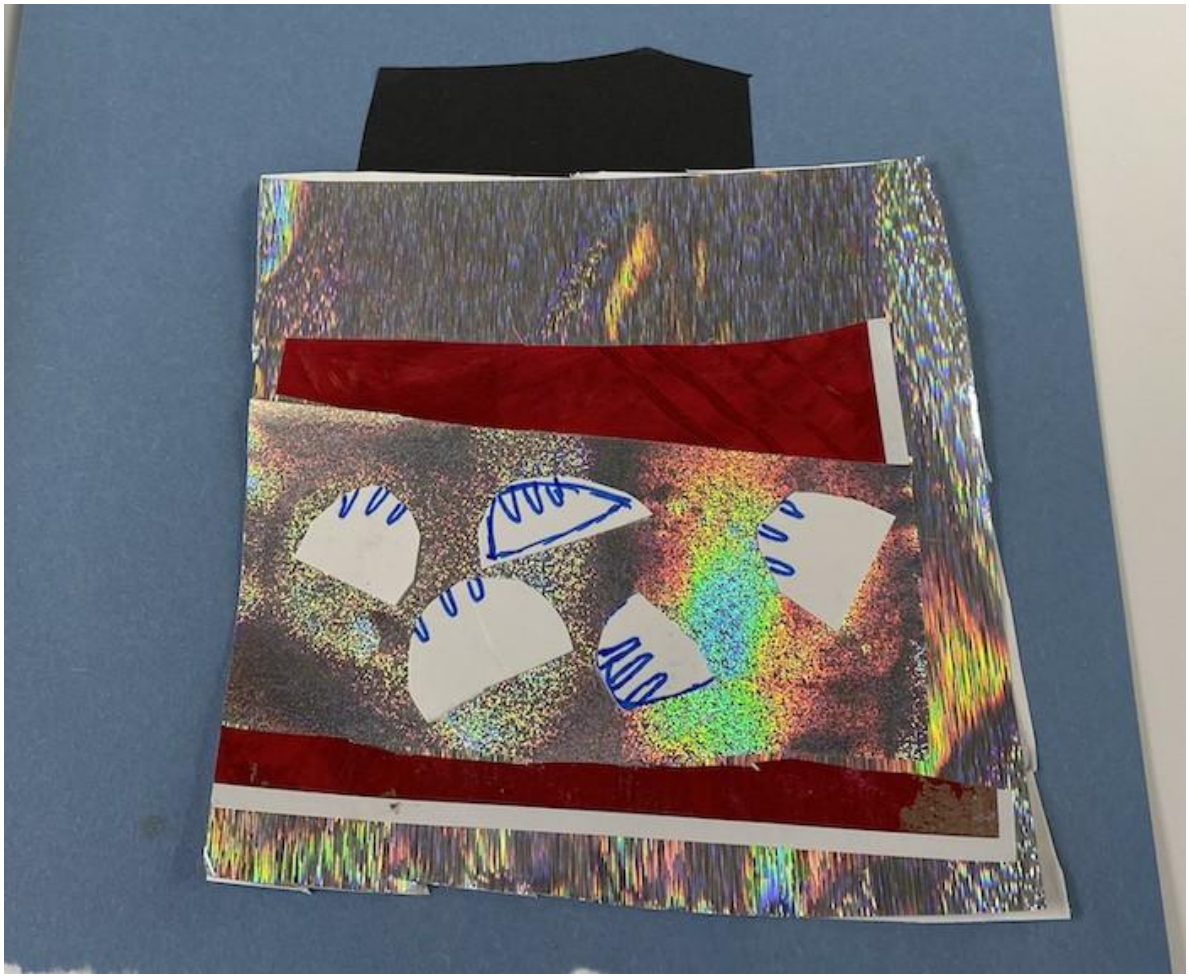
Parents' school lunch packing habits were often influenced by the convenience factor of cooking cultural food. For busy parents, packing leftover dinner straight into the lunchboxes is a tactic to save time in the morning. One mother noted that she often cooks fried rice in the morning by using leftover meat, vegetables, and rice and packing it in a thermal lunchbox ("thermos"), because it is the easiest way to

prepare a hot lunch for children (Parent 09 from Hong Kong).

Being able to make meals in a time-saving manner was also mentioned by many parents who leaned on recipes from their cultural backgrounds. Some parents noted that because they are already familiar with cultural recipes, they did not have to put additional time and effort into learning a new recipe or shopping for new ingredients. This familiarity of habitual foods helps streamline meal preparation for many. A mother reported that in their household, her father-in-law, who is a former chef, primarily cooks meals for the family. Since the father-in-law knows Chinese recipes very well, they habitually eat Chinese meals at home and at school. Her son (grade 4) created a collage of dumplings in a thermos as his favorite lunch (Figure 2), while he occasionally asks the grandfather to cook different dishes for lunch such as sushi or pasta. The mother said:

> "I don't think it's [bringing Chinese food to school] a must. It just so happens that we are Chinese and that's the type of food that we cook and we send them to school." (Parent 07 from Hong Kong)

Figure 2: A collage of dumplings in a thermos made by a grade 4 participant from a Chinese cultural background



## Conditional factors influencing parental decision to pack cultural foods

### *Children's preferences*

From both parents and children's interviews, it became salient that children are active agents of everyday lunch making. Parents regularly sought their children's agreement on what to pack in school lunch to ensure that the child would eat at lunchtime. While many parents attempted to provide what they believe are "good" and nutritious lunches, they often prioritized children's preferences to ensure their children consume enough food to sustain and nourish them during the day.

Children's preferences for cultural foods encourage parents to pack these foods in school lunches. Some children we interviewed reported that they prefer hot (warm) food (e.g., rice with stir fried meat and vegetables, dumplings) over cold, light lunches (e.g., sandwiches), and as such, they usually bring homemade cultural food to school. There was also a shared understanding, particularly among Chinese families, that rice is more filling than bread, pasta, or other starchy foods. One parent mentioned that because her son "easily gets hungry when he has a sandwich or spaghetti" (Parent 15 from China), she tends to pack rice-based cultural meals in her son's school lunch. Many of the children who prefer hot meals regularly bring a thermos to keep their meals warm. A few parents shared a similar routine of waking up at 5 a.m. to cook fresh food for their children's school lunch. They first warm the thermos with boiling water and then fill it with very hot food to ensure the temperature remains warm by lunchtime. These parents commented that their children complained that lukewarm/cold food is unappetizing.

Moreover, children's preferences reflect the degree of their culinary acculturation. One newcomer mother from India noted that her two sons have not yet acquired a "Canadian" taste and as such she had no choice but pack homemade Indian food that the children are familiar with:

> "I think we still have not acquired so much taste for the food that is popular here…it's gonna take time for us to acquire that taste. [My two sons] still don't like mashed potatoes, the many things that they don't like still, because…they were not introduced to them earlier. Like, they are not into salads; they don't eat any green leaves." (Parent 06 from India)

On the other hand, children's preference could deter parents from packing cultural food. Some parents pointed to the challenge of balancing their desire to maintain traditional foodways with their children's desire to fit into the school food environment. Parents shared the compromises reached with their children to manage this dilemma. Many agreed to alternate the lunches between "Western" foods (e.g., sandwiches, pasta) and cultural foods. It is important to note that not all cultural food was welcomed by children, the preference laid with items that do not smell strongly.

> "My preferred [lunch] menus are all Indian and healthy snacks. But since [my daughter] doesn't like all the time Indian stuff, so I combined it with our two days for Canadian stuffs, and two days or three days [for] Indian stuffs." (Parent 11 from India)

Other parents reportedly added a "Western spin" to their cultural food to adapt the recipe to children's taste and make it more acceptable at school:

> "I also put like a little bit of a Western spin to it to make it a little more presentable or just a little more so … so it doesn't look as … as ethnic, right?" (Parent 02 from India)

This adaptation highlights how children's preferences can influence parental decisions around packing cultural food. In this case, this mother's effort to make the meal appear "less ethnic" not only reflects the child's preference but also the resultant pressure she internalizes to prepare a lunch her child feels comfortable eating at school. This type of effort was observed more frequently in Indian families than families from Chinese backgrounds. For instance, homemade "roti wrap" was frequently mentioned as a popular lunch item among Indian immigrant families, where sabji is wrapped in roti to resemble a sandwich wrap.

### *Parental perceptions of "healthy" food*

Parental perceptions regarding healthy food worked as an internal conditional factor in their decisions around packing cultural food. Many parents reportedly pondered on everyday lunch making to provide their children with what they believe to be healthy foods. When asked to describe what healthy meals look like to them, most parents drew on a Western nutritional discourse that emphasizes a balance between carbohydrates, proteins, and fats, akin to official Canadian guidelines for healthy eating (Health Canada, 2020). However, whether and which cultural cuisines are considered healthy varies from one parent to another. Some noted that home-cooked cultural meals are healthier than store-bought highly processed "Western" foods, because they know the ingredients well and how to make a healthy twist by adding fresh ingredients. They were also concerned about children's post-immigration exposure to "junk foods" in Canada:

> "Ethnic foods are healthier than Western food... mostly because it's home cooked. It's fresh. They're familiar. I am familiar with it. And I feel in my head I feel it's healthier." (Parent 01 from India)

On the contrary, others considered their traditional diet being less healthy than a Western diet. Some parents viewed traditional cooking methods, such as excess use of oil, spices, and overcooking vegetables (which can cause nutrient loss), as misaligned with their newly acquired Canadian understanding of healthy eating:

> "The way we cook Indian food is definitely not healthy because it has a lot of oil in it. And the vegetables are completely well done cooked...back home the focus on food is the taste not the health. The way we grew up, nobody ever talked about healthy food. That's the first time I heard was from my husband complaining [about it] in Canada. Until then, I [had] never heard this concept of healthy food." (Parent 04 from India)

This perspective seemed to emerge after their exposure to Canadian nutritional discourses and through children's health education at school, leading some parents to question the healthiness of their cultural foods. Some parents mentioned that they have modified their cooking habits to align with their evolving dietary beliefs.

In this regard, some parents also welcomed the addition of healthy "Western snacks," such as vegetable sticks, fresh fruits, and yogurt, to their children's diets. They saw these snacks as convenient, nutritious, and complementary to their home-cooked cultural meals, helping to create a more balanced diet, both culturally and nutritionally. These additions were often framed as a tactic to ensure their children consume Canadian, socially acceptable, and school-friendly snacks while still maintaining elements of their cultural food traditions at home.

In relation to the conversation on healthy food, many parents further noted that they would welcome a national or provincial school meal program, given that cooking healthy meals every day poses challenges for busy families. They appreciated the idea of all students

eating the same meal together at school, which they believed could foster inclusivity and ease the burden of daily meal preparation. Some parents, while emphasizing the importance of passing culinary heritage to their children, also wished for their child to learn about diverse food cultures and practices within Canadian multiculturalism. However, several parents also expressed concerns about existing school meal programs such as breakfast and snack programs not meeting their children's cultural and dietary needs. A key issue raised was the lack of diversity in current school meal programs, which do not adequately accommodate cultural diversities thus do not meet their children's food preferences and their own expectations for healthy meals.

### *Classroom demographics*

Children's classroom demographics, particularly the cultural backgrounds of classmates, worked as an external conditional factor for parental decisions around packing cultural food in children's lunches. Parents felt more comfortable packing cultural meals when their children's classmates largely shared similar cultural backgrounds and brought their traditional cuisines to school. However, when they were part of a noticeable ethnocultural minority group, parents often hesitated to pack cultural food, anticipating potential social discomfort or negative reactions from peers.

Classroom demographics also determine what type of food is perceived as "normal" in the classroom. In our arts-informed interviews, some children reported that while their classmates' cultural meals were not necessarily the same as their own, the overall diversity in lunchboxes made them feel comfortable eating their cultural food. On the other hand, when classroom demographics were less diverse and leaned toward a dominant Canadian culinary landscape, children felt uneasy about eating their cultural meals. Intriguingly, this dynamic sometimes worked in reverse, when the norm in a particular classroom leaned toward home-cooked cultural meals, bringing "Canadian" food like sandwiches could make children feel self-conscious:

> "At the beginning of the school year, we tried sandwiches, burgers… like that. And then my younger kid came back to me and then said, 'Mommy, I feel embarrassed if I bring a sandwich, like [a] cold lunch.' He thought it [was] strange to bring [a] cold lunch when everyone brings their hot lunch… That's why he stopped bringing any sandwiches." (Parent 16 from Hong Kong)

This mother also noted that she only started cooking Chinese homestyle meals after immigrating to Canada, as she had a domestic helper in Hong Kong who prepared the meals. To adapt to this new responsibility, she started learning recipes from the Internet and providing homemade Chinese foods to their children.

## Barriers to parental decision to pack cultural foods

### *Direct or indirect experiences of lunchbox shaming*

Understandably, children's firsthand experiences of lunchbox shaming at school served as an external deterrent for parents, making them hesitant to pack homemade cultural foods. While most children we interviewed regularly brought their cultural foods to school without facing peer pressure or negative comments, a few encountered hurtful reactions from their classmates that influenced both their own and their parents' attitudes toward school lunches. Upon facing lunchbox shaming, some children responded confidently, asserting pride in their cultural food, while others felt singled out and embarrassed. For instance,

one child participant recalled being told their food was "gross and disgusting" but responded assertively, saying, "It's my food, not yours; why are you worrying about it?" (Child 02 - Indian background). Another child shared an experience of a classmate mocking their lunch by saying it "smelled like poo," to which they replied, "I just told her to eat her own lunch" (Child 11 - Chinese background). In another case, a child's grandparents packed red glutinous rice for lunch, prompting a classmate to question why the rice was purple and whether it was "diseased." Although the child shrugged off the negative comments, the classmate reportedly insisted she is "weird" (Child 06 - Chinese background). Children's lunchbox shaming experiences at school reinforced parental concerns about whether sending cultural food to school might subject their children to discomfort, leading some to reconsider their lunch-packing choices.

Along with shaming around cultural foods, a few parents of children in higher grades (Grades six and seven) also expressed a concern about size shaming. One parent noted that her daughter has been concerned about her lunchbox size, because she was teased by her classmates that her lunch was "too big" (Parent 04 from India). The daughter who joined our study confirmed this incident and noted that many of her classmates brought "tiny lunches and ten snacks" (Child 05), while she had a fulsome lunch and one to two snacks. She also mentioned that food has been a taboo subject at her school, because some of her classmates increasingly felt sensitive about their body size and eating habits.

Some parents also shared their personal experiences of facing lunchbox shaming when they were young or at work, which made them conscious about what to pack in their children's lunch:

> "When I was in high school (in Canada), I remember I didn't bring any Chinese food at all. People would look at me strangely, right?... I think I was too scared to bring rice or anything at that time." (Parent 12 - from Hong Kong)

In addition to these direct experiences shared by child and parent participants, parents reported indirect experiences, such as lunchbox shaming that happened to their children's older siblings when they were younger and how the memory of these incidents continued to shape their lunch packing decisions. Even if their younger children had not personally experienced teasing, parents remained cautious about packing cultural food, fearing that history might repeat itself. Similarly, other parents reported that they had heard about lunchbox shaming from other parents, family members, or even social media, both before and after immigrating to Canada. These rumored experiences heightened their awareness and made them more cautious about what they packed in their children's lunches. One mother recalled being wary from the very beginning:

> "When I first came [to Canada], when [my daughter] was little, in kindergarten, I had already heard enough stories of, you know... like 'Be careful when you pack for school because kids, if they see something very, very different, they'll make fun of it.' And so I was mindful of that piece." (Parent 02 - from India)

A couple who recently immigrated from Hong Kong (Parents 09 and 10) reflected on how widespread narratives about Western school lunch norms shaped their expectations before immigrating:

> "[Before coming to Canada] we got so much news from social media describing how it is like to live as newcomers in England. Most of it is ...negative... especially what happens in British cultures... So, like, most students bring sandwiches... But so far, in Asian culture, students will have hot lunches or something like that. So that's why sometimes for those different cultures, they have worries about what to bring to school." (Parent 09 - from Hong Kong)

These preconceptions, shaped by second-hand stories and media portrayals, contributed to a heightened vigilance among newcomer parents, leading some to pre-emptively adjust their children's lunches to avoid potential lunchbox shaming.

### *School food environment*

School food environments often served as an external deterrent to parents packing cultural foods. Some of the factors contributing to parental hesitance include short lunchtime duration, unsupervised lunchtime, and school food regulations. Most child participants reported that they have about 15 to 20 minutes to eat at lunch followed by 40 to 50 minutes outdoor recess, and two snack times: one in the morning and another in the afternoon. Some parents who had recently moved to Canada expressed surprise at the short lunchtime duration that requires that they pack foods that are quick and easy for their children to consume. Although these parents wished to pack a sizable lunch to nourish their children, the children do not always have enough time to finish food and prefer a smaller and quick-to-eat meal:

> "Canadian people, they eat very light lunch. And then they're very fast. Yeah, so it's hard for my child. You know, you can't ask people to wait for you because they've already finished and they want to run outside, you know?" (Parent 10 from Hong Kong)

As a result, these parents felt pressured to adjust their lunch making routine by altering lunch contents, decreasing portion sizes, or excluding some food items to help their children complete their meals.

Parents also commented on the lack of teacher supervision during lunchtime. They believed that having a classroom teacher to monitor lunchtime, even occasionally, would be beneficial in preventing food shaming by intervening if necessary. Teachers can also deepen their understanding of students' culinary backgrounds and integrate this knowledge into teaching. Relatedly, a few parents wondered if schools could integrate food into the curriculum to educate children about diverse food cultures beyond nutrition and healthy eating. Educating children about the richness of their own and their peers' cultures in a multicultural city, like Toronto, could promote a culturally safe school food environment.

School food policies, particularly restrictions on food sharing and certain food items (e.g., nuts) due to allergy concerns, were a new concept for some parents. Some participants stated that food allergies were not recognized as serious problems back home, but now they felt responsible for abiding by the rules to protect other children. In addition to making sure their children's lunches are nut-free, some parents voluntarily refrained from packing cultural foods, such as using sesame oils and seafoods, to avoid potentially harming other children.

## Discussion

This study revealed several determinants influencing immigrant parents' decision to whether to pack cultural food in their children's school lunches. Their choices reflect a complex interplay between family's food identities, healthy eating discourses, school food environments, and the challenges of raising children

while Asian in Canada. Although prior Canadian studies portrayed lunch making as a burden on families (Shwed et al., 2023; O'Rourke et al., 2020), we found that for some immigrant parents, it is a labour of love and a tangible strategy to maintain their culinary heritage while fostering family bonds.

Although our primary focus was on parental decision making around everyday lunch making, using the arts-informed method of collaging and drawing was an essential research practice to elicit children's experiences and perspectives. While creating collages and drawings, children actively described their favourite dishes and snacks, the shape and colour of their thermos and lunch bags, the foods their peers bring, and conversations they had with their families and peers about school lunches. The art-making process provided children with the time and space to express their thoughts in a way that dialogue alone does not allow. These insights then informed our parent-child dyad interviews, and in follow-up sessions parents reflected that the artwork provided valuable windows into their children's thoughts and school experiences.

Our findings align with research linking lunch making to the ideologies of intensive mothering, where mothers internalize social pressures around feeding children (Harman & Cappellini, 2015; Harman & Cappellini, 2018; Niimi-Burch and Black, 2024). Many of the mothers we interviewed similarly hold themselves accountable for feeding their children "properly," to nurture their development, implement healthy eating habits, and teach them family food cultures. However, our study also complicates the intensive mothering discourse, as three fathers who participated in our study took primary responsibility for lunch making. Additionally, one mother noted that her father-in-law handled daily meal preparation, including school lunch making. Notably, all male caregivers in charge of lunch making were from Chinese backgrounds, whereas all participating Indian parents were mothers. The length of time spent in Canada had little influence on these patterns, as two of the fathers had immigrated less than a year ago, indicating that these gendered divisions of domestic labor were likely established pre-migration. These findings suggest that gender norms surrounding food preparation may vary across Asian immigrant communities. While gender undoubtedly plays a powerful role in shaping food practices within immigrant households (e.g., Chapman & Beagan, 2013), future research should explore more fluid and evolving gender patterns of food preparation, considering how responsibilities may shift over time and across generations. Additionally, the distribution of foodwork within multigenerational households warrants further attention, particularly how caregiving roles and foodwork are negotiated among parents, grandparents, and children.

While wishing to preserve traditional foodways, many parents adapted their lunch making practices to accommodate children's evolving preferences, incorporating new food items or adding a "Western spin" to their cultural foods. Rather than rigidly preserving traditions, these families approached lunch making as a flexible, habitual practice responsive to family's evolving tastes. Here, homemade cultural meals were not necessarily framed as a conduit of heritage preservation. Instead, it was considered as quotidian, habitual, and taken-for-granted aspects of family life. This aligns with research suggesting cultural foodways are not always static but continuously shaped by everyday choices and interactions (Chapman & Beagan, 2013; Vallianatos & Raine, 2008). In other words, homemade cultural foods communicate both immigrant families' cultural heritage and their changing food habits in Canada.

Relatedly, school lunches also serve as a gateway for children to familiarize themselves with Canadian

foodways. Parents viewed Canadian-style "healthy" snacks promoted by schools as valuable opportunities for their children to learn about "healthy eating" and adapt to the Canadian diet. Newcomer parents also demonstrated a high level of adherence to school food policies, particularly regarding food allergies. This finding echoes Harrington et al.'s (2015) study with newcomers in Mississauga, Canada, where participants demonstrated strong compliance with school-based food policies to facilitate their integration to Canadian society and "enact good citizenship" (p. 136). However, these policies often discouraged parents from packing cultural foods.

Direct and indirect experiences of lunchbox shaming were salient deterrents to parents from packing cultural foods. Compared to young adult participants (17 to 25 years old) in our previous study (Seko et al., 2023), fewer children in this study experienced direct lunchbox shaming. Those whose lunches were subject to teasing were able to speak back to their classmates without feeling ashamed of their cultural food. Still, parental anxieties of lunchbox shaming were pronounced. Parents showed a higher level of concern than children themselves, because of their own experiences at school or work, the child's older siblings' experiences, as well as cautionary tales of lunchbox shaming that they heard through the grapevine and social media.

Parental concerns over lunchbox shaming were also shaped by their perceptions of healthy eating. For some, cultural meals were seen as healthier because of their familiarity with ingredients and preparation methods. For others, cultural foods were perceived as incompatible with their newly adopted Western ideals of healthy diet, leading them to modify recipes or avoid packing them altogether. This internal negotiation reflects broader histories of culinary discrimination, where non-Western foodways have been subject to scrutiny and devaluation. As Williams-Forson (2022) argues, gastronomic surveillance has long positioned Black foodways as "unhealthy" or "dirty" in the U.S., in contrast to dominant White dietary norms. This culinary racism shapes not only public attitudes but also the ways racialized communities, including Asian diaspora, perceive their own cultural food practices (Mannur, 2006). Similarly, some parents we interviewed may have internalized food-related microaggressions, which in turn influence their way of navigating school lunch preparation. The internalized microaggressions can be further reinforced by the school food environments. As our study indicated, there were no external facilitators actively encouraging parents to pack cultural meals. Without policies or initiatives that foster culturally inclusive food environments, parents may feel further discouraged from including cultural foods in their children's lunches, especially when children are facing peer pressure to conform to dominant foodways.

Our findings have implications for Canada's forthcoming national school meal program (Government of Canada, 2024b). While research suggests that a government-mandated school meal program could alleviate the burden of lunch packing and expose children to a variety of nutritious foods (Shwed et al., 2023), our study highlights the need to critically examine the assumptions embedded in such initiatives. Indeed, many parents who participated in our study expressed dissatisfaction with existing school meal programs, citing a perceived lack of culinary diversity and a mismatch with their home food culture.

A key concern here is the assumption of universality that all parents and caregivers would welcome a standardized "Canadian" school meal program. This perspective risks overlooking the ways in which many immigrant parents view home-packed lunches as an essential means of maintaining cultural food traditions

and exercising agency over what their children eat. Existing research on school meal programs often operates under the implicit assumption that parents often lack sufficient nutrition knowledge to pack a healthy lunch (e.g., O'Rourke et al., 2020; Sutherland et al., 2020; Shwed et al., 2023). Such a view could reinforce a deficit-oriented perspective that disregards parents' knowledge and diverse understandings of healthy eating, as well as their desire to feed their children in their own preferred ways. Therefore, our study serves as a reminder that national school meal programs, without intentional efforts to reflect diverse food traditions, can inadvertently perpetuate dominant foodways while marginalizing other foodways that do not conform to the norms (Moffat & Gendron, 2018).

Building on these concerns, it is also important to recognize that "Canadian cuisine" is not monolithic. Given the wide regional diversity of Canadian food traditions (Newman, 2017), implementing a culturally inclusive school food program would likely need to be tailored to reflect the unique demographic and cultural landscapes of different municipalities. While some areas may require broad representation of global cuisines, others might focus on regionally specific dishes tied to local histories and food practices. This raises critical questions: What will "Canadian" school meals look like? Which cultural foods will be included in local school meal programs, and who decides? These are not just logistical questions but ethical ones, touching on equity, representation, and food sovereignty within the broader framework of national school food programming.

Our study has limitations. Our small sample of 17 parents and 19 children does not capture the full diversity of Asian immigrant families in Toronto. Additionally, our study's focus on two Asian communities, Chinese and Indian, excluded many other Asian and non-Asian ethnic communities with distinct food cultures and experiences. Future research should explore a broader range of immigrant communities to develop a more comprehensive understanding of how school meal policies impact diverse populations. Lastly, an intersectional approach to family foodwork can offer a more nuanced understanding of family food practices shaped at the nexus of transnational migration, gender, and family dynamics.

## Conclusion

Migration to a new country requires ongoing adaptation to new lifestyles, culture, and food practices. This study highlighted lunchbox making as a key parenting task outside home for immigrant families through which they balance cultural food traditions, culinary acculturation, healthy eating discourses, and school food norms. The tension between maintenance of cultural heritage and adaptation to new foodways is evident, as parents address children's evolving food preferences while navigating concerns over lunchbox shaming and school food environments. Our findings emphasize the need for culturally inclusive school meal programs that respect diverse food practices. Future policies must acknowledge immigrant parents' agency in shaping their children's food experiences and promote school environments that embrace culinary diversity. In this context, the upcoming national school food program carries high stakes: if not thoughtfully

implemented with cultural inclusivity at its core, it risks further marginalizing non-dominant foodways and undermining the cultural agency of immigrant families. A culturally responsive school meal program should not only provide nutritious meals but also affirm children and families' food identities, foster awareness of culinary diversity, and create an inclusive food environment where all students feel a sense of belonging.

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Narrative

# Creating learning alliances for flourishing food environmental futures

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## Abstract

This article emerged from a community-based symposium held in a public library, aimed at synthesizing reflections on the connections between climate actions, food security, and (im)migration. The authors, representing diverse positionalities and professional backgrounds explore the generative entanglements offered through food justice discourses and land-based pedagogies. Through channelling personal and professional experiences and disciplinary expertise, we sought to open up intersectional imaginaries of food and environmental justice, while actively seeking spaces for learning alliances. Emergent themes include challenging the settled imagination of integration in a community and on the land, finding ways of healing and placemaking through attending to the soil, plants, and other more-than-human beings that support collective well-being, and affirming the emancipatory potential of art-based learning entangled with land-based pedagogies. In foregrounding these voices, the article contributes to the ongoing efforts to support pluralistic forms of knowing and being, through exploring trajectories of

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transformative educational experiences centering food/environmental justice.

**Keywords**: Food justice; immigration; Indigenous knowledge; learning alliances; placemaking

## Résumé

Cet article découle d'un symposium communautaire, organisé dans une bibliothèque publique, qui visait à synthétiser les réflexions sur les liens entre actions climatiques, sécurité alimentaire et (im)migration. Les auteurs, ayant des situations et des parcours professionnels divers, explorent les liens génératifs offerts par les discours sur la justice alimentaire et les pédagogies de la terre. En canalisant nos expériences personnelles et professionnelles et notre expertise disciplinaire, nous avons cherché à ouvrir des imaginaires intersectionnels de la justice alimentaire et environnementale, tout en cherchant activement des espaces pour créer des alliances d'apprentissage. Les thèmes émergents comprennent la remise en question de l'imaginaire établi en matière d'intégration dans une communauté et sur la terre, la recherche de moyens de guérison et de création de lieux en prenant soin du sol, des plantes et des autres êtres plus qu'humains qui soutiennent le bien-être collectif, et l'affirmation du potentiel émancipateur de l'apprentissage basé sur l'art allié à des pédagogies de la terre. En faisant entendre ces voix, l'article contribue aux efforts en cours pour soutenir des formes plurielles de savoir et d'être, en explorant les expériences éducatives transformatrices centrées sur la justice alimentaire/environnementale.

## Introduction

What would futures built on the wisdom of the past look like? How can we co-create shared visions for socio-environmental justice through land-based engagements? The need to engage with such concerns in grounded ways brought the authors together to explore interconnections and collaborations based on common commitments to collective wellbeing. In this paper, we curate eight experiential narratives by the co-authors, each speaking to their involvement in, and visions of, multispecies flourishing through food/environmental justice initiatives. Our approach is based on the premise that the food/environmental justice movement needs to acknowledge the colonial history of lands and work in solidarity with Indigenous people's self-determination of their own culturally-suitable ecological systems and revitalization of Indigenous food systems (Settee & Shukla, 2020). In this article, we also highlight the tensions and dilemmas faced by the authors as they navigate their journeys and call for actions at the levels of policy, public discourses, education, and community.

The authors are loosely connected through a project called Soil Camp (Takeuchi et al., 2021; see https://soilcamp.ca/), which is a network of educators, community workers, researchers, youth, and families aiming to explore land-based learning in collaboration with Land of Dreams (LoD), a thirty-acre urban-agricultural space in southeast Calgary (https://ccisab.ca/land-of-dreams/). LoD encourages immigrant families to grow edible plants based on their past knowledge of farming in their home countries while

nourishing the local soil; this organization also fosters cross-cultural connections, particularly through guidance from Indigenous communities who have faced historical displacement because of colonial violence. A symposium presentation occurred as part of a conference hosted by The Immigrant Education Society (TIES) in 2024, with a theme of "Pathways to inclusion: Community-based research in immigration and settlement." To us, a transdisciplinary perspective aims to accomplish the emergence of new epistemological and ontological realities by embracing historically silenced voices. including our attunement to the voices of the land (Takeuchi & Marin, 2022; Takeuchi et al., 2024). Our approach resonates with what Staffa et al. (2022) term "caring knowledge production" in transdisciplinary scholarship through paying attention to marginalised knowledge forms, especially beyond the boundaries of academia. We therefore brought together diverse expertise into a public-facing, community-based symposium.

Developing a fertile ground for such engagements requires knowledge dialogues in the form of "learning alliances" (Douthwaite et al., 2009). Learning alliances seek to disrupt hierarchical and exclusionary forms of knowledge transfer and instead encourage creative approaches emerging from diverse networks of collaboration. This paper highlights intentional space-making among the group of authors as a way to foster dialogues grounded in the community (for unique positionalities and histories grounding our work, please see our biographies provided under Appendix 1).

## Context and background

In recent years, the World Health Organization (WHO) has advocated the concept of "One Health" as an integrated, unifying approach to recognize the interdependencies governing the health of people, animals, and ecosystems (Atlas, 2012). This realization is, however, not a novel discovery. For millenia, Indigenous communities around the world have honoured the fundamental interconnections between soil, plant, and human health, until these connections were disregarded or broken under technocentric, colonial projects of settlement and development through global inequalities, accumulated privileges, and ecological devastation (Arora & Stirling, 2023). Currently, the globalized industrial food system forms the crux of many issues spanning health, poverty, climate change, biocultural diversity, and development (Juri, 2023). Within food systems, supposed advancements in agricultural yields have come at steep ecological, social, and cultural costs, alongside impoverished notions of "balanced diet" as opposed to wholesome nutrition. As a result of the yield-focussed monocultures of industrial agriculture practices, over seventy-five per cent of our food is obtained from just twelve plants and five animal species (Montenegro de Wit, 2016). In terms of collateral damage, nearly ninety per cent of edible crop varieties have disappeared from cultivation, with disastrous impacts on soil, water, and energy consumption (Shiva, 2016). Corporate interests and technology-driven institutional arrangements have promoted monocultural production and standardized consumption under the guise of food security. However, ironically, the policies and incentives used to ramp up the production of select grains and cereals have adversely affected the cultivation of mixed crops, oilseeds, and fruits as well as the rearing of livestock, which would usually comprise a farming system (Kumar, 2023).

The resulting skewed nutritional basket is evident in the rise of diseases such as malnutrition, vitamin deficiencies, obesity, diabetes, and other ailments, despite the supposed abundance of food. The compromised resilience of food systems combined with environmental degradation and disruption of labour dependent on the availability of local natural resources have given rise to unprecedented numbers of forced displacements and migrations (Bhatta et al., 2015). Reinforcing the inseparability of social and environmental justice, numerous studies show correlations between adverse environmental change and an escalation of civil wars and violent conflicts (e.g., Brzoska & Fröhlich, 2016). With increasing precariousness of local livelihoods, rural and marginalised populations find themselves making risky migrations to urban spaces or foreign nations in hopes of securing a better future. Globally, it is estimated that 117.3 million people were forcibly displaced due to persecution, conflict, violence, and human rights violations by the end of 2023 (UNHCR, 2024). Canada has historically led efforts for refugee resettlement, as seen by the influx of over one million refugee status immigrants since 1980 (UNHCR, n.d.). Yet the picture of "resettlement" is not a straightforward, unidirectional assimilative process. Rather, the migrant journey is complex and full of micro-level negotiations, as seen in migrant farmworker resistance (Cohen & Hjalmarson, 2020).

During the COVID-19 pandemic, community gardens and urban farms served as one of the few places where people could safely gather, socialize, and increase their capability to grow food—yet access to spaces for food sovereignty and cultivation of plants and trees is not equally distributed (González-Marín & Garrido-Cumbrera, 2024). In urban areas with high percentages of immigrants and refugees of colour, there are a limited number of community gardens and urban farms (Milbourne, 2012). Community gardens/farming are also known to foster a sense of community wellbeing (Dutta & Chandrasekharan, 2018; Hale et al., 2011; Tracey et al., 2020), and therefore accessibility to such spaces matters for social health. This inequity also constrains fostering land-based reciprocal relationships with the soil, which are intimately connected to our collective climate actions (Takeuchi et al., 2021).

Fully accounting for this complexity of migration and resettlement in the context of

sustainable and just food systems forms a crucial component in addressing socio-ecological crises and their ramifications that we face today. In their present forms, food ecologies are a powerful manifestation of exploitative interconnections under the dominant regime of capitalist techno-scientific practices. However, authentic engagement with food-growing practices also offers ways of reimagining relationships with the land and its inhabitants.

## Diversity and intimacy as intentional trajectories for learning together

The authors built on pre-existing and emerging friendships and professional collaborations to create an inviting atmosphere for intentional sharing based on mutual trust (Jackson et al., 2020). In preparing for the symposium, we held two community dinners and participated in a community event centering Indigenous ways of knowing. These gatherings were not merely social occasions but were intentionally designed to serve as welcoming spaces to nurture interpersonal and epistemic connections. Sharing meals

together provided an informal yet structured way to engage in conversations that might not have emerged in more traditional academic or professional settings. The authors later reflected that this intentional process of coming together played an important part in creating a circle of trust and an intimate, respectful presence focussed on listening to each other and forming a sense of community among people whose professional and personal identities are diverse. This methodological approach underscored the significance of emotional and relational engagement in collective learning.

The symposium generated a space for Liana Wolf Leg to pose deeply reflective and consequential questions that became an invitation for each speaker to think about their role and vision during the symposium. She asked,

> *Close your eyes.*
> *When you think of "home/homeland," what do you picture? Where is your home? Where do you come from? Where are your roots?*
> *Think of how it smells, how it feels. Think of your own community.*
> *Can you smell or feel the dirt? Can you see what plants are growing?*
> *What plant would you plant bring, as you "settle" in Canada?*
>
> *While you are picturing that, I have to mention that this is my home. This is Treaty seven territory. Our home is not lush. It is not green; it is not viny. It does not have big trees. It has a desert type feel. It has poky things.*
>
> *Now, how do you imagine your plants fitting in? How would you let the plant grow in ways THIS HOME (that Liana, her ancestors, her communities, her children and native More-Than-Humans call home) can coexist with your plants?*
> *How do we ensure that my past is honoured, and your home is recognised? How do we work towards a future and make sure that we are both okay?*
>
> *In what ways we can honour the past while building a respectful future?*

The reflections shared by each author in response to Liana's questions, as rooted in their personal and professional engagements, are detailed below. Specifically, each author drew on their histories, experiences, and motivations to articulate a specific way to engage with Liana's inquiry.

## Food justice is more than food access

Chantal's work is focussed on environmental education and food security initiatives that connect people to place. While community building, she has witnessed that people's experience of home is related to their connection with people, in place, and that a sense of belonging can be nurtured when knowledge and stories are shared. Through her work, she has keenly observed how the ways we perceive, interact, and engage with food can change the ways we connect to place and the people who call this land home. Through the TIES GROW projects in which Chantal was involved (see https://www.immigrant-education.ca/see-the-

research/growing-with-newcomers), seniors and newcomers learned more about this land and their home here in Canada through the practice of growing their own food, by attending skill building workshops, and by participating in a community of learning focussed on this local region.

Through informal conversations, they identified barriers to feelings of home, one being inadequate access to culturally-appropriate foods. Food access was identified as an important factor in creating a connection to a new home and homeland. But food access was not always consistent, and budgets were strained by inflation, resulting in dietary compromises. These insightful moments built an understanding of the deeper impacts food insecurity has on low-income, racialized, and marginalized people. Food is both sustenance and essential to survival, but cultural foods are representative of personal identity, historical memories, family relationships, religious practices, and community connection. The provision of culturally-appropriate food is a provision of dignified food access.

Reflecting on Liana's question, Chantal wonders if universal dignified food access could be a catalyst for a wider systems change. Can food be a catalyst to belonging, and true belonging the catalyst of transformative food systems change? If people who experience food insecurity were no longer victims of ineffective, siloed systems, would they feel deeper belonging, greater agency in their communities, and become agents of change? Chantal firmly believes that food connects people to the land, nurtures feelings of home, and feeds a sense of belonging. She sees the practice of inclusion as a way people can find a sense of community support that invites them to set down roots and grow into a deeper connection of belonging to this land.

## Fermentation as a practice and a philosophy

Syma Habib's work is motivated by the idea of gesturing decolonial futures, a constellation of practices and ideas popularized by Vanessa de Oliveira Andreotti (2021) in her book *Hospicing modernity*. De Oliveira (2021) explains that we exist in a system that is currently dying, and what we are seeing is the consequence of a dying system that came to the land, colonized it, and continues to extract resources violently from the Global South. The work of healing entails divesting from systems of oppression and extraction and allowing older practices to die in a good way so that newer systems can emerge. Syma was especially drawn to de Oliverira's (2021) call regarding "composting" and "fermenting" ourselves with humility, joy, generosity, and compassion as she observed the nearly universal practice of fermentation among different cultures. Be it kimchi, wine, cheese, beer, kvass, or pickle, food has been preserved and cultured in diverse ways. These observations and ideas prompted Syma to start a Cultures Club. The space has played a critical role in understanding the processes that can support a transformative relationship with food and food systems. Fermentation has taught Syma that moving away from extractive relationships will entail forming new ones with other species, especially the microbial world. The flavour and nutritive value of fermented foods are a direct result of the time taken by bacteria to work on the food. Being aware of these processes shows the violence we do to our bodies and, by extension, the land when we value faster, bigger, or more efficient mechanisms.

## Racialized (lack of) access to green spaces

As a white teacher, Sonder Edworthy is acutely aware of the damage and destruction done by their white settler ancestors, as well as the ways in which violence continues against Indigenous peoples, communities, and ways of life. Yet the sense of responsibility does not diminish the love for the place. As someone born in Calgary, the thought of home conjures up visions of poplar trees, saskatoon berries, prairie crocus and grasses, magpies, coyotes, gophers—a sense of gratitude pervades the relationship they have with the beings and the lands they share. Yet in their many years of teaching, Sonder feels that the relationship is not a given, because access to natural places is not equal across schools in Calgary. While teaching at a school in Calgary North East, Sonder observed that a barren field was the only outdoor space available to the children, who made full use of it through play. However, rich sensory experiences of a more diverse, natural landscape were missing. In contrast, students at schools in Calgary South West are able to visit the mountain parks, go camping and hiking with their families frequently, and also spend time in nearby Fish Creek park, one of the largest natural urban parks. They have access to natural areas and are able to connect with the land both outside of school and in their school yard.

Opportunities to connect with nature are shown to improve mental health and wellbeing among children and youth (McCormick, 2017). Statistics from studies in the US and UK show inequitable access to natural spaces for low-income neighbourhoods, and it is well documented that more immigrant and refugee families live in low-income neighbourhoods due to socioeconomic barriers and other factors (Sun et al., 2022). This means that immigrant and refugee children and youth are less likely to access the benefits of interacting with natural spaces. Ironically, immigrant and refugee children and youth are at greater risk of having experienced trauma and are more vulnerable to discrimination and negative mental health outcomes. Sonder thus feels that sustained and open access to natural spaces and associated activities form a crucial dimension of environmental and social justice as well. Forging more intentional connections with the land can develop a sense of belonging. These connections should be equally accessible for everyone.

## Creating spaces for "decolonial love and learning"

As a researcher of how people learn, Miwa's response to Liana's question recognizes the need to first learn more from, and listen more to, the wisdom and teachings of Indigenous Peoples who have been stewarding the land for millennia. Dr. Linda Tuhiwai Smith (2021) said: "The word itself, "research" is probably one of the dirtiest words in the Indigenous world's vocabulary. The word research stirs up silence, it conjures up bad memories, and it raises a smile that is knowing and distrustful" (p. 1). When undertaking research, Miwa keeps asking herself how we can acknowledge and reorient colonial history using research toward decolonial, liberating, and generative "re-search" efforts. This is an ongoing commitment as, each day, Miwa reflects on how to be a better human and bring the learning into her researcher identity. A central question driving her work asks, "What kinds of portrayal can we depict if we dismantle colonial imaginaries of STEM

education and instead center decolonial love—love that resists the nature-culture or nature-society divide, love to know our responsibilities and enact them in ways that give back, love that does not neglect historical oppression and violence yet carries us through?"(Takeuchi & Marin, 2022, p.1)

As a project, Soil Camp centers humility through being aware of the exploitative power of knowledge. The activities try to embrace researcher identities of co-learners and learning from the land, from the soil, and from peoples who have been residing on this land since time immemorial (Steeves, 2021). To this effort, facilitators and researchers walk together on the land with children who used to be intimately connected to the land prior to migration. Children's interactions through photos and videos illustrate them talking to and learning with flowers, butterflies, bees, birds, prairie dogs, earthworms, soil, fellow humans, and mushrooms. At the core of Miwa's work in Soil Camp, she sees the necessity of fundamentally unsettling Eurocentric and anthropocentric ways of knowing and being that promote overconsumption, egoism, and human superiority (de Oliveira, 2021; Kimmerer, 2013; Takeuchi et al., 2024). Learning with children who were forced to be the target of militarism, she emphasizes the necessity of shifting colonial ways of knowing and being toward more humble, less controlling, and more healing-centered ways of knowing and being. Reflecting on the history of research being used as a tool of colonization, Miwa hopes to continue to commit to creating a space where their ongoing re-search can contribute to our maturity as humans, to our collective learning from more-than-humans, and to our learning from community wisdom and knowledge that have historically been obscured in knowledge-production systems such as academia.

## Making space for pluralistic voices through unsettling colonial knowledge

Sophia's maternal and paternal grandparents came to Turtle Island from Lebanon in hopes of greater possibilities for their future children. In her dreams, Sophia can visualise the red soils of her homeland in Lebanon, surrounded by towering pine nut trees and olive, fig, and grape orchards. The image of these sacred lands is tinted with pain due to the current settler-colonial-driven destruction of ecosystems occurring in both Lebanon and Palestine. The land stewarded by her ancestors for generations is now under threat, with threads of solidarity. Sophia feels fortunate to see her family make a home on the lands stewarded for generations by the Blackfoot people, bestowing upon it love for the soil and everything it allows them to grow.

At Soil Camp, Sophia observes how narratives of linguistic perfection and monolingual hegemony are challenged through free-flowing multi-lingual interactions. There is languaging across languages—Kurdish, Arabic, English, Blackfoot—voices that sound and feel like her home, not just for the sharing of languages in her heart, but waves of speaking across the boundaries of languages that are not bound by dominant English linguistic norms (Thraya et al., 2023). Sophia recognizes the significance of these interactions, because it was something she missed both as a student while growing up and later as a teacher in formal educational settings.

Sophia sees language as far from sociopolitically neutral, and she believes that to ignore the history and coloniality associated with language would be a disservice to collective possibilities for learning and reconnection. The linguistic design work she leads

alongside the collective at Soil Camp is not focussed on English language learning—but rather seeks to fundamentally unsettle the ways we see language, not only in terms of possibilities for learning but also toward reconnection and rebuilding relation with land and more-than-humans and as a community growing together toward eco-social justice.

## Encouraging creative expressions of evolving relationships

When Anita visualized Liana's evocative inquiry of what "home" is, the processes of creation and art making immediately came to mind. Conceptualizing, imagining, and constructing ideas of what home is, for both humans and more-than-humans, through the lens of soil pedagogy grounded Anita's approach as an educator. She facilitated an investigative, mindful, and deeply reflective process of creating soil pigments which immersed the participants at Soil Camp in the world of soil, propelling curiosity and comprehension of why soil is essential for plant life, food security, regeneration, and biodiversity. As an effective study of environmental art, soil painting blends social practice with critical ecological awareness through multimodality to elevate contemporary challenges plaguing our earth. This distinctive exercise of mural making depicted the emancipatory power of the arts through a resonant sense of belonging to the community, further establishing a foundation to expand ideas of earth-centered healing through semiotic expression, democratized learning, embodied communication, and affirmation of identity.

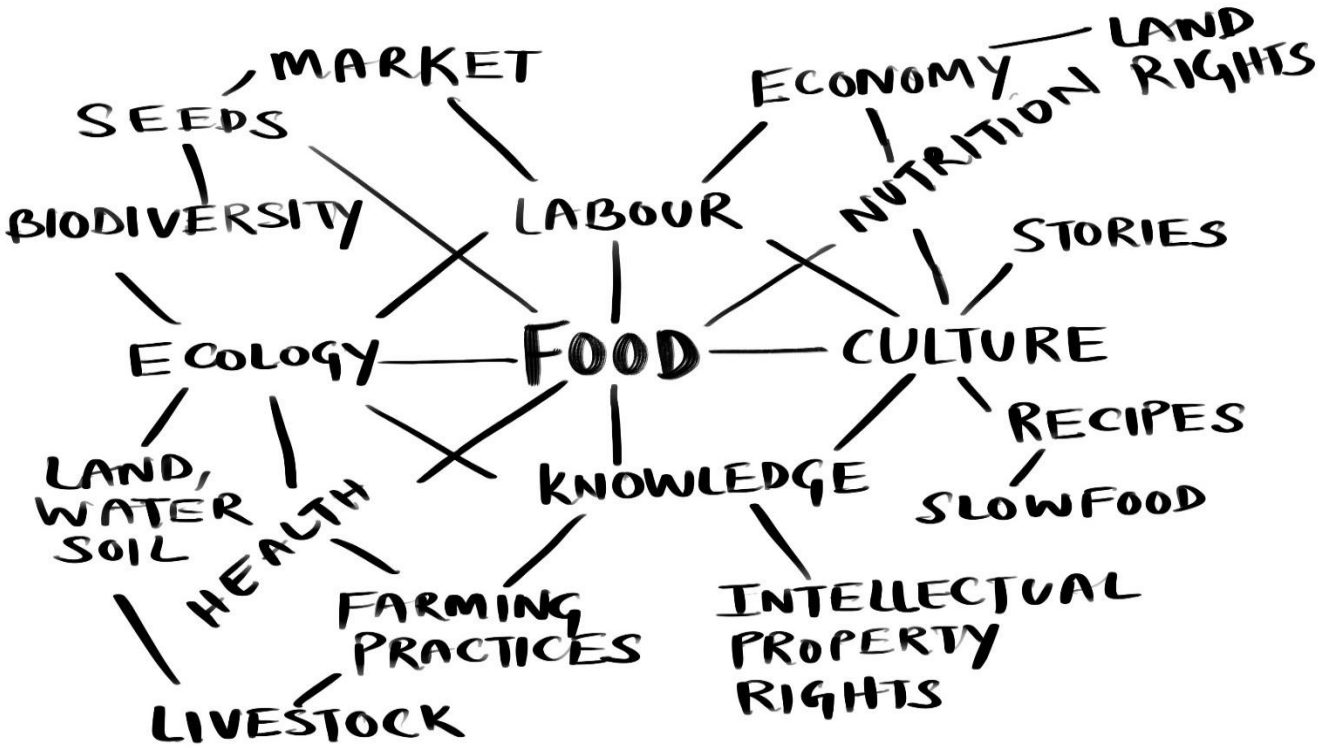
## Diversifying public knowledge through libraries

Anika's experience and involvement in Soil Camp since Summer 2020 generated compelling conversations around generational wisdoms and cultural practices, beliefs, and attitudes around food as they gathered and shared ideas and stories as a community over food, from growing food to sharing cooked meals at the Land of Dreams together. As a library educator, she realised how public libraries play a big role in bridging gaps in information by sharing a wealth of resources related to a plethora of often complex topics that were discussed at Soil Camp. These thoughts led her to curate resources for a wide variety of audiences that can be easily accessed at the Calgary Public library and reflect them on the Soil Camp website. In particular, she found children's literature to be powerful in bridging these gaps by inspiring, educating, and engaging readers of all ages in a deeper understanding of the lived experiences of different people, families, and communities. At Soil Camp, listening to stories during read aloud sessions and seeing children exploring the books on their own opened the door to insightful dialogue and inquiry. Anika found that there are many ways the books inspired deeper thinking and transformative learning in the children that led to questions, discussions, and making connections that encouraged them to be active participants in their learning journey.

## Amplifying learning alliances focussed on food and social justice

The need to renegotiate our relationship with the natural world has been made evident in a multitude of ways. The impacts of an extractive relationship built on notions of narrow parameters of efficiency, control, and one-sided profit have been crumbling for many years now (Date et al., 2021), with the pandemic only bringing social and ecological fault lines into sharp relief. Dismantling the oppressive systems that continue to exist due to exploitation of labour, associated displacement, and plundering of habitats is not a matter of technological advances unless there is a fundamental shift in the collective values driving ideas of flourishing. What does it mean to live well? Etymologically, "ecology" means "knowledge of the home." In that sense, Liana's question about treating the land and its inhabitants respectfully is really a question about being ecologically responsible. As a process and an artifact, food coalesces the various aspects of nature and culture that people experience in multiple forms every day. As depicted in Figure 1, food narratives are connected with various domains such as ecology, culture, economy, and knowledge; these manifest in biodiversity, farming practices, nutrition, land rights, and intellectual property, illustrating the complex relationships that shape food systems. Even its absence speaks volumes in terms of inequitable access and food apartheid (Sbicca, 2012). An emphasis on thinking along the possibilities of sustainable food systems entails acknowledging the diverse creatures and relationships that constitute them, including nutritional security, environmental stability, and socio-cultural wellbeing.

Figure 1: Food existing in a web of ever-growing relationships. Image by Deborah Dutta.



The collaboration sought by the authors points to the significance of developing learning alliances to engage with the myriad dimensions of food and social justice through inviting academic and community-grounded perspectives. Through situating their lived experiences and visions for equitable wellbeing, the authors actively exchanged ideas and shared approaches to characterize what sustainable relationships with the land meant to them. Sharing of food brought forth their connections and differences, while orienting them to the gratitude toward given food and to the urgency to address food injustices. As a methodology of building a learning alliance, these intentional ways of being together resisted the limitations imposed by purely academic discussions that tend to be a gatekeeping mechanism, while abstracting knowledge and neglecting its relational significance. A live sketch of the symposium presentation by artist and researcher Shima Dadkhahfard is an example of the creative collaborations that become possible beyond academic communications. As shown in Figure 2, she interpreted the concept of food justice by linking climate action to the four elements—earth, air, water, and fire. Based on the talks, she highlighted community-based research, Indigenous knowledge, and the interconnectedness of land, food systems, and inclusion in environmental stewardship. Yunkaporta (2019) argues that sustainable processes and values can only emerge through deep relationships between people and the land. Calling it "kinship-mind" (Yunkaporta, 2019, p.148), he explains that Indigenous worldviews hold relationships on par with knowledge transmission. He writes, "in our world nothing can be known to even exist unless it is in relation to other things. Critically, things that are connected are less important than the forces of connection between them....When knowledge is patterned within these forces of connection, it is sustainable over deep time" (Yunkaporta, 2019, p.149). Forging equitable, sustainable practices and knowledge entailed iterative rounds of reflection, attention, and sharing in ways that continue to enrich their respective lives.

Figure 2: A live sketch of the symposium presentation by artist and researcher Shima Dadkhahfard (@aaaart_gallery)


Chantal and Sonder connected spatial topographies with environmental injustice. For Chantal, her careful observations of senior immigrant experiences revealed to her that the barriers to food access were clearly barriers to food justice. Upon reflection on these meaningful interactions, Chantal concluded that food justice is not just about universal food access or those who participate in food systems, but also seeks to liberate people through cultures of equitable inclusion_ cultures that invite, include, interconnect, and inspire movement. Creating diverse pathways of participation is crucial to understand that, without food access equity, personal dignity is compromised, a place cannot be fully experienced, and home cannot be fully felt. Sonder's approach recognizes the long-term impacts of inequitable access to natural spaces, and acknowledges that the design of schools must account for exposure to green areas for mental and physical wellbeing. They see access as a critical first step towards building a sense of belonging and care for the natural world, which otherwise remains a distant abstraction for a majority of children who would ironically benefit the most from immersion in such spaces.

Both Syma and Miwa's efforts are directed at developing sensibilities that can challenge anthropocentric views and embrace relational reciprocity. Syma's work is an invitation to think about how practices like fermentation can help us attend to more collaborative, multi-species work while disengaging from unsustainable systems of exploitative

transactions. As explorations of the human microbiome are pushing us to rethink conventional understandings of human biology and cognition, more humble interactions with the environment around us could help us get rid of notions of human exceptionalism and instead recognise the fundamentally enmeshed realities of our existence alongside microbes (Hey & Ketchum, 2018). Miwa leads Soil Camp with a continuous effort to push the re-search process of learning, listening to the voice of the soil, and nurturing relationships with the soil (Swallow et al., 2023). Together with collaborators, the project critically questions Eurocentric ways of knowing and being that have long assumed the dichotomy of human and nonhumans as well as human superiority over nonhumans (Simpson, 2017; TallBear, 2017). The relationships between humans and nonhumans or indeed more-than-humans are tangled and interconnected, and the superiority of humans cannot be assumed.

Sophia, Anita, and Anika reflected on their own diasporic experiences to create thoughtful educational engagements with the land. Drawing on her own educational experience, Sophia was able to design practices at Soil Camp to deliberately challenge the hierarchy of monolingual expressions and encourage children's multilingual identities and intergenerational knowledge systems embedded in different languages. Through a focus on promoting children-led activities and spontaneous opportunities for (re)connection, the design made space for listening to the evolving relationships and sense of belonging these children developed with each other, plants, and other creatures in the soil and on the land (Thraya et al., 2023). As an arts educator and social entrepreneur, Anita drew on her own experiences of thinking about home to use soil from different sites in Calgary as a medium of expression and inquiry. As children explored the properties of soil and used it to draw freely, their engagement transcended the seemingly neat categorization of soil types and instead pushed toward more personal questions about their relationship with soil (Chowdhury et al., 2023). Anika drew on conversations with immigrant families to better understand the generational wisdom and knowledge around food and farming. Her interactions helped her appreciate the diversity of stories, narratives, and memories held dear by members of the community, and how these could be reflected in inclusive exposure to picture books in different languages. As a library educator, Anika understands the power of representation and strives to expand library collections to include diverse histories and empowering stories.

With a focus on food justice dialogues, the perspectives presented provide visions for possible collaborations while also acknowledging the social structures that enable or constrain emancipatory forms of inquiry. Together, these ideas and initiatives do not present finished thoughts or polished arguments. Instead, they offer an invitation to seek (re)connections and develop inclusive avenues for learning that embrace the interdependence of human-nature wellbeing.

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school systems and her previous experiences as a manager of Indigenous Engagement and Youth Outreach to this work. As a mother, she is an advocate for disability justices and inclusive education.

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Field Report

# Fostering innovation in Arctic food industries

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## Abstract

This Field Report describes the stages in the development of the Arctic Food Innovation Cluster (AFIC). Motivation for AFIC arose during research supported by the Arctic Council's Sustainable Development Working Group, which found the development of Arctic food industries was constrained by a general absence of innovation in primary and secondary product development. Through a series of iterative stages—scoping, consultations, design—a vision for AFIC emerged. This involved the establishment of a central AFIC hub that would promote strategic coordination, direction, and knowledge mobilization between stakeholders. The High North Centre (HNC) for Business and Governance at Nord University in Norway has assumed this central role and will guide the development of the AFIC initiative. The AFIC strategy assumes development of a network of regional pan-Arctic food hubs that will serve as aggregation points for knowledge sharing and strengthening the interconnectivity between local food producers and other value chain actors in the Arctic food system. Ultimately, the goal of AFIC and its associated regional hubs is to help instill a sense of pride, empowerment, health, and wellbeing in Arctic communities through the sustainable development of Arctic food industries.

Keywords: Arctic; cluster; food systems; Indigenous; innovation; policy; regional hubs; value chain

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## Résumé

Ce rapport de terrain décrit les étapes du développement de l'Arctic Food Innovation Cluster (AFIC), un pôle d'innovation alimentaire pour l'Arctique. L'idée de créer l'AFIC est née lors d'une étude menée par le Groupe de travail sur le développement durable du Conseil de l'Arctique, qui a constaté que le développement des industries alimentaires de l'Arctique était limité par un manque général d'innovation dans la conception des produits primaires et secondaires. À travers une série d'étapes itératives (définition du champ d'application, consultations, conception), une vision pour l'AFIC a émergé. Il s'agissait de créer un centre AFIC qui favoriserait la coordination stratégique, l'orientation et la mobilisation des connaissances entre les parties prenantes. Le High North Center (HNC) pour les affaires et la gouvernance de l'Université Nord en Norvège a assumé ce rôle central et guidera le développement du projet AFIC. La stratégie de l'AFIC prévoit la création d'un réseau de centres alimentaires régionaux panarctiques qui serviront de points de convergence pour le partage des connaissances et le renforcement de l'interconnectivité entre les producteurs alimentaires locaux et les autres acteurs de la chaîne de valeur dans le système alimentaire arctique. En fin de compte, l'objectif de l'AFIC et de ses centres régionaux associés est de contribuer à instiller un sentiment de fierté, d'autonomie, de santé et de bien-être dans les communautés arctiques grâce au développement durable de leurs industries alimentaires.

## Introduction

In 2016, the Arctic Council's Sustainable Development Working Group (SDWG) endorsed the Arctic as a Food Producing Region research program. Involving research teams from Canada, Norway, Finland, and Russia, the objective of the project was to assess the potential for increased production and added value of foods originating from the Arctic, with the overarching aim of improving food security, while enhancing the social and economic conditions of Arctic communities. The results of that research confirmed that there are considerable opportunities for commercial food production in the Arctic (Lorentzen et al., 2025). Food industries are producing large volumes of food commodities in the region that are culturally compatible with Indigenous and local food preferences and have high export value.

Although the Arctic was recognized as an important food-producing region, there was a shared sense that the Arctic was not meeting its full potential, either in terms of satisfying local food needs or for maximizing domestic or international export opportunities. The underperformance of Arctic food industries was attributed to a plethora of social, economic, climatic, and logistical constraints, including a lack of necessary infrastructure, fragmented supply chains, limited access to a skilled workforce, absence of innovation in product development, and tenuous access to, and knowledge of, domestic markets and consumer preferences (Natcher et al., 2021). While these challenges are experienced unevenly across the Arctic regions, Arctic food industries tend to be fragmented with poorly developed connections and communication streams. These conditions have in part led to a general overreliance on raw food exports and limited innovation in primary and secondary product development.

Based on these findings, the SDWG endorsed a follow-up study that would examine the opportunities for establishing an Arctic Foods Innovation Cluster (AFIC). The objective was to explore opportunities for AFIC to serve as an international hub that could connect northern entrepreneurs, southern-based investors, research centers, businesses, and bio-technology developers working in Arctic food industries. The intention for AFIC would be to pull together relevant actors in the Arctic foods value chain for a cluster-based approach to food production and regional economic development. While a range of definitions can be found (see Table 1), we adopted Engel and del-Palacio's (2009) definition of Innovation Cluster as inter-connected firms and institutions working in a common industry. They involve the creation of collaborative and dynamic relationships between various players around common goals, innovative ideas, knowledge sharing, public and private investment. Conceptualized in this way, AFIC could potentially foster a collaborative and multi-sectoral effort aimed at promoting synergistic value and innovation in the Arctic food system. To this end, we set out to engage Arctic food producers, governments, Indigenous communities, universities, research centers, vocational training providers and industry association, with an aim to improve the competitiveness of Arctic food industries through product and institutional innovations. Our objective was to explore the institutional requirements for food systems innovation that avoid redundancies and are complementary to other industry clusters, government programs, and research initiatives. In this Field Report, we describe the procedures that were followed in the development, design, and implementation of AFIC. This includes input from community members on the essential elements that an innovation cluster should have to ensure local relevance.

Table 1: Typology of Cluster Models

| Types of cluster models | Definition |
|---|---|
| Modified | leveraging social catalysts (well-connected individuals who bridge unconnected parts of the network) to provide alternative funding mechanisms beyond conventional private financing |
| Orthodox | geographically concentrated economic activity in related sectors. Characterised by high incidences of traded and untraded economic interdependencies; workforce development, infrastructure investment plan, and better alignment of science, research and industry are required to achieve chosen outcomes |
| Social Enterprise | community-based businesses working to achieve a specific social, cultural and/or environmental purpose by selling goods and/or services, with profits being reinvested to maximize their social mission |
| Traditional | strictly based on market factors and private financing; dependent upon developed infrastructure, accessible labour markets and established markets for outputs |

Sources: Laurence et al. 2019, pp:12, 25; Watts & Jones 2021, p. 51.

## Methodology

The first stage of our research involved the completion of two independent assessments. Each assessment engaged Arctic residents, food industry leaders, government representatives, and others involved in the Arctic foods value chain. Insights were also sought from those with experience in innovation and the administration of industry clusters.

The first of these assessments was conducted by Fellows of the Action Canada program (Laurence et al., 2019). Action Canada is an independent, non-partisan and non-profit organization based in Ontario, Canada. The Action Canada Fellowship (ACF) program aims to enhance emerging leaders' understanding of public policy choices for the future. In this case, the ACF examined the constraints and opportunities associated with the development of the AFIC. Specifically, the ACF conducted interviews with thirty key informants from northern Canada—an area that includes Yukon, Northwest Territories, Nunavut, Nunavik, and Labrador—and explored how a cluster-based approach to food innovation could improve access to affordable, culturally compatible, and healthy foods. The interviews explored where innovations could or should be made to improve the commercial food sector. This includes new product development (e.g., seaweed), processing methods (e.g., full utilization of harvested fish), changes in existing value chains (e.g., north to north distribution), and the fostering roles of government and the private sector.

The second assessment was completed by the SEFARI Gateway Fellowship (SGF) program, based in Scotland. The SGF was set up to identify potential opportunities to engage actors in the food and drink sectors in the Arctic region. Their final report, entitled *Food and Drink Innovation and Clustering in Scotland's Highlands and Islands: Review of opportunities for engagement in the Arctic Region* (Watts & Jones, 2021), includes a review of the requirements for an AFIC, potential alignment with the Scottish Highlands and Islands food and drink sectors, and areas of research that can advance innovations in Scottish and Arctic food industries.

Guided by these assessments, interviews were then conducted with key industry and community informants. Industry experts and knowledge holders from northern Canada were invited to share their views and thoughts about the current state of the Arctic food system, and where innovations were needed for improvement. This includes their opinions on how a cluster-based approach to food innovation could be designed that accounts for the varying conditions of the Arctic, while advancing the values and priorities of Arctic communities. Interviews covered the economic, environmental, and sociocultural dimensions of food innovation. The economic theme investigated issues such as market access, certification, communication, logistical limitations, regulatory constraints, infrastructure, and the scalability of innovative technologies. This also included discussions on food-related entrepreneurship, local education, training, and employment, and opportunities for food tourism. The environmental theme focussed on understanding the biophysical and environmental constraints that can hamper food innovation, including strategies to reduce the carbon footprint of existing and new food industries (Oveisi et al., 2025). The sociocultural theme explored food culture and the potential tensions between commercial and traditional food production. The formative role of traditional ecological knowledge was discussed, particularly in relation to traditional systems of food production and storage. Several community members stressed that innovation does not

necessarily need to be something new but rather can be based on the food traditions that have long sustained Arctic peoples. Together, these insights were recorded to better understand how AFIC might advance the dual objective of local and regional economic development, while supporting the food security and sovereignty of Arctic peoples.

## Results

The ACF assessment identified three principal factors that were constraining innovation in the Arctic's commercial food sector. The first was financing, as the accessibility of public and private financing has challenged the abilities of northern food industries to expand existing food chains and introduce innovations in product development. The lack of financing and associated capital investments have in effect undermined opportunities for added value to Arctic products, resulting in most food production being exported in raw form. The second was human capacity, as there are limited human resources available to facilitate industry expansion, particularly in small and remote communities where trained and skilled workforces may be lacking. The third factor was geographic, and includes infrastructure, transportation, and distribution capacity that is lacking in many Arctic regions. While the challenges are significant, the ACF assessment also noted several strengths, including the existence of strong community and social capital, specialized local knowledge and rich food culture, and the market potential for Arctic and Indigenous inspired food products (Laurence et al., 2019).

Based on their review, the ACF concluded that a traditional cluster, based strictly on market expansion may not be the most suitable model for the Arctic. Rather, ACF suggested that the AFIC should extend beyond the confines of the commercial food sector and incorporate other community enterprises that are constrained by many of the same challenges, such as those limiting tourism development and other local entrepreneurial opportunities. By broadening the scope of AFIC, it may be better positioned to leverage other funding opportunities to help overcome the financial limitations that constrain food innovation. This would also facilitate investments in local infrastructure that would have spillover benefits for the delivery of other community services. Serving in this broader capacity, AFIC could induce spillover benefits that generate wider social and economic benefits for communities. In this regard, ACF recommended that AFIC be modelled as a social enterprise, where economic, social, cultural, and environmental benefits are given equal consideration.

The SGF assessment reached many of the same conclusions, most notably that AFIC should avoid a singular focus on primary food production, which is often driven by volume at the expense of other socioeconomic benefits. Rather, the SGF assessment recommended a broader and more inclusive conceptualization of Arctic foods innovation, where multiple and synergistic benefits are gained (Watts & Jones, 2021). To best maximize its impact, it will be important for AFIC to broaden its focus from strictly economic innovations to include support for social and cultural development. This should be achieved, in part, through dialogue, partnership-building, and a commitment to advancing the multidimensional interests and values of Arctic peoples. Being sensitive and responsive to the many factors that hamper food

system innovations, be they socioeconomic, cultural, or environmental in nature, AFIC will be better placed to deliver a broader set of benefits to Arctic communities.

The results of both external assessments where consistent with the findings from our own key informant interviews, where the nexus between economic, cultural, and environmental benefits were emphasized. For example, in the case of commercial fisheries, the objective should not be to simply increase production per se but rather to develop alternative and more sustainable processing strategies. Full utilization methods that maximize value was identified as a strategy to reduce waste, create new revenue streams, and minimize the environmental impact of commercial fisheries.

Acknowledging that opportunities for food production will differ by region, as does the cultural understandings of food innovation, there was consensus that improvements in the Arctic food system could be made through collaboration and a networked approach to problem solving. Knowledge sharing and technology transfer were flagged as critical factors for innovation, with AFIC being a potential catalyst. As a bridging organization, AFIC could overcome connectivity constraints (transportation, telecommunications), thereby scaling out new products and processing methods, which could be fostered through a more integrated value chain. These recommendations are consistent with the findings of Natcher et al., (2021) who emphasize the need for innovation in Arctic food systems, particularly in facilitating communication and supporting business incubation opportunities.

In addition to knowledge transfer, it was suggested that AFIC could assist in the conduct of market research and might even support joint research activities, such as international flagship projects that facilitate scalable innovations. This could include opportunities for product branding that would be used to distinguish Arctic foods in national and global markets. Arctic branding was identified as a priority by several participants who suggested AFIC could potentially administer a "Made in the Arctic" labelling system that could help establish a greater market presence for Arctic foods. The potential value of an Arctic labeling system is supported by consumer preference studies (Yang et al., 2020b). For example, compared to other places of origin, consumers place higher value on the features of Arctic origin and would choose to purchase wild and locally produced foods over other southern-based alternatives (Yang et al., 2020b). Consumers also report feeling the consumption of Arctic foods allows them to experience Indigenous cultures and tradition, while supporting the economic development of Indigenous and Arctic communities. Demand is growing for niche food products that are sustainable, authentic, and that have their own stories. As such, opportunities exist to expand niche markets for Arctic foods by highlighting their distinctive characteristics, such as the natural environment, Indigenous cultural and historical associations, and the potential to improve local economic conditions in northern regions. The attitudinal analysis conducted by Yang et al. (2020b) confirms these factors are important to consumers.

To instill consumer confidence in a "Made in the Arctic" brand, several participants suggested the need for certification standards that designate place of origin and authenticity. This too was considered a potential marketing advantage for Arctic products. The Arctic is a unique food-producing region with the potential for location-specific price premiums among consumers (Yang et al., 2020a). Certification standards that highlight the uniqueness of Arctic products that ensure authenticity and traceability has traction in the consumer market. An example is the labeling and

trademark systems developed by the Intertribal Agriculture Council (IAC) that certifies components of Native American biocultural heritage. The IAC began the process to develop and create the trademark in 1991, shortly after the passing of the Indian Arts and Crafts Act (Acts) of 1990 (P.L. 101-644). The development of the IAC trademark was formally approved in 1993 and is now used on over 500 products sold in the U.S. and around the world to signal to consumers the authenticity of American Indian produced goods (IAC, nd). The Aleut Council in Alaska is a member of the IAC and uses trademark labeling to designate food products produced from Alaskan Native Villages. It was suggested that AFIC could potentially devise and administer a similar branding and certification program for Arctic foods. Through a certified "Made in the Arctic" brand, Arctic food industries could secure market advantage. Table 2 shows different approaches to an Arctic branding scheme that might be considered.

Table 2: Branding Schemes

| | |
|---|---|
| Biocultural Heritage | Inter-linked traditional knowledge, biodiversity, landscapes, cultural and spiritual values and customary laws of Indigenous peoples and local communities. |
| Biocultural Heritage Indication | A graphical sign or label to indicate that a product or service is derived from biocultural heritage, guaranteeing its origins and authenticity. |
| Certification | Like labelling but entails third party attestation. |
| Geographical Indications (GIs) | Names link a product with a particular geographical area or territory and production process. Like trademarks, Geographical Indications are set up to protect intellectual property. |
| Intellectual Property Rights (IPRs) | Legal rights over inventions, artistic or literary works, distinctive marks, designs, place names and other practical expressions of mental outputs that have actual or potential commercial value. |
| Intellectual Property Rights-based Labelling Tool | Labelling schemes that seek to protect Intellectual Property Rights (e.g., Geographical Indications and Trademarks). |
| Labelling | Marks or logos offering guarantees to consumers but do not seek to protect Intellectual Property Rights, and do not necessarily entail third party attestation. |
| Trademarks | Similar in function to Geographical Indications, but link a product with a trade origin, which is likely to be a company rather than a place. |

Source: Adapted from Swiderska et al., 2016, p. 141.

## Design and implementation

With these findings, we set out to examine the requirements for designing and implementing AFIC. This included the development of strategies for knowledge transfer within and between Arctic food value chain stakeholders as well as opportunities to facilitate innovations within the Arctic food system. Various cluster models were assessed for appropriateness in the Arctic context, as well as the challenges and opportunities. Based on the finding of both assessments and our own key informant

interviews, the "social enterprise cluster model" was found to be the most appropriate given its equal commitment to the quadruple bottom line (economic, social, environmental and culture). The social enterprise approach to food innovation addresses several of the issues raised by participants, most notably the link between sustainable economic development and cultural well-being, where the goals and values of Indigenous peoples and Arctic communities are a foundational pillar. This necessarily includes opportunities for employment and developing workplace skills that can lead to new product development and processing strategies, while staying true to local culture and food traditions. Adopting a social enterprise approach was encouraged for AFIC to achieve local relevance, which will be necessary for sustainability over the long-term.

Concluding that the social enterprise approach to innovation was the most appropriate model to follow, a vision for AFIC and its implementation began to emerge. A critical requirement was to first establish a central hub that would promote strategic coordination, direction, and knowledge mobilization between stakeholders. To this end, the High North Center (HNC) at Nord University in Norway agreed to coordinate the first stage of AFIC implementation. The HNC for Business and Governance is an international center for research, education and communication, connected to societal and business development in the Arctic. Established in 2007, the HNC works closely with Arctic industries, government bodies, communities, and other stakeholders to develop knowledge, competence, and awareness about the potential for innovation and sustainable value creation in the Arctic. The HNC manages the Business Index North and is currently leading a new Thematic Network on Blue Economy and the Arctic. With this experience, the HNC has the institutional capacity to facilitate communication between communities, food industries, and governments, which will facilitate opportunities for collaborative problem solving.

While serving as AFIC's international hub, the HNC is setting out to connect northern entrepreneurs, southern-based investors, research centers, businesses, and biotechnology developers working in Arctic food industries. Building on existing networks, the HNC is planning to advance policy discussions and will offer a platform for Arctic food stakeholders to share experiences, lessons learned, and devise policy responses to food production challenges in Arctic communities. This includes identifying business models that will be required to ensure the continuation of the AFIC beyond its initial stage, including its future coordination with governmental and private sector initiatives. Ultimately, the AFIC will deepen the understanding of these dynamic conditions and build an evidence base for policy and development interventions that can support new innovations in Arctic food systems.

Once established (anticipated for winter 2025/2026), the identification of a regional food hubs will be initiated. Regional hubs will serve as aggregation points for knowledge sharing and strengthening the interconnectivity between local food producers and other value chain actors in their respective regions. This approach is not unlike the one used by the Icelandic Food and Biotech R&D (Matis), which has established food innovation centers at various locations in the country. Support from Matis regional innovation centers has been a successful strategy for small-scale product development, and in creating local and regional opportunities for market expansion. Like the objectives of Matis, AFIC hubs will be designed to support regional innovation in food sectors. For example, it was noted during several interviews with local and industry experts that access to financing is often the most

significant deterrent to innovation and business start-ups. With this need, regional hubs can assist entrepreneurs and small-scale enterprises in leveraging capital during their formative stages of development.

Other benefits of establishing regional hubs include the potential to support new distribution networks, for instance north-to-north distribution chains and regional food networks. This type of distribution model might rely on regional hubs that help provision other regional communities (spokes). Specific examples that were identified include Inuvik, Northwest Territories that could serve as a hub for the seven other communities in the Beaufort Delta Region or the community of Kuujjuaq that could service the other 13 communities in the Nunavik region in Canada. By regionalizing northern food networks, the distance between producers, retailers, and consumers would be significantly reduced, thereby lessoning reliance on long-distance value chains. This could also generate opportunities for local enterprises that would gain access to a large regional consumer base.

An important difference between AFIC and other innovation clusters will be the critical attention to social and cultural dimensions in Arctic community food systems. Several community participants noted that too often innovation is associated with new technologies that are introduced by external agencies, which may undermine local food culture. Residents of small and remote Arctic communities frequently engage in subsistence-based processing and sharing activities which may not represent their main source of income but have other equally important social and cultural benefits. Regional AFIC hubs will be better placed to support and not displace local traditions and institutions. This could be achieved, in part, by generating local employment opportunities and career pathways for young people. The involvement of young people in enterprise development will be a way to build employment opportunities via the creation of socially valued jobs in food-related sectors, which will offer viable alternatives for combating youth outmigration. Sustainable employment in food enterprises can provide a positive career option for young people who may otherwise move to urban areas seeking employment opportunities, where they may be exposed to social and welfare risks. In this way, regional hubs can offer important entrepreneurial and social support benefits to Arctic communities.

## Conclusion

This brief field report shares preliminary findings stemming from research supported by the Arctic Council's Sustainable Development Working Group, who recognized the opportunities and challenges in developing a more sustainable Arctic food system. With their endorsement, we set out to assess how a cluster-based approach to innovation could be applied to Arctic food sectors. This involved our engagement with industry experts, government officials, community knowledge-holders, and those with experience with other innovation clusters. Through these discussions we concluded that a social enterprise approach to innovation is most applicable to the conditions of the Arctic, where food systems are uniquely integrated into the economies and cultures of Arctic peoples. To advance this agenda, the High North Centre (HNC) was identified as having the capacity to assume this central role and the ability to guide the development of

AFIC. Through the administration of the AFIC central hub, the HNC will play a critical role in promoting strategic coordination, direction, and knowledge mobilization between stakeholders. This includes the establishment of regional AFIC hubs. These regional hubs will serve as aggregation points for knowledge transfer that strengthen the connectivity between local food producers and other value chain actors. While guided by common objectives—to promote synergistic value and innovation in Arctic food systems—regional hubs will have the necessary understanding, familiarity, and flexibility to respond to unique local and regional conditions. This will enable greater responsiveness to the needs of regional industries while accounting for the social, cultural, and economic priorities of communities. This regional understanding will allow AFIC hubs to then leverage existing programs and government initiatives that best support those shared objectives. Ultimately, the goal of AFIC and its associated regional hubs is to help instill a sense of pride, empowerment, health, and wellbeing in Arctic communities through innovations in Arctic food systems that are sustainable and socially valued.

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Book Review

# Eating Like a Mennonite: Food and Community Across Borders By Marlene Epp McGill-Queen's University Press, 2023; 304 pages

Reviewed by Aqeel Ihsan*

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Marlene Epp's *Eating Like a Mennonite: Food and Community Across Borders* is a compelling study of how food mediates cultural, religious, and communal identities. Drawing from personal reflection, Epp reorients the reader's attention from "what" Mennonites ate to what food meant for them throughout their migratory and diverse religious traditions. Epp, as a Mennonite herself, comes to understand that "Mennonite foodways reflected both a hybrid cuisine and a collective social memory that changed over time" (p. 15). Today, over two million Mennonites live across North America, Latin America, Africa, and Asia, shaped by centuries of migration, adaptation, and cultural exchange. Epp complicates the idea of a monolithic Mennonite cuisine and instead argues that food traditions among Mennonites are not fixed but are continually reshaped by historical experience and geographical context.

The book is organized into five chapters, each focussing on a different facet of Mennonite foodways. The opening chapter traces how Mennonite food practices evolved throughout their many migrations. Emerging in 16th-century Europe, Mennonites emphasized adult baptism, which saw them displaced and forced to migrate to protect their religious beliefs and practices. As they migrated across Europe and eventually to North America, Latin America, and beyond, Mennonites participated in food exchanges and their own culinary traditions adapted to local foodways. Epp and other scholars use the term "diaspora" to describe Mennonites because of how frequently they moved throughout their history, and how with each movement they tried to maintain some connection to a homeland. In the absence of a common language and other cultural features, food became the signpost of identity for them.

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Chapter Two focuses on the gendered dimensions of food preparation, emphasizing the historical role of women in preserving and transmitting Mennonite culinary knowledge. Epp argues that Mennonite food practices, and the very idea of what it meant to "eat like a Mennonite", have long been shaped by women. This chapter thoughtfully examines how Mennonite women have used food to shape their identities, respond to expectations, and assert their roles within family and community life. Moreover, cooking functioned as a marker of domestic skill, religious commitment, and communal responsibility. As such, the kitchen as a space could serve as a source of self-worth for some women, while evoking feelings of inadequacy for others.

In Chapter Three, Epp focuses on Mennonite cookbooks, which she argues serve as vital cultural artefacts that reflect community identity and the evolution of food practices. Early Mennonite recipes were shared orally or handwritten, but by the late 20th century, printed cookbooks became tools for cultural preservation, functioning as mediums of collective memory and markers of ethnocultural identity.

Chapter Four addresses the theme of food scarcity, which has been a persistent aspect of Mennonite history from the famines in the Soviet Union to food insecurity in early Canadian and American settlements. Epp treats hunger not only as a material reality but also as a component of collective memory. Stories of survival include resorting to eating cats, dogs, mice, and possibly other humans. Such stories serve as a collective cultural memory to remind Mennonites to be thankful in times of abundance. This chapter further highlights the gendered burden of food provisioning in Mennonite culture, as women were often responsible for ensuring family survival during times of crisis.

The final chapter examines the role of food in shaping religious and communal identity. For Mennonites, food practices are intimately tied to faith, particularly through rituals of gathering and sharing. Potlucks, church meals, and acts of charity were significant aspects of Mennonite culture for their communal aspect. Epp emphasizes that commensality, the act of eating together, reinforces group cohesion and harkened back to a transition where Anabaptists aimed to read and understand the Bible together as a collective because they were disconnected from the larger institution of the Church. Epp also highlights how Mennonite traditions of charity, especially in addressing food insecurity, are rooted in historical experiences of scarcity, and reinforce their collective commitment to community.

In arguing that there is no "single culinary category of Mennonite food" (p. 224), even if the term is widely used by both Mennonites and the broader public, Epp reflects on the broader significance of food to Mennonites. To "eat like a Mennonite" is not to eat a fixed set of dishes, but to engage in evolving practices shaped across historical and geographic contexts with the goal that food is prepared and shared not just for individual sustenance, but for the benefit of family, church, and community. To illustrate this diversity, Epp includes five recipes from Mennonites around the world—spring rolls, zwieback, tamales, prips, and anarsa—foods rooted in various cultures that have all become part of the Mennonite culinary landscape.

In sum, *Eating Like a Mennonite* is a highly accessible contribution to the field that speaks to a general readership. One of the book's key strengths is Epp's ability to weave personal reflection with scholarly analysis to tell a story about the diverse food tradition of over two million people. While rooted in Mennonite studies, its methodology and insights resonate far beyond, offering valuable perspectives for scholars of food studies, religious history, women's and gender studies, and diaspora communities. Although this book is about Mennonite foodways, it speaks to a general

audience because it encourages broader reflection on the relationship between food and identity. It raises questions relevant to any reader: Where do our food traditions come from? How are they passed down, adapted, or abandoned? What cultural values are embedded in what we eat, and how we prepare and share food? In doing so, the book makes a persuasive case for the value of food studies as a means of understanding the cultural and social life of any community and it is a welcome and important addition to the growing literature on food and identity.

**Aqeel Ihsan** is a PhD History Candidate at York University, specializing in migration and food history. His research interests focus on the South Asian diaspora currently residing in Canada. His doctoral research seeks to conduct a food history of Toronto by placing 'smelly cuisines' at the centre and chronologically tracing the history of the most prominent site where South Asian immigrants could purchase and consume South Asian foodstuffs, the Gerrard India Bazaar.

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Book Review

# Serving the Public: The Good Food Revolution in Schools, Hospitals, and Prisons
# By Kevin Morgan
# Manchester University Press, 2025; 284 pages

Reviewed by Jennifer Sumner*

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Kevin Morgan's latest book focuses on the duty of care regarding food served in public-sector settings, which is colloquially known as "the public plate". Morgan has been contributing to this vital area of food studies through his research and advocacy for many years and this book is the most recent outcome of that work. Its publication is particularly important for two interrelated reasons. First, in the age of personalized nutrition, Morgan reminds us that an individualized approach to food "fuels the neoliberal belief that access to a healthy diet is a personal and private matter at a time when it is more imperative than ever to affirm the public duty of care that governments owe their citizens, especially poor and vulnerable citizens" (p. 9). While it might be flattering to be handed a personalized nutrition program, bespoke diets will do nothing to change the food system that makes this an option.

Second, Morgan warns that we are facing a polycrisis – a situation in which multiple crises intersect and compound their effects: environmental crises (such as crop failures and water stress), human health crises (including the double burden of malnutrition in terms of undernutrition and hunger coexisting with overweight and diet-related non-communicable diseases), socio-economic crises (in terms of growing inequalities and widespread precarity) and geopolitical crises (escalating global tensions, including the recent threat of American tariffs). Food is deeply implicated in these crises and while there is growing consensus around solutions, he warns that formidable forces are

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arrayed against reform, which makes any sort of progress very slow.

Nevertheless, what Morgan calls "the good food revolution" is well underway. He describes good food as "food that is appetising, nutritious, culturally appropriate and sustainably produced" (p. 1). Sadly, such food is seldom available in public institutions such as schools, hospitals and prisons. Although pupils, patients and incarcerated individuals are very different populations, they share a commonality in that they are highly vulnerable people whose well-being depends on a nutritious diet. In these circumstances, Morgan sees food as an index of our capacity to care for ourselves and for others, whether they are closely related or not.

With this in mind, Morgan scrutinizes the public procurement of food. Overall, he finds that the "power of purchase" has been squandered by the neoliberal ethic of value for money, resulting in the lowest cost trumping palatability, healthfulness and sustainability. But when used wisely, the power of purchase can be leveraged to help fashion a fairer, healthier and more sustainable food system. The heart of the book is taken up by examples of the good food revolution, by which he means "the struggle—locally, nationally and globally—to create a fairer, healthier and more sustainable food system" (p. 17). Part of this struggle involves the fight to improve the quality of food served in three types of public institutions: schools, hospitals and prisons.

In terms of schools, Morgan focuses on two themes: the whole school approach that aims to align classroom pedagogy with food served in the dining room, and the campaign for free school meals. He explains, with numerous useful examples, how creating a school food system that is fair, healthy and sustainable has proven to be more challenging than reformers ever imagined, particularly because the complexity of the school food system was grossly underestimated. Emphasizing that sustainable school meals generate multiple dividends, he concludes with what he calls "landscapes of hope"—places that are trying to fashion sustainable school food systems in the real world—such as Malmö, Sweden, and the Universal Free School Meals movement in Scotland, Wales and some London boroughs.

With regard to hospitals, he notes that they are seen as sites for clinical treatment, not health promotion. As a result, food is a low-status afterthought. And yet, the double burden of malnutrition results in longer hospital stays and poor recovery rates, both of which are seldom factored into financial equations. In particular, he highlights what he calls the paradox of the hospital: trying to provide a clinical solution to a societal problem (i.e., diet-related diseases associated with the rapid growth of cheap, ultra-processed food). Notwithstanding these issues, he focuses on agents of change and local experiments, while warning that the real challenge lies not in attaining a standard of good food provisioning, but in retaining it in the face of personnel change and organizational upheaval.

He then moves on to prisons and the important role that food plays in the lives of incarcerated people. Here he focuses on two key themes: the carceral diet and the prospects for rehabilitation. The unhealthiness of the carceral diet has not changed for decades, in spite of research that has shown a positive relationship between an increase in nutrition and a decrease in antisocial behaviour. He also investigates the "gross food concoction" (p. 20) called the nutraloaf used in American prisons to discipline and punish prisoners. Morgan then assesses food as a vehicle for rehabilitation when he examines the food training program called the Clink. This UK charity "runs a network of gardens, kitchens and restaurants through which prisoners are trained within the prison and mentored afterwards in the community to find gainful employment, which reduces the incentive to reoffend" (p. 20).

Noting that the Good Food movement is far larger than we think, he concludes the book with two instructive messages. First, there is a tremendous appetite for reform, and change has been most successfully mobilized where civic energy and municipal activism meet to get the good food issue on the local political agenda. Second, he highlights the fragility of local food policy groups, many of which operate with scant resources and are desperately short of finance and (paid) staff. To overcome this shortcoming, he suggests they form national networks to share resources and public-social relationships with municipal governments and health boards to help generate revenue streams.

*Serving the Public* is a very readable book, with a lively balance of ideas and examples. It is extremely well researched and documented without ever being pedantic. As Morgan emphasizes, the power of purchase is enormous and has the potential to shift the current food system in a more fair, healthy and sustainable direction. The book is a logical companion to Joshna Maharaj's 2020 book, *Take Back the Tray: Revolutionizing Food in Hospitals, Schools, and Other Institutions*, which features a Canadian chef's perspective of the public plate.

My only criticism is the book's focus on examples from the UK and the US. I was hoping to read about some of the important work done in Canada as well (for example, FoodShare Toronto). That said, readers of *Canadian Food Studies* will be happy to see that the book is dedicated to our own Wayne Roberts and his unflagging work in the Good Food movement.

Morgan sees the good food revolution as a work in progress. The vast depth and breadth of his knowledge and experience give us a front-row seat in this quest to change the food system, which makes this book an important milestone in the development of the public plate and the field of food studies.

**Jennifer Sumner** teaches at the University of Toronto and is the co-editor of *Critical perspectives in food studies* (with Mustafa Koç and Anthony Winson).

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Book Review

# Hopped Up: How Travel, Trade, and Taste Made Beer a Global Commodity
# By Jeffrey Pilcher
# Oxford University Press, 2024: 352 pages

Reviewed by Ethan Shapiro*

Jeffrey M. Pilcher's *Hopped Up* serves up a finely crafted global history of beer that traverses centuries of trade, migration, and technological innovation. The book navigates an ambitious chronological and geographical scope, inviting readers on an intoxicating, international voyage that spans from ancient brewing traditions to the contemporary craft beer renaissance. In seven chapters, Pilcher masterfully traces the beverage's dynamic history, uncovering how capitalist transformations have shaped and re-shaped beer—its material forms, markets, and meanings—across sociocultural contexts.

Dislodging contemporary beer categories from static narratives of timeless tradition, Pilcher's thesis frames these standardized styles as contingent and ever-evolving products of capitalist development shaped by transnational flows of people, knowledge, and technology. While pre-modern societies contained rich brewing variations, from Incan *chicha* to Babylonian "one-year-beer" to Chinese *Qu*-based beverages (pp. 19-40), Pilcher shows that systematic codification of beers is a distinctly modern phenomenon—even as such classifications harken back to imagined pasts. Thus, "the beer mug" becomes "a lens for viewing the history of that [capitalist] world system and the lives of people caught up in it" (p. *viii*).

After reviewing pre-capitalist brewing, the book explores beer's entanglements with capitalism. As markets expanded under mercantilist trade, producers and urban authorities sought to classify alcoholic drinks, giving rise to styles like northern German hopped beer, Japanese *morohaku* sake, and London porter. These styles resulted less from terroir than from growing networks of commerce, regulation, and the increasing need for product differentiation. Similarly, the iconic lagers of the nineteenth century—Pilsner, Munich, Vienna—were innovations made possible by the mobility of skilled workers, the diffusion of brewing technologies, and the internationalization of ingredients

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and techniques. European imperialists promoted industrial beers as symbols of modernity, while colonized peoples incorporated them into local drinking cultures. Through the twentieth century, beer styles were further taxonomized through the construction of distinct "national" traditions—ironically enabled by transnational relations. These national boundaries were exceeded by the century's end, as liberalized markets, corporate restructuring, and intensified advertising transformed beer into global brands. Far from a static category, the pale lager is revealed to be the ever-mutable outcome of ongoing global exchange, blending British industrial techniques, Bavarian fermentation, Japanese filtration, Mexican malting, and varied local adjuncts. Finally, as it sought to codify its stylistic difference from mass-market lager, the craft beer movement relied on the same infrastructures of supply, equipment, and expertise developed by corporate brewers.

Throughout this narrative, Pilcher consistently foregrounds the dual social life of beer, as both an anchor of community and a marker of distinction. Beer has long strengthened social bonds, whether in neolithic fields or working-class pubs, while also expressing social hierarchy through tiered consumption systems, from tributary empires to the modern proliferation of "premium" brands. These dynamics of solidarity and stratification are explored extensively in relation to gender and race, including women's changing roles in brewing and drinking cultures, and the racialized regulation of alcohol in colonial contexts. However, far from reducing beer's meaning to its social uses, Pilcher attends deeply to the ways in which its sensory properties interact with local social and symbolic worlds. For instance, the clarity and crispness of pale lager aligned with Japanese culinary aesthetics, while the pungency of wild yeasts and strong hop flavours, pathologized in nineteenth century hygiene discourse, signaled authenticity for craft brewers.

Alongside its analytic richness, *Hopped Up* stands out for its exceptional chronological range. This expansiveness allows Pilcher to reframe the history of beer not as a linear tale of European expansion and technological progress, but as a dynamic and polyvocal process marked by continuities and contingencies, domination and resistance. Furthermore, in contrast to the predominant national and regional focus of beer scholarship, this book adopts a relentlessly global framework, revealing how beer styles and meanings emerge through cross-cultural encounters and transnational flows. With anthropological attentiveness, Pilcher traces the ways that commodity beer is continually recontextualized and localized as its geographical mobility grows alongside that of its makers and drinkers. The analysis also reveals a vigilant materialism, situating beer's symbolic meanings within political economic relations and technical infrastructures. At each turn, Pilcher's historical narrative carefully avoids technological determinism—unlike some popular and academic accounts of beer's commercialization–by showing how brewing innovations co-evolve with shifting tastes, social meanings, and power relations. His approach is impressively interdisciplinary, weaving insights from neuroscience, microbiology, and sociology to illuminate the historical significance of this world-historic beverage.

*Hopped Up* will appeal to a wide audience across fields including anthropology, sociology, food studies, and science and technology studies, and will be especially valuable for readers interested in the cultural and political economy of food and drink. Scholars of social distinction will find valuable material in Pilcher's analysis of how everyday consumption practices—from chicha feasts to craft connoisseurship—reflect and reproduce gendered, racial, and class stratification. Those studying imperialism and nation-building will appreciate the book's careful attention to the role of beer in colonial

governance, modern citizenship, and nationalist projects. Canadian food scholars will welcome its thoughtful engagement with Canada's beer history, from colonial-era brewing to EP Taylor's postwar consolidation and the nation's craft beer boom. More broadly, the book's transnational approach offers an essential complement to local analyses by situating Canadian brewing within wider networks of migration, knowledge, and trade. Finally, *Hopped Up* will be indispensable for craft beer scholars, offering a critical corrective to celebratory accounts by placing the movement within the longue durée of capitalism.

The book's extraordinary geographic and temporal ambition is perhaps also its primary limitation. Some readers may desire more treatment of specific cases than a global, centuries-spanning account can provide. Yet this is the inevitable trade-off of a project that synthesizes centuries of beer's history across continents and cultures. In providing an expansive yet concise history of a ubiquitous commodity, *Hopped Up* serves as a shining reminder of how everyday articles of food and drink have participated in the making of the modern world.

**Ethan Shapiro** is a Sociology PhD student at the University of Toronto. His research currently examines the Canadian craft beer industry to understand the everyday social processes behind cultural markets.

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# Choux Questionnaire: Bryan Dale

A riff on the well-riffed Proust Questionnaire, the CFS Choux Questionnaire is meant to elicit a tasty and perhaps surprising experience, framed within a seemingly humble exterior. (And yes, some questions have a bit more *craquelin* than others.) Straightforward on their own, the queries combined start to form a celebratory pyramid of extravagance. How that composite croquembouche is assembled and taken apart, however, is up to the respondents and readers to determine. Respondents are invited to answer as many questions as they choose.

The final question posed—*What question would you add to this questionnaire?*—prompts each respondent to incorporate their own inquisitive biome into the mix, feeding a forever renewed starter culture for future participants.

Our Choux Questionnaire respondent for this issue is Bryan Dale. He is an Associate Professor in the Department of Environment, Agriculture, and Geography at Bishop's University, located on Abenaki Territory in Sherbrooke, QC. Before Bishop's, Bryan was a postdoctoral fellow at the Culinaria Research Centre at U of T Scarborough. His research and teaching cover a range of topics, including food sovereignty, agroecology, climate change, environmental justice, social movements, agriculture, food security, and labour and equality in the food system.

## What is your idea of a perfect food?

A food that doesn't proclaim to be perfect. It is a food that carries much less pretense than is typically associated with aspirations to perfection, and yet is ambitious nonetheless. My perfect food would strive towards flavour and innovation on the one hand, and a representation of socio-ecological balance and justice on the other hand. It would be a food that is quite special, evidently, yet not elitist.

## Of what food or food context are you afraid?

I would be afraid of a context in which I were compelled to eat nothing but fast food and ultra-processed foods without exception. This might represent the ideal

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situation for the McDonald's Restaurants and PepsiCos of the world (and their shareholders), but to me it would be a complete dystopia. I'm not suggesting that I'm too pure to eat the occasional junk food, but I know my body would find it absolutely revolting to be constantly bombarded with the "holy trinity" of fat, sugar, and salt, mixed with chemicals.

### What word or concept describes an admirable food system?

The three concepts I continue to focus on in my research are *food sovereignty*, *agroecology*, and *the just transition*. To me the three concepts overlap in important ways, and considering their relationality is one way to help prevent any of them from being interpreted in ways that would lead to a co-optation or a watering down of the intention behind them. Actualizing these concepts requires context-specific considerations though, and deep political conversations.

### What word or concept prevents many food systems from becoming admirable?

As with the previous answer, I feel that I need to state two interrelated concepts: *capitalism* and *colonialism*. One thing I've appreciated learning from scholarly mentors though is that we shouldn't look at such concepts in abstract or essentializing ways. Understanding the specific tendencies that operate within our food system (and political economy more broadly) are important. For example, when we look at the profit motive, and the commodification of both food and land, we can also identify exceptions that exist within communities that can offer a glimmer of hope that it may be possible to overcome such tendencies.

### Which food person do you most admire?

I admire parents, and it is still disproportionately mothers specifically, who continue to do the hard food-related work for their families day-to-day and week-to-week. I'm specifically thinking of mothers who are facing various intersecting and systemic challenges who strive to ensure their children and other loved ones are eating well. I appreciate the disproportionate amount of work my mother did in this regard as I grew up, and we didn't face the financial and other difficulties that many families do.

### Which food innovation do try to ignore?

The Choux Questionnaire. It's SO overdone. ;)

### What is your greatest gastronomic extravagance?

I've had the privilege of eating at some very nice restaurants for special occasions. For example, since moving to Sherbrooke, Québec, I've eaten at L'Antidote FoodLab and le Restaurant Les Mal-Aimés. I'm very aware of the elitism that can be associated with fine dining, but the gastronomic experiences themselves can be very memorable...and impossible to put into words.

### What is your current state of hunger?

As I'm writing this, I'm hungry as I haven't eaten for about seven hours. At the same time, I've been incredibly privileged in my life to have never truly been hungry. It is devastating to consider how many people are food insecure globally, with the most acute situations typically intermingling with complex causes such as war and climate change. The Israel-Palestine conflict is top-of-mind for me in that regard, but there are so many other food crises that do not make it into the media in any

sustained manner. The Global Hunger Index is one resource that I share with my students on these topics: www.globalhungerindex.org

### What do you consider to be the most overrated food or food context?

Fun Dip is quite an overrated food (or "pseudo food" as Anthony Winson would say). I'm not sure what I found so appealing about eating colourful flavoured sugar when I was a pre-teen. It's amazing that this is still a product on the market.

### On what occasion do you feign satiety?

I can't say that I ever feign satiety, as I'm quite flexible about trying different foods. That said, the older I get, the more I'm conscious that I shouldn't necessarily have a second helping just because the food tastes good!

### What do you most dislike about dinner tables?

I only dislike a dinner table when you have to prematurely clear a board game off of it to make room to eat.

### What is the quality you most like in a fruit?

I eat apples more than any other fruit. Throughout most of the year I can access ecologically and locally grown apples, and often interesting varieties at that. So, the qualities I prioritize are sustainability and taste. In contrast, I rarely eat bananas, and when I do buy them it's typically fairly traded, organic bunches that I pick up, storing most of them in the freezer so that they can gradually be added to smoothies, one half banana at a time.

### What is the quality you most like in a cut of meat?

I went pescatarian 24 years ago, and for the last ten years I've been eating meat about once a year when I'm in a situation where I'm offered ecologically raised meat. The offer is often coming from the people who cared for the animals themselves, so that makes it a special occasion in every instance.

### Which condiments do you most overuse?

Is it possible to overuse condiments? From interesting hot sauces to pesto and mustard, what isn't there to love about condiments?

### What kinds of gardens make you happiest?

I'm most excited and happy about my home garden, which my partner and I started this season after being interrupted from community gardening by the COVID pandemic and then a move to a new province.

### Which culinary skill would you most like to have?

I'm a pretty good cook but not a culinary genius by any stretch of the imagination, so I would just like to continue the ongoing adventure. There's a lot to learn but, fortunately, there's also plenty of time to experiment and improve.

### If you could change one thing about nutrition, what would it be?

Nutritionism. It would be great if we could collectively ensure that the chemical components of foods do not overshadow their cultural and social significance.

### If you were to die and come back as an (edible) animal, vegetable, or mineral, what would you like it to be?

Hmm… Maybe a serviceberry tree or something else perennial? I mean, why not make the afterlife last a while?

### Where (and/or when) would you most like to dine?

When? As soon as I'm done writing this up!

### What is your most treasured kitchen implement?

I very much appreciate that my mother-in-law gave me a pastry mixer that she wasn't using. It makes the process of making sourdough bread a lot faster and easier, and this is something I do every week.

### What do you consider to be the most processed kind of food?

Fun Dip?

### What spice, kitchen implement, or cookbook do you use most rarely?

At the moment, I would say that the juicer we have quite rarely gets used. It is fun (and tasty) to use up a bunch of beets, carrots, or whatever to make veggie juice, but I typically find other things to do with the ingredients I have on hand.

### Who are your favourite food scholars?

Food is so multi-dimensional that I could probably name dozens and dozens of scholars that have influenced how I think about food—in terms of food geographies, food culture, food politics, decolonial approaches to food, and more. I have to say though that the annual assembly of the Canadian Association for Food Studies has been my favourite gathering of food scholars for quite some time. From some people who have passed on, to others who are just getting started in the field, it has been (and continues to be) an impressive group!

### With which cuisine do you most identify?

That is a very interesting question. Within the last week I've enjoyed meals from cuisines that can be described as Mexican, Indian, Italian, Québécoise (poutine!), and "Canadian," although scholars have noted that the latter is multifaceted and often hard-to-define. My background is British, but I wouldn't say that I identify with that cuisine, or any one cuisine exclusively for that matter. What's fantastic is that food allows us to be culinary tourists, and that hybridization brings interesting innovations in a world of eating that is simultaneously global and local. Gillian Crowther writes about these points in her book, *Eating Culture*.

### What are your favourite agricultural, culinary, or gastronomic words?

The first ones that come to mind are French words that are fun to say:
*Topinambour* (Jerusalem artichoke)
*Miam-miam* (yum-yum)

### What is it about composting that you most dislike?

The smell! We've been doing vermicomposting for several years, and I do the work of emptying the stainless-steel compost bin that we keep under our sink when it

gets full. Although the "worm condo" itself doesn't smell on an ongoing basis, as the little critters keep things moving in there, there's nothing that quite compares to the smell of emptying out a soggy bin of anaerobically half-decomposed veggies and coffee grinds. I'm not complaining though. Your nostrils get used to the assault, and the black gold that is worm castings is well worth the ongoing effort!

### What would you eat as your last meal?

Probably a well-made pizza with interesting toppings. We never know if each meal might be our last, so we might as well enjoy every bite… and hope that we have the privilege to grow old and eat high-fibre foods or soft foods or whatever we need to sustain us until our final days.

### What foodish epitaph would you assign to yourself?

Here lies Bryan Dale. He wrote about food, thought about food, taught about food …And now he will be food for worms and other critters. The cycle continues.

### What question would you add to this questionnaire?

What is your favourite food-related pop culture or literary reference?

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