Critical Overview of Global/Local Food Systems

Discussion

How is your plant doing?

Did your seed germinate yet?

What were the most interesting highlights from the farm tour?

What fall crops can you plant still?



What You Can Still Plant in the Fall

- Kale
- Spinach
- Lettuce
- Bok Choy
- Swiss Chard
- Mustard and other Asian Greens
- Arugula
- Radish
- Turnip (hakurei)
- Carrots (55 day if lucky)







Farm Tunnels





Cattle Panel













Cold Frame







Plant Garlic

Discussion

- What are the main parts of a food system, and where does urban agriculture fit?
- What are some of the main social, environmental, and economic problems with industrial food systems? What are some of the root causes of the problems you identified?
- Who benefits from the current food system, and who bears the costs?
- Which of these problems can urban agriculture help address? What are its limits?
- What would urban agriculture need to do differently to provide a meaningful alternative?
- Based on this discussion, what is one issue you might want to explore in your first blog/essay? We will come back to this later.

The Global Industrial Food System is NOT

Socially Just
Environmentally Sustainable
Economically Viable

The Global Food System is Not Socially Just

- Food Insecurity
- Lack of Food Sovereignty
- Land Grab
- Non-Equitable
- Unhealthy
- Colonial, Racist, Patriarchal
- Loss of Traditional Knowledge

The Global Food System is Not Environmental Sustainability

- Planetary Limitations
- Ecological Crises
- Climate Change
- Loss of biodiversity
- Dead Zones
- Loss of Pollinators
- Resistance to Pesticides and Fertilizers
- Loss of Soil Arability

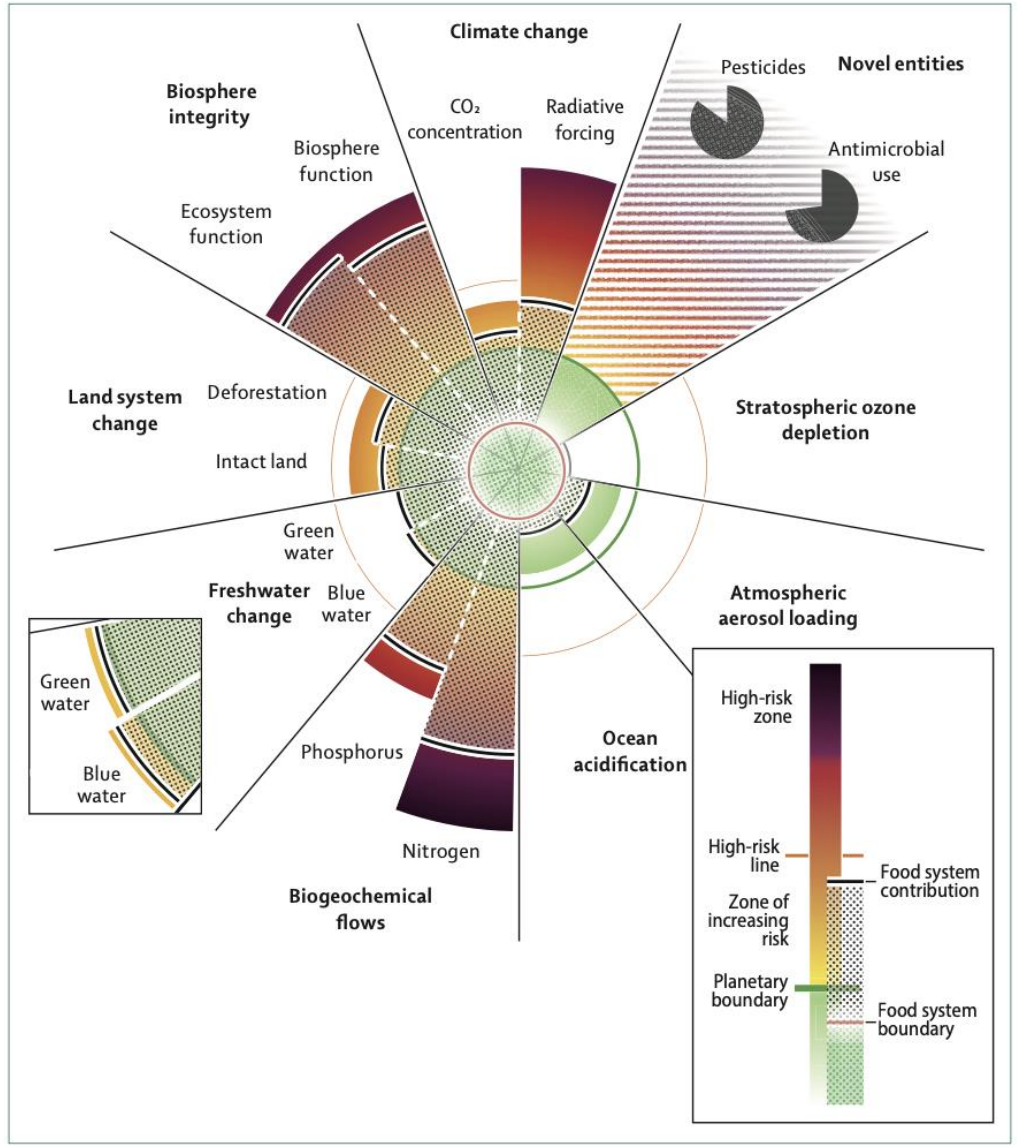


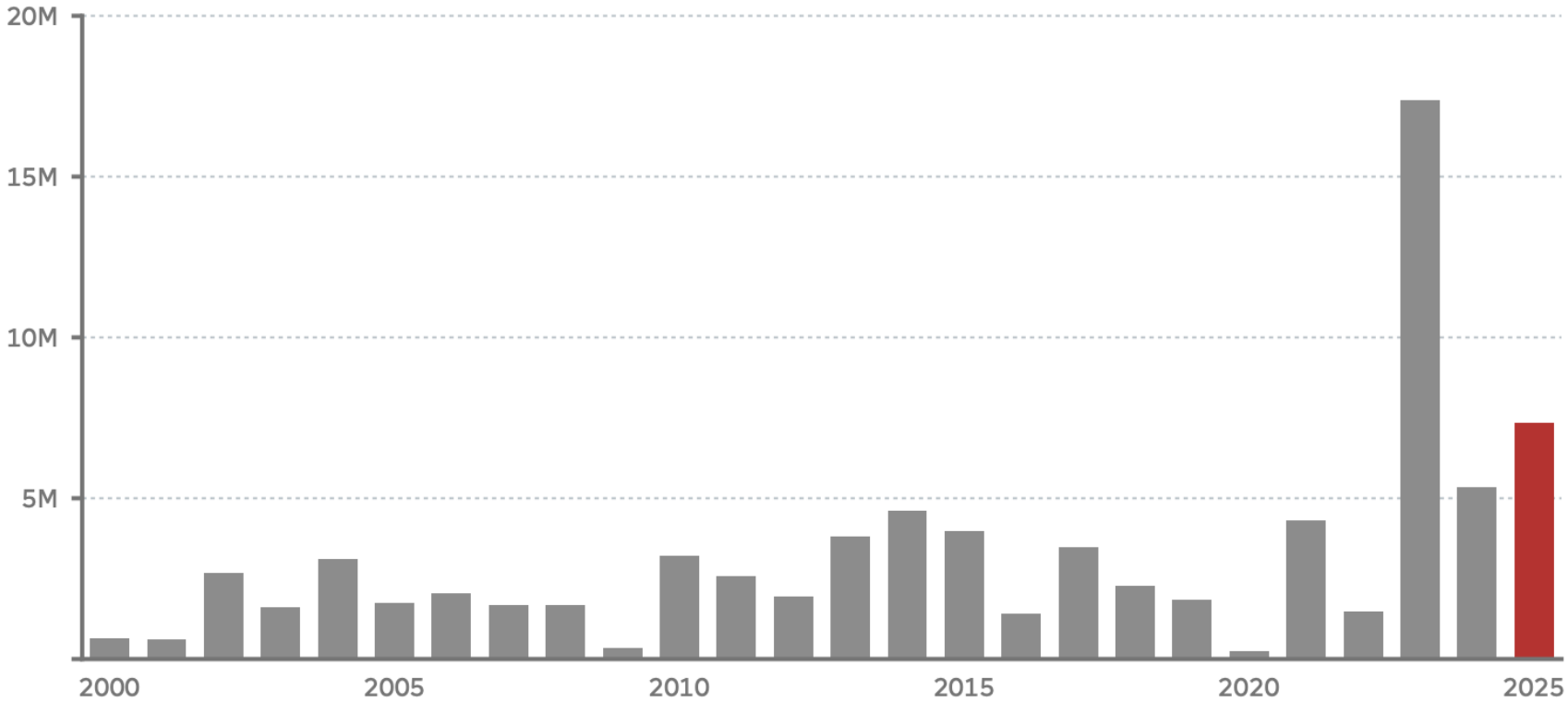
Figure 1: **Status of food system pressures across all nine planetary boundaries (indicated by the black dotted pattern) and the food system boundaries (red line)**

The food system boundaries are normalised in relation to planetary boundaries (green sphere). The radar plot is adapted with permission from Richardson et al (data)[14] and Rockström et al (visual).[15] The food system contribution (in percentages) is projected based on the wedges' lengths, starting from the planetary boundary for the six transgressed boundaries, and the food boundary for the three other boundaries (see te Wierik et al[16] for details). The food system's contributions to pesticides and antimicrobial use are shown as pie charts (with the food system share in grey) within the larger set of all novel entities (which were previously unquantified). Note that CO_2 concentration is provided in terms of CO_2 equivalents, as in table 2. Adapted from te Wierik et al.[16]

low much has burned so far this year in Canada

his year in Canada?

Number of hectares burned in wildfires by year



As of Aug. 10, 2025 at 5:00 p.m. ET

Source: Canadian Interagency Forest Fire Centre (CBC)

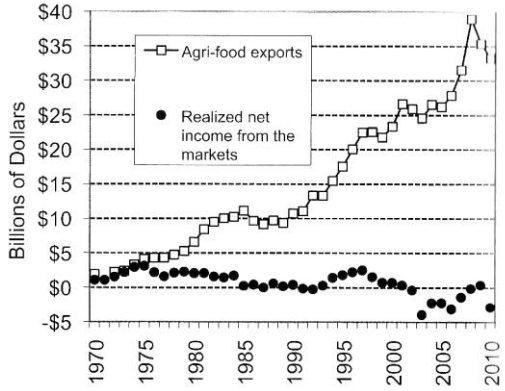
The Global Food System is Not Economically Viable

- Farmers Livelihoods
- Grocery Store (sellers) Inflation
- Wage Stagnation
- Corporate Greed
- Privatization
- Consolidation

WHO BENEFITS?

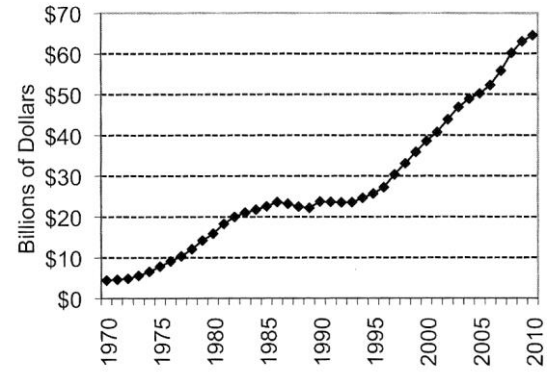
- Qualman, D. (2011) Advancing Agriculture by Destroying Farms? The State of Agriculture in Canada, pp. 20 – 42. In, Wittman, H., Desmarais, A. A., & Wiebe, N. (2011) Food Sovereignty in Canada: Creating Just and Sustainable Food Systems, Fernwood Publishing

Figure 2-5 Canadian Agri-Food Exports and Realized Net Income from the Markets: 1970–2010



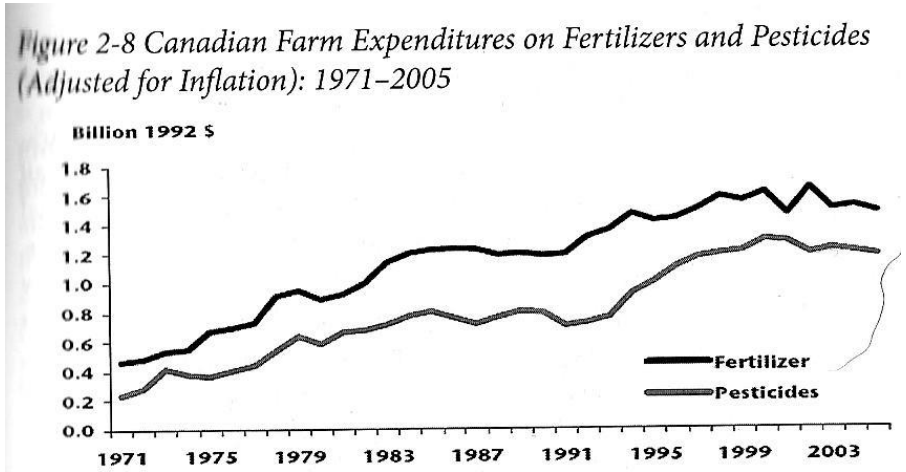
Sources: Export data provided upon request from Agriculture and Agri-Food Canada; AAFC, Agri-Food Trade Service <www.ats-sea.agr.gc.ca>; AAFC, *Medium Term Outlook for Canadian Agriculture: International and Domestic Markets*, January 2010. Income data from Statistics Canada, 2002, *Agricultural Economic Statistics*, Cat. No. 21-603-E May, Ottawa: Statistics Canada; Statistics Canada, 2010c, *Net Farm Income–Agriculture Economic Statistics*, Cat. No. 21-010-X, May, Ottawa: Statistics Canada.

Figure 2-6 Canadian Farm Debt: 1970–2010



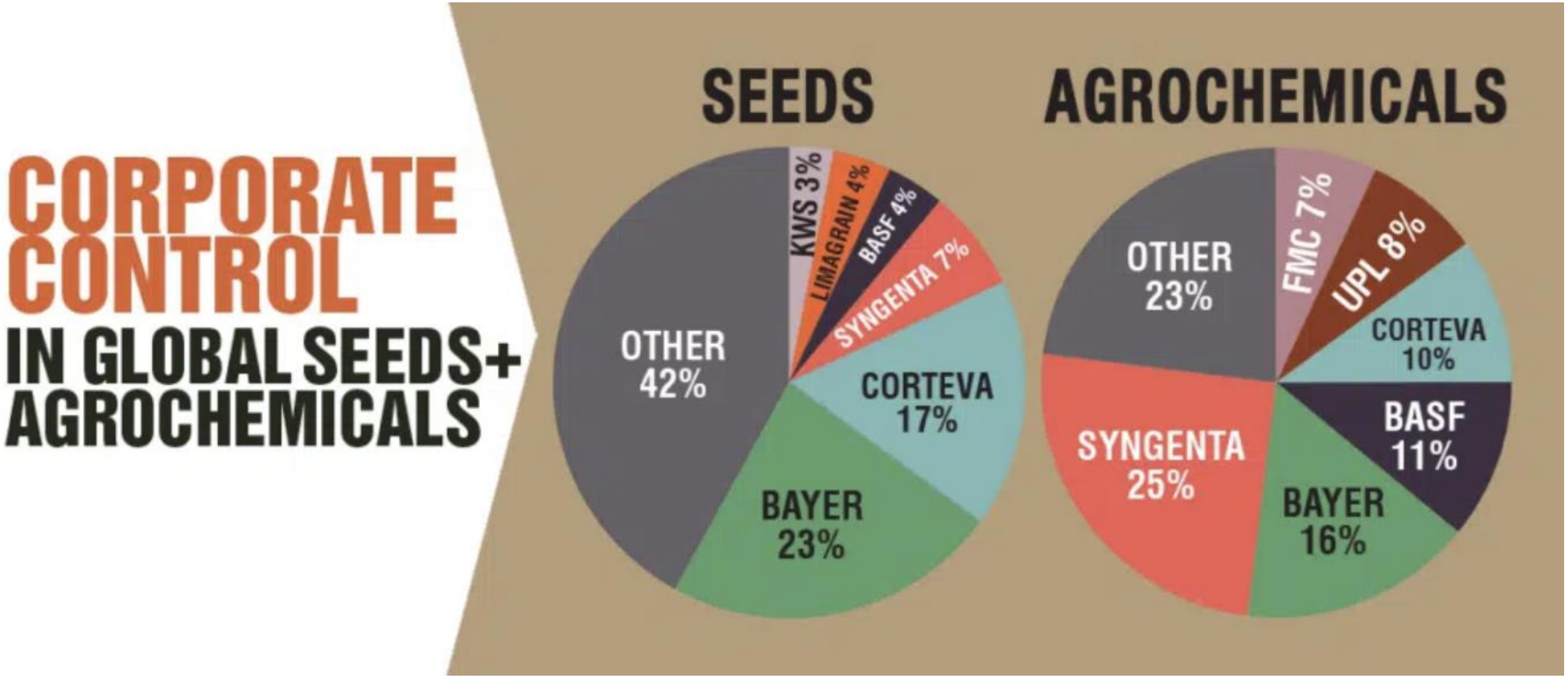
Source: Statistics Canada, 2010b, *Farm Debt Outstanding*, Cat. No. 21-014-X, November, Ottawa: Statistics Canada.

Figure 2-8 Canadian Farm Expenditures on Fertilizers and Pesticides (Adjusted for Inflation): 1971–2005



Sources: Agriculture and Agri-Food Canada, *An Overview of the Canadian Agriculture and Agri-Food System: 2007*, p. 124.

WHO BENEFITS?



Source

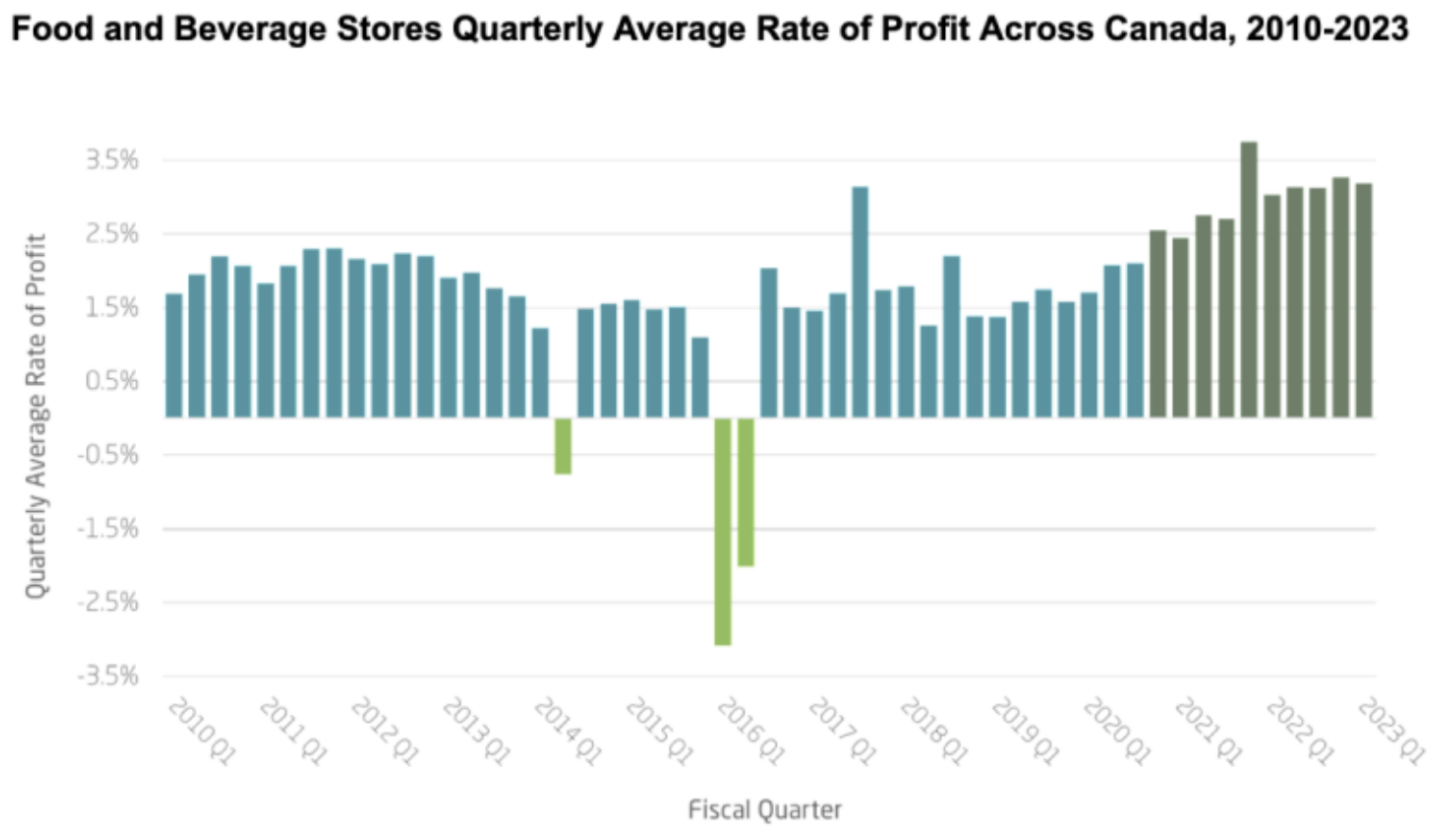
Source

Companies of War, Destruction and Death

These are a few examples:

- Monsanto still uses chemicals that were used to kill people, but in our food
  - Monsanto Ghostwriting Academic Papers
  - Is Round-Up safe to drink?
  - Farmer won lawsuit against Monsanto – Glyphosate causes cancer
  - The World According to Monsanto
  - Monsanto is now owned by Bayer who used to be part of I.G. Farben, manufacturing poisonous gas (Zyklon B) for concentration camps during the World War.
- BASF was also part of IG Farben a company who worked with the Nazis and tested chemicals and drugs on people including Zyklon B
- Dow Chemical Invented Agent Orange
- Dow Chemical now owns Union Carbide who was responsible for a large devastating explosion in Bhopal, India:
  - The Bhopal disaster: Toxic legacy
  - One Night in Bhopal
  - The Bhopal Disaster

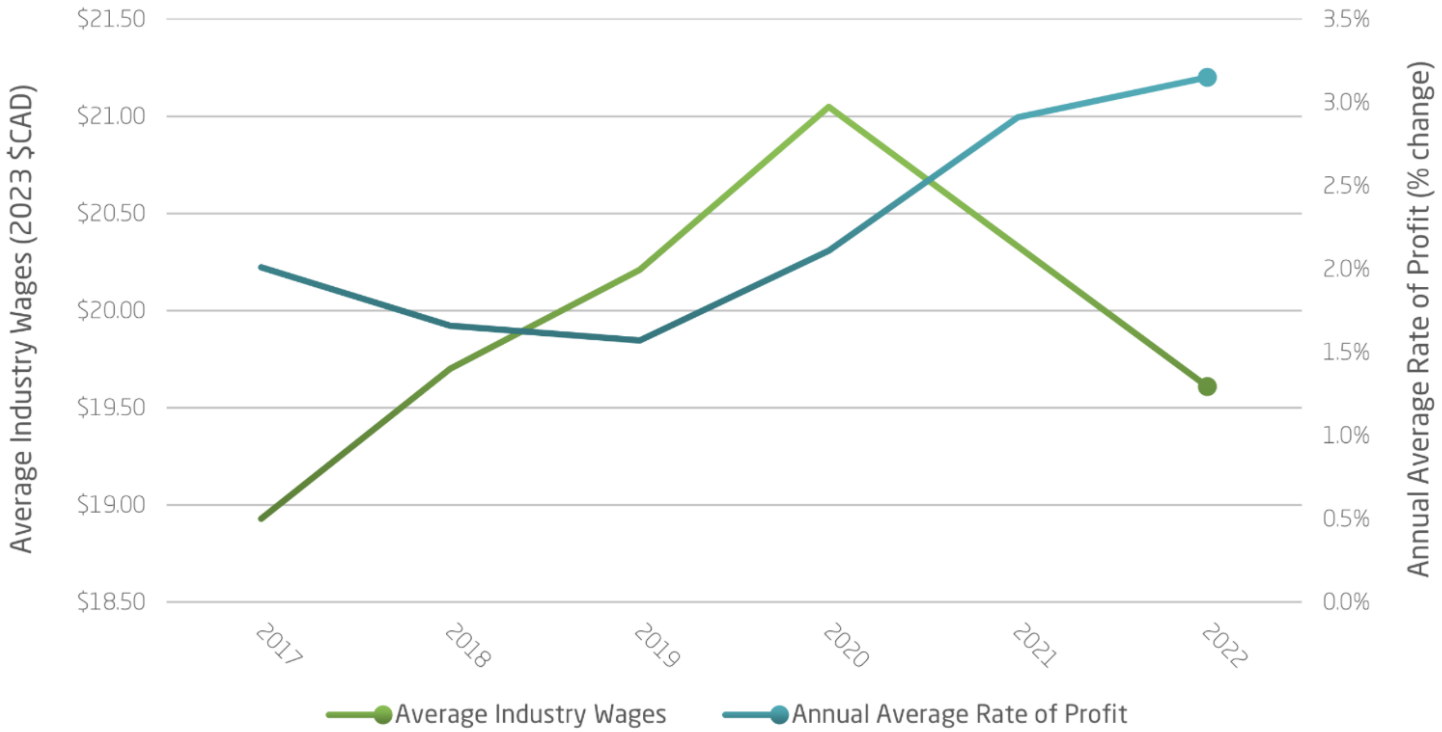
FOOD PRICE INFLATION



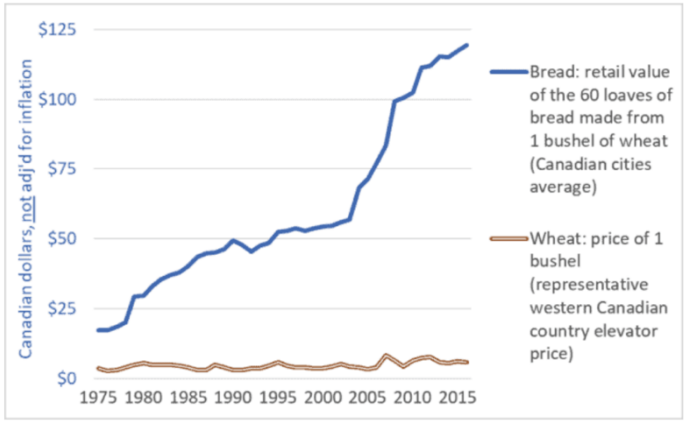
Statistics Canada. Table 33-10-0225-01 quarterly balance sheet, income statement and selected financial ratios, by non-financial industries, non seasonally adjusted (x 1,000,000). Chart from *Canadian Grocery Profitability: Inflation, Wages and Financialization*, Broadbent Institute, 2023.

FOOD PRICE INFLATION

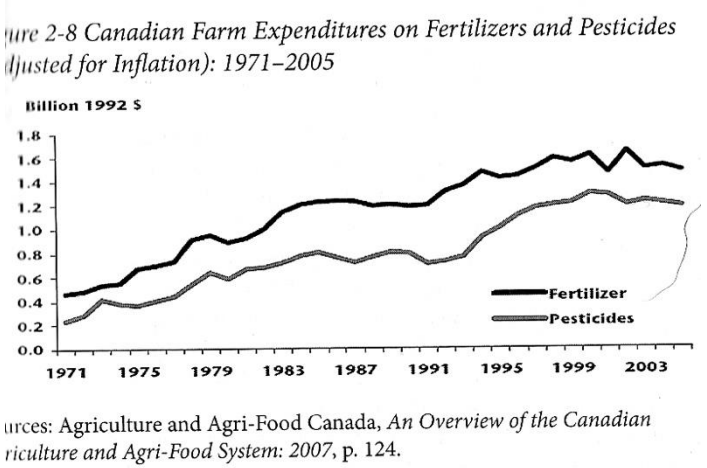
Chart 3 – Food and Beverage Stores: Annual Real Wages (2023 $CAD) vs. Annual Rate of Firm Profits Across Canada, 2018-2022



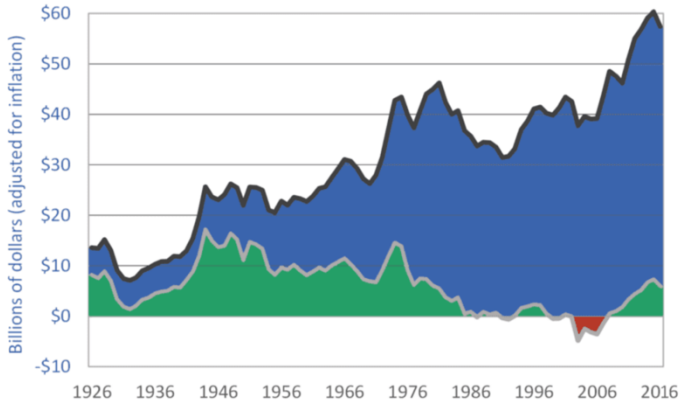
Statistics Canada. Table 14-10-0209-01 Average hourly earnings (including overtime) for salaried employees, by industry, monthly, unadjusted for seasonality; Statistics Canada. Table 18-10-0004-13 Consumer Price Index by product group, monthly, percentage change, not seasonally adjusted, Canada, provinces, Whitehorse, Yellowknife and Iqaluit; Statistics Canada. Table 33-10-0225-01 Quarterly balance sheet, income statement and selected financial ratios, by non-financial industries, non seasonally adjusted (x 1,000,000)



Canadian retail store bread price and farm-gate wheat price, 1975-2016

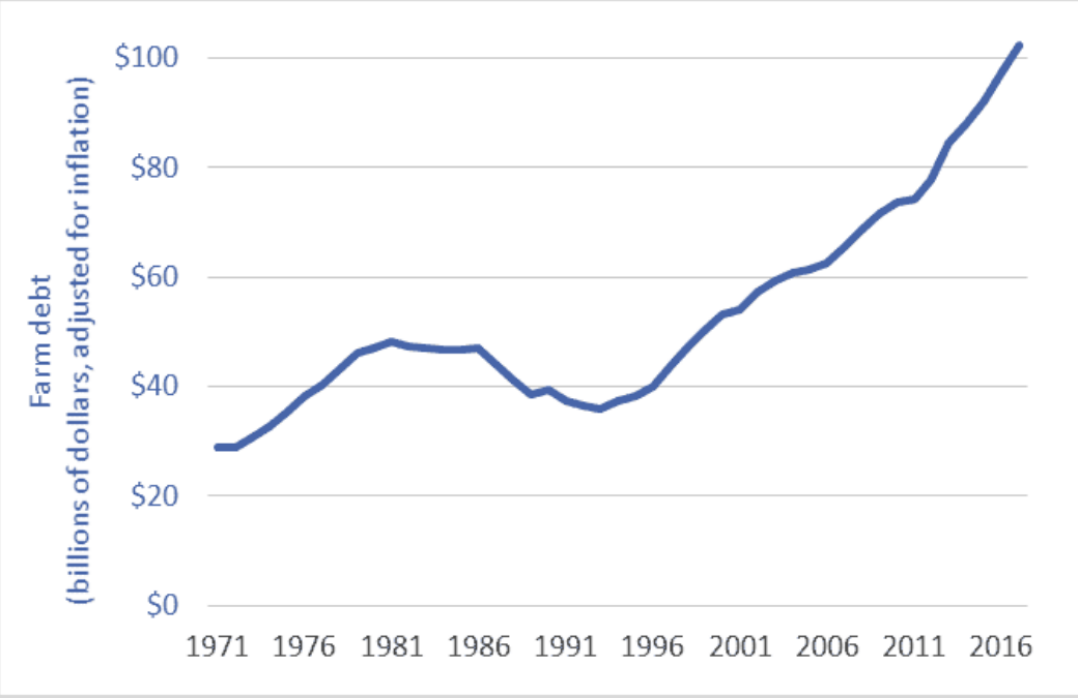


urces: Agriculture and Agri-Food Canada, *An Overview of the Canadian riculture and Agri-Food System: 2007*, p. 124.

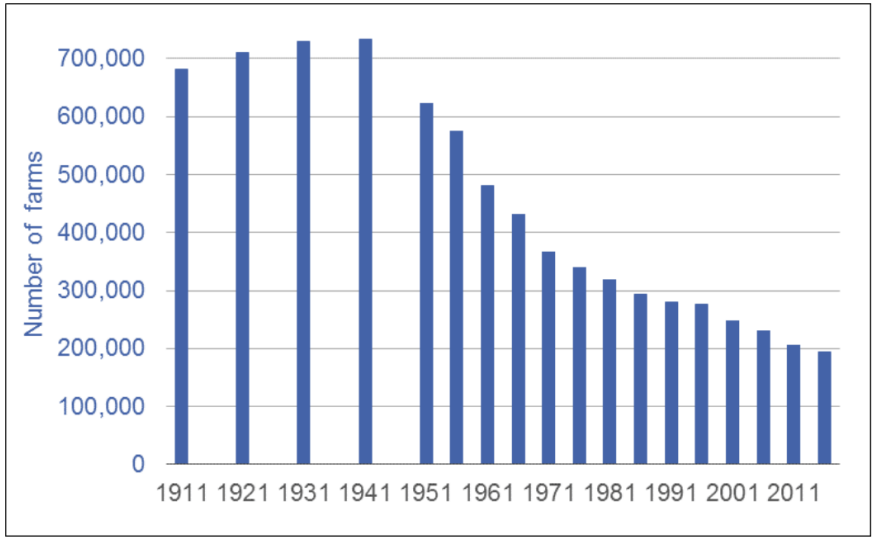


Canadian net farm income and gross revenue, inflation adjusted, net of government payments, 1926–2016.

The Global Food System is Not Economically Viable



Losing the farm(s): Census data on the number of farms in Canada



Number of farms in Canada, Census years, 1911 to 2016

The Global Food System is Not Economically Viable

Figure 2.1

Real Average Canadian Hourly Wage in 2015 dollars 1914-2000

CANSIM ii V l603501 ; Urquhart et al "Historical Statistics of Canada"



Sources: Statistics Canada, CANSIM ii V I603501 and Urquhart et al., "Historical Statistics of Canada."

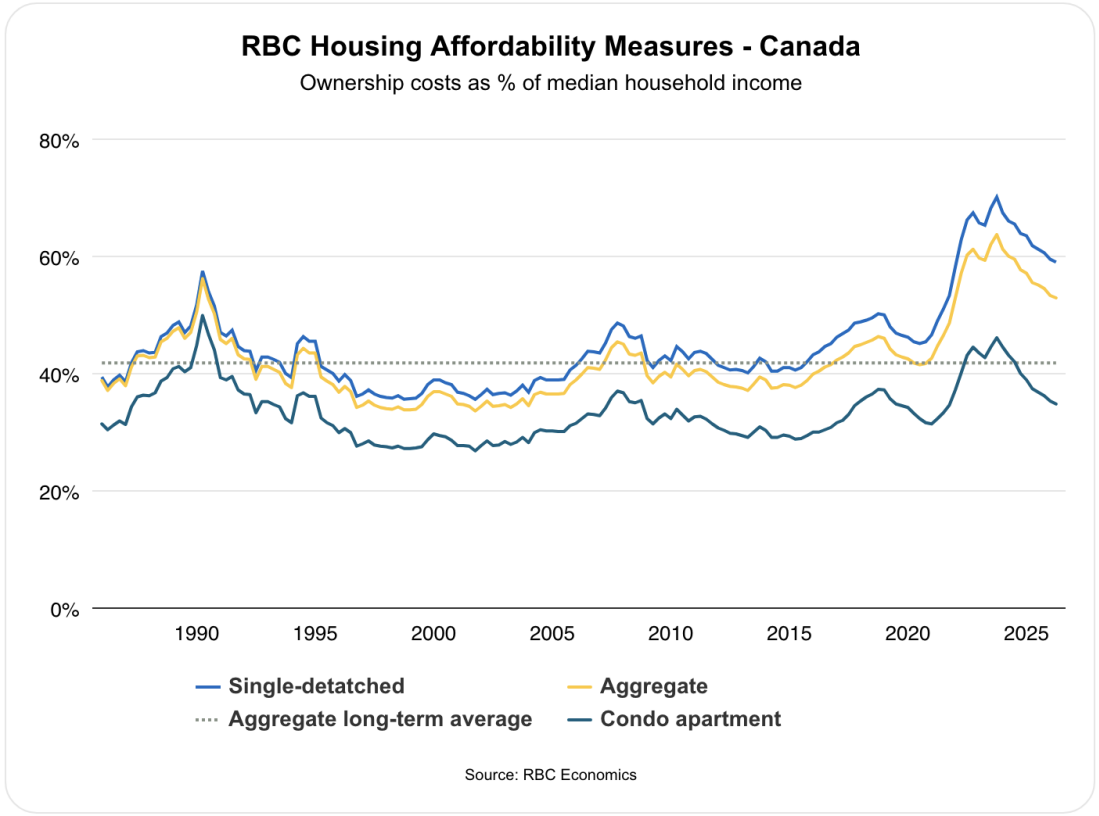
Table 2.1

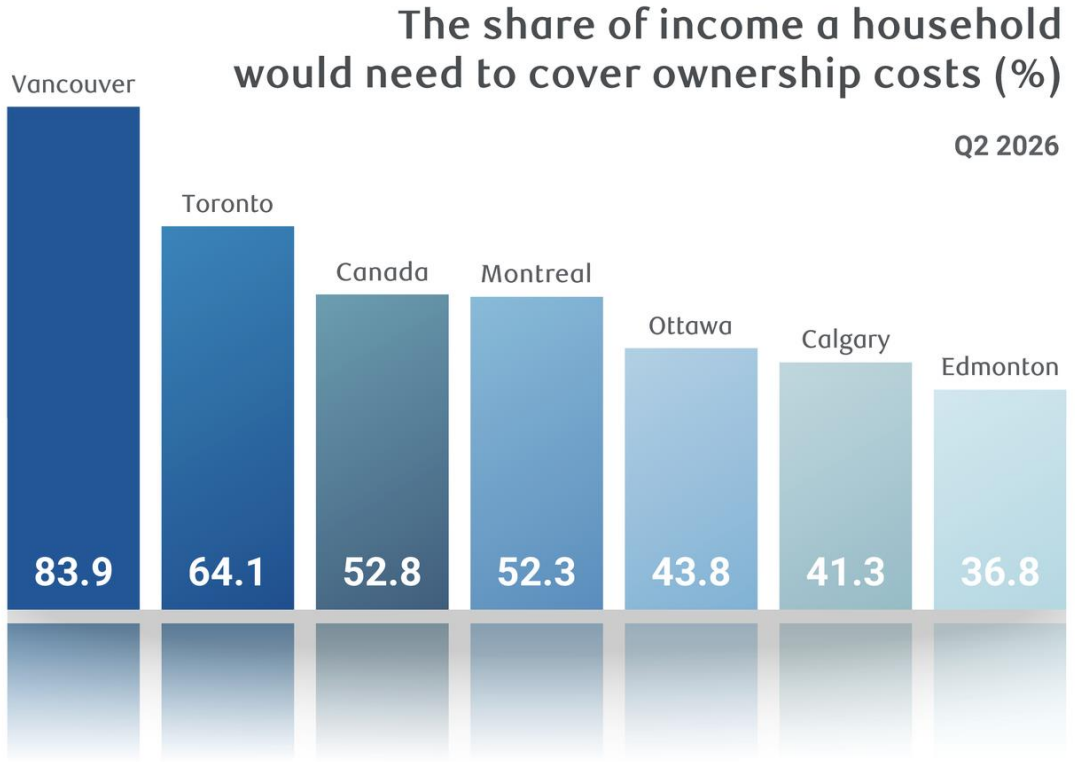
Hourly Real Wage among Full-Time Workers (2015$)

	Average	10th Percentile	50th	90th	99th	99.9th	$GAP 99.9th -50th
1980	25.73	11.64	23.37	41.50	71.93	150.99	127.61
1985	25.15	10.23	22.97	41.22	71.19	156.2	133.23
1990	25.64	10.16	23.29	42.24	75.69	170.47	147.18
1995	25.21	9.64	22.65	41.69	76.19	190.52	167.87
2000	26.52	9.79	22.97	44.03	91.87	265.53	242.56
2005	28.31	10.31	23.67	46.64	102.64	372.16	348.49
2010	31.00	11.40	26.07	52.06	112.04	340.52	314.45
Compound annual growth rates							
1980-2010	0.62%	-0.07%	0.36%	0.76%	1.48%	2.71%	3.01%
1980-2000	0.15%	-0.87%	-0.09%	0.30%	1.22%	2.82%	3.21%
2000-2010	1.56%	1.52%	1.27%	1.68%	1.98%	2.49%	4.81%

Source: Duclos and Pellerin (2016-Table 3) plus author's calculations

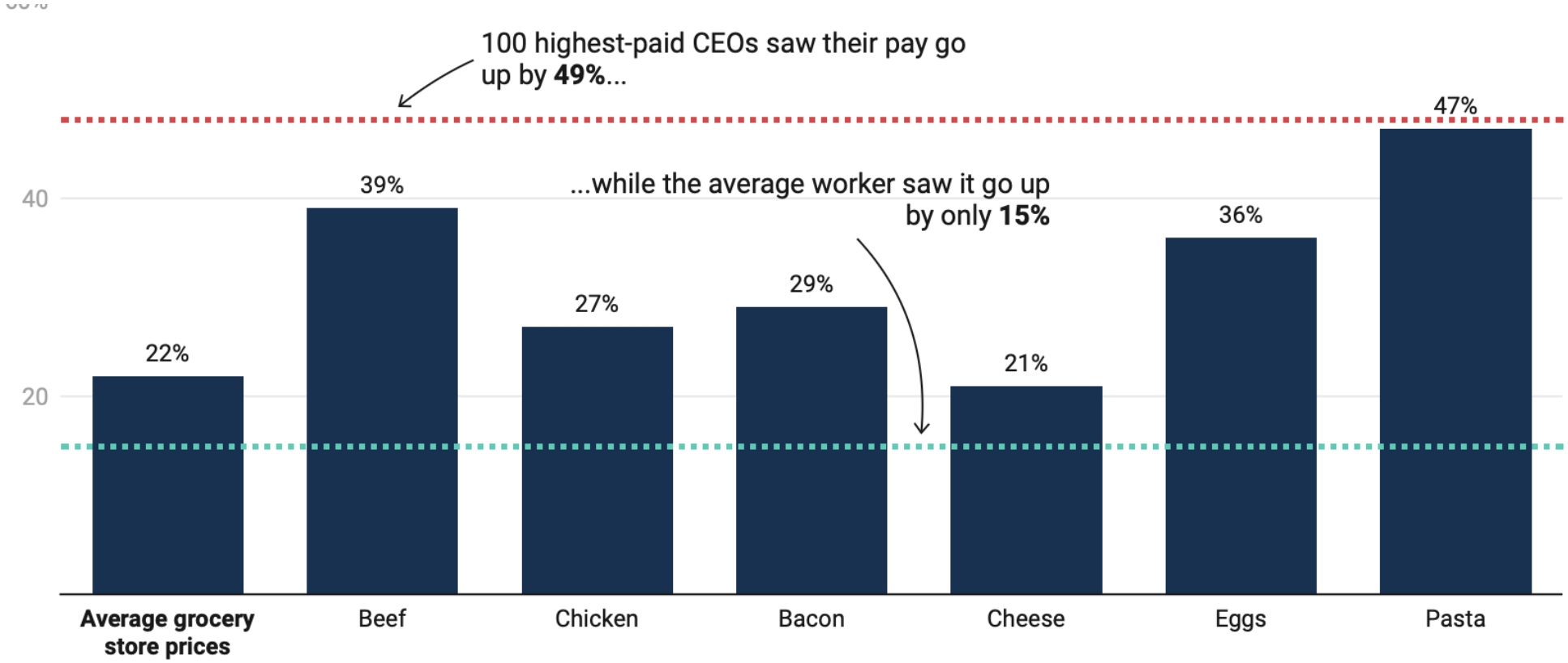
CONNECTING TO THE BIGGER PICTURE





CONNECTING TO THE BIGGER PICTURE

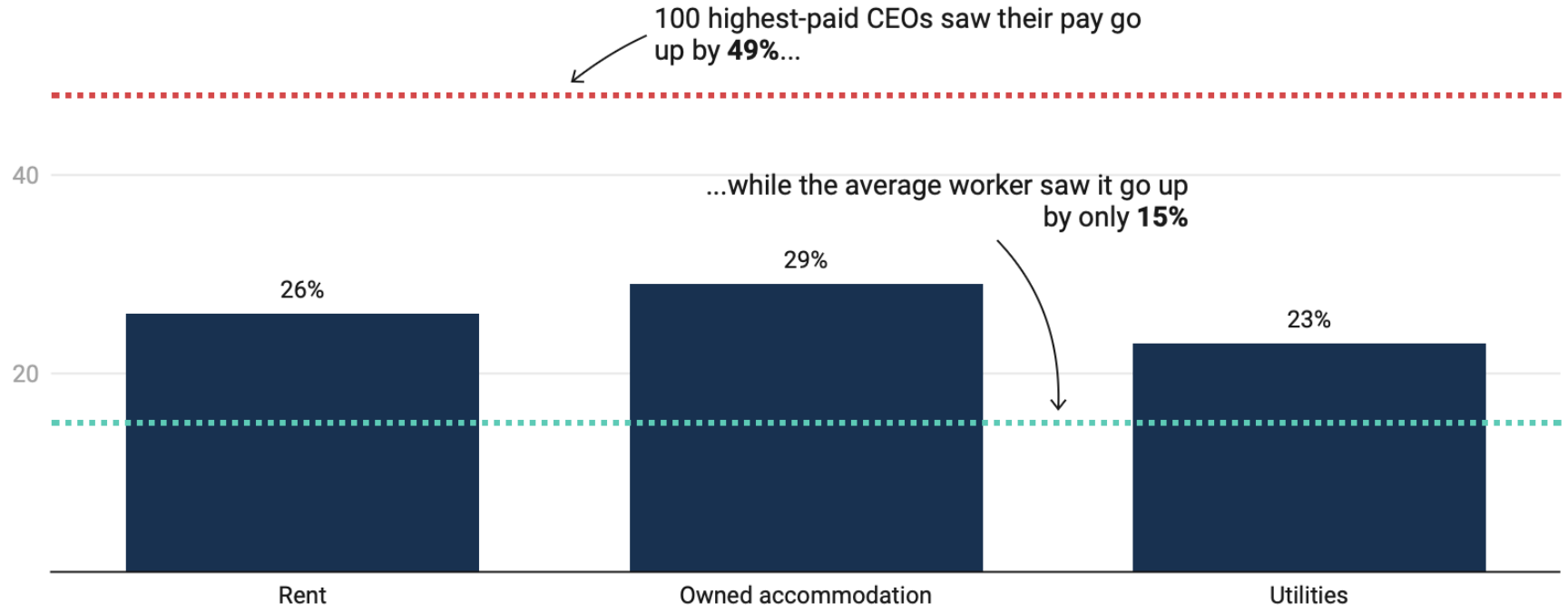
Source



Change in CPI index value between January 2020 and January 2024

Source: Statistics Canada table 18-10-0004-01 and author's calculations • Get the data • Created with Datawrapper

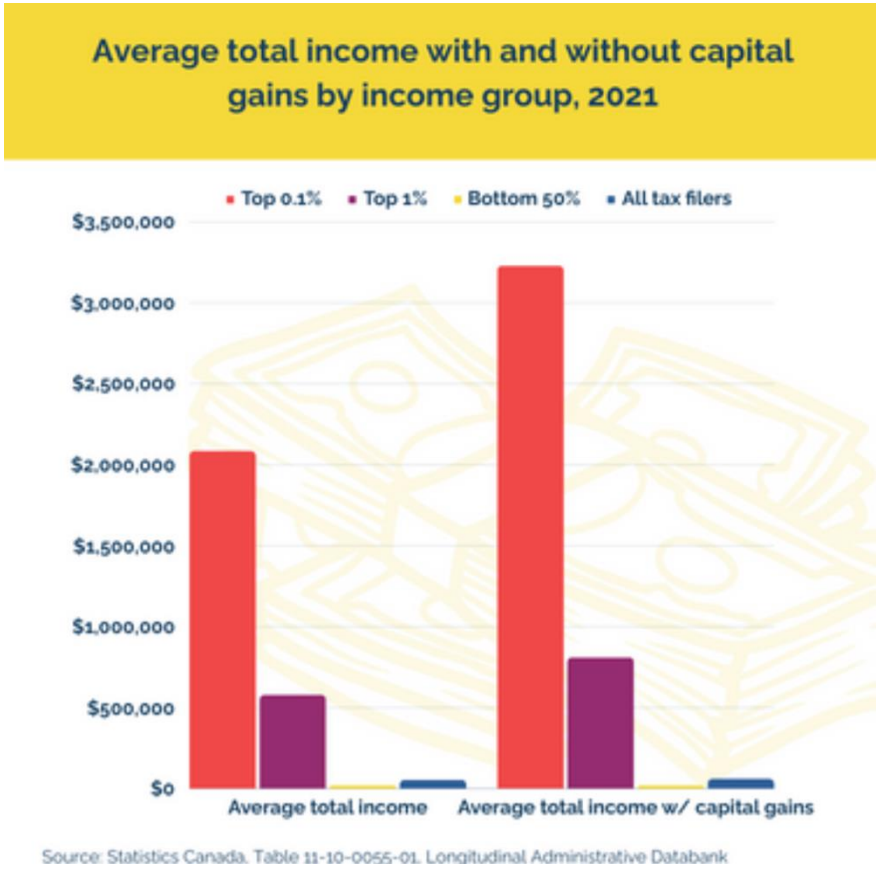
CONNECTING TO THE BIGGER PICTURE



Change in CPI index value between January 2020 and January 2024

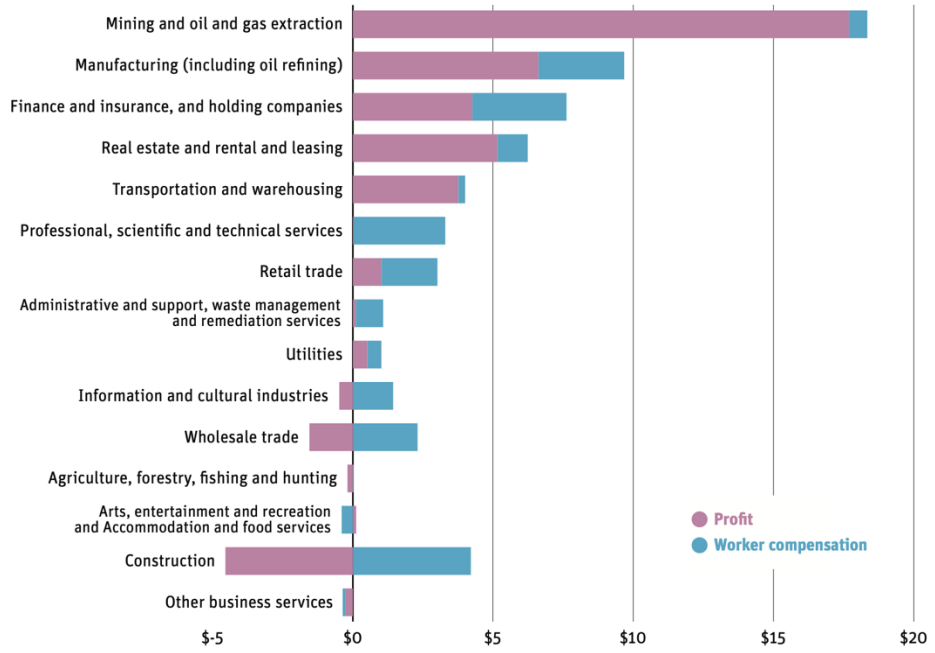
Source: Statistics Canada table 18-10-0004-01 and author's calculations • Get the data • Created with Datawrapper

CONNECTING TO THE BIGGER PICTURE



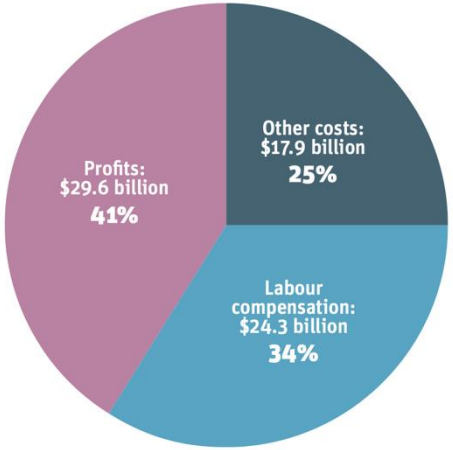
CONNECTING TO THE BIGGER PICTURE

FIGURE 4 Where inflation dollars in third quarter 2022 ended up, by industry and type ($bil, Q3 2020 vs Q3 2022)



Source See Table 2 for Statistics Canada table sources and the methodology section for calculations.

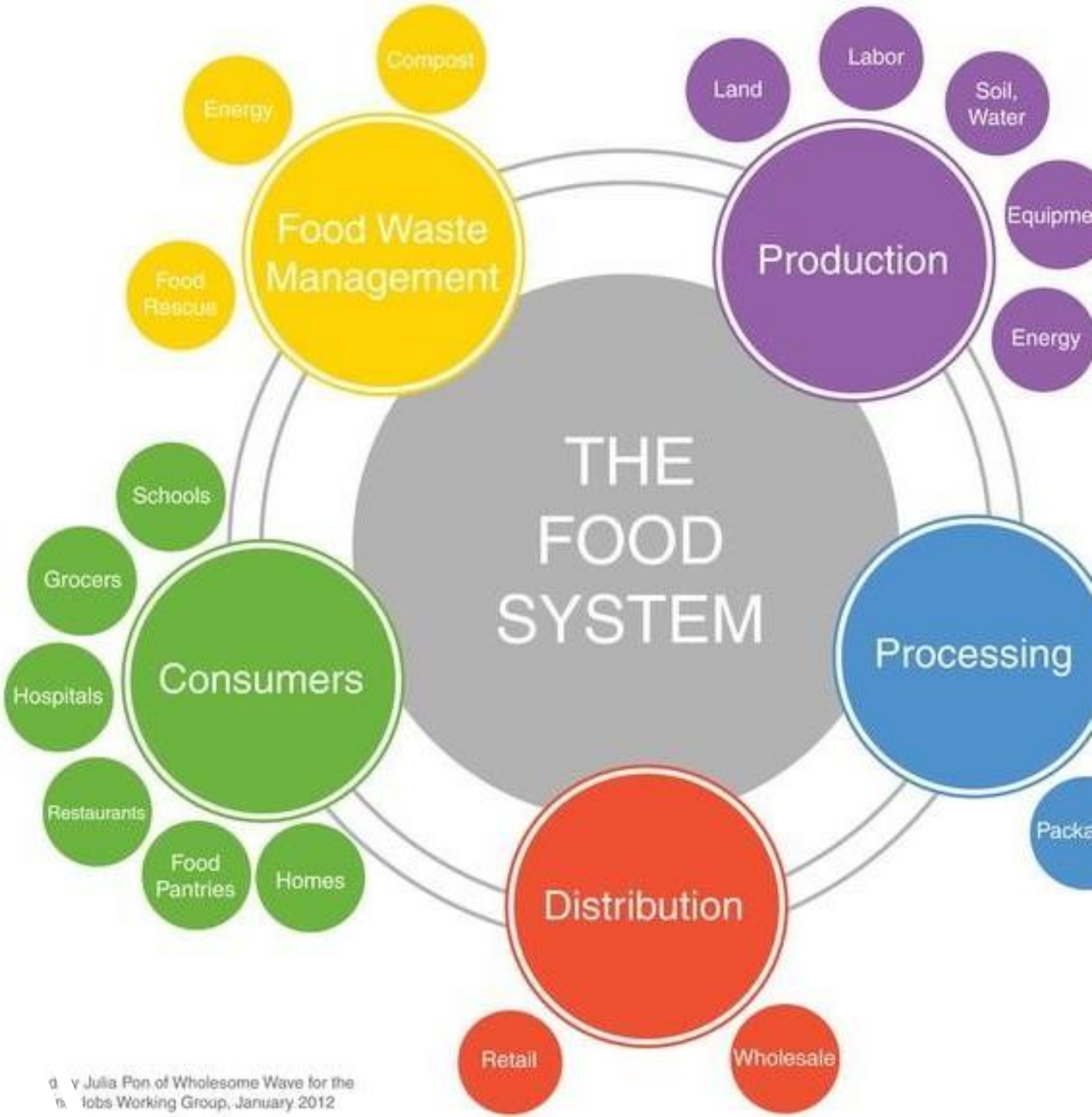
FIGURE 2 Where inflation dollars paid to the corporate sector went ($bil, Q3 2020 vs Q3 2022)



Notes Includes only the business sector. Represents the increase in costs in each category after adjusting for real GDP growth in the business sector through the creation of unit labour costs, unit profits and unit other costs. See the methodology section. Dollar figures represent the cumulative percentage change in prices on a quarterly basis. Time frame goes from the third quarter 2020 through to the third quarter 2022.
Source See Table 2 for Statistics Canada table sources and the methodology section for calculations.

CONNECTING TO THE BIGGER PICTURE

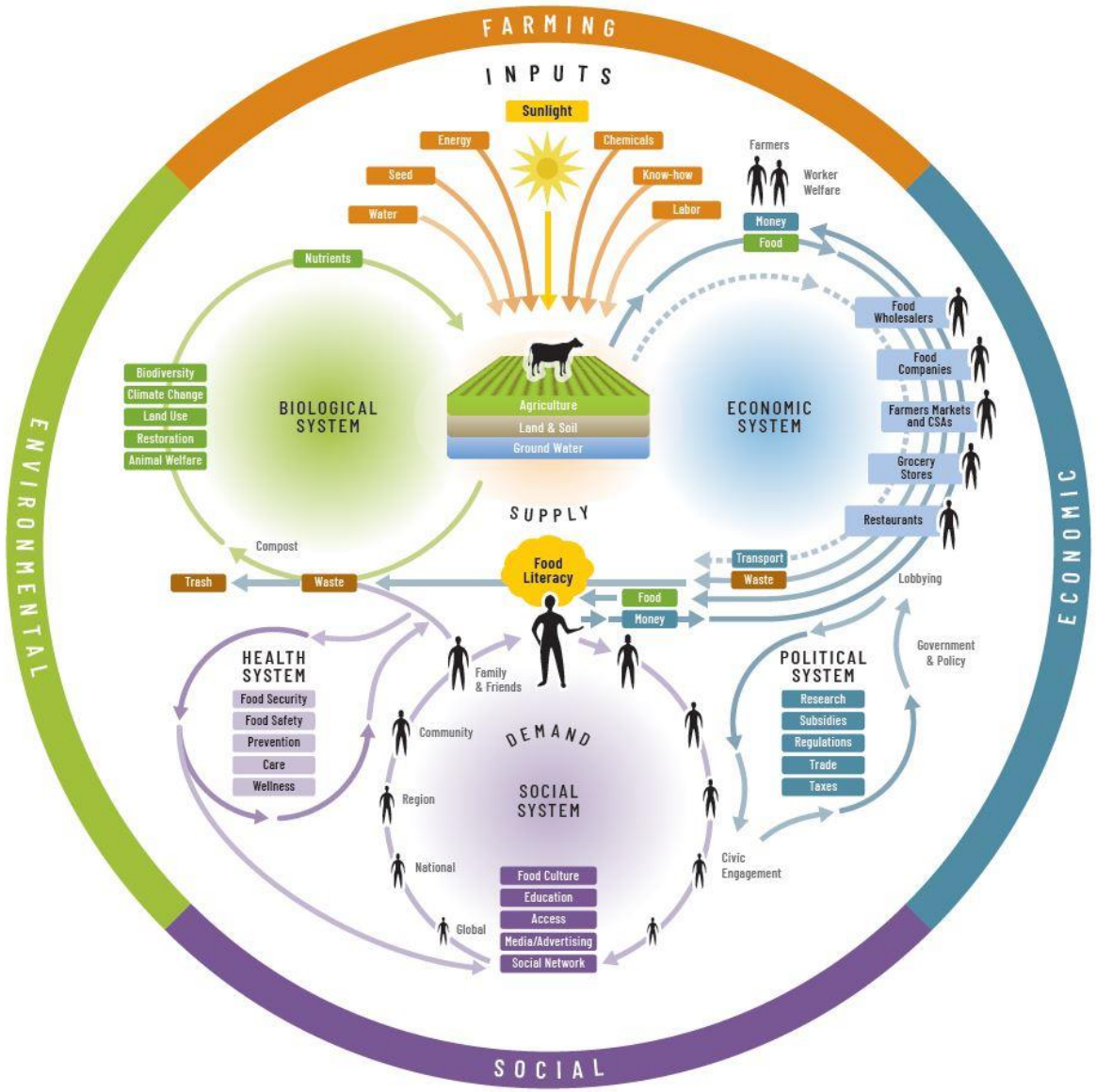
Food Systems

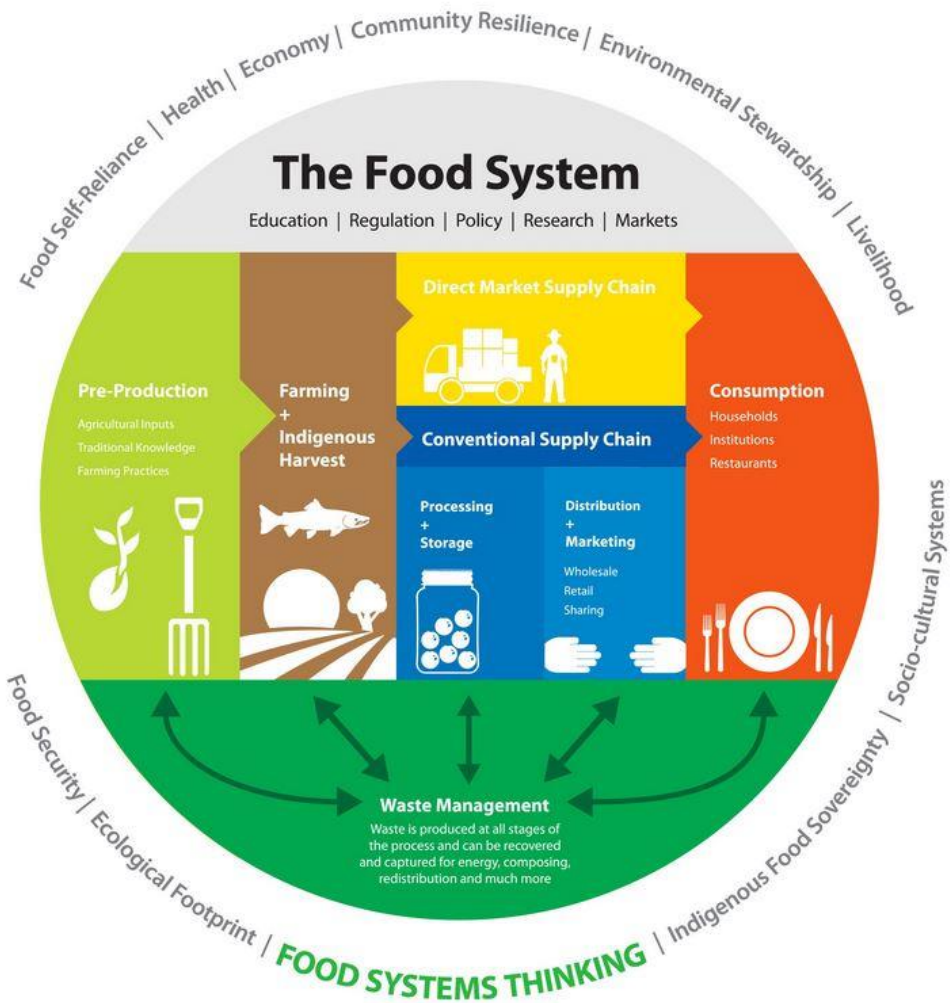


d v Julia Pon of Wholesome Wave for the
h lobs Working Group, January 2012



Figure 1. Food System Sectors


FARMING
INPUTS
Sunlight
Energy
Chemicals
Seed
Know-how
Water
Labor
Nutrients
Farmers
Worker Welfare
Money
Food
Biodiversity
Climate Change
Land Use
Restoration
Animal Welfare
BIOLOGICAL SYSTEM
Agriculture
Land & Soil
Ground Water
ECONOMIC SYSTEM
Food Wholesalers
Food Companies
Farmers Markets and CSAs
Grocery Stores
Restaurants
SUPPLY
Compost
Trash
Waste
Food Literacy
Transport
Waste
Food
Money
Lobbying
Government & Policy
HEALTH SYSTEM
Food Security
Food Safety
Prevention
Care
Wellness
Family & Friends
Community
DEMAND
Region
SOCIAL SYSTEM
National
Global
Food Culture
Education
Access
Media/Advertising
Social Network
POLITICAL SYSTEM
Research
Subsidies
Regulations
Trade
Taxes
Civic Engagement
ENVIRONMENTAL
ECONOMIC
SOCIAL


Food Self-Reliance | Health | Economy | Community Resilience | Environmental Stewardship | Livelihood
The Food System
Education | Regulation | Policy | Research | Markets
Pre-Production
Agricultural Inputs
Traditional Knowledge
Farming Practices
Farming
+
Indigenous
Harvest
Direct Market Supply Chain
Conventional Supply Chain
Processing
+
Storage
Distribution
+
Marketing
Wholesale
Retail
Sharing
Consumption
Households
Institutions
Restaurants
Waste Management
Waste is produced at all stages of the process and can be recovered and captured for energy, composing, redistribution and much more
Food Security | Ecological Footprint | FOOD SYSTEMS THINKING | Indigenous Food Sovereignty | Socio-cultural Systems

Discussion

What do you want to write about for your first blog/essay?



Snap-Shot of the Student-Run Food System at Concordia

NOVEMBER 2018

SUPPORT & ADVOCACY

- Sustainable Concordia
- Sustainable Action Fund
- Concordia Student Union
- Graduate Student Association
- Concordia Food Coalition
- Centre for Gender Advocacy
- Q-PIRG Concordia
- Food Autonomy Campaign

PRODUCTION

FOOD

GROWING FOOD ON CAMPUS

- Concordia Greenhouse
- City Farm School
- Campus Potager
- HydroFlora
- People's Potato Garden

GROWING FOOD OFF CAMPUS

- *City Farm School (Green Club) ***
- *Hudson Land Trust Project ***

FORAGING

- Sensorium

KNOWLEDGE

EDUCATIONAL ACTIVITIES

- Concordia Greenhouse
- City Farm School
- Season Jars
- HydroFlora
- Coop les brasseurs illuminés
- le Frigo Vert
- Waste Not, Want Not Compost
- Sprouting Minds
- Cooking at Concordia

CONFERENCES

- Bite Me! Food Week
- Concordia Transitions

PROCESSING

FOOD TRANSFORMATION

- Cooking at Concordia
- People's Potato
- Hive Café Solidarity Coop
- Hive Free Lunch
- Reggies Coop
- Season Jars
- Coop les brasseurs illuminés
- Mother Hubbard's Cupboard
- Food Against Fascism
- *Burritoville **

DISTRIBUTION

CAFÉ / RESTO / CAFETERIA

MARKET BASED

- Hive Café Solidarity Coop
- Reggies Coop
- *Café X **
- *G Lounge **
- *Burritoville **

NON-MARKET BASED

- People's Potato
- Hive Free Lunch
- Hive Café (pay it forward)
- Mother Hubbard's Cupboard
- Food Against Fascism

PRODUCE / GROCERY OUTLETS

MARKET BASED

- Greenhouse (Seedling sale)
- City Farm School Market
- Concordia Farmers' Market
- Campus Potager Pop-Up Market
- le Frigo Vert

NON-MARKET BASED

- Greenhouse (seedling donations)
- People's Potato (food bank)
- Mother Hubbard's (vouchers)
- City Farm School (NDG Food Depot)

WASTE MANAGEMENT

INITIATIVES

EDUCATION / COMPOSTING

- Waste Not, Want Not Compost
- City Farm School
- Concordia Greenhouse
- Vermicycle

REUSABLE DISHES

- R4 Dish Project
- People's Potato
- Hive Free Lunch
- Hive Café Solidarity Coop
- Mother Hubbard's Cupboard
- Concordia Greenhouse
- Food Against Fascism

COMPOSTABLE PACKAGING

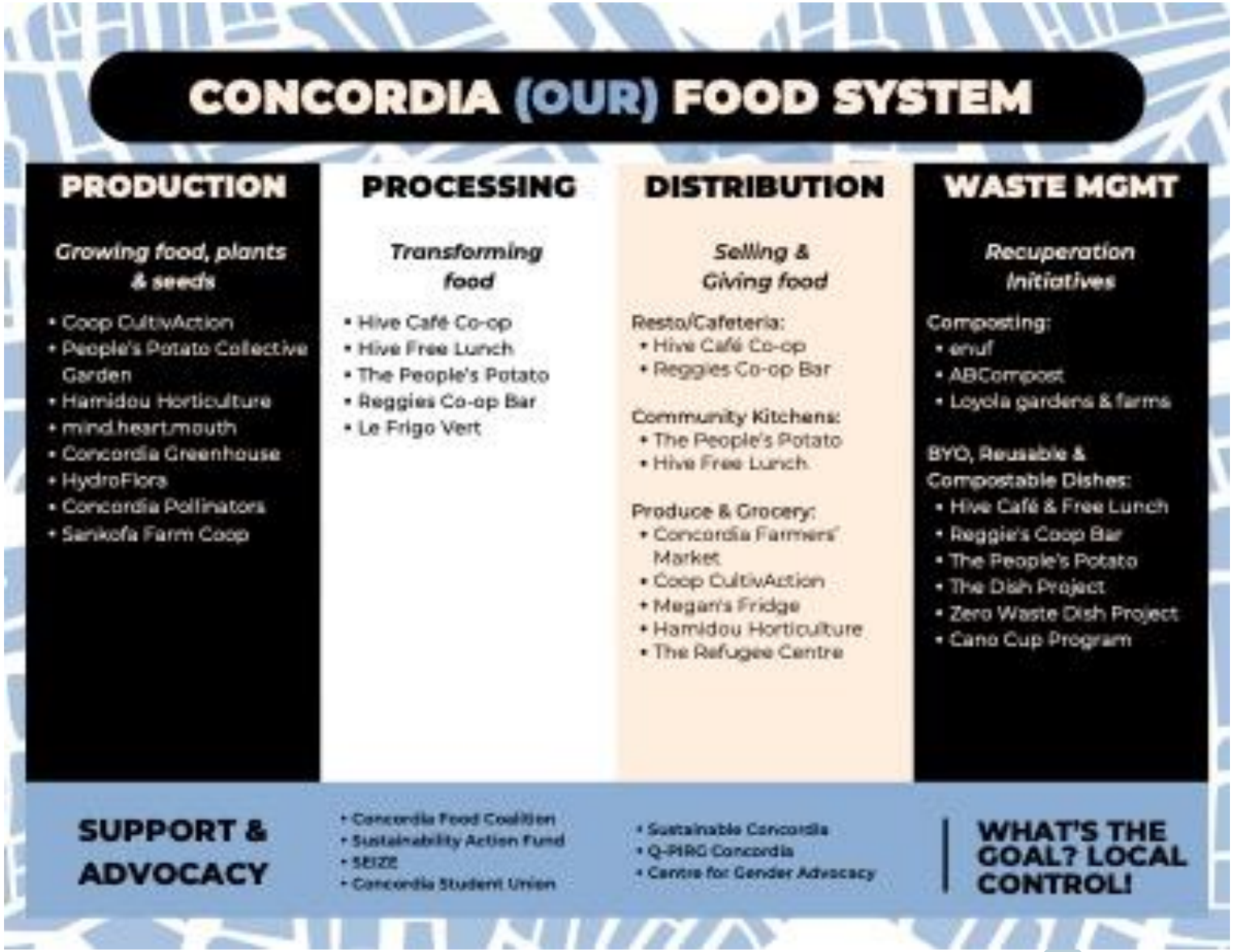
- Hive Café Coop

B.Y.O. DISH INCENTIVES

- People's Potato
- Hive Café Solidarity Coop
- Waste Not, Want Not Compost
- le Frigo Vert
- Food Against Fascism

** No longer in operation*

** * Now independent community project*


CONCORDIA (OUR) FOOD SYSTEM
PRODUCTION
Growing food, plants & seeds
• Coop CultivAction
• People's Potato Collective Garden
• Hamidou Horticulture
• mind.heart.mouth
• Concordia Greenhouse
• HydroFlora
• Concordia Pollinators
• Sankofa Farm Coop
PROCESSING
Transforming food
• Hive Café Co-op
• Hive Free Lunch
• The People's Potato
• Reggies Co-op Bar
• Le Frigo Vert
DISTRIBUTION
Selling & Giving food
Resto/Cafeteria:
• Hive Café Co-op
• Reggies Co-op Bar
Community Kitchens:
• The People's Potato
• Hive Free Lunch
Produce & Grocery:
• Concordia Farmers' Market
• Coop CultivAction
• Megan's Fridge
• Hamidou Horticulture
• The Refugee Centre
WASTE MGMT
Recuperation Initiatives
Composting:
• enuf
• ABCompost
• Loyola gardens & farms
BYO, Reusable & Compostable Dishes:
• Hive Café & Free Lunch
• Reggie's Coop Bar
• The People's Potato
• The Dish Project
• Zero Waste Dish Project
• Cano Cup Program
SUPPORT & ADVOCACY
• Concordia Food Coalition
• Sustainability Action Fund
• SEIZE
• Concordia Student Union
• Sustainable Concordia
• Q-PIRG Concordia
• Centre for Gender Advocacy
WHAT'S THE GOAL? LOCAL CONTROL!

Take back the Economy

Gibson-Graham, J.K., Cameron, J., Healy, S. (2013) Take Back the Economy: An Ethical Guide for Transforming Communities, University of Minnesota Press

LABOR	TRANSACTIONS	PROPERTY	ENTERPRISE	FINANCE
Wage	Market	Private	Capitalist	Mainstream Markets
ALTERNATIVE PAID Self-employed Reciprocal labor In-kind Work for welfare	ALTERNATIVE MARKET Fair trade Alternative currencies Underground market Barter	ALTERNATIVE PRIVATE State-managed assets Customary (clan) land Community land trusts Indigenous knowledge (Intellectual Property)	ALTERNATIVE CAPITALIST State owned Environmentally responsible Socially responsible Non-profit	ALTERNATIVE MARKET Cooperative Banks Credit unions Community-based financial institutions Micro-finance
UNPAID Housework Volunteer Self-provisioning Slave labor	NON-MARKET Household sharing Gift giving Hunting, fishing, gathering Theft, piracy, poaching	OPEN ACCESS Atmosphere International Waters Open source IP Outer Space	NON-CAPITALIST Worker cooperatives Sole proprietorships Community enterprise Feudal Slave	NON-MARKET Sweat equity Family lending Donations Interest-free loans

Mapping Community Food Systems				
PRODUCTION	PROCESSING	DISTRIBUTION	WASTE MANAGEMENT	SUPPORT
Food	Cook	Market	Compost - Soil Building	Funding
Tools	Prepare	Redistribution	Water saving - Irrigation	Space
Knowledge	Ferment	Reciprocity	Seed Saving - Seed Sewing	Labour
Social Capital	Preserve	Self/community provisioning	Re-purpose food	
	Transform			
	Freeze/store			
	Dehydrate			
	Can			

Ecological Cycles

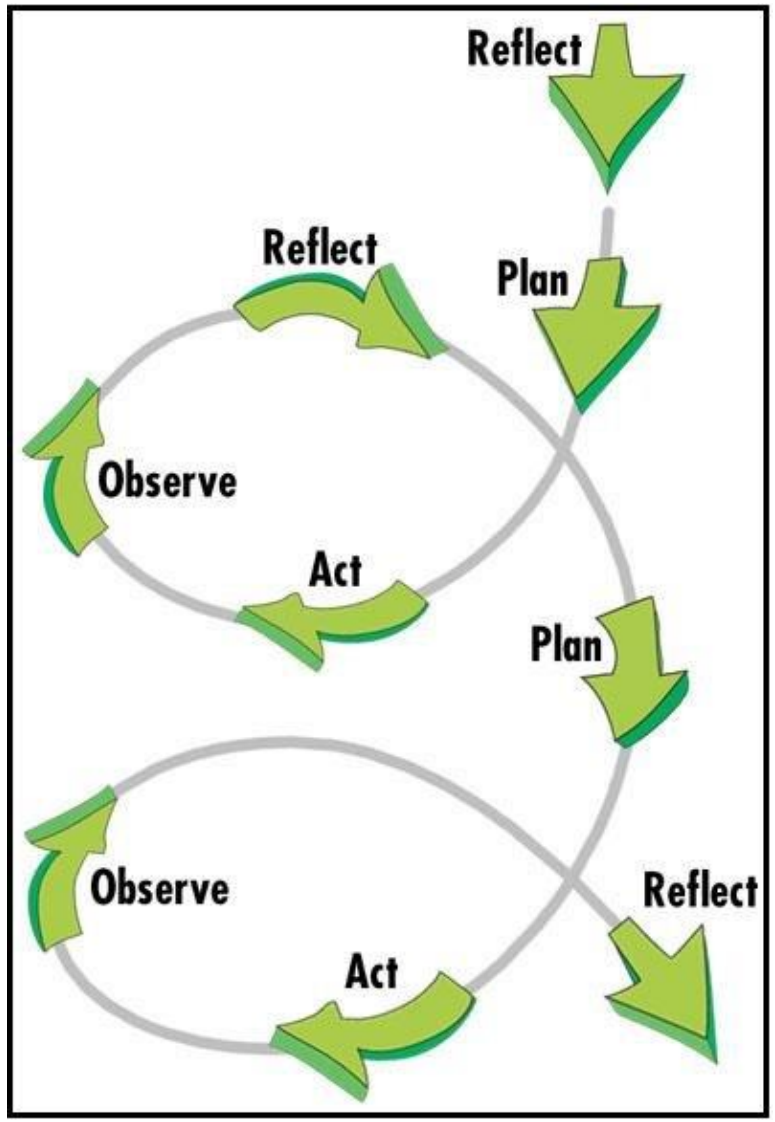
- Seasons & Planting Calendar
  - Planting Calendar – For Montreal (Great Resource)
  - Planting Chart – West Coast Seeds
- Seed saving/sewing
- Building soil/nutrient replenishing
- Running water
- Harvesting/culling
- Succession planting
- Attracting pollinators/beneficial insects
- Crop rotations
- Balance and biodiversity

What other cycles can you think of?

Polycultures

How to create polycultures (Hemenway)

- 1 – Seed several varieties of each species
- 2 – Don’t sew seeds too thickly
- 3 – Begin harvest early
- 4 – Mix plant families, not just species
- 5 – Include many seeds of fast-growing, shallow-rooted species
- 6 – Overlap harvests
- 7 – Avoid root and light competition
- 8 – Harvest whole plants
- 9 – Save a few plants for seed
- 10 – Examine your polyculture every day



Designing an Ecological Garden

- Observation
- Visioning
- Planning
  - Conceptual design
  - Schematic design
- Development
- Implementation

What do the following terms (phrases) mean?

1 - Diverse economies
2 - Ecological economics
3 - Strong (transformative) sustainability
4 - Triple Bottom Line Sustainability (weak sustainability)
5 – Agroecology
6 – Permaculture
7 - Perennial plants
8 - Plant hardiness zones
9 – Mycelium
10 - Food system (what are the components)
11 - Food security
12 - Food sovereignty
13 - Food justice
14 - GMO vs Seed breeding
15 - N-P-K
16 - Planting successions
17 - SPIN Farming
18 – Biodiversity
19 - Food regimes
20 - Root causes of global food issues

Thanks!

Questions, Concerns, Comments?