
Toronto's Consumption-Based Emissions & Plant-Based Food Commitments

– Accelerating Toronto's path to net-zero through food –

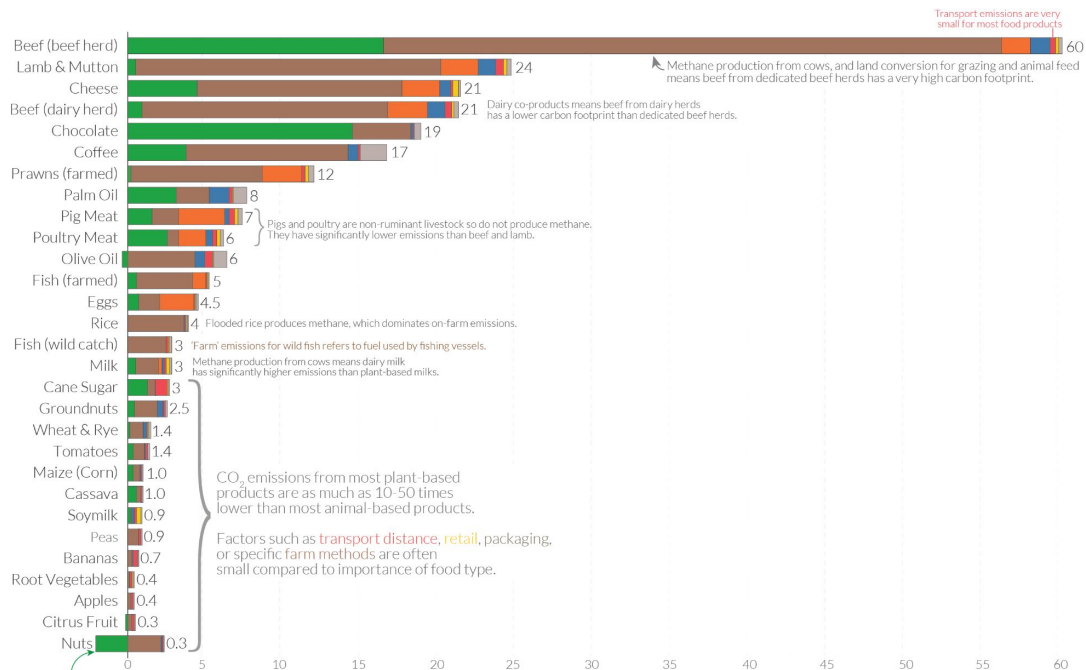
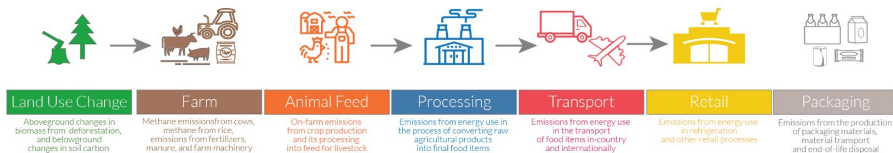
Infrastructure & Environment Committee

DEPUTATION

- 1. Introduction**
- 2. Opportunities**
- 3. Actions**

Opportunity: Focus on What vs. Where

Food: greenhouse gas emissions across the supply chain

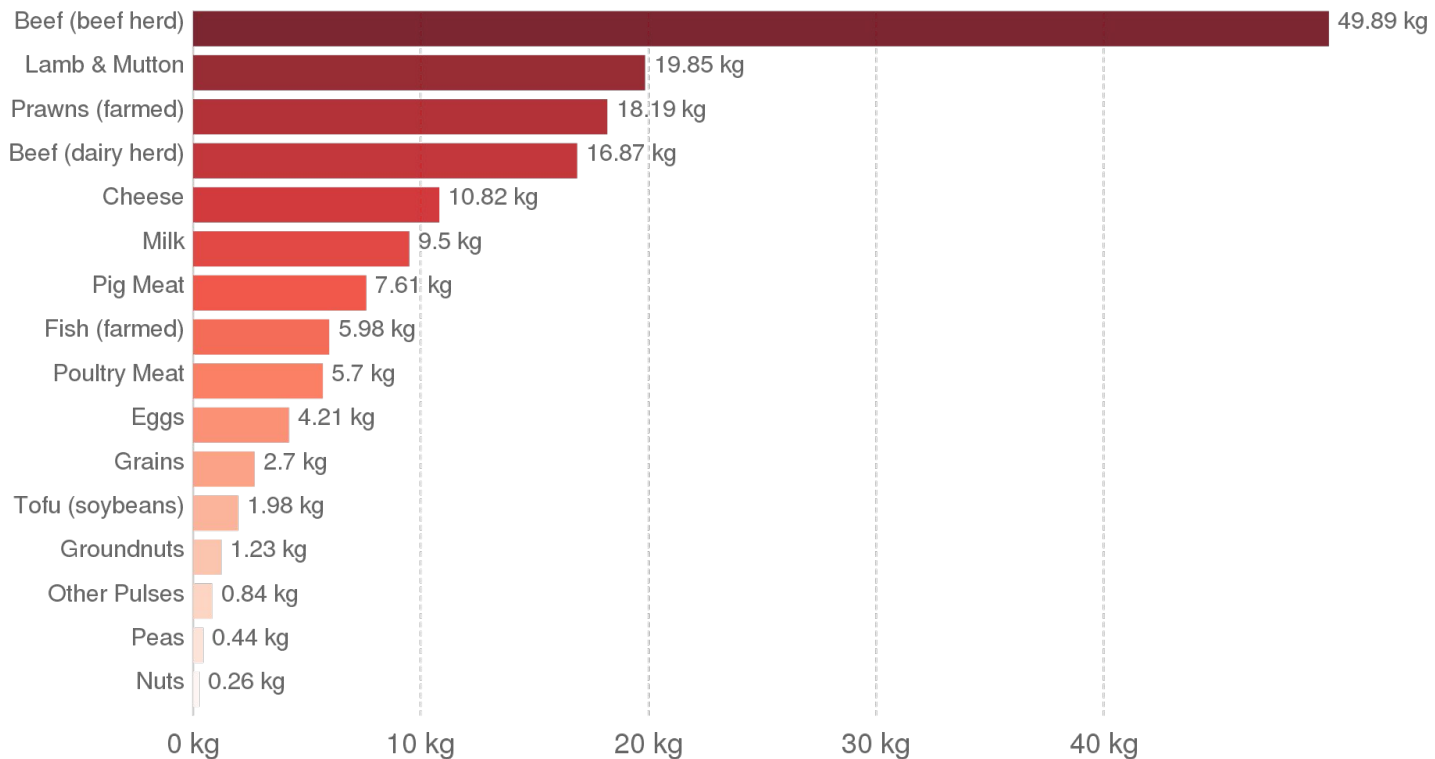


Greenhouse gas emissions per kilogram of food product (kg CO₂-equivalents per kg product)



Plant-Based Foods Are *Much* More Optimal Than Animal Foods

Greenhouse gas emissions per 100 grams of protein



...and the
impact is far
beyond
GHGs

Excluding animal products from diets reduces:



Food's land use by 3.1 billion hectares



↓76% hectares, including ↓ 19% arable



Acidification by 50%



Eutrophication by 49%



Freshwater withdrawals by 19%

Opportunity: Maximize for Global Equity

Carbon Emissions PER-CAPITA BY COUNTRY

Measuring the total carbon emissions doesn't always paint the most accurate picture of a country's contribution, if their population isn't considered.

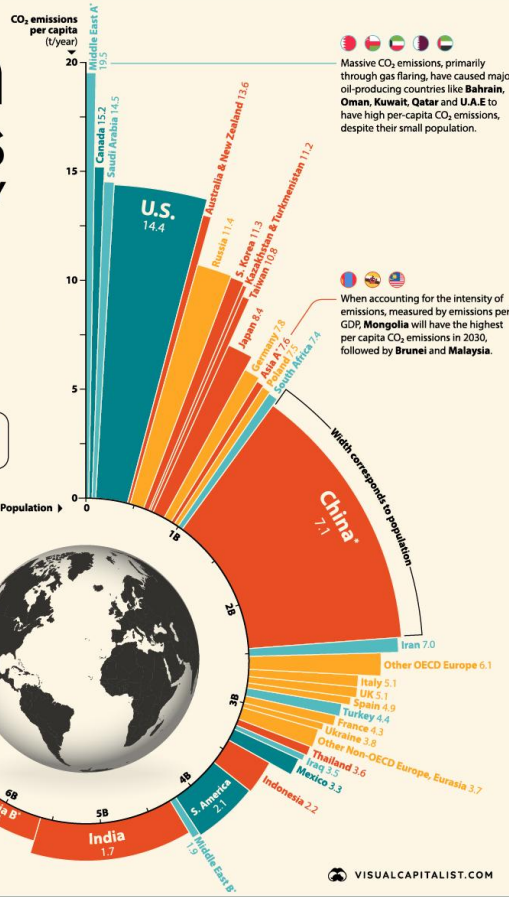
For example, even though China is the highest emitter of CO₂, the average American is responsible for emitting **14.4** tonnes of CO₂ per person, compared to **7.1** tonnes for a Chinese citizen.

Here's a look at the biggest per-capita carbon emitters in the world:



Unequal global distribution of wealth plays a factor in carbon emissions. Developed countries like **Qatar** emit **31t** CO₂/yr, while that of developing countries in **Africa** can be as low as **0.7t** CO₂/yr.

- *1 Middle East A
Bahrain, Oman, Kuwait, Qatar, United Arab Emirates
- *2 Middle East B
Israel, Jordan, Lebanon, Syria, Yemen
- *3 Asia A
Brunei, Malaysia, Mongolia, Singapore
- *4 Asia B
Asia without Asia A, China, India, Thailand, Taiwan, Indonesia, S. Korea or Japan
- *5 China
China, Hong Kong



Massive CO₂ emissions, primarily through gas flaring, have caused major oil-producing countries like **Bahrain, Oman, Kuwait, Qatar** and **U.A.E** to have high per-capita CO₂ emissions, despite their small population.

When accounting for the intensity of emissions, measured by emissions per GDP, **Mongolia** will have the highest per capita CO₂ emissions in 2030, followed by **Brunei** and **Malaysia**.

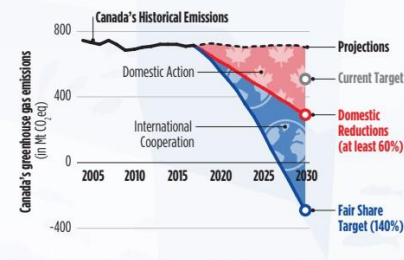
The CO₂ emission values are based on estimates of the source chart. There may be a negligible difference between the ones provided here and the source data.
SOURCE: AQUAL GROUP, IEA (2021)

CANADA'S CLIMATE FAIR SHARE

TO LIMIT GLOBAL WARMING TO **1.5°C**

- < Overall and historical responsibility: Canada is the world's 9th largest greenhouse gas emitter and has been a top 10 emitter for over a century
- < Financial capacity: Canada is the world's 10th richest country
- < It's the right thing to do: Canada has a moral and legal obligation to protect human rights, which are threatened by climate change.

CANADA'S FAIR SHARE TARGET:



Reduce greenhouse gas (GHG) emissions by a **total of 140%** below 2005 levels by 2030¹.

At least **60%** reduced domestically, and the remainder through support to developing countries, which includes ramping up our **international climate finance** to at least **\$4bn USD** per year.

CANADA'S FAIR SHARE (at least 140% or 1,039 Mt) =

60% (445 Mt CO₂ eq) domestic emissions reduction

AT HOME
Our domestic GHG emissions need to be cut by at least **60% below 2005 levels by 2030**, with a view of fully decarbonizing the Canadian economy to achieve **net zero domestic GHG emissions as early as possible before 2050**.

80% (594 Mt CO₂ eq) emissions reductions abroad

INTERNATIONAL
Canada's fair share also means helping developing countries to reduce GHGs. This includes Canada providing at least **\$4bn USD** annually by 2020.

Opportunity: Increasing Low-Carbon Foods Advances Health Goals

1 in 5 (19%) of adults



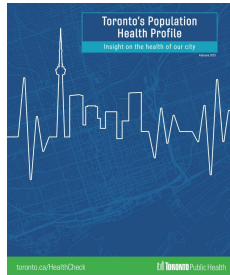
ate vegetables and fruits at
least **five times per day**



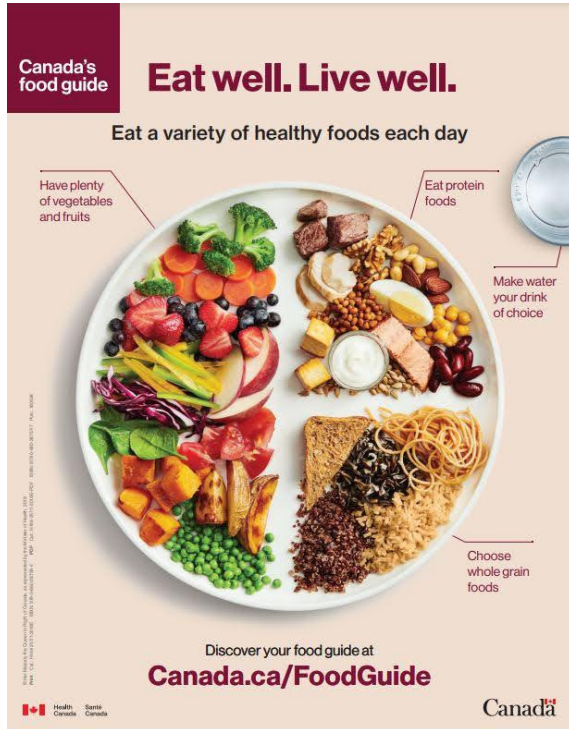
**A plant-based diet has
been shown to...**

- ✓ Decrease risk of heart disease
- ✓ Lower cholesterol
- ✓ Lower blood pressure
- ✓ Reduce inflammation
- ✓ Improve blood sugar
- ✓ Support weight management

NYC
HEALTH+
HOSPITALS



Opportunity: Wider Implementation & Awareness of Canada Food Guide



HL9.3

REPORT FOR ACTION



Canada's New Food Guide - Implications and Opportunities for Action

Date: September 9, 2019
 To: Board of Health
 From: Medical Officer of Health
 Wards: All

SUMMARY

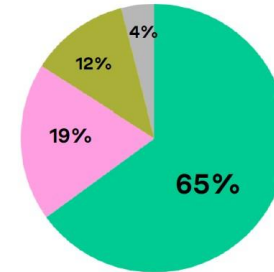
Canada's new Food Guide, released by Health Canada in January 2019, presents a practical, scientific approach to healthy eating. Health Canada also released Canada's Dietary Guidelines for revising programs and policies to reflect the new Food Guide, in particular those that are government-funded. The Food Guide recommends eating a variety of nutritious foods each day focusing on fruits, vegetables, whole grains and proteins, and limiting highly-processed foods. It acknowledges that a range of culturally diverse foods can make up a healthy diet. For the first time, Canada's Dietary Guidelines recognize the relationship between food consumption and the environment. Based on the most recent evidence, it recommends to the public how to eat to meet health as well as environmental goals. Finally, the new Food Guide acknowledges that nutrition concerns more than what people eat. It is also determined by environmental factors, including marketing, food skills, and food literacy.

Canada's Dietary Guidelines are a collection of health and environmental principles, and also a declaration of shared responsibility and a call to action to stakeholders across the country to pursue policy initiatives that will improve the food environment and reduce long-standing barriers to healthy eating while also reducing environmental impacts.

The updates to Canada's new Food Guide and Dietary Guidelines provide an opportunity for the City of Toronto to review food-related programs and policies, and to consider new actions that will actively promote healthy eating, and healthy food environments.

Canada Food Guide Use

77% don't use or haven't heard of the Canada Food Guide



- Have heard but never used
- Use it occasionally
- Never heard of it
- Use it regularly

GTA Residents Are Behind You

85% of the GTA eat animal products daily...

but ~2/3 want to reduce meat consumption

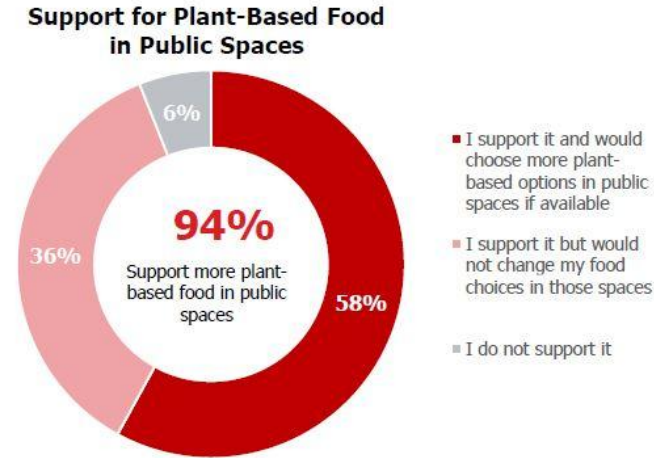
A green right-angled triangle pointing towards the top-right corner of the slide. The logo "VegTO" is positioned in the bottom-right corner of the triangle. The word "Veg" is in a larger, bold, black font, and "TO" is in a smaller, bold, black font directly below it.

**Veg
TO**

GTA Residents Are Behind You

Plant-Based Offerings in Public Spaces

Nearly all GTA residents support more plant-based food being offered in public spaces, such as in schools, government buildings, hospitals or food courts. Women are more likely to say they would choose more plant-based options if they were available in public spaces, while men are more likely to say they support it but would not change their food choices in those spaces.



ACTIONS YOU CAN TAKE

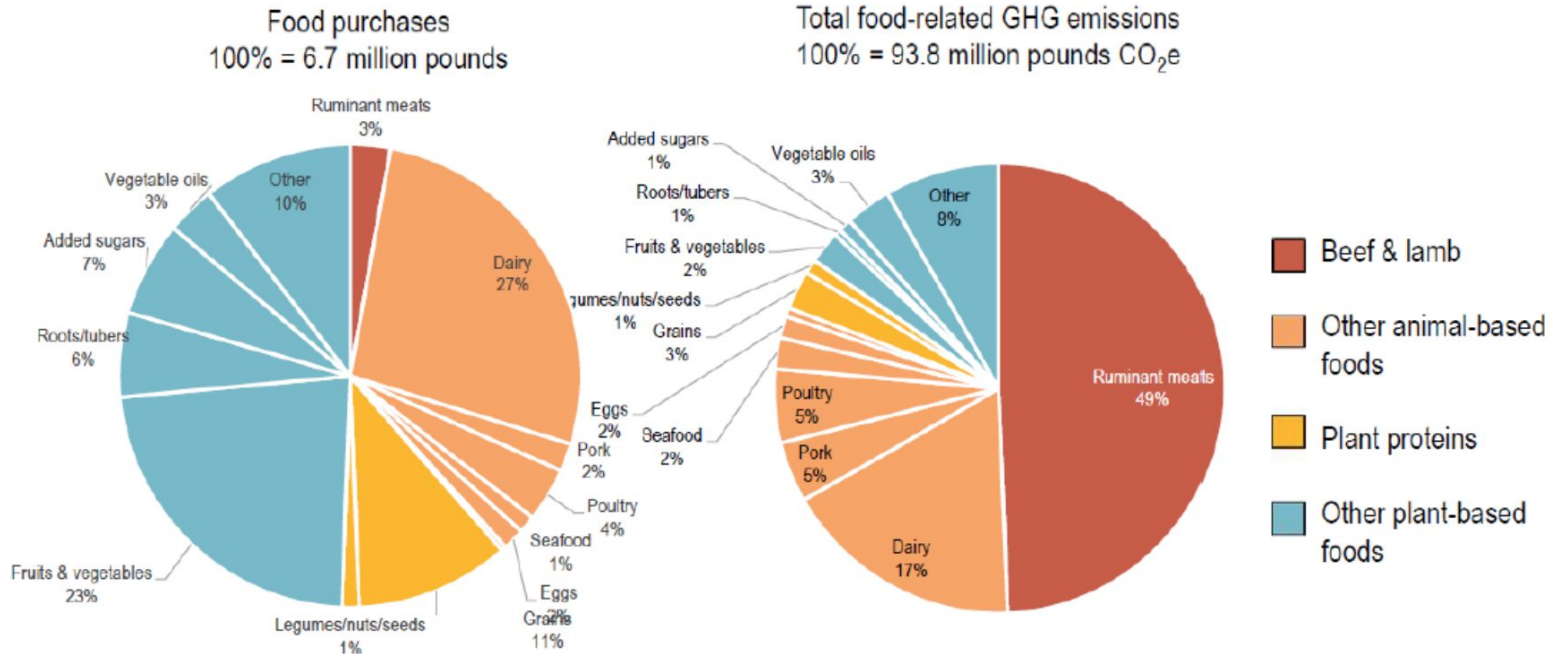
1. Increase % of plant-based foods in procurement
2. Make plant-based foods the default choice
3. Work with industry and civil society to increase availability
4. Educate the public
5. Work with local programs and nonprofits

1. More Plant-Based Food Procurement

The City influences the procurement of ~7M meals a year



Food Purchases and food-related GHG emissions based on carbon calculator modelling an organization that feeds 10,000 people a year



1. More Plant-Based Food Procurement



-1-

B.3

COUNCIL MEMBERS' MOTION

3. Plant-Based Purchasing Savings for City and Climate

Submitted by: Councillor Fry

WHEREAS

1. Anthropogenic climate change is forcing governments and systems to consider how human behaviour and consumption can be modified in order to help meet the UN's Intergovernmental Panel on Climate Change (IPCC) 2018 target to limit global warming to 1.5 °C;
2. The IPCC has advised that a plant-based diet can help fight climate change, specifically as the West's high consumption of meat and dairy produce is fuelling global warming;

Livestock farming (the management and breeding of domestic, livestock, or farm animals for the purpose of obtaining their meat and products) is estimated to take up around 30% of the earth's surface and contribute 18% of all global greenhouse gas emissions;

3. The City of Vancouver declared a Climate Emergency in January 2019, and on November 17, 2020, Council approved the Climate Emergency Action Plan (CEAP). The Big Moves articulated in the Plan focus on zero emissions in transportation, heating systems, and construction;

The CEAP Report acknowledges one main lever to reduce food system emissions is adopting diets low in animal products (particularly beef, pork and dairy) and working towards a low-carbon food system for Vancouver will require:

- a. Identifying potential changes to City procurement and practices through the new Green Operations Plan; and
 - b. Actions to support urban agriculture as one means of increasing opportunities for sustainable food production and the harvesting and availability of plant-based foods;
4. The City of Vancouver's Healthy City Strategy articulates the goal of Feeding Ourselves Well: through a healthy, just, and sustainable food system;
 5. Plant-based diets are increasingly seen as a healthier option by Canadians, as excessive meat consumption has been shown to increase saturated fat intake and is linked to obesity and a variety of diseases;
 6. Plant-based diets are driving profits and growth in the grocery and food services industry¹ and creating a variety of local business success stories. Vancouver is consistently named as a global plant-based foodie

2. Make Eating Plant-Based the Default

GREENER BY
DEFAULT

Greener by Default can reduce your carbon & water footprint and improve health & inclusivity, all while keeping costs neutral and preserving freedom of choice.



Defaulting to plant-based foods increases their uptake by

60%



decreasing food's carbon footprint by

40%



and water footprint by

24%

Government Councils Around The World Are Ditching Meat, Here's Why



3. Incentivize & Collaborate With Industry

Eat & Drink Derek Flack Posted on March 22, 2011 Report Inaccuracy

Veggielicious is Toronto's newest dining festival

APRIL 2018

VEGGIELICIOUS



Mela Cafe
7A Yorkville Ave.
(west of Yonge)
416 916 0619

Rawlicious
3092 Dundas St. W. (The Junction)
AND 20 Cumberland St. (Northville)
rawlicious.ca

The Beet
2945 Dundas St. W.
(3 blocks west of Keele)
thebeet.ca

Bunners' Bake Shop*
3054 Dundas St. W. (1 block west of High Park)
*BAKERY ONLY bunners.ca

Toronto Vegetarian Association

Share icons: bookmark, Facebook, Twitter

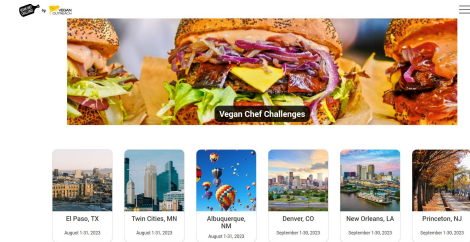
Events May 4 - 21, 2018



Veggielicious 2018

Veggielicious is Toronto's favourite plant-based culinary experience that features gourmet prix-fixe meals and great deals at restaurants, cafés, and bakeries in the GTA from May 4-21, 2018.

It's been featured on televised news broadcasts, radio programs,



3. Incentivize & Collaborate With Industry



RETAIL

Don't forget: Daylight on supermarket produce can increase sales

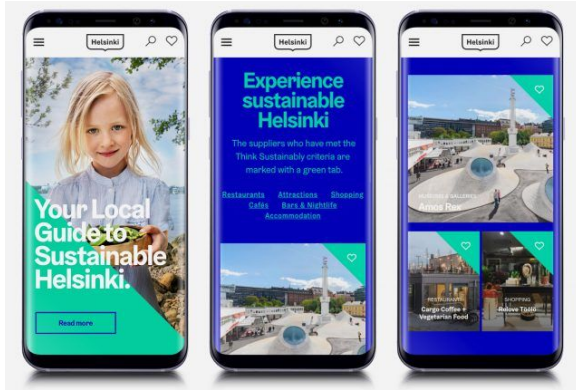


Natural daylighting shows off the produce in a grocery store.
(Photo: Courtesy of DayStar Systems)

By **AMY SOWDER** January 5, 2023



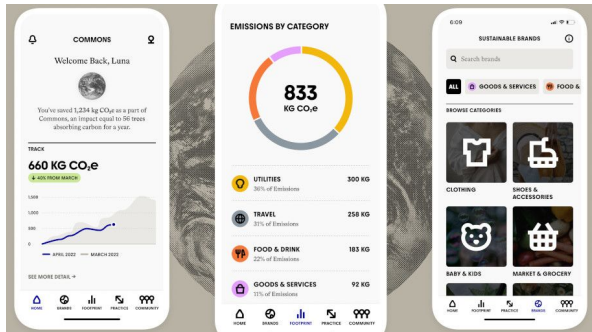
4. Awareness Campaigns: Sustainability



Create an app like Helsinki's "Think Sustainably"



Create a map like Berlin's



Promote "Commons" app to help consumers measure spending & emissions

coolfood



Raise awareness of existing commitments

4. Awareness Campaigns: Health

Acceptance and awareness of major health findings

Established Finding	Skeptical	Unaware
Red meat is a probable carcinogen	45%	21%
Veg*ns have lower risks of heart disease, diabetes & certain cancers	31%	26%
Processed meat is a carcinogen	27%	21%
Whole or low processed soy consumption reduces breast and prostate cancer	20%	57%
Improving gut health can reduce the severity of COVID-19	20%	63%

Canada's food guide

Eat well. Live well.

Eat a variety of healthy foods each day

- Have plenty of vegetables and fruits
- Eat protein foods
- Make water your drink of choice
- Choose whole grain foods

Discover your food guide at
Canada.ca/FoodGuide

Health Canada Santé Canada

Canada

4. Awareness Campaigns: Cost

PLANT-BASED SUBSTITUTIONS

Continued

Cost Savings for Plant-Based Substitutions

Animal Protein	Cost per 100 g/ml	Plant-Based Substitute	Cost per 100 g/ml	Total Savings per 100 g/ml
Cow's Milk	\$0.48	Almond/Soy Milk	\$0.41	\$0.07
Cream	\$0.51	Coconut Milk	\$0.34	\$0.17
Tuna	\$1.70	Chickpeas	\$0.28	\$1.42
Ground Beef	\$1.41	Lentils (Brown)	\$0.40	\$1.01
Feta	\$1.70	Tofu	\$0.67	\$1.03
Bacon	\$1.38	Eggplant	\$0.33	\$1.05
Smoked Salmon	\$3.95	Carrots	\$0.14	\$3.81
Chicken Breast	\$2.30	Tofu	\$0.67	\$1.63
Parmesan	\$4.00	Nutritional Yeast	\$3.33	\$0.67
Eggs	\$0.28/egg	Flax Seed	\$0.13/7g (7g=1 flax egg)	\$0.15

Cost of 100g of protein in Canadian cities

Animal foods		Plant-based foods	
Chicken breast	\$10	Tofu	\$6
Beef sirloin	\$8	Lentils	\$3
Pork loin	\$7	Chickpeas	\$2



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Sustainable eating is cheaper and healthier - Oxford study

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11 NOV 2021

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CLIMATE CHANGE ENVIRONMENT HEALTH RESEARCH SOCIAL SCIENCES TRUE PLANET



- Global study shows vegan and vegetarian diets cheapest option in high-income countries
- '£1 Chef' Miguel Barclay backs study

5. Work With Local Programs and Nonprofits



“Adopting dietary change is the consumption intervention with the greatest potential for emission reduction.”

C40, Arip, University of Leeds (2019). The Future of Urban Consumption in a 1.5C World.



**THE FUTURE
OF URBAN
CONSUMPTION
IN A 1.5°C
WORLD**

C40 CITIES

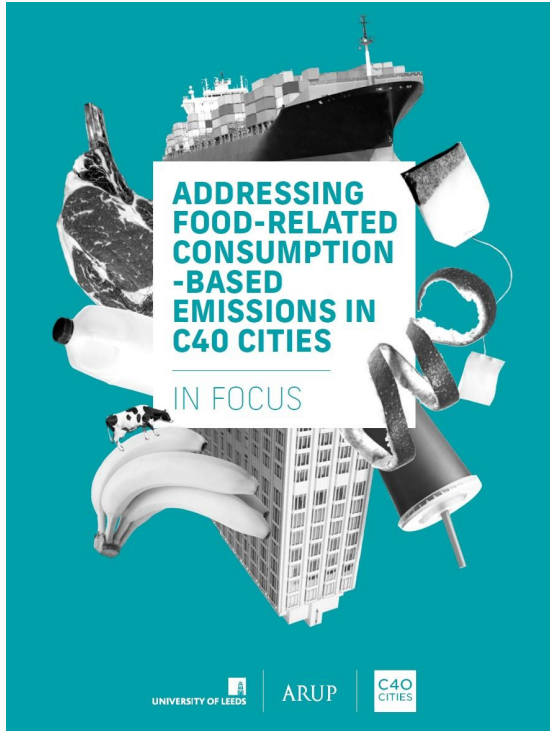
HEADLINE
REPORT

UNIVERSITY OF LEEDS

ARUP

C40
CITIES

★ Be Bold & Ambitious! ★



Food: Consumption Interventions

Table 3: Consumption interventions for food and associated targets.

CONSUMPTION INTERVENTION	PROGRESSIVE TARGET IN 2030	AMBITIOUS TARGET IN 2030
Dietary change (this intervention is characterised by three major changes which are described in more detail)	16 kg of meat per person per year ³¹	0 kg meat consumption
	90 kg dairy consumption (milk or derivative equivalent) per person per year ³²	0 kg dairy consumption (milk or derivative equivalent) per person per year
	2,500 kcal per person per day	2,500 kcal per person per day
Reduce household waste	50% reduction in household food waste	0% household food waste
Avoid supply chain waste	50% reduction in supply chain food waste	75% reduction in supply chain food waste

– THANK YOU –
