

Virtual Barriers: Unpacking the Sustainability Implications of Online Food Spaces and the Yellowknife Farmers Market's Response to COVID-19

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Abstract

Background

Through their support of local agriculture, relationships, and healthy diets, farmers' markets can contribute to a sustainable food system. Markets like the Yellowknife Farmers Market (YKFM) are social spaces that support local food, yet the COVID-19 pandemic has forced changes to their current model. This paper explores the potential of online marketplaces to contribute to a resilient, sustainable food system and the barriers to making this transition for the YKFM.

Methods

In 2019, a collaborative mixed-method evaluation was initiated by the YKFM and university partners in the Northwest Territories (NWT), Canada. The co-created evaluation plan included two patron surveys, a vendor survey and vendor interviews. The evaluation began with an in-person Rapid Market Assessment dot survey and questionnaire of market patrons from two YKFM dates prior to the pandemic. Due to COVID-19, we determined it was not a good time to conduct the vendor survey and interviews. Ongoing engagement with the market facilitated an assessment of the COVID-19 response.

Results

For the patron surveys, 59 dot survey and 31 questionnaire participants were recruited. The top motivators for attendance were eating dinner, atmosphere, and supporting local businesses, and most patrons attended as couples and spent over half of their time talking to others. The YKFM did not move online, citing concerns about meeting produce demand, incongruence between the online model and market strengths, low dependency on the YKFM by vendors, and potential challenges for patrons using new technology.

Conclusions

NWT food strategies rely on farmers' markets to nurture a local food system. Online markets can support local food by facilitating purchases and knowledge-sharing, yet they do not replicate the open-air or social experience. Challenges to the online transition reflect the survey findings and current food context in the NWT. While online adaptation does not fit into the YKFM plan today, online markets may prove useful as a complementary strategy for future emerging stressors to enhance the resiliency of local systems.

Background

A sustainable food system in the Canadian North requires a transformation to a self-reliant and just system that supports health through equitable and secure access to nourishing foods (1–5). Long before COVID-19 limited travel and gatherings, the Northwest Territories (NWT) has been impacted by high levels of food insecurity due to complex issues of remoteness, development and governance (6). While climate change and extreme weather continues to have profound impacts on access to and availability of both store-bought and traditional foods, climate change is also expanding the potential for growing local food in the NWT and building a strong sustainable agricultural system that supports human health within planetary boundaries is critical to the region (1, 2, 4, 7, 8). As the COVID-19 pandemic exposes gaps in the current global food system, Canada released a joint statement alongside other nations stating that food security depends on local resilience and supporting small-scale farmers, harvesters, and processors with planting, harvesting, and the fair and safe sale of products (9). Farmers' markets have been ambitiously situated as a means to support a sustainable local food system and a mechanism to promote prosperity (4, 5, 7, 13, 15, 16).

Traditional farmers markets are in-person spaces known for supporting connections and 'short circuiting' the conventional food system by enabling direct sales (3, 10, 11). While markets are not a panacea to solve all of the environmental and social problems of conventional agriculture and food systems, they are community food spaces with the potential to connect communities and producers, provide infrastructure to support small sustainable farms, and support resilient, integrated systems that are essential in times of crisis (9, 10, 12–14). The uncertainty faced by Northern farmers' markets in response to the 2020 COVID-19 pandemic led to the exploration of alternatives to the open-air farmers' market model as the NWT government banned feasts and public gatherings and some year-round farmers markets in Canadian provinces were closed (15, 16). Supported by new agriculture funding for e-commerce, many markets considered a transition to online platforms to adapt (16–19).

Online markets, like the open source 'Open Food Network' platform (<http://openfoodnetwork.ca>) in Canada, have seen a surge of uptake in response to pandemic-disrupted food distribution and access (18, 20). These online markets have the ability to share knowledge regarding production and products, facilitate small-scale sales and connect with consumers at pick-up or delivery, and yet they are diverse with some integrated with larger online communities and others as simple stores (21, 22). Both online and offline markets have been found to influence consumption of local and sustainable foods, although offline interactions have been found to be important for building trust, transparency, and deeper connections with food and farmers (11, 21, 23, 24). Through the COVID-19 pandemic, the need for accessible online place-based knowledge specific to the local climate and growing conditions has exploded alongside growth in home gardening and subsistence agriculture with potential to increase access to fruits and vegetables (9, 18). Online knowledge sharing networks within alternative food systems are opportunities to foster sustainable purchasing and have the potential to foster 'real' community based on caring, shared interest, and consumption ethics (20–22, 24, 25).

The impact and potential of online markets as tools for food system resiliency and sustainability will be largely rooted in place and the unique characteristics of the market. This article will draw from case study and evaluation findings from the Yellowknife Farmers Market (YKFM) in a place-based exploration of the characteristics of the market and the concerns that led the market to forego moving online. This discussion, grounded in current responses to the pandemic, will provide insight into the value of online markets and the modern challenges of building a local, self-reliant and sustainable food system in the NWT.

Methods

Case Study: The Yellowknife Farmers Market (YKFM)

Local Context

The YKFM began in 2013 as a marketplace to “promote and grow the local food system”(26). A volunteer Board of Directors oversees the market and projects that support food-based economic development. The YKFM also supports local growers and advocates for social and political change to address food security, including the creation of a Yellowknife Food Charter (26–28). The YKFM runs in a rented outdoor public space where vendors sell primarily baked goods, meals, fruit and vegetables, fish, birch syrup, art and housewares for two hours each Tuesday evening from June until September. The YKFM board has also supported a wide variety of programs including gardening advice, cooking with local ingredients, and supporting small-scale vegetable and fruit producers to participate through donating or selling their products.

Collaborative Process

The YKFM has developed close relationships to university-based researchers with past projects supported and evaluated with the assistance of academic partners at Wilfrid Laurier University (28). In 2019, the YKFM put out a call for assistance with an evaluation that would inform the future management of the market, waste reduction efforts, and consider ways to coordinate the ‘Harvester’s Table,’ where local gardeners can donate or sell their surplus produce. Additional goals included defining the social and economic role of the market in the community and exploring community needs and preferences. University partners from the University of Waterloo and Wilfrid Laurier answered the call and supported the evaluation and re-envisioning with a plan for a utilization-focused evaluation that engages YKFM patrons, vendors, and the broader community (29). The patron surveys discussed here reflect the first stage of this collaborative evaluation in summer 2019. During the autumn and winter that followed into 2020, the team created an online vendor survey that was planned to be released in March 2020 followed by vendor interviews. Ethics approval was obtained by both Wilfrid Laurier University and the University of Waterloo for the surveys.

Patron Surveys

In the summer of 2019, survey questions were selected through a collaborative process between the YKFM board and university partners. The patron survey question development process was informed by a scan of published farmers’ market evaluation reports and best practices as well as past YKFM surveys that had been conducted by the YKFM board. Questions were considered if they fit with the evaluation goals of the market. The resulting data collection strategy used two complementary approaches – a dot sticker survey and a paper-based questionnaire - to gather data from patrons attending the YKFM during two 2019 market dates, one in August and the other in September. Survey questions asked patrons to provide information regarding their habits and intentions for that day to reduce potential recall bias.

Both the dot survey and paper questionnaire were offered in English and utilized convenience sampling with no remuneration beyond surveyor gratitude. The sample therefore reflects a non-random proportion of market patrons. To foster confidentiality and reduce social desirability bias, participants completed the survey on their own. The survey included demographic questions but did not request any personal identifiers.

Dot Survey. The dot survey was informed by a Rapid Market Assessment (RMA) methodology, which has been incorporated in market evaluations both in Canada and the United States (30–34). The dot surveys are designed to maximize the number of patrons reached with short, simple, quantitative questions with a low time burden for participants. Participants place small round ‘dot’ stickers on flipchart paper to answer multiple-choice questions (Fig. 1). Patrons were given 5 stickers and asked to place them to answer each question. On the second market date, the chart paper was ‘seeded’ with three randomly selected dot stickers per question placed on the flipchart before patrons arrived to counter the potential social influence of seeing others’ responses (30). Figure 1 shows the first survey chart seeded with dots that were later omitted in data analysis.

Descriptive statistics were calculated for each question from dots placed by patrons on the flipchart. Replicating a method used by a Nova Scotia Farmers Market report, average spending was calculated by first multiplying the number of dots by the spending amount in the category (e.g. 5 x \$10; 13 x \$20) then summing and dividing by the number of respondents (33). As the top category used was ‘\$100+,’ the averages may be an underestimation as these respondents may have spent more than \$100.

[INSERT FIGURE 1 ABOUT HERE] *Fig. 1.* Dot survey flipchart with random ‘seeded’ responses.

Paper Questionnaire. At the same time as the dot survey, more in-depth information was gathered from a second group of patrons who were able to contribute more time. The paper-based questionnaire included questions from past YKFM surveys and those used in published market survey reports from a national survey and the provinces of British Columbia and Nova Scotia (31, 33, 34). Questionnaires included both demographic questions and primarily closed-ended questions, with the opportunity for open-ended feedback at the end of the survey. Descriptive statistics were then calculated for comparison to past surveys and reporting to the YKFM board.

The responses for each question were summarized using descriptive statistics. For one question ("What two things would improve your experience at the market?") that requested only two options be selected, a weighting technique was used so that each participant who completed the question contributed an equivalent of two responses. As seen in Table 2, where participants selected less than or more than 2 options, participant contribution was weighted to equal two (i.e. if 1 was selected, this was weighted as 2; if 4 were selected, each were given a weight of 0.5).

COVID-19 Pandemic

Throughout the months before and after the pandemic began, ongoing engagement between the university partners continued largely via email but occasionally by telephone. During spring 2019, when the COVID-19 pandemic began in Canada, the university team based in Ontario found online markets were highlighted in the media and emerged in local food systems conversations as options to sustain local markets (16–18, 35). When the vendor survey was put on hold and the YKFM 2020 outdoor season became uncertain, the academic partners provided information regarding online market software that could be an opportunity for YKFM to continue to link consumers and producers for the 2020 market season. To determine the most appropriate way forward, the YKFM held virtual meetings with board members and had discussions with vendors. These conversations took place during their typical annual vendor recruitment and onboarding period for the 2020 market season.

Results

Collaborative Process

With the support of the YKFM, the academic partners gathered evaluation data in-person on the survey dates in 2019. These experiences were opportunities for the academic partners to act as participant-observers and to have informal conversations with vendors, board members, and patrons that assisted later in validating the survey results. The YKFM takes place at the water's edge facing a rocky landscape; vendors set up tents near a circular pathway surrounding a greenspace dotted with trees. Local music plays near the shore and many families bring bicycles and strollers and sit with their food on the picnic tables and greenspaces. Compost bins are strategically placed to collect leftover food and compostable food packaging from meals purchased from vendors. A diversity of languages can be heard throughout the market; Yellowknife has a rich tourism industry and is home to local Dene First Nations, French-speakers, and others bringing languages from around the Canadian North and world.

The longest lines at the YKFM were to purchase a hot meal which often sold out before the market end time of 7:15 p.m., while other non-meal vendors posted sold-out signs before the end of the market. YKFM board members confirmed that the baked goods sell out at nearly every market, while produce vendors often leave with some leftovers. While farmers' markets in southern Canada are often characterized by the wide variety of produce available, only two tables at the YKFM (of nearly twenty) offered locally grown foods. Produce for sale included surprising offerings such as bok choy. In past years, cooking programs through the YKFM helped to ensure that community members were able to process and cook the vegetables that were available. Through both the Harvesters' table and the vendor booths, the YKFM offered a way of selling small quantities of a diverse array of foods that were not always available in conventional grocery stores.

In line with the goals of the utilization-focused evaluation, upon completion of the patron surveys, an early report of results was sent to the market for use in planning and grant applications in December 2019. Further reports that briefly highlighted key findings in the context of other surveys were produced for the market in February 2020 to inform the upcoming season. During this time, planning and refining of vendor surveys were completed with the vendor survey set for release in March 2020.

Patron Surveys

Dot Survey. The dot survey recruitment resulted in 59 participants, answering on behalf of their groups, over the course of the two survey dates (27 participants in August, 32 participants in September). The results from the dot survey are included in Table 1. More than half of participants attended the market in groups of two (55%; $n = 32$), with over two-thirds attending in groups of two or more people (mean group size = 1.93). Approximately one fifth ($n = 11$) of the participant groups planned to spend no money at the market. Similar average spending amounts were found between the market (\$29) and community businesses near the market (\$33). Word of mouth was, by far, the most selected (59%; $n = 35$) method for participants to hear of the YKFM whereas a quarter ($n = 15$) of participants chose social media.

Table 1
YKFM August & September 2019 Patron Evaluation: Dot Survey Results*

Number of adults are in your shopping group today? (n = 58)	Number (%)
1	19 (33%)
2	32 (55%)
3	4 (7%)
4	1 (2%)
5	0
6	1 (2%)
7+	1 (2%)
How much will you (or your group) spend (or will you spend) at the market today? (CAD \$; n = 57)	Number (%)
\$0	11 (19%)
\$10	5 (9%)
\$20	13 (23%)
\$30	12 (21%)
\$40	6 (11%)
\$50	2 (4%)
\$60	2 (4%)
\$70	1 (2%)
\$80	1 (2%)
\$90	0 (0%)
\$100+	4 (7%)
How much will you (or your group) spend (or will you spend) at other businesses today? (CAD \$; n = 57)	Number (%)
\$0	10 (18%)
\$10	6 (11%)
\$20	8 (14%)
\$30	14 (25%)
\$40	2 (4%)
\$50	8 (14%)
\$60	3 (5%)
\$70	1 (2%)
\$80	0 (0%)
\$90	1 (2%)
\$100+	4 (7%)
How often do you attend the market? (n = 58)	Number (%)
Every Week	11 (19%)
2-3 times/month	19 (33%)
1 time/month	8 (14%)
Rarely/Never	20 (35%)
How did you hear about the market? (n = 59)	Number (%)
Word of Mouth	35 (59%)

* As some patrons chose not to answer certain questions, different sample sizes were used for each question (57-59).

Number of adults are in your shopping group today? (n = 58)	Number (%)
Social Media	15 (25%)
Can't recall	4 (7%)
Print	3 (5%)
Posters	2 (3%)
<i>* As some patrons chose not to answer certain questions, different sample sizes were used for each question (57–59).</i>	

Paper Questionnaire. The total sample of the paper questionnaire was 31 participants (11 participants on August 27 2019; 20 participants on September 10 2019). Patrons surveyed were primarily adults between 30–39 years of age (45%; n = 14) with incomes between \$100,000-140,000 CAD (35%; n = 11) although nearly a fifth of participants (n = 6) chose not to self-report their income. The majority of those at the YKFM self-identified as Yellowknife residents (81%; n = 25) while the remaining patrons identified as visitors (13%; n = 4) or workers (6%; n = 2). Patron demographics are summarized in Table 2.

Table 2
YKFM August & September 2019
Patron Evaluation: Paper
Questionnaire Demographics (n = 31)

Age	Number (%)
18–24	0 (0%)
25–29	5 (16%)
30–39	14 (45%)
40–49	5 (16%)
50–64	5 (16%)
65+	2 (6%)
Income (\$, CAD)	Number (%)
<\$30000	2 (6%)
\$30000-\$49000	3 (10%)
\$50000-\$69000	1 (3%)
\$70000-\$99000	5 (16%)
\$100000-\$149000	11 (35%)
\$150000-\$199000	2 (6%)
>\$200000	1 (3%)
Did not specify	6 (19%)
Residency	Number (%)
Yellowknife	25 (81%)
Temporary Worker	2 (6%)
Tourist/Visitor	4 (13%)

The self-reported motivations, behaviours, and views of patrons expressed in the paper questionnaire are presented in Table 3. Buying dinner was among the top reasons for attending the YKFM (58%; n = 18), tied with supporting local businesses (58%; n = 18) and the atmosphere (58%; n = 18). The most common item purchased (or intended to be purchased) was baked goods (n = 16), while 39% (n = 12) reported buying or planning to buy dinner or vegetables. Slightly fewer than half of those surveyed reported 'purchasing vegetables and fruit' as a motivator for attendance (45%; n = 14). When asked about the importance of different factors to patrons buying food at the market, food produced in the NWT (84%; n = 26) and local food (74%; n = 23) were selected by a large majority of participants. When asked about the importance of different factors when buying food at the market, good weather was chosen more often by participants than nutrition (39% vs 29%; n = 12 vs n = 9).

The YKFM supported active transportation and social participation in addition to facilitating access to local foods. Most participants (65%; n = 22) reported walking or cycling to the YKFM. Socializing with friends or family and vendors made up approximately half of the time spent by participants (53%) which aligns with the dot survey finding that most patrons surveyed attend in groups of two or more (67%; n = 39).

Table 3

YKFM August & September 2019 Patron Evaluation: Paper Questionnaire Patron Motivations, Behaviour, and Views (n = 31)

Reasons for Attending the Market	Number (%) %= # of times selected/n
To buy and eat dinner	18 (58%)
Support local businesses	18 (58%)
Atmosphere	18 (58%)
Buy ready-to-eat meals	16 (52%)
Meet friends/socialize	15 (48%)
Buy fresh produce	14 (45%)
Support local food	14 (45%)
Spend time with friends/family	14 (45%)
Buy baked goods	12 (39%)
Buy non-food products	7 (23%)
Buy fish	7 (23%)
Meet people	7 (23%)
Hear local musicians/talent	7 (23%)
See new vendors	5 (16%)
A specific vendor	4 (13%)
A specific product	3 (10%)
To eat food from home	2 (6%)
Other*	2 (6%)
Products Purchased/Intended to Purchase	Number (%) %= # of times selected/n
Baked Goods	16 (52%)
Vegetables	12 (39%)
Food Concessions	12 (39%)
Speciality food	8 (26%)
Dairy	6 (19%)
Pottery	6 (19%)
Preserves/Spreads	5 (16%)
Fish	5 (16%)
Jewellery	4 (13%)
Fruits	2 (6%)
Birch syrup	2 (6%)
Wool/Knitted Products	2 (6%)
Eggs	1 (3%)
Herbs/Tea/Coffee	1 (3%)
Plants	1 (3%)
Soaps/Creams	1 (3%)
Other Arts/Crafts	1 (3%)
Fresh Flowers	0
<i>*Other = work, music **weighted responses to equalize participant contributions ***two participants did not answer this question so only 58 selections (reflecting 29 participants)</i>	

Reasons for Attending the Market	Number (%) %= # of times selected/n
Wood Products	0
Important Factors for Patrons when buying food at the YKFM	Number (%) %= # of times selected/n
Grown/Produced NWT	26 (84%)
Grown/Produced Locally	23 (74%)
Packaging/Waste	15 (48%)
In season	12 (39%)
Good weather	12 (39%)
Nutrition	9 (29%)
Grown/Produced Canada	9 (29%)
Price	9 (29%)
Environmental Impact	8 (26%)
Fair trade	7 (23%)
Food Safety	6 (19%)
Animal Welfare	5 (16%)
Appearance of Product	4 (13%)
Natural (not certified)	4 (13%)
Certified Organic	2 (6%)
Ease of Preparation	2 (6%)
Look of Packaging	2 (6%)
Improvements to Improve the Market Experience**	Number (%) %= # of times selected/total selections (58)***
More ready-to-eat foods	18 (30%)
More fresh produce	11 (19%)
Music every week	8 (13%)
More fish/meat/eggs	4 (7%)
More baked goods	4 (7%)
More beverages	4 (7%)
Indoor space for poor weather	3 (6%)
More non-food products	2 (4%)
Tables from other NWT communities	2 (3%)
More compost/waste reduction	1 (2%)
More tables from community groups	1 (1%)
More open market time	1 (1%)
<i>*Other = work, music **weighted responses to equalize participant contributions ***two participants did not answer this question so only 58 selections (reflecting 29 participants)</i>	

COVID-19 Response: Change of Plans

Amid planning for the 2020 YKFM season, COVID-19 became a rapidly growing concern which soon led to restrictions that severely limited travel to and from the NWT. Due to the state of emergency and dramatic changes to priorities for food producers and community members, the vendor survey planned for March 2020 was put on hold. The NWT restricted community events and spaces, banning feasts, festivals, and events of more than 10 people (15). Academic partners were restricted from planning and completing travel for research. While there has been widespread movement towards online spaces in Canadian provinces supported by federal funding, moving into a virtual marketplace was considered not feasible in context of the YKFM (16–19).

While many non-food artisans and some local food producers had already established online stores and the board was familiar with these platforms, the primary concerns of the YKFM related to produce vendors' ability to meet demand from online orders. YKFM board members determined that a larger scale of food production would be needed to warrant an online market. The continued accessibility of the market was also a fear with moving to an online space; one produce vendor expressed concern regarding seniors' access and ability to use online platforms. Furthermore, the YKFM recognized the importance of its social role as well as its limited current ability to provide local fruits and vegetables which distinguished the YKFM from southern counterparts that were embracing online markets during the pandemic. As a result of their deliberation, the YKFM determined that an online market would not fit their needs and proposed an alternative market that respects physical distancing requirements that has been approved to begin in early July 2020.

Discussion

A sustainable food system in the North serves 'people, the planet, and profit,' and producing local food is integral to this goal (6, 36–39). As future shocks are expected due to climate stressors, this discussion considers the research on online food spaces within the context of building a resilient, sustainable food system while considering the current place-based barriers for the YKFM. The decision of the YKFM not to pursue an online market model will be explored alongside the broader goals of the YKFM to contribute to a socially, economically, and environmentally sustainable food system.

Connections: Social Sustainability

The face-to-face interactions and tactile connection to the food are celebrated with farmers' markets broadly, with literature describing patrons' market experiences as much more than a 'grocery trip' but a meaningful leisure experience and opportunity to build connections (3, 24, 25). As remarked by Martin, "farmers markets are about conversations and relationships" (3) (p168). True to the reputation of farmers' markets, the surveyed YKFM patrons valued local, community-grown food and products, appreciated the atmosphere, and spent their time eating dinner and talking together. The YKFM board takes care to offer an inviting space with local musicians, dinner options, picnic tables, and a view of the lake. As previously mentioned, nearly a fifth of the surveyed patrons did not come to purchase anything at all. The high priority placed on the atmosphere and eating a meal with their community sets YKFM apart from other markets across Canada where patrons attend primarily for freshness and local foods and only 2% attend for the dining options (34). The decision of the YKFM to not pursue an online market reflects the market's distinct features as a space to connect as a community and enjoy dinner within an event-like atmosphere, all of which would be threatened using an online model. However, the COVID-19 pandemic means that the market *will* need to shift away from being this vibrant community space to one that supports physical distancing between participants. While the market may preserve some face-to-face interaction using an in-person physically distanced model, the features of the market that encourage patrons to stay and enjoy their food together will be necessarily disrupted. Furthermore, without an online space to explore, network and learn about products, the connection and engagement with the local products and community may be threatened.

At the heart of farmers' markets role in a sustainable food system is their ability to foster engagement with food production and build a "civic agriculture" or deep sense of connection and social responsibility (10, 13, 23). The transition to online markets may connect patrons to local foods and foster community around ethical consumption; however, a simple online store with individual pick-up would likely not constitute an authentic virtual community that engages food citizens (11, 20, 25). For markets facing crises like COVID-19, however, online markets may help to efficiently connect patrons and consumers to limit physical contact and time in public spaces while informing them of the product options and sources. Even without an online option for purchasing, building upon existing interactive online communities using social media or other platforms, markets like the YKFM can build community growing and food skills, knowledge, connections, and resilience during system shocks like COVID-19 that can leverage urban growing spaces and nurture self-determination and reliance (11, 12, 21, 24). In addition, these networks can expand beyond the boundaries of Yellowknife to benefit, connect, and inform communities and food producers to support Northern self-reliance.

Online platforms do not need to exist in isolation. Between crises that limit travel such as extreme storms, wildfires or pandemics, in-person connections and communities can reinforce online spaces for a shared knowledge network that can foster adaptations that align with Northern values and food security needs such as food sharing and more equitable food distribution (11, 24, 25, 37). While the YKFM functions largely at a small urban scale, their ability to scale up to facilitate food access and connections with patrons and vendors in nearby rural areas may depend on building accessible virtual spaces. Remote, primarily Indigenous populations, with some of the highest food insecurity, may choose to purchase healthy local foods remotely, but this appears unlikely without an online space facilitating the ability to view and confirm products before traveling hours to pick-up (6, 37). Thus, online markets that temporarily (or permanently) replace or complement the traditional in-person marketplace have the potential to expand access to some populations where necessary infrastructure exists. In Northern Canada, the lack of reliable rural internet and electrical systems are real barriers that contribute to the inequitable distribution of the benefits of both online communities and access to local foods in an online marketplace (11, 23, 37). With the expectation of increased production and support for building a local food system from the Government of the NWT in the future, infrastructure investments to increase electrical and internet capacity may help address these concerns before the next system shock occurs (38).

Building the Local Food System: Economic Sustainability

Farmers markets in the North like YKFM are critical for nurturing small food enterprise for the intertwined sustainability goals of nourishing health and self-reliance, ecologically sound approaches, and local economies. While growing and producing more food in the North is a concrete goal of local and territorial food strategies, it is also a business strategy in the North (27, 38, 40). The concerns of YKFM regarding meeting potential online demand for vegetables and requests from patrons for more fresh produce demonstrate the current limited local production. Northern communities, including patrons of the YKFM, support and value locally-grown produce (41), however, building a commercially viable food business is a challenge in the North, however, due to limited subsidy of small operations, competition with subsidized imported foods, and limited suitable land and soil (1, 6, 41). For the YKFM, the online model was dismissed as being more appropriate for larger and more stable markets such as those in southern Canada. As structural and financial supports grow in the NWT with support from the government, this may no longer be a barrier in the future. During a crisis that limits in-person interaction and disrupts transportation, online markets may sustain the connection to local food, increased access to fresh fruit and vegetables, and sustain emerging commercial producers.

Mechanisms that sustain market organizations and food networks during crises can increase the chances that these networks will be operational to support social entrepreneurs as communities recover from shocks. In post-Katrina New Orleans, online markets permitted sale of urban-cultivated small crops and products to provide economic benefit to the producer and community as well as increase access to local options (42). Online markets and communities can also foster a more social entrepreneurship and ethical consumption by sustaining micro-farms that may otherwise not have distribution networks (38). The small scale of the YKFM has, however, limited its perceived ability to expand or pivot into an online marketplace. However, using existing online tools during system shocks like COVID-19, such as the YKFM website or social media accounts that are supporting home gardening, may also assist small upcoming commercial growers and producers.

Growing within Planetary Boundaries: Environmental Sustainability.

When distribution and harvesting is disrupted due to climate change impacts and crises, online markets have the potential to sustain availability of fruits and vegetables, which is essential for improved health from the individual to planetary level (4). Food sovereignty and local resilience depend on local food harvests and production, and environmental sustainability will depend on knowledge-sharing of growing methods that reduce land-clearing and environmental impacts (2, 4, 37, 38, 43). The YKFM has worked to promote ecologically sustainable practices directly through the Yellowknife Food Charter, urban growing initiatives, as well as through the composting program at their events, which also produces soil needed to support local food growing (1, 38–40). Online communities can also be considered alongside the physically-distanced marketplace of the 2020 COVID-19 pandemic to build a community around shared ethics and beliefs that can support increasing use of sustainable growing practices (11, 24, 25). Although discussed last here, building a community and momentum towards ecologically-supportive agriculture cannot be an afterthought; it is key to achieving the dual goals of a new local food industry and sustainable development to mitigate and adapt to climate change and nurture human and animal life for generations to come (1, 2, 4, 39). Thus, while the YKFM proposes to shift to a physically-distanced market to connect farmers and consumers, the need for community building online or offline must remain a priority.

Limitations

These data reflect a small case study based on a collaborative evaluation. While the collection of patron data in-place is a strength to mitigate recall bias, the data must be considered as a snapshot of patrons in the context of previous surveys, board member conversations, observations and published reports and literature. Even as a case study, the responses in the questionnaire largely aligned with findings from literature and surveys in Yellowknife and surrounding Northern regions. Furthermore, the survey represented the most recent available data regarding the YKFM to inform a place-based discussion regarding the potential for online marketplaces as adaptations to the current COVID-19 pandemic. Future exploration into the role of virtual spaces in fostering sustainable food systems in the NWT is warranted.

Conclusions

Patrons at the YKFM value the community experience and local foods offered by the YKFM and building a local food system in the NWT is widely supported by the government, researchers, YKFM board, and patrons. However, this system must be adaptable and resilient as it faces today's COVID-19 pandemic and predicted future shocks. With many converging challenges in the North driving momentum towards a more socially, economically, and environmentally sustainable food, online markets and communities can be valuable and innovative tools to sustain local production and continue to build production capacity. With limited local food production, technological concerns, and success built on the open-air atmosphere, the online marketplace was not a chosen adaptation by the YKFM in response to the 2020 pandemic today, but it still may be valuable for predicted challenges of tomorrow.

Abbreviations

COVID-19
Coronavirus Disease 2019
Northwest Territories
NWT
Yellowknife Farmers Market
YKFM

Declarations

Ethics approval and consent to participate:

The authors received Ethics Approval through the University of Waterloo Ethics Board (#41498) and Wilfrid Laurier University for use of the evaluation data contained in this report. The lead author received funding to support the YKFM evaluation, although the analysis in this report was independent and not subject to approval from the YKFM board.

Consent for publication:

Not applicable.

Availability of Data and Materials:

The data that support the findings of this study are controlled and permitted by the Yellowknife Farmers Market. Data are available from the authors upon reasonable request and permission of the Yellowknife Farmers Market.

Competing Interests:

The authors declare that they have no competing interests.

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Authors' contributions:

JS conceived study design, developed data collection tools, collected data, conducted data analysis, drafted the manuscript, and led manuscript writing and revisions.

KS conceived study design, developed data collection tools, collected data, reviewed and edited the manuscript in full, suggested additional key resources, and assisted with formatting and submission.

AS conceived study design, provided high level recommendations for this manuscript, additional supporting resources and editing.

LP reviewed data collection tools, reviewed and edited the manuscript for clarity as well as provided validation and content for sections describing the YKFM and their process in response to COVID-19.

FB provided high level feedback regarding the YKFM context and considerations for online markets.

WD reviewed and edited the manuscript in full, suggested additional key resources, and assisted with formatting and submission.

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Figures



Figure 1

Dot survey flipchart with random 'seeded' responses.