The Durham Food System Report Card 2024

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The Durham Food System Report Card

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Introduction

The Durham Food System Report Card aims to create an accessible overview of the Durham Region food system by bringing together relevant indicators and data from across a spectrum of food-related activities in the region. This supports the advancement of the regionally endorsed Durham Food Charter, a citizen-defined vision for a just and sustainable local food system founded on strong policy, local agriculture, community partnership, and health foundations.[1] The Durham Food Policy Council (DFPC) is a citizen-based collaborative committee established to enact the principles of the Food Charter.

This report is supported by an environmental scan research process undertaken from 2021 to 2022 with support of Feed the Need in Durham and is intended to provide a baseline for the current state of Durham Region's food system. The Durham Food System Report Card may be used to track the health of the Durham Region food system over time and inform the development of a food system strategy for Durham Region. DFPC envisions this report as the first iteration of a report card that will reflect priority action areas and be updated in future years to track progress on implementation of the strategy, or other collective action related to food justice and sustainability in the region.

Background

Durham Region

The Regional Municipality of Durham (Durham Region) sits on traditional territory of the Mississauga Nation. Its boundaries encompass the Mississaugas of Scugog Island First Nation. Durham Region occupies a portion of the land covered by the Williams Treaties of 1923. Along with Scugog Island First Nation, Williams Treaty land includes traditional territories of three other Mississauga nations and three Chippewa nations. All of these form part of the greater Anishinabek Nation.

Durham Region borders the County of Simcoe to the north, the City of Kawartha Lakes and Northumberland County to the east, the Region of York and City of Toronto to the west, and Lake Ontario to the south. The Regional Municipality is the upper-tier municipal level of government and includes eight area municipalities: the towns of Ajax and Whitby, municipality of Clarington, cities of Oshawa and Pickering, and townships of Brock, Scugog, and Uxbridge. Geographically, Durham is the largest municipality in the Greater Toronto Area, covering over 2,500 km.[2]

Although Durham's rural areas comprise 84% of this land base, the majority of Durham's population—92% in 2021—lives in urban areas.[3] Durham's population increased by 6.2% between 2011-2016 and 7.3% between 2016-2021.[4] In the period from 2015-2020, most population growth was attributed to net migration into the region.[5] The population of Durham is nearly 700,000[6] and is expected to grow to approximately 1 million by 2041.[7]

Aside from scattered residential settlements, predominant land uses in Durham's rural area include agriculture and agri-business, open space that supports recreation and conservation, and aggregate resource industry. Durham contains the greatest proportion of the total area of land in crops in the Greater Golden Horseshoe (31.2%), and the second-highest proportion of the total number of farms (23.6%). 80% of Durham Region lies within the provincially-designated Greenbelt, including a majority of the region's agricultural land and the environmentally significant Oak Ridges Moraine.[8] See Indicator 4A: Protection of Farmland for recent updates to this designation.

Local governments

The Region of Durham, an upper-tier government, implements provincial land use planning policy through the Regional Official Plan (ROP). Each of the eight lower-tier local municipalities directs land use planning,[i] zoning, and development approvals within its own boundaries, but must conform with the ROP. Significant changes have recently been introduced to provincial planning policies that apply in Durham such as:

- *More Homes Built Faster Act, 2022*
- *Better Municipal Governance Act, 2022*
- *The Oak Ridges Moraine Conservation Plan, 2017 (ORMCP)*
- *The Greenbelt Plan, 2017*: changes to protected lands were made in 2022[9]
- *The Growth Plan for the Greater Golden Horseshoe, 2017 (Growth Plan)*: changes are proposed to combine the Growth Plan with the Provincial Policy Statement[10]
- *Provincial Policy Statement*, 2020 changes are proposed with the Growth Plan above.
- *The Central Pickering Development Plan, 2006 (CPDP)*: was revoked in 2022.
- *Lake Simcoe Protection Plan, 2009 (LSPP)*: The Mississaugas of Scugog Island First Nation is not subject to the Township of Scugog's Official Plan, and management of land within the Nation is

[i] However, the responsibilities of upper-tier governments, like the Region of Durham, for land use planning are being reduced through Provincial Bill 23, which was passed in November, 2022.

governed by its Chief and Council according to the Mississaugas of Scugog Island First Nation Restated Land Management Code 2021.

Provision of services is also divided between the two levels of government. Table 1 shows the allocation of the government roles and responsibilities most relevant to these reports.

Table 1: Role and responsibilities of Durham Region and Area Municipalities

Level of government	Region	Municipalities
Role and responsibilities	• Economic development • Emergency management • Housing services • Long-term care facilities • Municipal water supply, treatment, distribution, and billing • Public health • Regional roads and bridges • Strategic land use planning • Public transit • Waste management (with the exception of collection in Whitby and Oshawa)	• Building permits and development applications • Detailed land use planning and zoning by-laws • Local roads • Parks and recreation • Property standards • Streets and sidewalk management • Tax collection

A food system can be described as "a set of food related activities including agriculture, processing, distribution, consumption, and waste management, each with its attendant social, environmental and economic dimensions." – Ontario Professional Planners Institute

Why is Food System Planning Important?

A food system can be described as "a set of food related activities including agriculture, processing, distribution, consumption, and waste management, each with its attendant social, environmental and economic dimensions."[11] Food systems exist at many scales, including local/regional, national, and global. Food systems are far more complicated than food supply chains, which are often conceptualized as a linear process. Rather, food systems constitute webs of interrelated and interdependent actors, processes, policies, and perspectives. System-level thinking and collaboration can help with understanding root causes of food system problems, otherwise unforeseen consequences of actions, and opportunities to address multiple issues at once.

The Food System Report Card project builds on more than 20 years of work by many different actors toward robust food system planning in Durham. For an in-depth history of the formalized food system planning process in Durham taken by DFPC, its predecessor organizations, and policy initiatives at the regional government level, see www.durhamfoodpolicycouncil.com/

Purpose and Methodology

Why a Food System Report Card?

Food system report cards, which have been developed at municipal and national levels in Canada,[12] can have three important functions. They can:

- provide a "bird's eye view" of a food system by consolidating relevant data into a unified and accessible overview
- establish benchmarks to inform ongoing analysis of a food system, offering an opportunity to compare key metrics across time
- draw attention to gaps in available data and thus point to areas where further research and examination may be warranted[13]

Of the three functions described above, this report card is most tailored to identifying available information and information gaps. A future iteration of the Report Card might present metrics that directly relate to specific components of a future Durham food system strategy and enable benchmarking of progress over time.

Context for the Current Report Card

The idea of a Food System Report Card for Durham Region first emerged in the *2013 Durham Food System Environmental Scan* report. The intention was to develop a tool that could be used to monitor progress in action areas that the Scan had identified. A template of what a food system report card might look like was included as an appendix to the 2013 Environmental Scan—the idea at that time was a table listing beneficial food system policies or programs that could be checked off as they were implemented in each municipality.[14]

However, that initial idea was not taken up, and in 2019 DFPC enlisted students from Trent University to research other models for a food system report card. DFPC decided that the Report Card would follow the example of other jurisdictions, identifying key indicators that are measurable with available data, and that can be used to track progress on food system planning goals in Durham. Of particular interest was a national report card produced by researchers from Wilfred Laurier University and Lakehead University, entitled Food Counts: *A Pan-Canadian Sustainable Food Systems Report Card* ("the Pan-Canadian Report Card").[15]

How this Report Card is Organized

The Report Card's framework follows the template provided by the Pan-Canadian Report Card, which is organized into sections that reflect the Pillars of Food Sovereignty (developed at the International Forum for Food Sovereignty in 2007 and amended during the People's Food Policy for Canada discussions).[17] **Food sovereignty** is summarized as the condition where people define their own food and agriculture systems to produce healthy and culturally appropriate food for people through ecologically sound and sustainable methods.[18] Food sovereignty is central to the mission statement of the Durham Region Food Council: to "create an environment that supports community food security through food sovereignty and a sustainable local food system in the Region of Durham."[19] The seven food sovereignty pillars reflect the Charter's principles of considering both the long-term stability of the localized supply chain, and the environmental and socio-economic factors that interconnect with food systems.

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Table 2: Pillars and Indicators

Pillar #1 – Food is Sacred	1A Cultural, Social, and Spiritual Connections to Food
Pillar #2 – Food for People	2A Household Food Insecurity 2B Community Food Access 2C Access to Culturally Appropriate Food
Pillar #3 – Values Food Providers	3A Farm Business Diversity and Viability 3B Welfare of Farmers 3C Welfare of Food System Workers 3D Education and Training in Agriculture
Pillar #4 – Works with Nature	4A Protection of Farmland 4B Environmental Impacts of Food Production and Adoption of Sustainable Farming Practices 4C Reduction and Sustainable Management of Food Waste
Pillar #5 – Localizes Food Systems	5A Localized Production, Processing, and Distribution 5B Development and Accessibility of Urban Agriculture 5C Local Food Availability and Access
Pillar #6 – Puts Control Locally	6A Indigenous Food Sovereignty 6B Participation in Democratic Food System Governance
Pillar #7 – Builds Knowledge and Skills	7A Knowledge of Agriculture and Food Systems 7B Food Literacy and Food Skills

Indicators: Things we seek to measure or assess that indicate whether our local food system is functioning well according to food sovereignty principles.

Metrics: Data points or data sets that can be used as measurements of the associated indicator.

Sources for Metrics: Full references for metrics are available on pages 70-73.

In the Report Card, each pillar encompasses one or more **indicators**. These are more specific statements of what needs to be measured to assess the realization of the associated pillar in Durham. For each indicator, there is a list of **metrics**, ideas for *how to measure* progress on the associated indicator. The "Current Metrics" included in this first report card capture the data currently available to the public in Durham Region. "Possible Metrics" are those for which the researchers could not find data that was appropriate for inclusion in the Report Card (see *Inclusion Criteria* in the Methodology section for detail on how appropriateness was determined). DFPC's hope is that as a food system strategy develops, this document will be helpful in identifying data sources that can be used to benchmark and track progress, as well as further data collection or sharing that might be necessary.

Neither the indicators nor the metrics included in the report exhaust all the possibilities for "what to measure" and "how to measure it." Rather, they represent the ideas and issues that came to the fore in this research. The next section describes the approach used in that research.

Methodology

The development of the Report Card was supported by two research partnerships between DFPC and other organizations. Student researchers hired by DFPC with support from Mitacs, the Region of Durham, and The Nourish and Develop Foundation largely focused on gathering Durham food system stakeholders' input on potential uses of the Report Card. This input was used to develop an appropriate structure for the Report Card and identify

indicators and metrics of interest to the local community. Meanwhile, a researcher hired by DFPC and Feed the Need in Durham undertook a new Durham food system environmental scan, which yielded much of the data and other information presented in the Report Card. Though initially intended to be separate projects, these two research projects ultimately involved a great deal of collaboration and can be viewed as a single research process underlying the Report Card's development. This research process included:

- a broad **literature review**
- an **internet asset scan** to identify previously unencountered data sources and assets such as projects, programs, places, or actors that contribute to food sovereignty
- **interviews** with representatives from social service organizations, farming, media, and nutrition
- **online events** such as a roundtable and symposium for stakeholders with participant discussion
- an **online consultation form** for input on the structure and content of the Report Card
- an **online survey** on Durham residents' experiences within the local food system
- **inquiries** to specific contacts by email, phone, or video call

Table 3: Number of people who provided input[ii] to DFPC research, 2021-2022

Affiliation of participants	Number
Municipal Staff	28
Community Health, Community Development, Social Services, and charitable organizations	15
Farms, Grower-Processors, Farmers Markets, and Agricultural Community Organizations	9
Community Gardens and Urban Agriculture Businesses	8
Environmental Organizations	7
General Public	7
Indigenous Leadership, Services, and Cultural Organizations	4
Social, Cultural and/or Political (excluding environmental) Community Groups	3
Food Processing, Distribution, and Retail Businesses and Business Associations	2
Post-Secondary Institutions	2
Faith Communities	2
Labour Organizations	1
Total	**88**

[ii] Attended the April 2021 Symposium or September 2021 Roundtable event, completed survey, and/or provided information directly (email or call). This does not include the eight key informants who accepted invitations for structured interviews.

To determine which data was appropriate for publication in the Report Card, we employed the following inclusion criteria:

- scale-relevant: data represents the Region of Durham and the municipalities within it
- documented: data is found in existing research reports or records
- available: data that is free and available to the public, or reasonably accessible through communication with food system stakeholders
- credible: data is collected using sound research methods
- accessible: data is easy to understand

Limitations

Factors that limited the amount and type of information gathered through this broad scan are presented below:

- The assets included in the Internet Asset Scan should not be considered exhaustive lists, and the related counts of particular types of assets do not meet the inclusion criteria to be considered "Current Metrics" because the researchers were unable to contact every actor necessary to validate information found online, or to undertake a rigorous survey to identify assets that are not visible online. Public directories or databases can include out-of-date or improperly categorized entries; checking individual entries for accuracy was not possible given the time and resources available.
- DFPC research took place during the Covid-19 pandemic, increasing the likelihood that information on organizations' websites might be invalid. Some organizations may not have been able to update their websites to reflect programming changes during the pandemic. The stress that the pandemic has caused for individuals and organizations also likely contributed to a lower response rate from those contacted, and fewer responses to public input opportunities. In addition, some data included in this report was collected before 2020 and does not reflect the fluctuations caused by the pandemic.
- Some local government agencies and organizations were unable to update and share data during the pandemic.
- Where possible, data from the 2021 Canadian Census is included. However, there was not enough capacity to seek out any Census data not published on Statistics Canada's website, and some online Census data tables do not display data at the regional level.

Overarching recommendation statement:

This report card is meant to be updated, and seeking more recent data should be a priority going forward. Beyond all of the informational resources recommended in this document, ongoing material resources should be identified to maintain, enhance, and distribute the Food System Report Card for Durham Region at regular intervals.

Pillar 1: **Food is Sacred**

Recognizes that food is a gift of life and not to be squandered; Asserts that food cannot be commodified[20]

The Food is Sacred pillar of food sovereignty was included on the recommendation of Indigenous participants through the People's Food Policy Project (PFPP) discussions that took place from 2008 to 2011.[21] The PFPP mobilized approximately 3,500 people across Canada in a grassroots process to develop proposals for a national food policy.[22] The PFPP started with the six pillars of food sovereignty developed at the International Forum for Food Sovereignty in 2007. However, Indigenous participants in the project called for a seventh pillar to highlight Indigenous conceptions of food across the entire food sovereignty framework and the underlying assertion that food is much more than a commodity.

Behind the belief that "food is sacred" lies the knowledge that food is an asset to life. It not only nourishes us nutritionally, but underlies human connection, culture, tradition, spirituality, and relations to place. Food is thus intrinsic to who we all are as persons and as peoples.[23] This idea informs the first indicator, *Cultural, Social and Spiritual Connections to Food*.

Highly informed by Indigenous spirituality and ecological knowledge, this pillar also reminds us that food is the bond between human beings and the natural elements, including all other living creatures.[24] The environmental dimensions of food production and consumption are covered under Pillar 4, *Works with Nature*. Connections between humans and nature through food are relevant within Pillars 6, *Puts Control Locally*, and 7, *Builds Knowledge and Skill*, since initiatives to foster engagement and education often involve this connection.

Of all the pillars, *Food is Sacred* most challenges the notion of measuring progress using data-based metrics. Notably, the names of five of the seven pillars of food sovereignty begin with verbs—they are descriptions of what an ideal food system does. It is easier to conceive of measurements for the extent to which a food system, for example, *works with nature or builds knowledge and skills* than it is to describe how much an overarching value like Food is

Sacred is being realized. In many ways, the qualities described by the other pillars can themselves be indicators of whether or not food is being treated as sacred and central to life.

DFPC chose to place *Food is Sacred* at the forefront of the Report Card—to emphasize its centrality and relevance in all areas of the food system, despite the fact that it is more difficult to develop indicators and metrics associated with this pillar. This is a reminder that, while looking at data can be an effective way of communicating a clear message regarding the state of the food system, qualitative research and reflection remain indispensable.

Indicator 1A: Cultural, Social and Spiritual Connections to Food

Food is Sacred highlights the importance of food as personal identity and community connection. Food has the power to convey a message and a meaning, and many people rely on food to identify and connect with their cultural and ethnic identities.

This viewpoint was strongly expressed throughout the interviews. Some interviewees discussed how sharing food can create trust and relationship between individuals or groups, and how this is important for connecting with the people reached by their programs. Expressions such as "breaking bread together" and "offering a seat at the table" were used to describe how food creates space for discussing cultural and social differences in meaningful and supportive ways.

As well, many of the interviewees stressed the importance of cultural norms and traditions involving food for supporting individual and communal health and happiness. Unsurprisingly, informants mentioned the increasing cultural diversity of Durham, and expressed enthusiasm for food system assets that enable cultural education or exchange.[25] For example, they stated:

> "Cultural food is a huge part of someone's identity."
>
> "Food is one of the main things that keeps community together, no matter what culture you identify with."
>
> "It's super important for people who live here to see their own culture reflected here, especially for kids growing up here to see their own culture reflected."
>
> "Culture is life, or else, you know—what are we all doing here? So, we need more celebrations, of every kind, of every culture, of every flavor."

It is difficult to create a benchmark for the state of cultural, social, and spiritual connectivity to food in Durham Region, as this is quite personal and subjective. However, though imprecise, a proxy measurement through identification of "connection points" can begin conversations about this dimension of food and how to support its expression in Durham.

Connection points refer to programs, places, and events that include food as a central component and have social bonding, cultural celebration or education, or connection to spiritual or religious beliefs and traditions as a primary

purpose. The Internet Asset Scan found examples of connection points in the form of:

- social meals hosted by community organizations for specific groups in need of connection or for the public at large
- cultural clubs that regularly host meals or otherwise offer traditional foods to the broader community
- community garden-based programs to foster social life or to pass food traditions on to youth
- and events that include food as part of a broader celebration of community, tradition, identity, or connection to place, such as cultural festivals or agricultural fairs in rural communities

A notable area of low information for this indicator is the spiritual component. A vital role in fostering and passing on the understanding that food is sacred is played by Indigenous elders and spiritual leaders, and religious communities of all faiths. Any future research related to this indicator should include active steps to ensure that input is received from these types of actors.

As explained in the methodology section, the examples of these types of assets do not constitute official lists or counts in Durham. An additional caveat regarding social, cultural, and spiritual connection points is that these are very often micro-activities and interactions rather than programs or places advertised to the public. For example, one informant described how members of the same ethnic community meet regularly in a park to cook together.

These caveats serve as a reminder that the expression of *Food is Sacred* in communities is not easily quantifiable. Research on the meaningful connections to food that people find in their communities is more likely to be qualitative. Considerably more information about Food is Sacred is likely available, but it is necessary to establish additional and stronger relationships with stakeholders in the food system to learn about the ways that people strengthen and pass on their social, cultural, and spiritual ties to food.

Current Metrics
Could not identify data-based measurements for this indicator that met the inclusion criteria.

Possible Metrics
• Number of social, cultural, and spiritual connection points to food, identified by a dedicated research process

Recommendation
Cultural, social, and spiritual connections to food should be assessed qualitatively with the help of Indigenous elders, spiritual leaders and religious communities of all faiths.

Pillar 2: **Food for People**

Places people's need for food at the centre of policies and insists that food should be seen as more than a commodity; rather, it is a human right[26]

Food Security: means "a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice, and the ability of the agricultural community to support this system."[27]

Food insecurity is the "inadequate or insecure access to food because of financial constraints."[28]

The 'Food for People' pillar asserts that the primary function of food systems should not be profit, or a narrow focus on maximizing production, but food security. The internationally recognized definition of food security has come to encompass much more than meeting caloric or nutritional requirements by acknowledging that food security requires both physical and economic access to food that meets one's unique requirements for health and wellness.[29] Many definitions of food security, such as the one included in the Durham Regional Official Plan,[30] acknowledge that a healthy diet must also correspond to one's culture. This principle is also reflected in the widely-recognized summary of food sovereignty quoted in this report's introduction, which states that people have the right to "healthy and culturally appropriate food."[31]

The right to food is enshrined in various international legal instruments, including the *International Covenant on Economic, Social and Cultural Rights*, to which Canada is a signatory. This means that Canada has committed to ensuring food security for all citizens.[32]

However, food insecurity, the "inadequate or insecure access to food because of financial constraints," remains prevalent in Canada.[33] As this definition implies, food insecurity is directly connected to income security. Without adequate income, people cannot afford to access adequate foods, increasing their risk of poor health.[34] In 2022, 18.4% (more than 1 in 6) people lived in food-insecure households across Canada's ten provinces.[35]

As a result, non-profit food programs, such as food banks, meal programs, and student nutrition programs in schools have become fixtures in Canada's food system. In 2020, research conducted by Second Harvest found that there are four times more non-profits providing food charity than there are grocery stores in Canada.[36]

Indicator 2A: Household Food Insecurity

The first indicator for this pillar, Household Food Insecurity, focuses on measuring income-driven food insecurity in Durham, acknowledging that economic insecurity is the primary barrier to food access.
Several people who were interviewed during this project work closely with Durham residents experiencing food insecurity. They resoundingly identified economic factors as the primary driver of food insecurity:[37]

> "(There are) families that have full time jobs and they still are unable to make ends meet."

> "From a policy perspective, we need to look at the cost of living and we need to look at how inaccessible food is in our very own grocery stores."

> "I think it really comes down to financial struggles—people aren't able to afford to buy food, sometimes people have to choose between medicine and food and it's a tough decision. Or rent and food. I think that's probably the biggest thing."

Food insecurity is heightened during times of disaster, such as extreme weather events or the onset of the Covid-19 pandemic in 2020, causing already vulnerable populations to be disproportionately impacted. In 2022 the percentage of households living with food insecurity was greater in every province across the country that it was before the pandemic.[38] While such comparative data is not available specifically for Durham, a proxy measurement of the impact of the pandemic on food insecurity in Durham can be seen in Feed the Need in Durham's report that its network of food banks and meal programs saw a 30% increase in the number of clients served between March and November of 2020.[39]

Durham Region Health Department's *The Price of Eating Well in Durham* report, states that 15.5% of Durham households were food insecure in 2018-20 according to the Canadian Income Survey.[40]

The Nutritional Food Basket (NFB) is a tool used to identify the average cost of eating nutritious food for a household.

It also reports on the Nutritional Food Basket (NFB), a tool used to identify the average cost of eating nutritious food for a household. Because a new process was used in 2022 to collect food cost data, comparisons to food costs in previous years cannot be made. In 2022, the NFB for Durham Region was $1067 per month for a family of four, which amounts to 39% of the monthly income for a family receiving income from the Ontario Works (OW) social assistance program. For a single person, the NFB in 2022 was $386, representing 45% of the monthly income of an OW recipient, and 29% of the monthly income of a person receiving Ontario Disability Support Program (ODSP) income. It should be noted that the NFB does not consider dietary restrictions or food constraints due to existing health conditions. Food and housing costs alone would exceed the income of a single person receiving OW by $509 and that of a single person receiving ODSP by $322. In 2022, the cost of food from stores in Canada increased 9.8%, representing the sharpest increase since 1981[41] while social assistance rates have been stagnant since 2018, with the exception of a 5% increase in ODSP rates in September 2022.[42]

The Current Metrics table below includes brief explanations of other links between income and cost of living statistics and food insecurity. One type of data that is not currently available but that participants in the research expressed strong interest in is more focused study of the communities that are hardest-hit by food insecurity in Durham, and of how rates of food insecurity differ across demographics. There are already examples of this type of research in Durham, though not focused specifically on food insecurity.

For example, *Health Neighbourhoods* is a resource provided by the Regional Government that reports socio-demographic, health behaviour, and health outcome data for 50 different neighbourhoods in Durham, to provide a picture of how health varies by geography.[43] Though food insecurity is not one of the included metrics, several of them are health indicators that are linked in part to nutrition. *Health Neighbourhoods* could therefore be a starting point for projects that look at food insecurity or food access in particular areas.

The Community Development Council of Durham has published "Community Lens Reports" focused on two specific demographics in Durham: the Black community[44] and seniors.[45] These reports use Census data to examine whether and how socio-economic metrics for these demographic groups differ from the general population.

Developing metrics to track how food insecurity differs across communities in Durham would require collaboration between municipal governments, public health agencies, community organizations, and citizens to identify communities of interest, and to make consistent data-based measurements available to the public.

Current Metrics		
Metric	**Latest measurement**	**Source and year**
2A-i Prevalence of food insecurity The percentage of Durham households experiencing marginal, moderate or severe food insecurity, according to the Canadian Income Survey (CIS).	15.5%	Durham Region Health Department, The Price of Eating Well in Durham, 2022 (reporting 2018-2020 CIS data)
2A-ii Prevalence of low income The percentage of Durham households whose income falls under Statistics Canada's Low-Income Measure, after tax (LIM-AT), according to census data.	7.0%	Statistics Canada, Census Profile for Durham, 2021 Census of Population
2A-iii Monthly cost of a Nutritious Food Basket The average cost of a basic healthy diet, for a family of 4 or for a single person, calculated by the Durham Region Health Department.	**$1067 (family of 4)** • 11% of the median monthly income • 39% of the monthly income for a family of 4 receiving Ontario Works **$386 (single person)** • 29% of the monthly income for a single person receiving Ontario Disability Support Program (and 45% for Ontario Works)	Durham Region Health Department, The Price of Eating Well in Durham, 2018-2020

Current Metrics		
Metric	**Latest measurement**	**Source and year**
2A-iv Households spending more than 30% of income on housing Housing and food are typically the two largest expenses for a household, with food expenditures being easier to alter in the short term—as a result, the rising cost of housing is a significant contributor to food insecurity in low-income households.	23.3%	Statistics Canada, Shelter-Cost-to-Income Ratio, 2021, Census of Population
2A-v Living wage in Durham Region The wage required for covering average monthly expenses in Durham. Comparing this to the minimum wage ($15.50 as of Oct. 1, 2022) indicates the risk of food insecurity for the lowest-wage earners in the region.	$17.80	Community Development Council Durham, Calculating the Living Wage in Durham Region, 2021
2A-vi Number of visits to food banks and emergency meal/snack programs	See Table 4	Feed the Need in Durham. (2022). Durham Region Hunger Report.
2A-vii Number of people accessing food banks	See Table 4	Feed the Need in Durham. (2022). Durham Region Hunger Report.

Possible Metrics
Low income, food insecurity, and housing expenditure statistics broken down by demographic (e.g., race, age, gender)

Recommendations

Understanding household food insecurity in Durham Region will require:

- actors with research capacity obtaining and publishing more recent Durham-specific data
- collaboration between municipal governments, public health agencies, community organizations, and citizens to complete a more focused study on the communities and populations that are most affected.

Indicator 2B: Community Food Access

Food access points are locations where people can go to acquire food for sale or at no cost.

The second indicator, Community Food Access, acknowledges the physical dimension of food access included in the definition of food insecurity and considers the challenges Durham residents experience in their physical and social environments when trying to access food. This indicator looks specifically at food access points, locations where people can go to acquire food for sale or at no cost, including commercial food access points and the network of food charities that serve Durham residents. However, it does not include forms of mutual aid, very important networks of food production and distribution, that do not tend to be tracked and measured.

Although economic factors were the most often mentioned, participants in the

research identified many other significant barriers to food access in Durham, including geography, transportation, social stigma, and availability of information about food access points. While food insecurity is driven by income, it can be worsened by many interacting factors in one's environment. For this reason, it is important to look more holistically at how access to food can be bolstered at the local level, through community planning that prioritizes food access, and the creation or improvement of non-market food access points that break down economic and social barriers. These actions can provide relief for residents experiencing food insecurity, whether or not broader and necessary economic reforms have yet taken place.

The focus here is on the ways in which mapping of food access points in Durham might shed light on the factors that impede physical access to food, and assist community organizations in strengthening the non-commercial food distribution network in Durham.

In the Durham Food Policy Council–Stakeholder Survey, January 2019, challenges posed by geography and transit were among the top access issues identified by food system stakeholder respondents. The survey report stated:

> "in the small rural communities where there are no affordable grocery chains, it is difficult for someone on a limited income to access healthy options. In terms of physical access to food, respondents noted challenges for individuals finding transportation to get to food banks, especially those with limited operating hours and days, and that not all residents can physically access locally grown food in their community or get to farmers markets or farms."[46]

As expected, physical access was also an issue raised by interviewees during the report card research:

> "Having [food] within your city, maybe within a few kilometres, is important."

> "For example, you have food supports in downtown Oshawa that are right on a bus route and are clustered together and somewhat easier for people to walk to if they live in that area. But if you were living outside of Oshawa or in North Oshawa and needed access to a food bank and didn't drive, you would have significant difficulty getting to one. So, it really depends on where in the region you are"

Durham Alliance Outreach's food pantry is an example of a food program aimed at breaking down a social barrier to access, by allowing LGBTQ2S people to access food in a welcoming space.

Some programs that exist to reduce geographic barriers include The Nourish and Develop Foundation Mobile Food Market and Community Care Durham food deliveries.

Mapping Food Access Points

It is important to not only identify the number of access points for a certain geographic unit or number of residents, but also the types of access points in an area. DFPC sought publicly available or reasonably accessible databases of food access points. As mentioned earlier, forms of mutual aid or informal food access networks and activities, while important, are generally not tracked. Although the research did not find mapping for any type of access point covering the entire Region of Durham, the Oshawa Community Needs Assessment produced by the Durham Workforce Authority includes mapping of food access points such as community gardens, food banks, grocery stores, restaurants (and transit services) in the Lakeview area of Oshawa.

For the 2013 Environmental Scan research, Durham Region Health Department provided its list of all food facilities subject to regular health inspections, allowing DFPC to map grocery store locations against population density.[47] However, due to capacity limits, Durham Health staff were unavailable to provide updated information during the 2021-2022 research.

Overall, further efforts are needed to generate more complete listings of food access points and ensure their accuracy. The discussion below provides more detail on what sources of information are available in Durham for different types of food access points.

Many commercial food access points may be found through the Business Count, which is conducted regularly by the regional government and asks every business in Durham for basic information about the type and nature of the business.[48] The names, addresses, industry classification codes and brief descriptions of every business that provided this information are available on Durham's Open Data website.[49] However, this data requires verification since it may be out of date and relies on the participation of all businesses. Information about farm stores and other local food commercial access points is covered under Indicator 5C.

Mapping **non-commercial food access points** poses an even greater challenge as these are often hosted by organizations with a broader purpose than food provision, such as faith communities, social service agencies, or community centres. Accurate listings of available programs and their locations requires much communication—with actors who are likely to be aware of such programs, or those capable of distributing inquiries to contact lists of organizations that potentially operate them.

Feed the Need in Durham maintains a directory of organizations that offer food access programs.[50] 211 Ontario[51] was the largest directory of community food programs that could be obtained. As of 2021 this database included the basic description and locations of 23 food banks, 23 community meals, 5 organizations that provide food vouchers, 5 organizations that host meals for seniors, and 2 organizations that provide bagged meals. Additional steps to verify this information or to identify programs missing from the list were not part of the scope of this research. For example, other non-commercial food access points might include good food boxes, community fridges, pop-up pantries, pay-it forward programs at restaurants, community kitchens (discussed in Indicator 7b), and food rescue programs (discussed in Indicator 4c). A focused and collaborative effort to ensure that this knowledge is captured would produce an authoritative listing, and could also capture information related to accessibility, such as hours of operation or whether programs are tailored to meet the needs of a particular community.

Obtaining a detailed picture of physical food access issues in Durham should be a focused project—or series of projects—achieved through collaboration between several actors in the community. It should include the location of the populations who are likely to rely on certain access points, and access points' positions in relation to residences, major roads, transit routes, and walkable areas. This kind of complex mapping requires strong communication between many different actors in a community, including various municipal departments

that could provide data on community gardens, food businesses, and farmers' markets. Beyond this kind of physical analysis, a full listing of non-commercial food access points would help with analyzing the overall character of the sector.

Schools have come to play a prominent role in the community food access sector. School nutrition programs serve students from kindergarten to Grade 12 in all school boards across Durham Region. Schools differ in their engagement with these programs, possibly having any mix of breakfast, snack, and lunch programs. However, the programs themselves are all universally accessible, meaning any student may participate.[52] We heard from staff at Ontario Central East Student Nutrition Programs that 444,479 students were served across 165 school nutrition programs.[53]

Many food assistance programs in Durham benefit from the formalized network of shared infrastructure for distributing donated food developed over the past two decades and now administered by Feed the Need in Durham (FTND). The following data was reported through the Feed the Need in Durham service network which includes at least 60 food security organizations and programs.

Table 4: Food security program usage through the Feed the Need in Durham Service Network[54]

	April 1/21 to March 31/22	Change from April 1/20 – March 31/21	Breakdowns
Number of individuals who accessed a food bank at least once	23,661	Up 48%	• 888 were post-secondary students • 25% were first-time food bank users • 65% were renting their homes • 40% listed social assistance or ODSP as their primary source of income • Reasons for visiting a food bank: 62% -Rising cost of food 20% -Housing costs 7% -Declining wages
Number of visits to food banks	134,518	Up 58%	• 5.7 visits per client on average • 38% of visits were made by children or youth under 18 years old
Number of visits to emergency meal/snack programs	344,761	Up 68%	• 87% of meals were provided to people who were homeless, precariously housed, or street involved

Food assistance program usage clearly increased from 2021 to 2022 with particular need seen among renters and social assistance recipients. Increased food costs seem to be a significant factor in this increase.

What Food Assistance Providers said:

Programs that are members of the FTND network can rely on FTND for a portion of the sourcing, storage and delivery of donated food.[55] Nevertheless, interviewees reported that they still rely heavily on their direct relationships

with other food programs and community actors to pull together needed supplies, and that these communications are a major component of the logistics of running their programs.

The theme of resource constraints and limitations dominated discussion of food assistance programs in the interviews. This illustrates that food charity is not a complete solution to the problem of income-driven food insecurity, as many interviewees attested when describing the increasing numbers of clients using their programs.

Resource constraints as described by food assistance providers in interviews included:

- limitations regarding what food is available, the quantity that clients can take home, and how often they can access programs
- limited diversity and nutritional quality of the food offered, making it difficult to meet the needs of individuals with health, ethical, or cultural dietary restrictions
- lack of control that individuals can have over their diet in comparison to being able to purchase their own food
- possible contribution to a sense of stigma and alienation

Although food assistance programs who responded described efforts to consult their clients and procure appropriate foods, as one interviewee put it, "it's a matter of working with what we get".

Interviewees often pointed to the importance of collaboration with other organizations in their communities for addressing clients' needs by allowing a broader view of a community's resources and opportunities to distribute them more efficiently:[56]

> "We connect with the other local food banks in the area and sometimes even outside of Oshawa to check in with each other, see what the trends are, what the patterns are, what's going on with the clients. We serve the same clients. Is there a difference that we're noticing? Do you have a surplus of potatoes—we're in need of potatoes! So, it's very collaborative, there is kind of an informal network."

> "I learned and observed that most of the Jamaican population in our community are vegetarian. Now when I have vegetarian stuff that comes in here that I think I won't use, I save it for the Seventh Day Adventist church program, and then often they in return will save meat products that they get for us."

Interviewees expressed interest in continuing to formalize and improve communication between the many different actors involved in providing food assistance. There is a sense that examining the full picture of who is involved in distributing food could spark conversations about opportunities to shift away from small, reactive food charity programs—to pool resources and create strong community-controlled "hubs" for the procurement and distribution of food in a non-commercial context.

Possible Metrics

- Mapping of fresh food access points and average counts of access points by number of residents or geographic area
- Average distance of public transit or walking trips taken to food access points
- Number of individual organizations distributing food assistance in Durham (an increasing number may imply a continued increase in need or lack of coordination)

Recommendations

(1) A collaborative mapping project should be undertaken to produce an authoritative listing of food access points including hours of operation, location relative to transit services, and location relative to the communities they serve.

(2) A study of organizations that provide non-commercial food distribution services should be undertaken to identify opportunities to pool resources, thereby lowering costs and increasing efficiencies.

Indicator 2C: Access to Culturally Appropriate Food

While food system assets that enable cultural connection and enrichment through food were discussed under Pillar #1, this section focuses on the extent to which Durham residents can access culturally appropriate foods to include in their day-to-day diets. This was an issue often mentioned in the community input that was received during the research. Access to local food, which was also a frequently-invoked issue, will be discussed under Pillar #5, 'Localizes Food Systems'.

As noted in Indicator 1A, culturally appropriate food is important for identity and spirituality. However, being able to access one's cultural foods can also be about basic food security and health. For example, it is easier for people to choose and prepare foods that meet their dietary needs, preferences, and budgets, when they can access familiar ingredients.

Interviewees discussed the importance of cultural food access and some of the policy responses that a better understanding of needs for improved access could generate. On the impact that culturally appropriate food has on well-being, informants said:[57]

> "If you are living in a space where you're not able to access foods that are considered the norm for you, you're going to feel displaced . . . I think the last thing that people should have to be concerned about when they come to the region is whether there's going to be availability of the food products they are accustomed to using."

> "We need more awareness in general as to some of the other food products that do exist or the other meals that are valued within our community… but awareness can only take us so far. We need to have availability of resources, and I think that does fall with those who are producing, sourcing, and distributing food, from grocery stores to any of the other businesses that are involved."

For improving access, two interviewees stressed the importance of considering

In 2019, Invest Durham noted in its *Local Food Business Retention and Expansion Project Report* (BR&E Report) that farmers and other local food businesses wished to better understand the consumer needs of diverse cultures in Durham. Objectives included in the BR&E Report include developing resources to help producers tie into cultural celebrations, assistance with translating signage, and tracking population trends and their associated food preference trends.

the particular needs of culturally-specific food businesses, which are often small, independent and sometimes immigrant-run:[58]

> "[There are] logistical barriers for new business owners to get a business up and running successfully. I hear all the time from people how incredibly complicated and exhausting it is for them and how they feel lost in the system, especially if there are language barriers or just barriers to understanding the frameworks that we have in Canada, Ontario or Durham Region."

> "There's a lot of support right now for our downtowns, so there are all sorts of initiatives [for downtown businesses] to get grants or access to marketing experts. That needs to be available to all small businesses, not just the downtown small businesses."

Identifying priority locations or communities needing greater access to culturally specific foods could benefit from the food access mapping discussed under Indicator 2B, including a process of identifying and differentiating culturally-specific food access points and the tracking of the eventual impacts. In an example of this kind of in-depth research, Vancouver researchers used Google Street View to count and categorize cultural food businesses over a seven-year period using a categorization scheme developed specifically for the project.[59]

Current Metrics

We could not identify data-based measurements for this indicator that met the inclusion criteria.

Possible Metrics

- Number of cultural food assets in key areas, identified by a dedicated research process

Recommendation

The authoritative listing of food access points should include culturally-specific providers and their location relative to the communities they serve.

Pillar 3: Values Food Providers

Respects the work of all food providers and the ways in which sustainable livelihoods are supported[60]

The 'Values Food Providers' pillar acknowledges that the conception of "good food" should include more than health and environmental concerns—good food must come from good jobs. This pillar considers the work of all food providers across the food supply chains, that is, the ways that food travels from farm to table. Every stage of food supply is powered by people, including farmers and the workers who harvest, process, pack, transport, and sell food.[61]

Food systems today largely fail to adequately compensate for the often physically and mentally taxing work of food providers throughout the supply chain. As Canadian food sovereignty advocacy organization the National Farmers Union puts it, "a farm income crisis has left [farmers] with little take-home income to pay themselves, let alone their essential workforce."[62] Meanwhile, jobs in food processing, retail, and service: are typically low-wage; involve precarious, and sometimes dangerous, working conditions; and have been sites of racial and gender discrimination.[63]

Indicator 3A: Farm Business Diversity and Viability

This indicator, informed by data from the 2021 Census of Agriculture, examines economic trends in Durham's agricultural sector and their causes.

The "farm income crisis" referred to by the National Farmers Union in the quotation above contributed to the food sovereignty movement, and the 'Values Food Providers' pillar in particular. The prices that farmers can receive for their produce have decreased significantly in a competitive global market, creating a situation where only the largest and most technologically advanced farms—those that benefit from economies of scale—can earn enough income to offset the costs of production.[64]

Policies oriented toward maximum outputs and exports lead farmers, especially small farmers, to increasingly rely on off-farm income, government support programs, and loans to keep their businesses afloat.[65]

It is thus unsurprising that the number of farms in Canada has steadily declined, while the average size of farms has risen.[66] As smaller farm operators go out of business or leave the business, larger farms can more often grow by buying additional land. Speculative purchases by real estate developers, private equity firms, or other investors hoping to benefit from the rising value of undeveloped land in Ontario are increasing,[67] raising land prices considerably, and enticing struggling farmers to sell their land for the proceeds. Succession of family farms to younger generations has therefore diminished while high land costs impede new entrants into farming.

Table 5: Number of farms reporting a succession plan[68]

Type of plan	Number reporting
Written succession plan	121
– Includes 1 or more family members	116
– Includes 1 or more non-family members	8
Verbal succession plan only	301
No succession plan	778

The diversity and viability of the local farming industry can be easily tracked through the Census of Agriculture, administered by Statistics Canada every five years. Durham data mirrors the national-level data. As seen in Figure 1, the total number of farms in the region has declined 17.5% since 2011 although the larger size ranges have seen smaller decreases. One notable exception is that the number of farms under 10 acres has increased over the past decade. The increase in the smallest farms seemingly contradicts the larger trend of consolidation. Identifying Durham's newer and smallest farms may yield valuable lessons. Such an investigation may determine whether new small farms are emerging or whether some existing farms are getting smaller, the reasons for this, and what may help these businesses.

Similarly, gross farm receipts tend to be greater the larger the farm. As shown in Figure 2, the number of farms in Durham taking in over $1,000,000 annually has increased, the number with receipts between $500,000 and $999,999 has not changed, and the number of farms in all other earning ranges has decreased.

The fact that 1.6 acres of farmland is leased for every 1 acre owned may be cause for concern, depending on whom the land is primarily being leased from (either the government or "others" such as developers) and therefore the prospects for land remaining in use for food production in the long-term.

Collaboration with local governments, who track and interpret Agricultural Census data closely, might help community groups such as DFPC in communicating this information to the public. Meaningful research projects

Figure 1: Number of farms by size, 2011-2021[69]

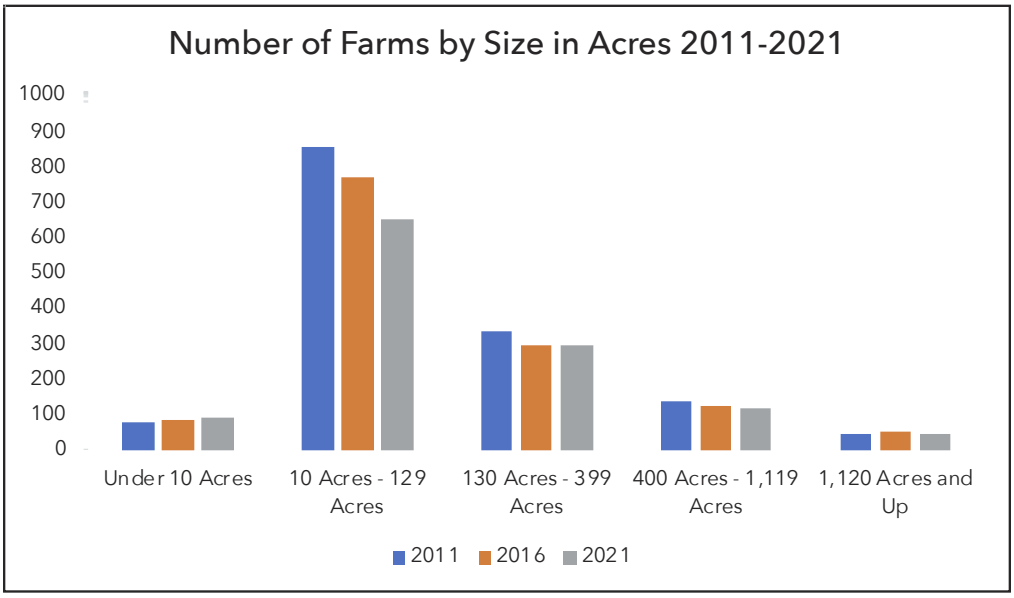
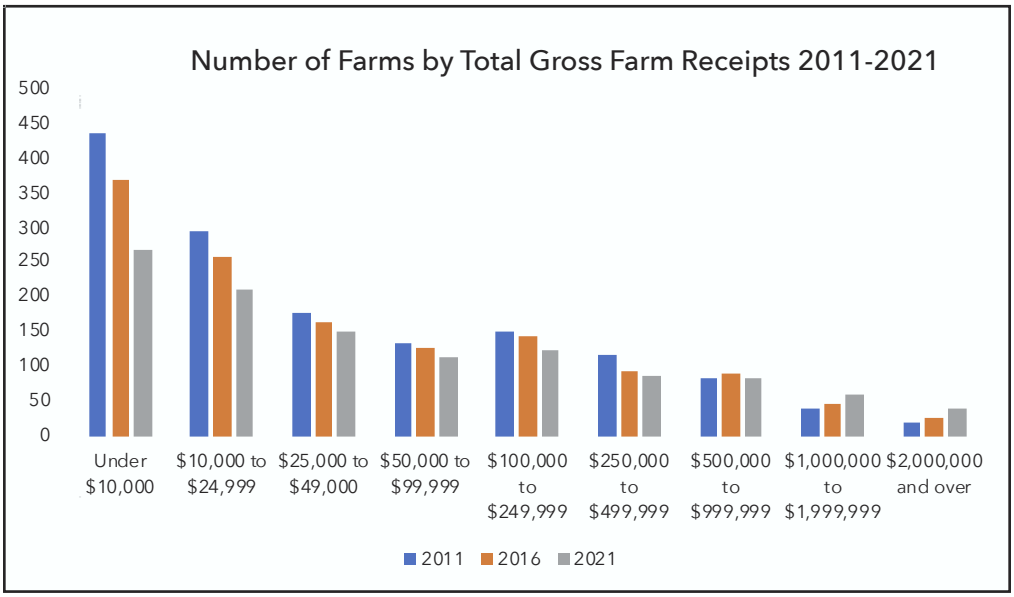


Figure 2: Number of farms by total gross farm receipts, 2011-2021[70]



that go beyond what the Census reveals could include investigating rural land ownership and understanding the specific reasons that farmers sell their land. Crop diversity and diversity in the operating arrangements of farms should also be included in any deeper analysis of the farming sector's overall resilience.

More detailed information about the trends outlined here, their causes, and policy responses at the local level can be found in *Growing Agri-Food Durham: A Five-Year Plan to Grow the Agri-Food Industry in Durham Region*, a policy document created by the region's Department of Economic Development. The region's *Local Food Business Retention and Expansion* project, an ongoing action plan for addressing limitations and expanding opportunities for a variety of local food businesses in Durham, also has bearing on this indicator.[71]

Current Metrics		
Metric	**Latest measurement**	**Source and year**
3A-i Number of farms	1200	Statistics Canada, Census of Agriculture, 2021
3A-ii Trend in number of farms by size	See Figure 1	Statistics Canada, Census of Agriculture, 2021
3A-iii Trend in number of farms by farm income (total gross receipts)	See Figure 2	Ontario Ministry of Agriculture, Food and Rural Affairs, Durham County Profile, 2021 (reporting 2021 Census of Agriculture data)
3A-iv Ratio of farmland area owned to area leased or rented	1:1.6 For every 1 acre owned, 1.6 acres are leased	Statistics Canada, Census of Agriculture, 2021
3A-v Percentage of farms reporting no succession plan	65% See Table 5 for detail	Statistics Canada, Census of Agriculture, 2021
3A-vi Ratio of total farm operating expenses to total revenues	0.83 For every dollar of revenue, 83 cents of expenses incurred	Statistics Canada, Census of Agriculture, 2021: Operating expenses Operating revenues

Possible Metrics

- Farm income and profit data, by farm size
- Proportion of farmland that is owned by non-farm corporations, including developers
- Average cost of farmland
- Total farm debt
- Number of new farmers entering the local agriculture industry

Recommendations

- Deeper analysis is required to understand the farming sector's overall resilience including current rural land ownership, changes in land ownership, types of farming operations and changes in farming operations including crop diversity, size, and scale. Such an analysis should include Durham's smallest and newest farms.
- Study the barriers to profitability and identify whether there are opportunities for improvement

Indicator 3B: Welfare of Farmers

Along with the health and resilience of farm businesses, it is important to consider how changes in the business of farming might impact health, wellness, and economic stability for the people involved in it- and what associated supports are available in Durham. A well-functioning food system requires a farming sector that can attract and retain people—and can empower anyone who wants to be involved in the sector to be involved. This in turn can create a less consolidated and more responsive agricultural sector that is

focused on the food security needs of all people. It should be emphasized that progress on this indicator is significantly linked with the farm and agri-business profitability issues discussed in the previous section. However, stepping back to consider farmers not only as businesses but as people might illuminate the need for additional supports beyond what can be provided by business development programs.

The stresses on farm operator households can be observed through socioeconomic data. While Statistics Canada produces tables showing the number of farms in each income class (for both farm operator income and household income),[72] this data is not available at the regional level. However, the regional-level Census of Agriculture data showing the number of farm operators who have additional paid work off-farm may reflect farm businesses not earning enough income to cover the operators' living expenses.[73] 35% of farm operators in the region are working more than 40 hours per week on the farm. In addition, 45% of farm operators have some paid work off-farm which may reflect insufficient farm incomes to cover the operators' living expenses. Of these, 64% were working over 30 hours/wk off-farm, and 36% are working over 40 hours/wk off-farm. Nearly 30% of all farm operators in Durham Region work full-time hours off-farm in addition to farming. [74]

Table 6: Farm operators' farm work and other paid work, 2021[75]

Farm work and other paid work, on average	Farm Operators
Total number of farm operators	1,710
Farm work - less than 20 hours per week	570
Farm work - 20 to 29 hours work per week	290
Farm work - 30 to 40 hours work per week	255
Farm work - more than 40 hours work per week	590
Other paid work - 0 hours per week	930
Other paid work - less than 20 hours per week	180
Other paid work - 20 to 29 hours per week	95
Other paid work - 30 to 40 hours per week	220
Other paid work - more than 40 hours per week	280

These numbers help explain why many DFPC research participants brought up the mental health of farmers as an issue that deserves more attention. Unfortunately, the research did not find any focused reporting on this for Durham Region.

As in Canada, the average age of farmers in Durham is rising, as Table 8 illustrates. While the number of farmers has decreased in all age groups over the past 10 years, the smallest decrease both in absolute and percentage terms has been in the number of farmers aged 55 years or older. Reflecting this, the average age of farmers has increased slightly, from 57 to 58. As

discussed in the previous section, farmers may delay retirement if it is difficult to save, and may not pass along a family farm due to low profitability. As well, the relative lack of younger farmers suggests both a recognition of the difficulty and stress of this profession by younger generations, and barriers to entry for those who do want to farm.

Table 7: Total number of farm operators, 2011-2021[76]

	2011	2016	2021
Number of Farm Operators	2130	1,945	1,710

Table 8: Number of farm operators by age, 2011-2021[77]

	2011	2016	2021
Under 35 years	110	115	80
35 – 54 years	845	625	465
55 years and older	1175	1,200	1,160
Average age	57	58	58.6

From 2016 to 2021, Canada saw the first increase in female farm operators since 1991.[78] Durham, however, saw a decrease in the number of female farm operators during this time, but it was not as substantial as the decrease in male farm operators, as shown in Table 9. As a result, the percentage of farm operators who are female increased slightly.

Table 9: Number of farm operators by sex, 2011-2021[79]

	2011	2016	2021
Male	1,485	1,330	1,170
Female	640	610	540
% Female	30.1%	31.4%	31.6%

While the Census of Agriculture reports on the age and sex of farm operators, it does not collect data on other dimensions of identity.[80] This means that minority farmers, such as racialized, immigrant, or queer farmers are not visible in this reporting. At the national and provincial level, however, Statistics Canada creates a linkage of agriculture and population census data for a sample of the farming population and uses this to derive estimates for the entire population. Data generated by this linkage includes the percentage of farm operators who were born outside of Canada, or who are married, as well as the income class data mentioned above, ethnicity, and education levels.[81] Developing metrics for socioeconomic and demographic traits of interest at the local level would mean using regional census data to perform a similar undertaking. Understanding the demographics of the farming population could help to inform policy or programs to support farmers.

Farmer Associations or Support Programs in Durham:

- Durham Federation of Agriculture
- National Farmers Union-Ontario Local 345
- Durham Farm Fresh
- Durham Farm and Rural Family Resources

The demographic diversity of the farming population could reflect improvements to the welfare of farmers in two ways. First, more minority farmers (such as racialized, immigrant, female, or queer farmers) would suggest less systemic inequities in agriculture and less likelihood of being isolated in agricultural communities—which itself contributes to wellness and encourages more people to try farming. Second, a more diverse farming industry could be a sign of a healthier one, especially for newer and smaller farms. Broader structural injustices can prevent people from minority and marginalized communities from being financially capable of entering a risky and difficult business—so more diversity in the farming population may speak to reduced barriers to entering agriculture and an improved ability of all farmers to earn income. Demographic diversity of the farming population, however, is difficult to measure at the local level.

There are very few organizations in Durham focused specifically on supporting farmers' health, welfare, or social connection. The Farmers' Wellness Initiative, an Ontario Federation of Agriculture initiative funded through the Ontario Government, offers 24/7 phone support and counselling to farmers across Ontario.[82] There are also several farmer associations focused on political advocacy or marketing and business development[83] which can support overall wellness by bringing people together to collectively address the challenges they face as farmers, and indirectly by improving farm profitability. Durham Farm and Rural Family Resources supports farming families by providing free children's services and programs in Brock and Uxbridge Townships, along with on-farm childcare. Their objectives include improving coordination between agencies offering services in north Durham and reducing the rate of injury for children living on farms.[84]

Current Metrics		
Metric	**Latest measurement**	**Source and year**
3B-i Trend in the number of farm operators	See Table 7	Statistics Canada, Census of Agriculture, 2021
3B-ii Average age of farm operators	58.6 See Table 8 for detail and trend	Statistics Canada, Census of Agriculture, 2021
3B-iii Percentage of farm operators who are female	31.6% See Table 9 for detail and trend	Statistics Canada, Census of Agriculture, 2021
3B-iv Percentage of farm operators working more than 40 hours per week on farm	35%	Statistics Canada, Census of Agriculture, 2021
3B-v Percentage of farm operators with off-farm paid work	45%	Statistics Canada, Census of Agriculture, 2021

Possible Metrics

- Health and wellness indicators for farming population
- Income classes of farm operator households
- Further measurements of the demographic diversity of the farming population

Recommendations

- Develop metrics for socioeconomic and demographic traits of interest at the local level by using regional census data. Understanding the demographics of the farming population could help to inform policy or programs to support farmers.

Indicator 3C: Welfare of Food System Workers

Similar to the last indicator, this next indicator asks how health, wellness, and economic stability might be affected by changes in the business of farming and what local supports are available–but this time with regard to employees of farms and other food production, processing, and distribution businesses.

Labour issues in the food system are broad-ranging. On farms, exceptions to Ontario labour legislation combined with the income crisis facing farm businesses leave workers vulnerable to low pay and strenuous working conditions,[85] a situation that can be worsened for temporary foreign workers who are less empowered to defend their rights at work.[86] As farms continue to struggle for profitability, small and alternative farms often turn to unpaid internships as a source of labour, opening another set of questions about how to ensure decent work.[87] In food processing, retail, and service, the belief that "unskilled" positions are only taken up by those seeking a temporary job is used to excuse minimal employee protections or benefits.[88] While these issues are not inherently local–given provincial and federal level regulations and national or multinational employers––it is possible to document the impact of large-scale labour issues in Durham's food system and to form relationships locally with unions and other organizations that advocate around these issues. This is currently a low-information area for DFPC.

Agriculture relies on a large quantity of seasonal labour during growing and harvesting seasons. In fact, most of Ontario's horticultural crop would not be harvested without foreign workers, who comprise a vital part of our food system.[89] One survey of Durham agri-business employers found that nearly 48% of producers' employees were temporary or seasonal, compared to only 20% of other types of businesses' employees.[90] Throughout the country, much of this seasonal workforce is made up of workers from other countries who come to Canada through the federal Temporary Foreign Workers Program (TFWP) streams, such as the Seasonal Agricultural Workers Program (SAWP). Though the precise number or proportion of temporary foreign workers in Durham was not found, Durham farmers have commented on their importance to the local agricultural sector.[91]

While the SAWP allows migrant agricultural workers to financially support their families back home, it has also been criticized by labour advocates and by workers in the programs themselves. The lack of paths to permanent residency for workers, combined with employer-specific, discretionary work contracts, results in a high degree of worker dependence on their employers. When employers do not adequately provide safe working conditions and housing, and connection to healthcare and other services, workers can often be afraid to speak out and risk being returned to their home countries or not re-hired in future seasons.[92] Language barriers and lack of integration into surrounding

communities can compound such challenges. Meanwhile, the Auditor General of Canada has found deficiencies in government inspections meant to ensure employers' compliance with health and safety requirements.[93]

It is important to note that the research found no public reporting on employers of foreign temporary workers in Durham specifically, so it is not possible to comment on whether or how such problems are present locally. Durham Region Health Department inspects worker residences and provides health and safety resources for both employers and employees.[94]

Organizations involved in foreign agricultural worker outreach in Durham:

- Durham Region Migrant Agricultural Workers Network (run by staff of the AIDS Committee of Durham Region and community volunteers)
- Durham Region Migrant Worker Ministry (collaboration between several churches)
- Brock Community Health Centre
- The Nourish and Develop Foundation
- Durham Region Health Department: inspects worker residences and provides health and safety resources for both employers and employees

There are several community organizations that perform outreach to foreign agricultural workers in Durham.[95] This outreach involves delivering food and other supplies, providing transportation to grocery stores or healthcare, providing health, safety and legal information in workers' languages, and social activity to reduce isolation. In conversations with DFPC, staff involved in these programs stated that better public data is needed on where migrant workers are employed in Durham to enable them to reach more workers.[96]

The research also identified little Durham-specific data about other segments of the food system workforce. Employment income data for a range of agricultural occupations was found in a report from the Durham Workforce Authority[97] (see Table 10). The same data for other occupations in the food system was found on the Statistics Canada website, though it is reported for the Oshawa Census Metropolitan area—which includes Oshawa, Whitby, and Clarington—rather than the Durham census subdivision (see Tables 11 and 12).

A report from the Durham Workforce Authority which includes 2018 analysis of retail employment conditions in Durham found that the local retail industry "embodies several criteria of workplace precarity, including hourly wages, lack of paid vacation, unspecified and unconfirmed work schedule."[98] While the study looked at retail in general rather than food retail specifically, food and beverage retail constituted 23% of total retail employment at the time, making it the largest sector of retail employment.[99] Future local food system research might include identifying priority sectors of food-related employment for focused studies like the Durham Workforce Authority's *Retail Trade Industry Sectoral Analysis*.

Table 10: Employment income in agriculture, Oshawa Census Metropolitan Area[100]

Occupation- National Occupational Classification (NOC) 2021	Average employment income	Median employment income
Managers in agriculture, horticulture, and aquaculture	$25,800	$40,000
Contractors and supervisors, agriculture, horticulture, and related operations and services	$44,400	$44,800
Workers in agriculture and fishing occupations	$28,200	$33,000
Agriculture, horticulture, and harvesting labourers and related occupations	$11,300	$16,400

Table 11: Employment income in food processing, Oshawa Census Metropolitan Area[101]

Occupation– National Occupational Classification (NOC) 2021	Average employment income	Median employment income
Machine operators and related workers in food, beverage, and associated products processing	$57,200	$56,000

Table 12: Employment income in food service, Oshawa Census Metropolitan Area[102]

Occupation- National Occupational Classification (NOC) 2021	Average employment income	Median employment income
Managers in food service and accommodation	$36,000	$44,000
Service occupations in food and beverage service	$6,700	$10,360
Food counter attendants, kitchen helpers, and related support occupations	$9,200	$13,820
Cooks, butchers, and bakers	$12,700	17,520

Table 13: Unionization in Durham's food system (examples identified by DFPC Internet Asset Scan, 2021)

Union local	Units in food system workplaces
United Food and Commercial Workers, Local 1006A	• 8 grocery stores in Oshawa, Whitby, Ajax, and Pickering • 3 non-restaurant food service providers in Whitby and Oshawa • 2 restaurants in Oshawa and Pickering
Unifor, Local 222	• Loblaw Distribution Centre (Ajax) • Premier Implementation Solutions (Oshawa)

Current Metrics		
Metric	**Latest measurement**	**Source and year**
3C-i Average and median employment income for agriculture-related occupations	See Table 10	Statistics Canada, Employment Income Statistics, 2021 (Census of Population- Data available for the Oshawa Census Metropolitan Area)
3C-ii Average and median employment income for food processing occupations	See Table 11	Statistics Canada, Employment Income Statistics, 2021 (Census of Population- Data available for the Oshawa Census Metropolitan Area)
3C-iii Average and median employment income for food service occupations	See Table 12	Statistics Canada, Employment Income Statistics, 2021 (Census of Population- Data available for the Oshawa Census Metropolitan Area)

Possible Metrics[103]

- Formal study of living and working conditions for migrant agricultural workers in Durham
- Further measurements of economic security for food system workers
- Measurement of employment and safety conditions for food system workers
- Incidence of race-based or other employment discrimination in the food system
- Rate of unionization in Durham food system workplaces (see Table 13 for examples of unionized workplaces identified by the Internet Asset Scan, 2021)

Recommendations

Better public data is required in Durham Region to understand the welfare of food system workers particularly pertaining to foreign agricultural workers, employment conditions, and labour issues.

Indicator 3D: Education and Training in Agriculture

This final indicator concerns education and training for farmers and agricultural workers.

Older farmers are retiring at a faster rate than new farmers are entering the industry. This is resulting in a shortage of people with the variety of skills needed to be employed by farms and agriculture-related businesses. 1 in 3 agriculture jobs in Canada are estimated to go unfilled, most of these in Ontario, by 2029.[104]

A small survey in the regional Economic Development Department's Local Food Business Retention and Expansion Project Report found that 70% of the agri-food businesses that responded and 86% of producers specifically, rated the availability of qualified workers in the region as fair or poor. Difficulty in hiring was attributed to both a general lack of applicants and lack of job-seekers with the skills or experience needed. In the same survey, 39% of the businesses responding reported that they participate in co-op, internship, or apprenticeship programs, and another 32% reported that they were interested in knowing more about such programs though were not currently participating.[105]

As seen in Tables 14 and 15, there is a strong presence of post-secondary educational programs related to agriculture and agri-food careers in and near Durham Region. The Workforce Authority's Agriculture Sector Partnership Planning Grant report recommends collaboration between local governments, post-secondary institutions, and businesses to connect people in these programs to agricultural employment in the region, along with making other education and training opportunities, such as high school programs and experiential learning, available.[106] The presence of such opportunities along with other less formal forms of education and training, could be an area of interest for more focused research in the future. As noted earlier, structural reforms and supports that improve labour conditions and farm operators' livelihoods are also necessary for encouraging new entrants into agricultural careers.

Table 14: Durham-area post-secondary programs in agriculture[107]

School	Program
Durham College	Horticulture: Food and Farming
Durham College	Sustainable Local Food
Fleming College	Sustainable Agriculture Co-op
Trent University	Applied Agriculture
Trent University	Sustainable Agriculture and Food Systems

Table 15: Durham area post-secondary programs related to agri-food careers[108]

School	**Program**
Durham College	Horticulture Technician
Durham College	General Arts and Science – Science and Engineering Preparation – Ontario Tech University
Fleming College	Arboriculture Co-op
Fleming College	Ecosystem Management Technician
Ontario Tech University	Biological Science
Ontario Tech University	Chemistry
Ontario Tech University	Manufacturing Engineering
Ontario Tech University	Mechanical Engineering

Current Metrics		
Metric	**Latest measurement**	**Source and year**
3D-i Number of post-secondary programs in the Durham area directly related to agriculture	5 See Table 14 for programs	Durham Workforce Authority, Agriculture Sector Partnership Planning Grant, 2021
3D-ii Number of other post-secondary programs in the Durham area relevant to agri-food occupations	8 See Table 15 for programs	Durham Workforce Authority, Agriculture Sector Partnership Planning Grant, 2021
3D-iii Number of Durham secondary schools offering a Specialist High Skills Major program in agriculture	1 (Brooklin High School)	Ontario Ministry of Education, Specialist High Skills Major- Find a Program, 2022
3D-iv Percentage of Durham's population with post-secondary education whose field of study was in agriculture, natural resources and conservation	1.7%	Statistics Canada, Major field of study by highest level of education, 2021 Census of Population

Possible Metrics

- Percentage of farms reporting skilled labour gaps
- Percentage of farms that offer employee training
- Number of farm operators who are interested in accessing training, versus number actually accessing
- Number of farmers participating in mentorship programs
- Number of people enrolled in agriculture-related post-secondary programs in Durham
- Percentage of graduates from Durham post-secondary schools who find agriculture-related employment within the region

Recommendations

Opportunities to grow Durham's agricultural education and training programs include connecting participants with employment opportunities, introducing more high school and experiential learning programs, and creating less formal forms of education and training.

Pillar 4: **Works with Nature**

Maximizes the contributions of ecosystems; improves sustainability and resilience[109]

Indicator 4A:

Works with Nature recognizes the importance of working in harmony with the surrounding ecosystem to ensure sustainable, resilient food production, and the ability to adapt to a changing environment. For Durham, this involves land use planning, climate change adaptation planning, and identifying current and possible sustainable and ecological agricultural practices—as well as the supports that farms may need in order to implement these.

Protection of Farmland

The first indicator for this pillar examines the state of the local agricultural land base, which is the essential natural basis of a resilient regional food system.

As discussed under Indicator 3A, one of the most significant trends influencing the agricultural sector is the rising cost of land driven by urbanization and developers' speculative purchasing. Municipal governments face considerable pressure to extend the growth boundaries within which land use legislation allows urban development.

Resilience: The ability to recover from or adjust easily to misfortune or change[110]

Adaptation: The process of adjusting systems and infrastructure in order to improve resilience[111]

Mitigation: Actions to decrease the emissions that cause climate change[112]

Provincial Government Policy

In November, 2022, the Ontario Provincial Government passed Bill 23: *The More Homes Built Faster* Act. The Bill removes Durham Region's ability to approve decisions on land use, decreases funding for municipal infrastructure from development charges, and restricts the purview of conservation authorities. The Bill also removed 15 parcels of land in Durham from the Greenbelt. However, all of this land was restored to the Greenbelt in 2023.[113]

Bill 39: The *Better Municipal Governance* Act, also passed in 2022, removed permanent protections for the Duffins Rouge Agricultural Preserve (DRAP), opening up the 4700-acre preserve to development. The DRAP is a rich ecosystem comprising mostly prime agricultural land that supports the ecosystem of the bordering Rouge National Urban Park as well as the Petticoat

Creek and Duffins Creek watersheds. A citizens' coalition, the Rouge Duffins Greenspace Alliance, has been working for 20 years to establish and ensure the protection of the DRAP from development. Environmental Defence states:

> "The agricultural components of the DRAP became the most protected agricultural land, and only Agricultural Preserve, in the province. The DRAP had the following layers of protection:
>
> - protected by agricultural easements on title;
> - 'Permanent Agricultural Reserve' in the Regional and City Official Plans;
> - excluded from settlement area boundaries;
> - included in the Greenbelt;
> - enshrined in the Provincial Central Pickering Development Plan; and
> - protected by the Duffins Rouge Agricultural Preserve Act."[114]

The DRAP was returned to the Greenbelt in 2023 along with the other Durham lands that had been removed. At the same time, the protections of the Duffins Rouge Agricultural Preserve Act were restored. Advocates for DRAP conservation argue that despite these crucial developments, the preserve is still less protected than it had been prior to 2022, as the Central Pickering Development Plan and a Minister's Zoning Order that limited uses in the DRAP have not been restored. The provincial government argues that these protections have become redundant as the land use designations and restrictions that they set out are reflected in Pickering's official plan and in the Greenbelt Plan. However, advocates fear that the DRAP has been made more vulnerable to development upon review of the Greenbelt Plan in 2025[115]

The Ontario Farmland Trust has recently proposed that it should be installed as the holder of conservation easements in the DRAP, to prevent these from being removed by future governments.[116] Information about land trusts can be found later in this section.

Overall, the recent changes in the direction of provincial government policy threaten to reduce natural areas, biodiversity, and food-producing land.

Regional Government Policy

On May 17, 2023, Durham Regional Council adopted an amended Regional Official Plan (ROP), following a years-long process of Municipal Comprehensive Review (MCR) in which land use designations were adjusted to reflect new developments in the region and to implement provincial policies. The new ROP will only take effect once approved by the provincial Ministry of Municipal Affairs and Housing.[117]

One significant change brought about through the MCR is the expansion of Durham's urban growth boundary. In May 2022, Regional Council voted to adopt a proposal from a lobby group representing development companies to extend the boundary enough to open 2,600 hectares of rural land for development.[118] This is 175% greater than the 950-hectare extension the Regional Planning Division had recommended after undertaking a highly

technical land needs assessment and inviting public comment on 5 possible land use scenarios.[119] The lobby group's proposal was not one of the scenarios that had been presented to the public, and the Planning Division advised Regional Council that it did not reflect the land needs assessment and did not have the support of regional staff or the consultant team that had participated in the assessment.[120] After overwhelming opposition was expressed in letters and delegations from citizens, Regional Council accepted the lobby group's proposal.[121] Opponents to the urban boundary extension argued that requiring such a large area of land to be opened for development will lead to irreversible loss of farmland, along with other adverse environmental and social impacts.[122]

Another aspect of the MCR was implementation of provincial policy meant to protect prime agricultural land. The Provincial Agricultural System is a map of areas that municipal governments are either required or recommended to protect for long-term agricultural use. The land that must be protected due to its agricultural value is referred to as Prime Agricultural Areas. In reviewing their official plans, municipalities are required to ensure that all Prime Agricultural Areas mapped by the province are designated as such in the ROP, and determine which candidate areas suggested by the province should actually be designated Prime Agricultural Areas. Draft mapping of the Regional Agricultural System was completed in June 2022 and it proposed increasing the area of land protected for long-term agricultural use in Durham by 8031 hectares to a total of 121,582 hectares.[123]

The research for this report card was completed before the amended ROP was finalized and approved by Regional Council. As such, it did not include an analysis of the location of lands added to the urban boundary or the Regional Agricultural System. To observe the loss or conservation of farmland on an ongoing basis, it will be necessary to pay attention to the fate of rural areas that have been redesignated as urban areas, as well as those designated Major Open Space, where agriculture is one of several possible uses allowed.

Land Trusts

Land trusts are organizations—which can be local, provincial, or national in scope—that raise funds to acquire land for the purpose of conserving its current features or uses.[123]

In rural areas where land is not protected for agricultural use by policy, it may be protected by a land trust. Land trusts are organizations—which can be local, provincial, or national in scope—that raise funds to acquire land for the purpose of conserving its current features or uses.[124] Rural land that is acquired by a land trust can be prevented from being purchased by developers anticipating future urbanization. The Ontario Farmland Trust is an example of a trust that preserves land used for agriculture and associated natural and cultural features in rural areas.[125] The research did not find any published information about trusts that have acquired land for this purpose in Durham, but a focused investigation into rural land ownership using public records might reveal more.

Land trusts, agricultural preserves, and overall protection by the federal and provincial governments for prime farmland across Canada are necessary for stopping the rapid loss of farmland in and beyond Durham region.

Current Metrics		
Metric	**Latest measurement**	**Source and year**
Total land area added to the urban boundary	Over 9000 acres	See correspondence in Durham Regional Council Agenda May 25, 2022.

Possible Metrics
• Total land area designated as prime agricultural land and protected for long-term agricultural use • Total area of other land protected for long-term agricultural use, e.g., through land trusts

Recommendation
Further research into the use of land trusts to protect Durham agricultural land is urgently needed. In addition, there needs to be publicly accessible information on how many exist in Durham.

Indicator 4B: Environmental Impacts of Food Production and Adoption of Sustainable Farming Practices

The next indicator asks how it is possible to assess both the impacts of Durham's food production on the natural environment and the progress being made to reduce these impacts through improved agricultural practices.

It is difficult to measure the environmental impacts of a single industry at the local level, let alone the environmental impacts of a regional food system. Not only are both interconnected with other industries and with higher-level supply chains, but impacts can also be direct or indirect.

Detailed accounting of metrics like the flow of natural resources, pollutants, and other materials between the economy and the environment is not usually performed at the regional level. That work is most often done when governments create policy whose implementation requires monitoring and reporting. A significant local example is the *Durham Community Energy Plan* (DCEP), for which a baseline energy and emissions inventory was commissioned, and which directed that implementation should be monitored through ongoing inventory of and reporting on energy consumption and greenhouse gas (GHG) emissions in Durham.[126] The DCEP's baseline data on GHG emissions from the Durham agriculture sector's energy use is reported in the table of current metrics below, in the hope that it will be possible to update this figure using future emissions inventories. However, the research did not find any implementation reports for the DCEP containing this data.

Water Quality

Water quality is an environmental metric that should be considered in evaluating the sustainability of the local food system, as agricultural runoff is one significant contributor to freshwater pollution. In Ontario, data collection, monitoring, modelling, and research on water quality and ecosystem health is

carried out by conservation authorities.[127] Of the five conservation authorities present in Durham, three host Open Data pages where the public can access this data—the Lake Simcoe Region Conservation Authority,[128] Toronto Region Conservation Authority,[129] and Central Lake Ontario Conservation Authority.[130] On its own, this data is not specific to agriculture or the food system and may not meet the inclusion criterion of being accessible for those not familiar with ecological science. Developing relevant Food System Report Card metrics might nevertheless be possible if local actors with significant knowledge of agriculture and ecology collaborate to select the most salient measurements and communicate the extent to which they might be influenced by food production. As noted earlier, conservations authorities' powers have been limited by the current provincial government.

Statistics Canada also collects information about farms' water use and water conservation practices through the Agricultural Water Survey, but the resulting data is not available to the public at the regional level.

Agricultural Practices

The agricultural practices that can reduce environmental impacts, or help adapt food production to environmental changes, are another area where relatively little information is available in the form of data. The Census of Agriculture is again the best source, as it asks farms to report on their adoption of a range of practices that influence the interaction of agriculture and the environment. These fall into four broad categories: land practices that can prevent wind or water damage and otherwise protect the quality of farmland; tillage and seeding practices that influence soil health, reduce soil erosion and sequester more carbon in soil; land inputs, which can contribute to agricultural runoff and water pollution; and on-farm production of renewable energy.[131] Moving forward, farmers might advise on the specific practices whose adoption are most important to track.

The Ontario Soil and Crop Improvement Association administers the Environmental Farm Plan program which provides farmers with a process for raising environmental awareness, assessing the environmental conditions of their farms, and setting up plans to improve them.[132] Some farmers, such as dairy farmers, are required to establish Environmental Farm Plans. However, among other farmers who do not have this requirement, many choose to develop these plans nonetheless.[133] Approximately 75% of Ontario's farms have completed one or more Environmental Farm Plans.[134]

In addition to practices that mitigate environmental impacts, farms are changing their behaviour to adapt to the significant risks and potential opportunities presented by the changing climate. In 2019, the Durham Region Agriculture Sector Climate Adaptation Strategy, an addendum to the *Durham Community Climate Adaptation Plan* (DCCAP), was adopted as a pathway for the agricultural sector in the region. The strategy outlines objectives in four areas: local awareness and education on agriculture and climate change; developing local research capacity; policy support through harmonization of various regional and area municipal policies and processes; and consideration of the agriculture sector's needs and contributions in the implementation of DCCAP projects and programs. The research did not identify any reporting on implementation of this strategy that has yet been published.

A possible metric suggested by several research participants was the number of organic, ecological, or otherwise "sustainable" farms in Durham. Some farmers in the study pointed out that there is no common, objective definition of what constitutes "sustainable" agriculture. Farm size, location, produce type, and population served all influence the type of low-impact or regenerative farming practices that farms can adopt. A farm operator may be significantly reducing their environmental impacts in one or a few areas with innovative practices while still not operating as a fully organic or ecological farm. Local farms with comprehensive approaches to sustainability can provide valuable lessons on best practices and measures that would enable more farms to adopt these. However, merely counting these types of farms might leave out information about progress being made on other farms. Moving forward, both should be the subject of more detailed research and reporting. In the near term, incentivising and rewarding more environmentally friendly practices among all farm types could encourage the industry to continually improve. As in any industry, large-scale, meaningful change will require significant structural reforms that make sustainable practices more viable and destructive ones less viable.

Table 16: Land practices and land features[135]

Land practices and land features	Number of Farms Reporting		
	2011	2016	2021
In-field winter grazing or feeding	217	203	198
Rotational grazing	393	340	269
Plowing down green crops	253	208	142
Planting winter cover crops	166	242	231
Shelterbelts or windbreaks (natural or planted)	415	483	597

Table 17: Tillage and seeding practices[136]

Tillage practices	Unit of Measure	2011	2016	2021
Total land prepared for seeding	Number of farms reporting	806	812	793
	Acres	157,864	174,112	166,969
No-till seeding or zero-till seeding	Number of farms reporting	281	290	310
	Acres	36,219	36,946	40,030
Tillage retaining most crop residue on the surface	Number of farms reporting	279	315	289
	Acres	73,791	86,549	74,679
Tillage incorporating most crop residue into soil	Number of farms reporting	458	396	410
	Acres	47,854	50,617	52,260

Table 18: Land inputs, manure and irrigation[137]

Land inputs, manure, and irrigation	Number of farms reporting	Acres Treated
Seed, prior to planting	391	125,005
Herbicides	479	144,601
Insecticides	162	40,738
Fungicides	181	45,116
Commercial fertilizer	577	157,519
Lime	34	8,310
Trace minerals and nutrients	130	52,939
Manure applied	522	N/A
Solid or composted manure, incorporated into soil	320	16,932
Solid or composted manure, not incorporated into soil	224	7,056
Liquid manure, injected or incorporated into soil	40	5,427
Liquid manure, not incorporated into soil	22	2,428
Irrigation	91	3,512

Table 19: Renewable energy production on farms[138]

Renewable energy production	**Number of farms reporting**
Renewable energy production, total	197
Renewable energy production, for use on the operation	86
Renewable energy production, for sale	117
Renewable energy type, wind	8
Renewable energy type, solar	138
Renewable energy type, bioenergy, total	23
Renewable energy type, bioenergy, biomass combustion	23
Renewable energy type, bioenergy, biomethane	Data unreliable
Renewable energy type, bioenergy, other biogas	1
Renewable energy type, bioenergy, biofuel	Data unreliable
Renewable energy type, geothermal	50
Renewable energy type, other	0

Current Metrics		
Metric	**Latest measurement**	**Source and year**
4B-i Greenhouse gas emissions from agriculture sector's energy use (tonnes of CO2 equivalent)	70,085 tonnes CO2-eq	Durham Sustain Ability, Durham Community Energy Plan: Baseline energy study, 2017 (reporting 2015 energy consumption data)
4B-ii Agriculture's share of Durham's total carbon emissions	3%	Toronto Atmospheric Fund, Carbon Emissions Inventory for the Greater Toronto and Hamilton Area, 2021
4B-iii Trends in land practices used by farms	See Table 16	Statistics Canada, Census of Agriculture, 2021
4B-iv Trends in tillage and seeding practices used in farms	See Table 17	Statistics Canada, Census of Agriculture, 2021
4B-v Land inputs used by farms	See Table 18	Statistics Canada, Census of Agriculture, 2021
4B-vi Total energy use in regional agricultural industry (Gigajoules)	1196346 GJ	Durham Sustain Ability, Durham Community Energy Plan: Baseline energy study, 2017 (reporting 2015 energy consumption data)
4B-vii Number of farms using renewable energy produced on-farm	86 See Table 19 for detail	Statistics Canada, Census of Agriculture, 2021

Possible Metrics

- Ecosystem quality metrics near lands under agricultural use
- Trends in farm water conservation practices
- Number of farms specialized in lower-impact agricultural practices
- Proportion of energy used for growing, storing, and processing food that is renewable

Recommendation

Further development of the Food System Report Card must include measurements to capture the environmental impacts of food production including data related to water and soil quality, as well as the prevalence and effectiveness of sustainable practices that mitigate environmental impacts. Consultation with farmers will be valuable for prioritizing which practices to track.

Indicator 4C: Reduction and Sustainable Management of Food Waste

The third indicator for pillar 4 addresses the "other end" of the food supply chain, recognizing that food waste is a significant contributor to climate change and other environmental problems. This indicator asks what is being done by Durham's governments, institutions, and businesses to reduce the production of surplus food and sustainably manage food waste.

Food loss: any disposal of food that occurs before food arrives at its point of sale

Food waste: the disposal of food at the retail and final food preparation and consumption stages.[139]

Circular Economy: an economic model in which materials are continuously (re)circulated – as opposed to a linear model in which they are discarded as waste after use. In the case of food waste, this includes using food scraps, inedible food by-products, or lower-grade produce to make other products instead of discarding them.[140]

Disposal of waste is often pictured as the end of the food supply chain, the "leftovers" after consumption. The reality is that significant volumes of food—including edible food—are disposed of at every stage of production and distribution. A 2019 study by Second Harvest found 58% of all food produced in Canada is ultimately disposed of, and 32% of this food is still edible when it is discarded.[141] Environment and Climate Change Canada uses the term food loss to refer to any disposal of food that occurs before food arrives at its point of sale, while food waste applies to the retail and final food preparation and consumption stages.[142]

In recent years there has been a significant shift in Ontario's policy environment for waste management, with the province adopting a circular economy framework. Both municipal governments and private sector facilities are now required to meet food and organic waste reduction and resource recovery targets under the province's *Food and Organic Waste Policy Statement*.[143] The Action Plan for the province's Food and Organic Waste Framework sets out an intention to eventually ban the disposal of food and organic waste entirely.[144]

Household Food Waste Management

Much more information is available about the management of household food waste, as this is the responsibility of local government. Green Bin collection of household food waste from single-family residences is available throughout the region. However, most multi-residential buildings in Durham are not serviced by the Green Bin program.[145] The Regional Waste Management Department estimates that 60% of households with access to its program are making use of the Green Bin to compost their food waste.[146] However, a 2018 garbage composition study found that food waste still remained the largest single component of household garbage.[147] The Waste Management Department's Long Term Waste Management Plan for the region includes diversion of more food waste from landfill as one of its targets. The Plan contains more information about household food waste management in Durham and the initiatives aimed at meeting this target, including the future introduction of the Green Bin program in multi-residential buildings and public education about household food waste reduction.[148]

It is beneficial for households to compost their own kitchen waste where possible to reduce pressure on municipal waste management infrastructure.[149] The regional government encourages this through the sale of backyard composters.

Table 20: Composting practices reported in Households and the Environment Survey, Oshawa Census Metropolitan Area[150]

Practice	2015	2017	2019
Composted kitchen waste (percentage of all households)	75%	81%	85%
Kitchen waste collected by city or private company (% of households that compost)	90	93	91
Kitchen waste taken to a depot (% of households that compost)	F	F	F
Kitchen waste put in a compost bin, pile or garden (% of households that compost)	26E	F	24
Kitchen waste composted by some other method (% of households that compost)	F	F	F

Symbol legend: **E** use with caution. **F** too unreliable to be published

The Industrial, Commercial and Institutional (IC&I) sector refers to all of the places where waste is generated apart from households. The provincial government reports that "the food service, wholesale and retail sectors together account for about 72% of all IC&I food and organic waste sent to disposal in Ontario each year" and that, in 2015, "75% of food and organic waste generated in the IC&I sector [was] sent for disposal." – Ontario Food and Organic Waste Framework

Private Food Waste Management Initiatives

Currently, there is little publicly available reporting on food loss, waste reduction, and food waste management in the *Industrial, Commercial and Institutional* sector, which is typically not included in municipal waste collection programs. As these facilities comply with increasingly strict requirements under provincial regulation, it may become easier to learn about what Durham businesses and institutions are doing to address food loss and waste.

Despite the general information gap regarding food waste management outside of local government's programs, the research identified small-scale or early-stage examples of community actors using *circular economy* projects to manage food waste at the end of the supply chain. In one example, in 2021 Durham College announced its intent to build a Centre for Organic Regeneration, a facility where campus food waste will be composted for use on the College's urban farm thus "complet[ing] the field-to-fork (and now back-to-field) loop" created by the College's food programming.[151] The volume of waste being diverted through circular economy projects could become a metric of interest as such projects develop and as more are undertaken.

Food Loss

The causes of food loss are varied and include unavoidable loss such as animal bones or fruit rinds and events that render food inedible such as damage, spoilage, or contamination.[152] However, a significant contributor to food loss is overproduction, which businesses often consider necessary for minimizing risk in an environment where product availability at short notice is expected.[153] Measuring food loss is difficult as there is no standard method and approaches differ between businesses, with many not tracking food loss at all.[154] There is little public information available at the local level about food supply chain businesses' generation of food loss or efforts to mitigate it. Such information might become available through more communication with businesses.

The amount of surplus food arriving at the retail stage of the supply chain is more visible locally, as some of this surplus is donated to local food banks. 70 Durham businesses reported donating excess inventory through Second Harvest's Food Rescue program in 2021. This is only one mechanism for donation.[155] Donations go to recipients who request them, often but not necessarily in Durham. Data on the full extent of donation was not found, but this could be estimated by consolidating data on the volume of donations received by the large food charities or food recovery programs active in the region. It would be important to interpret such data with nuance; an increasing volume of donations might be viewed as positive in one respect, but it would indicate the continued problem of excessive surplus in the food supply chain, a driver of food waste. It is also important to consult recipient organizations on whether donors are following appropriate guidelines for safe and ethical donation.[156]

Current Metrics		
Metric	**Latest measurement**	**Source and year**
4C-i Regional Green Bin program participation rate	60%	Durham Waste Management, Durham Long Term Waste Management Plan, 2021
4C-ii Food waste as a proportion of garbage composition	30% (among single family households) 28% (among multi-residential buildings)	Durham Waste Management, Durham Long Term Waste Management Plan, 2021 (reporting 2018 data)

Possible Metrics

- Volume of food loss or waste, and reduction or diversion rates, in each sector of the food supply chain
- Trends in household kitchen waste separation and composting practices (see Table 20 for partial data)
- Number of businesses participating in food rescue programs
- Total annual volume of surplus food recovered and redistributed for direct human consumption
- Volume of food disposed of by recipient organizations of food rescue donations

Recommendation

Further development of the Food System Report Card will require collaboration with food supply chain businesses to include measures of food loss as well as partnership with local government to expand data collection related to food waste and waste reduction programs.

Pillar 5: **Localizes Food Systems**

Reduces distance between food providers and consumers; Resists dependency on remote and unaccountable corporations[157]

Canadian food sovereignty advocates argue that the national food system is overwhelmingly oriented toward maximizing food exports.[158] This has been effected through policy decisions that benefit larger agricultural operations[159] and the construction of a food distribution infrastructure network designed to move large volumes over long distances, rather than distributing food within regions.[160] Staff at Invest Durham hold that exports will always be a critical component of Durham's agricultural system. However, greater resilience in response to environmental and economic shocks to the national food supply chain requires increasing a local food system's level of self-sufficiency through more localized control over food production and distribution. Durham Region's Food Security Task Force notes the importance of local food availability for addressing food security during local weather emergencies which can be expected to grow in frequency with climate change. An interviewee who is involved in food production commented on the importance of this pillar:

> "There are hardly any abattoirs in Durham Region. It's a huge issue, the production of most of our main food—our staple crops and our proteins, not the small farm vegetables and the farmers market stuff—is very centralized, it's extremely centralized, and that's why little blips in supply chains have a huge effect."[161]

Localizing does not mean isolating a region from larger food systems. Rather, it requires increasing capacity to produce a significant proportion of the food required to feed the local population, and ensuring that this food can actually be distributed to the local population through broadly accessible means. A truly localized food system is more than the presence of a high-end local food market.

Durham Region has great potential for developing a more localized food system, and already possesses significant assets in this area. In addition to a

highly productive agricultural sector, there is strong support for local food within the region with many actors that aim to connect local food providers with consumers. Durham has also emerged as a potential centre for urban agriculture, due to the contributions of Durham College's Centre for Food, as well as a network of active and engaged community gardeners and urban farmers. This is important because maximizing the use of urban green spaces for food production not only boosts production itself, but places food closer to a large proportion of local residents.

Indicator 5A: Localized Production, Processing and Distribution

The first indicator addresses not only agricultural capacity, but the infrastructural development in processing and distribution required to keep more produce within the region.

Infrastructure that connects the regional food system to provincial, national and international systems includes:

- Provincial and regional highways
- Cargo-loading and deep-sea shipping ports connected to the Atlantic Ocean via the St. Lawrence Seaway
- Transcontinental and commuter railway lines
- Local and international airports

- Durham Region. (2019). Think Agri-Business Think Durham.

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) uses production data from the Census of Agriculture and data for the Durham population's consumption of specific types of crop to calculate how much of the local demand for fruit, vegetables, grains, and animal products could theoretically be met by local supply.[162] As seen in Figures 3–5 and Table 21 below, this is possible by comparing the amount of land currently dedicated to producing a crop to the amount of land it would take to produce the total volume consumed in Durham annually (assuming the Ontario average productivity in terms of yield from an acre of land). The needed and actual production for the more realistic possibility of meeting local demand during a three-month summer growing season are also included. In the case of animal products (meat, eggs, and dairy), the production base is measured in terms of head of livestock rather than acres of land.

The data shows that Durham is currently capable of meeting the annual and three-month local demand for apples and wheat. The three-month demand can be met by Durham's current production of sweet corn, green peas, pumpkins, cauliflower, and oats. The volume of sweet corn produced is very close, and green pea production is somewhat close to the annual demand. In the case of livestock, Durham could not currently be self-sufficient in any product. However, the annual local production of milk is just over half of annual consumption, and roughly one fifth of the eggs, beef, and chicken consumed in Durham could be locally produced.

Figure 3

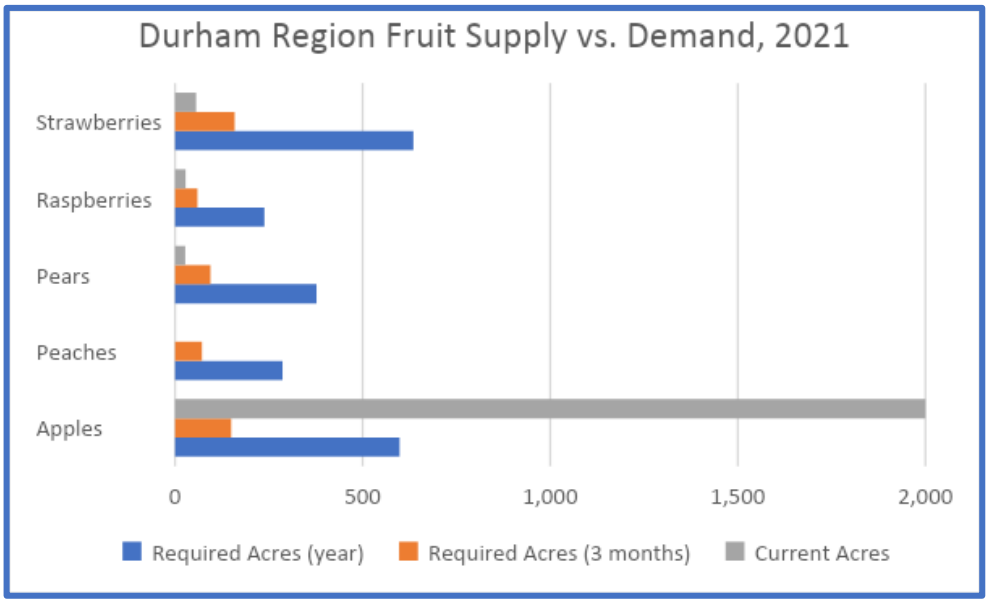


Figure 4

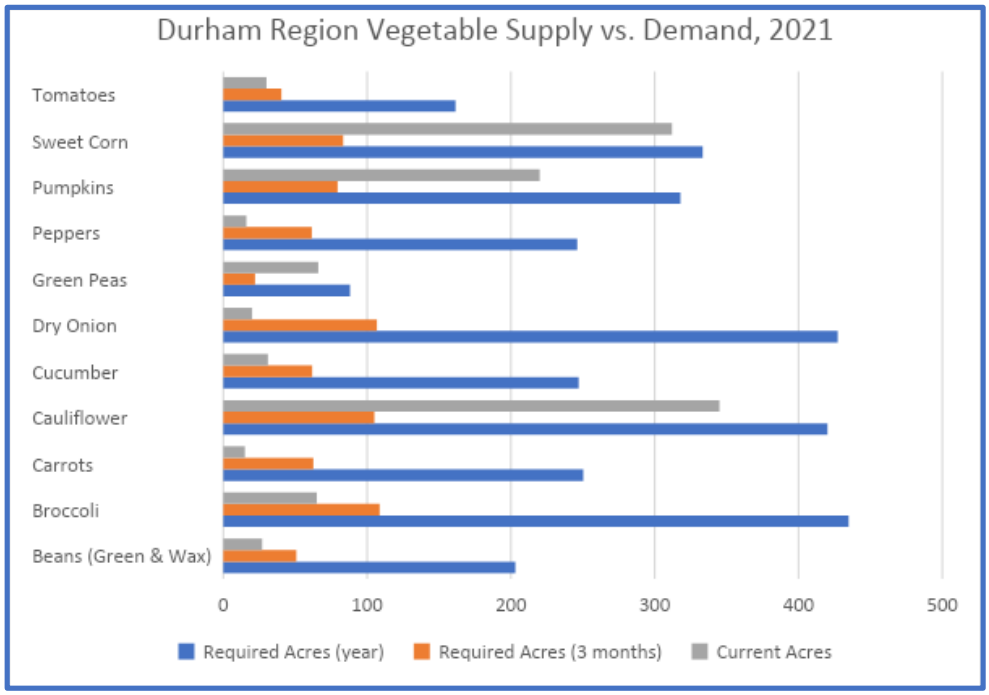


Figure 5

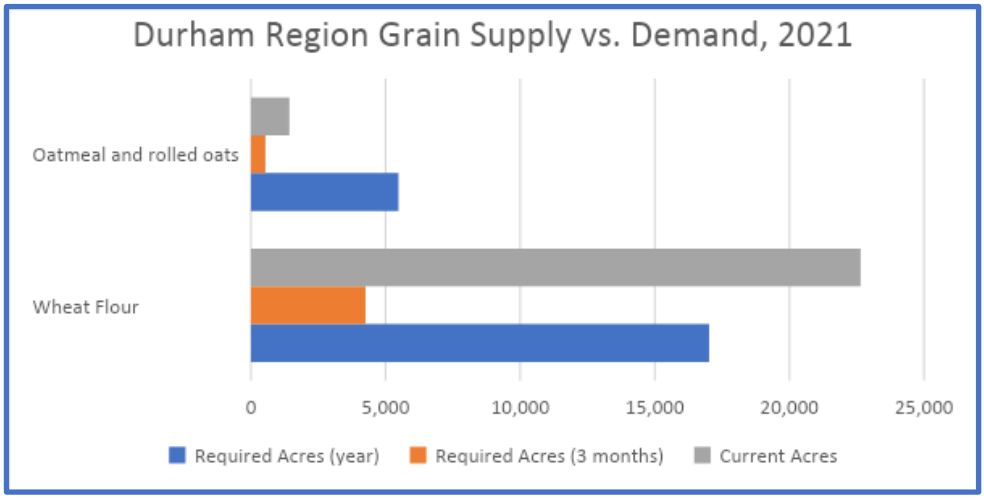


Table 21: Degree of regional self-reliance in livestock production[163]

Type of livestock product	Durham's annual consumption (kg/cap)	Current production (head)	Production base required to feed population (annual-head)	Percent self sufficiency
Beef (carcass weight)	25.58	8,132	44,264	18%
Pork (carcass weight)	18.84	10,788	124,727	9%
Lamb (carcass weight)	0.99	4,609	28,751	16%
Chicken (carcass weight)	34.44	2,416,877	13,262,064	18%
Turkey (carcass weight)	3.79	19,992	298,030	7%
Eggs	15.04	130,555	616,631	21%
Dairy Products (milk solids)	21.07	6,248	11,920	52%

Processing and Distribution

To realize the full amount of possible local self-sufficiency would also require sufficient local processing and distribution capacity. The exact amount of self-sufficiency is unknown as standardized tracking of the amount of food sold into local markets does not occur at the regional level. However, it is known that a large proportion of grain and animal products must leave the region to be processed and packaged. As well, selling any type of food into local markets is challenging for farmers because buyers for indirect distribution (e.g., wholesalers, large grocery chains distribution centres) usually channel food into the wider market while direct selling to local businesses or consumers is a more time-intensive way of doing business that is not feasible for most producers.

Increasing local self-sufficiency requires the creation of locally-oriented processing and distribution infrastructure, along with any policy measures or programs that help farmers connect directly to local buyers with less administrative and logistical work required. Information about such efforts in Durham can be found in the region's Local Food Business Retention and Expansion project reports, and in reports on the potential development of a local food distribution hub in the region.[164]

Agri-food network: includes the infrastructure, services, and other agri-food assets needed to deliver food to markets[165]

Assessing progress in this area could benefit from mapping points where food can be delivered for processing, storage, or indirect distribution, as well as sites of direct sale. In Ontario, there has been significant progress in mapping out this *agri-food network*.[166] ConnectON, an online asset-mapping platform, allows local governments to upload, update, select, sort, and map their

datasets for agri-food businesses.[167] While this platform is only accessible to governments, mapping of the data uploaded to ConnectON, along with other public datasets, can be viewed by the public using an interactive map on OMAFRA's Agricultural System Portal.[168,169] This means there is great potential to produce a publicly-accessible map of Durham's local food infrastructure.

DFPC found significant differences between assets identified on the Agricultural System Portal in 2022 and the list of businesses given the same classifications in the 2020 Durham Business Count dataset.[170] This suggests the data mapped on the Portal had not been updated. A sampling of data points confirmed the Portal included several closed or misclassified businesses.

In addition to basic mapping, consideration should be given to enhancing the map by distinguishing the points of processing, storage, and distribution that are accessible to small and mid-sized farms and will accept smaller volumes of produce. Participants brought up the importance of including small-scale processors, including on-farm and home-based food processing businesses and commercial kitchens.

Institutional local food procurement pilot projects that have occurred in Durham:

- Durham District School Board: Cafeteria Connects
- Durham Region: Serving Up Local (long-term care homes)

Another asset type that can keep food within the region is institutional buyers (e.g., government buildings, healthcare facilities, schools) who prioritize local food in their procurement for food service. This creates a consistent and reliable opportunity for farmers to sell food directly in the region, at higher volumes than might be possible through farmers markets or farm stands. The research found no publicly-available accounting of the number of local food procurement policies in Durham, nor their impact on local sales, that could be used to track progress in the Report Card. Durham Integrated Growers' 2016 report *Digging for a Just and Sustainable Food System* includes a discussion of the extent of local food procurement by Durham's municipal governments and policy barriers to the creation of local food procurement policies.[171] The research identified reports on two pilot projects in institutional local food procurement that have occurred in Durham public schools and in regionally-owned long-term care homes.[172]

Current Metrics		
Metric	**Latest measurement**	**Source and year**
5A-i Number of farms selling value-added products direct to consumers	48	Statistics Canada, Census of Agriculture, 2021
5A-ii Degree of regional self-reliance in production that is possible with current production	See Figures 3-5 and Table 21	Ontario Ministry of Agriculture, Food and Rural Affairs, Durham County Profile, 2021 (reporting 2021 Census of Agriculture data)

Possible Metrics

- Mapping of processing and distribution infrastructure, differentiated by acceptable volumes or other accessibility characteristics
- Measurement of redundant trade (presence of imported foods that are also grown in the region)
- Volume of Durham produce purchased by local restaurants, markets, and institutions
- Number of government and institutional procurement policies that prioritize local food
- Number of farms engaged in on-farm processing
- Number of home-based food processing businesses
- Number of commercial kitchens available for small-scale processing

Recommendation
Municipalities in Durham Region should leverage ConnectON and OMAFRA's Agricultural System Portal to produce a publicly accessible map of Durham's local food infrastructure.

Indicator 5B: Development and Accessibility of Urban Agriculture

A non-exhaustive list of types of urban agriculture projects:

- greenhouses
- rooftop gardens
- edible landscapes
- backyard gardens
- balcony gardens
- community gardens
- community orchards
- urban farms
- backyard hens
- vertical growing
- aquaculture
- food forests
- hydroponics
- mushroom farming
- shipping container farms
- apiaries

The next indicator focuses on assessing the development of urban agriculture within the region.

According to Durham Integrated Growers for a Sustainable Community (DIG), a collaborative network that supports urban agriculture throughout the region, and DFPC, **urban agriculture** is

> "defined slightly differently by cities and regions to reflect the activities that have evolved in those areas. It typically includes the growing, raising, processing and distribution of food and food-related products within towns, cities and urban centres (intra-urban) or around them (peri-urban) in an environmentally responsible manner. It often includes fruit and vegetable production but may also include the keeping of hens, bees and fish for the production of food. [Adapted from Toronto Food Policy Council (2012) and Mougeot (1999)]."[173]

Urban agriculture projects can be either commercial or not-for-profit. In general, urban agriculture encourages citizens to participate in community food production and empowers citizens to be a greater part of the food system.

These alternative ways of growing food localize food systems by reducing the distance between the producer and the consumer and encouraging more self-provision of foods that can be grown at home or in one's community. Even very small-scale urban agriculture can support the health of the community by increasing access to food and providing a site for forming social ties. Larger gardens and urban farms can be significant contributors to the supply of local food:

> "There are a lot of small land parcels, ranging from 5, 10, 50, 100 acres, that are not really in the middle of agricultural communities but could make great farms—and they're in the middle of all kinds of people and neighborhoods, close to the highway where trucks come and go."[174]

Urban Agriculture and Community Gardening Policy

Fully accessing the benefits of urban agriculture requires policy support. In 2016, DIG and DFPC produced *Digging for a Just and Sustainable Food System: Urban Agriculture and Community Gardening Policy*.[175] This report discussed the land use designations and regulatory obligations required to implement a variety of types of urban agriculture projects. It also took stock of which municipal by-laws (across all area municipalities) provided support for urban agriculture, which ones presented barriers, and where recognition of urban agriculture was lacking in policy.

Municipal governments with Community Garden policies
- Oshawa
- Whitby
- Pickering
- Uxbridge

Municipal governments with overarching urban agriculture policy
- Ajax

The overall findings of the policy scan were that policy development was not keeping up with the pace of urban agriculture projects being implemented by citizens, and that the level of support for urban agriculture varied across municipalities and townships. A major policy recommendation was for municipalities and the regional government, in consultation with DIG and DFPC, to coordinate in order to develop shared definitions for the different types of urban agriculture projects and harmonize the treatment of these projects in official plans and zoning by-laws. A policy scan of this level of detail has not been repeated, but some general updates on the state of municipal urban agriculture policy were provided by DIG. While recognition and support for urban agriculture projects has increased somewhat, the issue of a lack of policy harmonization across municipalities remains. For example, while all 8 municipalities in Durham Region have established community gardens, only three have set community garden policies. Only 1 municipality, Ajax, has an overarching urban agriculture policy in place to address other forms of urban agriculture including commercial. However, Ajax does not have a community garden policy to guide community garden development in that municipality.[176]

Urban Farms

One significant policy issue for urban agriculture is the need to develop a clear and common definition for what constitutes an urban farm, and to create policy that recognizes the possibility of larger and/or commercial urban agriculture projects. In addition to supporting new food production businesses, this might also allow larger community gardens on public lands to seek exemptions from policies that generally do not permit them to sell their produce. Commercial urban agriculture operations increase the capacity for income-earning opportunities in addition to creating another avenue for people to participate in food production within urban and near-urban spaces.

Monitoring whether community proposals for supportive urban agriculture policies are taken up will require having much more complete information on the number and types of urban growing projects in Durham than are currently present. As is the case for food access points and agri-food infrastructure, there is no public listing of any type of urban agriculture project that meets the inclusion criteria for the Report Card. Although DIG maintains a list of community gardens and other food-growing projects, gathering the information is challenging given the informal and changing nature of these projects.

Table 22: Profile of community gardens and food-growing projects identified by Durham Integrated Growers[177]

Garden/project characteristic	Number of gardens/projects
Total number of gardens/projects	44
Citizen-initiated	21
Non-profit initiated	21
Community Health Centre-initiated	2
Located on private land	30
Located on public land	14
Urban location	36
Near-urban or rural location	8

Research Opportunities

The presence of community actors with significant knowledge of urban agriculture and networks of contacts in the region could strongly support a dedicated research project to map out urban agriculture in Durham. DIG, as described above, has already engaged in researching the local food system, and maintains contact with 29 community gardens throughout the region, and has identified additional gardens and other food-growing projects.[178] In addition, the Durham College Centre for Food has long contributed to the visibility of urban agriculture with the urban farm on the college's Whitby campus, and is now expanding both its food production activity and research into urban growing methods with the development of the Barrett Centre of Innovation in Sustainable Urban Agriculture.[179]

Growing at Home

Home food gardening can also contribute to the overall level of self-sufficiency and resilience in the food system. The importance of residents having the knowledge and policy support to grow some of their own food was a common theme in public input to DFPC's research, and one interviewee commented:

> "We don't have to look that far back in our history to see governments encouraging people to grow food on their own property."[180]

Little is known about the extent of home food gardening in Durham, but there is one partial data source that is available to the public—results of Statistics Canada's Households and the Environment Survey,[181] which asked about home growing practices. Although this was not a large survey, the fact that a modest majority of respondents to this survey report growing food at home is an encouraging sign of enthusiasm. As well, the latest data from this survey comes from 2019, before the Covid-19 pandemic spurred increased interest in home gardening.[182] If this is a metric that is considered significant, a survey conducted by the regional government might be more widely disseminated to Durham residents and produce fuller results.

Table 23: Gardening practices reported in Households and the Environment Survey, Oshawa Census Metropolitan Area[183]

Practice	2015	2017	2019
Grew fruit, herbs, vegetables, or flowers for personal use in the past 12 months (% of all households)	61%	55%	64%
Grew in yard (% of households that gardened for personal use)	88%	88%	85%

The census also tracked the percentage of Oshawa households growing on balconies, in community gardens, indoors, on rooftops and elsewhere, but the data was unreliable or needed to be used with caution.

Current Metrics

We could not identify data-based measurements for this indicator that met the inclusion criteria.

Possible Metrics

- Number of community gardens and urban food-growing projects (see Table 22 for partial data)
- Number of urban farms (commercial and non-profit)
- Number of non-profit and commercial urban agriculture projects
- Number of people employed in urban agriculture
- Number of people participating in urban agriculture
- Total urban land area dedicated to urban agriculture
- Number of people consuming produce from community gardens
- Proportion of households that grow some of their own food (see Table 23 for partial data)

Recommendations

- Working with established, regionally-focused, citizen-driven organizations, municipalities and the regional government can support a broad range of urban agriculture projects by harmonizing policies in official plans and zoning by-laws which include common definitions for diverse and evolving urban agriculture initiatives, including those which are commercial, non-profit, and home-based.
- Disseminate a regional survey on home food gardening to yield a better understanding of the level of enthusiasm for home growing practices.

Indicator 5C: Local Food Availability and Access

This indicator considers the ease or difficulty with which consumers can find and access regionally produced food.

While the processing, distribution, and other local infrastructure discussed under Indicator 2A is necessary to keep more locally produced food circulating within the region, it is also important to examine how this food is finally delivered to consumers and how this impacts who has access to local food.

Local food advocates have pointed out a tension in local food economies: while conventional supply chains are inaccessible to smaller farms and not designed to distribute food regionally, the alternative methods of sale that locally-focused farmers must turn to are less accessible on the consumer's end.[184] This is due in part to higher prices that local farmers require to cover the costs of marketing their produce directly. As well, many consumers are "time-poor," unable to frequent farm stores, farmers' markets, or other alternative points of sale in addition to visiting grocery stores for the items that cannot be procured locally.[185] It has been found that 68% of Ontario residents prefer to pick up all of their groceries at one location.[186]

The Census of Agriculture publishes the number of farms that report direct sales to consumers, and the methods of sale that are used (see Table 24). However, the Census data does not indicate the locations of these farms or any detail as to what is sold.

Two public, online directories meant to help consumers find places to buy local food in Durham include:

- a web page maintained by Invest Durham (Economic Development and Tourism)[187] See Table 25 for types of selling among its listings.
- marketing association Durham Farm Fresh's website,[188] which features an interactive map showing the location of member sellers

Table 24: Direct sales of agricultural products for Durham Census Division, Census of Agriculture, 2021[189]

Method	Number of farms that report selling by this method
Total number of farms reporting direct sales	291
Farm gate sales, stands, kiosks, U-Pick	191
Off-site farm stores or stands	29
Farmers' markets	32
Community Supported Agriculture	18
Direct deliveries to consumers	134
Other methods	21

Table 25: Summary of listings in Invest Durham Local Food Directory

Type of selling	# in Invest Durham directory
On-farm retailer	53
Farmers' market	9
Community supported agriculture	11
Online: individual businesses offering pick-up or delivery	53
Online farmers' markets	2

The Census data indicates that 191 farms are engaged in on-farm retailing, compared to only 53 listed by Invest Durham, suggesting that the latter is only a partial listing. Notably, the Census data includes farm stands while the Invest Durham directory does not. Furthermore, there is no publicly available and complete source listing the names and locations of farms directly selling their own produce.

Both the Census data and the Invest Durham directory indicate that a significant number of farms are using the internet to reach consumers. An interviewee also commented on this trend:

> "People are really seeking out local food and there's also a really thriving social media world. Farmers are selling their products directly to people via social media—people use social media groups to ask where they can access specific local products and connect with farmers online so that they can make those transactions. So, it's clearly much more of a priority than it was years ago."[190]

As another example of the growing importance of online sales for the local food market, two Durham-based online farmers' markets have developed since 2020: the Bowmanville Reko Market and Graze and Gather Food. Importantly, the growth of local food delivery addresses the access barriers posed by physical accessibility and time constraints—at least for consumers with reliable internet access and the ability to afford higher prices. While more difficult to portray through mapping, the impact of these services on local food accessibility might be tracked through the number of Durham residents using them.

Assessing the availability of local food in Durham means contending with the ambiguity in the definition of "local." The Canadian Food Inspection Agency defined local food as "food produced in the province or territory in which it is sold, or food sold across provincial borders within 50km of the originating province or territory."[191] The number of farmers' markets and farm stores in the region does not directly indicate the amount of regionally produced food that is on offer, as many of them supplement their income by selling food produced in other regions of Ontario as well. This should not disqualify sellers from being recognized as local food access points. However, better understanding the degree to which Durham producers can sell their own produce within the region may require measuring how much stock at grocery stores and alternative and locally-focused food selling businesses is *regionally* produced.

The literature review and key informant interviews also revealed barriers for local food businesses to start up, expand, or increase services. Common barriers included:

- regulatory barriers for farm gate sales to begin or expand
- lack of support for business owners to navigate regulatory systems
- cost of approval permits for small businesses

Informant interviews spoke to some of these barriers:

> "I'm trying to work my way through this now with some ideas I have for my property, and there's a minor variance I need, there's a bylaw amendment, zoning amendment and an official plan amendment.

There are all these things I need to get my idea implemented and it's just incredibly complicated. Is there a way that, if someone is trying to address certain food access needs, are there policies that can maybe help fast track some of these plans?"

"It's not meant for the little guy to read this and understand it"

"There are all these unknown costs, and the worst part is that you might spend a lot and still get to no, or have to totally change your idea. That's what scares people away or causes them to do things illegally, or to do things not big enough—and then that blocks the access."

Local food affordability

It is important to consider the costs associated for consumers in supporting local food. Informant interview findings showed that the costs of food from farmers markets and farm gate sales are a barrier to access.[192] Attention should be paid toward ways to increase affordability of local food, while not compromising the income of local producers. Some of these kinds of initiatives include market dollar programs and local food box programs.

Current Metrics		
Metric	Latest measurement	Source and year
5Ci Number of farms selling direct to consumers	291 See Table 25 for detail	Statistics Canada, Census of Agriculture, 2021

Possible Metrics
• Estimated percentage of grocery store stock that is produced in Durham • Estimated percentage of farmers market stock that is produced in Durham • Consumer survey data on desire to purchase local food, amount purchased, and locations of purchase • Number of food stores that sell local produce

Recommendation

Make collaborative efforts to produce a complete directory that is regularly updated with names and locations of all farms that sell their produce directly to consumers, in person, or online

Pillar 6: **Puts Control Locally**

Places control in the hands of local food providers; Recognizes the need to inhabit and to share territories; Rejects the privatization of natural resources[193]

This pillar may be best understood by considering the emergence of the food sovereignty framework as a response from food producers to the globalization and industrialization of food systems. This framework is visible in opposition to food and agricultural policy regimes that centre international trade, rather than properly balancing it with domestic food and livelihood security, sustainability, maintenance of regional food traditions, and other objectives aligned with the pillars of food sovereignty.

"Putting control locally" includes building regional food production and distribution capacity, as discussed under Pillar 5. Under this pillar, the focus is whether legal and political processes currently in place advance communities' right to define food and agriculture policy at the local level in their own interest.

This political dimension of food sovereignty was also acknowledged in the interviews:

> "[Food sovereignty is] not just about access, it's about being in control of the food systems that provide access—can we have back control over food, over the land, control over the systems that are in place? I think ultimately that is the most important, to have that control."[194]

Two different legal and political orders exist in the Canadian context—those of Indigenous nations and those of the Canadian state and provinces. Out of a history of the latter's devastating consequences on the former's food systems comes a need to move forward towards re-establishing Indigenous food sovereignty.

Indicator 6A: Indigenous Food Sovereignty

The first indicator for this pillar focuses on Indigenous Food Sovereignty specifically. A concise summary of Indigenous food sovereignty provided by the Indigenous Food Systems Network, which connects Indigenous

communities undertaking food sovereignty projects across the country, states that, "Indigenous food sovereignty is a specific policy approach to addressing the underlying issues impacting Indigenous peoples and our ability to respond to our own needs for healthy, culturally adapted Indigenous foods. Community mobilization and the maintenance of multi-millennial cultural harvesting strategies and practices provide a basis for forming and influencing 'policy driven by practice.'"[196]

"Indigenous food sovereignty is a specific policy approach to addressing the underlying issues impacting Indigenous peoples and our ability to respond to our own needs for healthy, culturally adapted Indigenous foods. Community mobilization and the maintenance of multi-millennial cultural harvesting strategies and practices provide a basis for forming and influencing 'policy driven by practice.'"[195]

Indigenous control over food has been limited by:

- expulsion from important food production or harvesting lands
- ignorance and dismissal of traditional modes of production and traditional ecological knowledge in the development of Canadian agricultural policy
- separation of children from culturally appropriate food education
- limited access to traditional foods, especially in urban areas[197]

One major food sovereignty issue in the Durham area concerns how Indigenous hunting and fishing rights have been infringed by implementation of the 1923 Williams Treaties, the subject of a 2018 settlement between Williams Treaty First Nations, Canada, and Ontario.[198] The legal record demonstrates that the Nations involved in the case built a body of documentary and oral history evidence of their longstanding relationships with important food-producing lands and waters in the territories covered by the treaties.[199]

There is a wealth of knowledge about regional Indigenous foodways that can be made accessible to the broader public through collaborative projects. For example, the 2021 *Durham Indigenous Voices* panel series that was organized by local libraries and post-secondary institutions provided a platform for the Chief of Mississaugas of Scugog Island First Nation's (MSIFN) to discuss the case, some of the relevant history, and current efforts to make fishing waters accessible once again by purchasing lands adjacent to Lake Scugog.[200]

Research also identified a variety of food system assets created and controlled by Indigenous people, many of which benefit not only Indigenous communities but all Durham residents:

- Indigenous programs at Carea Community Health Centre[201] vary but have included community kitchens and gardening workshops teaching Indigenous methods of preparing and growing food.[202]
- The Oshawa and Durham Region Métis Council (ODRMC) operates a community garden and distributes food vouchers and donated hampers to people in need of food assistance.[203]
- Two catering companies started by Indigenous chefs in Durham, Indigenish[204] and Indigenesis,[205] offer Indigenous cuisine for public events or to private consumers.

A Food Sovereignty Assessment Tool produced by American First Nations Development Institute includes 17 different exercises on a range of areas where communities might wish to focus efforts at building food sovereignty, including policy, diet and health, economic development, environmental quality, and culture.[206]

DFPC's research also included a meeting with members of the Durham Region Aboriginal Advisory Circle, who expressed the opinion that more partnerships between community actors could activate the potential for further Indigenous food projects and programs. Visions that were brought up included land-based learning programs (such as education about harvesting native plants) and

formalizing ad-hoc food assistance efforts to create more stable and holistic Indigenous-run food security programs.[207]

Just as there are multiple ways in which colonization has impacted Indigenous food systems, there are many different ways for communities to approach the restoration of food sovereignty. Specific examples of Indigenous food sovereignty initiatives occurring in Canada can be found by consulting the Indigenous Food Systems Network's website and resources,[208] and in the discussion paper produced by the Indigenous working group of the People's Food Policy process[209] (for more information about the People's Food Policy discussions, see the introduction to Pillar 1). Types of initiatives that are possible include educational programs, engagement in or creation of legal and political processes, food production, food access programs, business development, and ecological restoration.

Foodways: the activities and beliefs associated with food production and consumption that a particular culture or people practices and passes on through tradition[210]

Assessing or Measuring Indigenous Food Sovereignty

During DFPC's 2021 Symposium "How Do You Measure a Food System," participants imagining a future Report Card presented a number of suggestions that can be related to this indicator. These included:

- naming Indigenous foodways that are important to communities in the region
- naming reconciliation efforts that enable Indigenous foodways and cultural practice for communities in the region

The "possible metrics" presented below are ideas for quantitative information that reflects this input and literature review findings about Indigenous food sovereignty. Ultimately, however, it is up to Indigenous communities in Durham to decide what, if any, information about their specific food-related issues and initiatives should be gathered and/or shared with the public. While several Indigenous Durham residents—including professionals and community volunteers implementing food-related projects—contributed information to DFPC's research, an information and relationship gap remains as DFPC has not communicated directly with any representative of Mississaugas of Scugog Island First Nation's (MSIFN) government—making this the only local government DFPC has no contact with.[iii]

There is potential for developing a much deeper understanding of food issues and initiatives in local Indigenous communities.

Current Metrics

We could not identify data-based measurements for this indicator that met the inclusion criteria.

Possible Metrics

- Total area of land used for food production or harvesting that is under Indigenous governance
- Number of people accessing education about Indigenous foodways
- Ecosystem health data for traditional food sites
- Naming policies that enable, or create barriers to, Indigenous foodways and cultural practice for communities in the region
- Population health data for culturally, economically, and ecologically important species
- Number of Indigenous-led food production or access programs and/or Indigenous-owned food businesses

Recommendation
DFPC must continue to work with Indigenous Durham residents and community groups to develop a deeper understanding of food issues, Indigenous initiatives, and collection of metrics, if any, for Indigenous food sovereignty. DFPC must continue to work to establish a working relationship with local Indigenous government.

Indicator 6B: Participation in Democratic Food System Governance

Food system activity: participation in/with food system programs, civic engagement around the food system

This second indicator looks at opportunities for meaningful participation in municipal policy processes that influence the local food system. The extent of Durham residents' participation in civic life in general, let alone food system activity specifically, is not something that is typically quantified in public reports. One exception is Pickering's 2017 *Measuring Sustainability* report, which includes results of a survey regarding volunteering, attendance of community events, and voter turnout.[211] Future Report Card metrics might be developed through similar surveys, or by asking community organizations about the reach of their programs and local governments for data on participation in political processes and consultations.

As a component of the 2013 Environmental Scan, DFPC presented two sets of recommendations for establishing food system governance processes that embody food sovereignty. The first focused on what local governments could do to commit to a food system planning agenda. The second called for more unified efforts from community organizations, and for DFPC to facilitate closer communication and collaboration. It may be possible to measure residents' participation in food system governance if these recommendations are implemented, creating centralized forums for food system work. Table 26, which shows citizen advisory committees in Durham that can be considered relevant to food sovereignty, illustrates why monitoring "food system governance" as a whole is challenging in the absence of such a forum.

Table 26: Citizen advisory committees in Durham relevant to food system planning (identified by DFPC Internet Asset Scan, 2021)

Policy area	Municipalities with advisory committees
Economic Development	Brock, Uxbridge, Scugog
Agriculture	Region of Durham, Clarington, Uxbridge
Environment and Sustainability	Region of Durham, Brock, Oshawa, Scugog, Uxbridge, Whitby
Climate Change	Region of Durham, Uxbridge
Tourism	Brock, Clarington, Scugog, Uxbridge
Accessibility	Region of Durham and all 8 area municipalities
Diversity and Inclusion or Anti-Racism	Region of Durham, Ajax, Clarington, Oshawa, Pickering, Whitby
Age-friendly Committee	Uxbridge
Indigenous Relationship-building Circle	Pickering

A commonly-expressed sentiment by DFPC research participants was that there is a need for more regular contact between government staff or politicians and those working in the food system or needing better food access in their community, so that issues can be better understood and better responded to. One respondent stated:

> "We need the support of our governments, that's a huge barrier and I think they really need to find a way to get the people who are writing the policies, the people who are enforcing the policies, to work closely with the people on the ground level because there is a massive gap there. Not to say that people who are writing policies don't understand what it means to grow food, but when you're not doing the day-to-day, you're not seeing the nuances and things like that–I think there's a miscommunication. People really need to try to find a way to reconcile that gap"[212]

As well, several respondents to the online survey conducted during the research process commented that the difficulty of understanding local government processes is a barrier to participation, and that better information resources on how citizens can get involved in governance are needed.

Current Metrics		
Metric	Latest measurement	Source and year
6Bi Number of citizen advisory committees in policy areas with relevance to food system issues	35 See Table 26 for detail	Scan of municipal government websites by DFPC, 2021[213]

Possible Metrics

- Number of people participating in food system activities or programs and in civic life (e.g., participation in political processes and consultations)
- Number of people volunteering in community food programs
- Number of municipal governments with specific staff positions, departments, or committees dedicated to food system initiatives
- Number of municipal governments that formally participate in integrated food system governance
- Number of local council members that champion food system initiatives

Recommendation

Develop a deeper understanding of citizen engagement in political processes and consultations through surveys or by asking community organizations about the reach of their programs and local governments for data on participation in political processes and consultations. Such initiatives will benefit from more regular contact between government staff/politicians and food system actors and greater collaboration and communication among community organizations.

Credit: Anne Gill

Pillar 7: Builds Knowledge and Skills

Builds on traditional knowledge; Uses research to support and pass knowledge to future generations[214]

This pillar recognizes that achieving food sovereignty will not be possible without the creation of a food literate community. People are increasingly detached from the knowledge of where their food comes from—how it is produced and who produces it.[215] With less awareness of agriculture and food system issues comes less ability to democratically govern food production and distribution as food sovereignty requires. Further, cooking skills and confidence in the kitchen have declined as people with limited time or energy due to working conditions rely more on fast food or ready-made options. This can contribute to food insecurity, as preparing one's own food can save money and provide more control over nutrition.

Within Durham Region, there are multiple programs and resources that allow for members of the community to build their knowledge of food and agriculture and to enhance their skills in food preparation. These programs are offered by municipal governments, non-profit organizations, and through volunteer initiatives. The two indicators for this pillar involve tracking participation in such programs, their availability and accessibility.

It should be noted that a significant component of this pillar is that people are empowered to pass on cultural traditions of food production and preparation. As such, the issues and food system assets discussed in relation to indicators 1A (Cultural, Social and Spiritual Connections to Food) and 6A (Indigenous Food Sovereignty) should also be considered relevant to this pillar.

Indicator 7A: Knowledge of Agriculture and Food Systems

Durham is fairly strong when it comes to resources for connecting the non-farming population with agriculture. This is in large part thanks to the efforts of Durham Farm Connections, an organization that coordinates farm tours, offers educational modules for elementary and high school students, and presents informative exhibits at public events.[216] Other resources include a series of

videos produced by Durham Farm Fresh[217] and the annual farm tour organized by the Durham Agricultural Advisory Committee.[218] Residents can also explore urban and near-urban agricultural spaces by participating in DIG's Annual Garden Project Tour, excursions, videos, and online resources.[219]

There appear to be fewer consistently-offered resources for broader food system education. One exception is the Table Talk series that was hosted jointly by The Nourish and Develop Foundation and DIG. These informational sessions cover topics related to growing food, environmental sustainability, food security, and "sustaining a healthy community that grows together."[220]

To translate identification of these programs into metrics that inform us about the state of food system participation and engagement, the organizations hosting them might consider collecting and sharing data on the number of people accessing them. Participant surveys could assess the impact that these programs have on Durham residents' understanding of food and agriculture and awareness of their role in the food system.

Current Metrics		
Metric	Latest measurement	Source and year
7Ai Number of farms offering school tours	9	Durham Farm Connections, Farm Tours (information page), 2023

Possible Metrics

- Number of elementary and high school classes participating in Durham Farm Connections programs
- Number of people accessing online educational resources about Durham farms

Recommendation
Organizations that provide educational resources and programs should collect and share data pertaining to participation and the effectiveness of initiatives.

Indicator 7B: Food Literacy and Food Skills

"**Food literacy** encompasses a wide range of knowledge and skills related to healthy food choices, including knowing how foods are grown, and practices related to choosing, preparing and consuming food. Providing information and creating supportive environments for people to gain and use food knowledge and skills is critical in furthering the ability of Ontarians to make healthy choices throughout their lives."[221]

Definitions of "food literacy" vary, but commonly include two components: understanding of nutrition and possession of food skills.[222] These elements together enable people to choose and prepare foods that support their individual health requirements. Food literacy can be learned informally through life experiences or formally through the assistance of a dietitian or participation in an educational program.

Durham's two Community Health Centres (Carea in the south and Brock Community Health in the north) have Registered Dietitians on staff whose services are available free of charge to registered clients.[223] Community Health Centres also partner with community organizations to make dietitians' expertise available more broadly through classes or resources.[224] The Regional Health Department also offers resources on Healthy Eating through its website.[225]

Preparing Food

Informants identified the ability to prepare food at home, alongside the ability to purchase one's own food, as a fundamental requirement for food security at the individual level.

> "Another thing has to do with knowing how to use foods, and there's a significant limitation there. You might be able to create access to food, but will people be able to actually utilize it, cook with it—do they even have the resources to use to cook the food?"

It should be noted that the capacity to prepare one's own food requires appropriate housing and amenities in addition to knowledge and skills, but this indicator focuses on the latter.

Nutrition education resources available in Durham:

- Durham Region Health Department: Healthy Eating webpage and Community Food Advisors program
- Girls Inc. and Carea Community Health Centre: prenatal nutrition classes, Mind+Body after-school program
- The Nourish and Develop Foundation and Brock Community Health Centre: Pantry Clips online healthy recipes video series, group nutrition workshops for adults

The Internet Asset Scan and conversations with relevant community actors revealed that cooking classes and other food literacy programming offered by community organizations tend to vary over time—different options may be available in different seasons. In addition, the focus of classes, their intended audience, or their mode of delivery changes. As well, offerings have been impacted by the pandemic. Organizations and municipal governments across the region offer various forms of food literacy programming for participants of differing age groups. These programs include cooking and baking skills, kitchen safety, nutrition, and community kitchens. One gap that remains in the research is the prevalence of food skills education in Durham primary and secondary schools.

One interviewee identified the multiple benefits of community-based food literacy education, saying of their own community kitchen program:

> "People love it because it's community, and it's also providing them a healthy meal, and they are learning great kitchen skills."

As with food assistance programs, improving the informational environment in this area could involve dedicating resources to create, maintain and update a central directory of available programs. The collaboration required to produce such a listing could reveal opportunities for partnerships that increase the capacity and reach of existing programs, or new programs that meet particular communities' needs for accessible programming. Collecting and sharing data about the number of participants in different programs would also contribute to this effort.

Resources to support food-growing skill development:

- Durham Health Department – Guide to School Gardens
- Durham Master Gardeners – Gardening Tips webpage
- Durham Integrated Growers (DIG) – Resources webpage
- City of Oshawa: Gardening webpage

Growing Food

Some informants included the ability to grow food—both the knowledge and skills and the access to land that this requires—as another important dimension of having power over one's own diet. Durham's community gardens, discussed under Indicator 5B, are an important asset to education in this area. School gardens are also valuable sites of food literacy and skill development. It is unknown how many school gardens are currently active in Durham. The research also identified online food gardening resources offered by Durham organizations and local governments.[226]

Current Metrics

We could not identify data-based measurements for this indicator that met the inclusion criteria.

Possible Metrics

- Number of cooking classes and community kitchens
- Number of school food gardens
- Number of schools that offer courses in nutrition and/or cooking
- Number of individuals who access food literacy and food skills resources annually

Recommendation

An initiative should be undertaken to create and maintain a resource of available food literacy and food skill programs and to study the various ways in which people gain food knowledge and food skills.

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