

Methods for Studying Sustainable Foodscapes

INTRODUCTION TO COURSE

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What do You Know About Food?



What is the Difference Between a Fruit and Vegetable?







What is the Difference Between a Fruit and a Berry?





What is the Difference Between a Herb or Spice?





What do you Know About Global Food Systems?

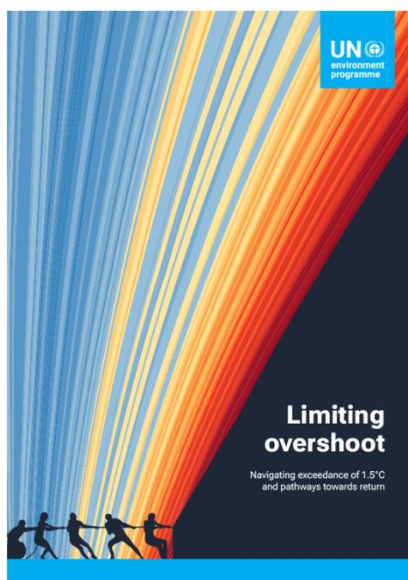


The Global Food System is
NOT Sustainable

02 SEPTEMBER 2026 | REPORT

Limiting Overshoot - Navigating exceedance of 1.5°C and pathways towards return

Authors: UNEP

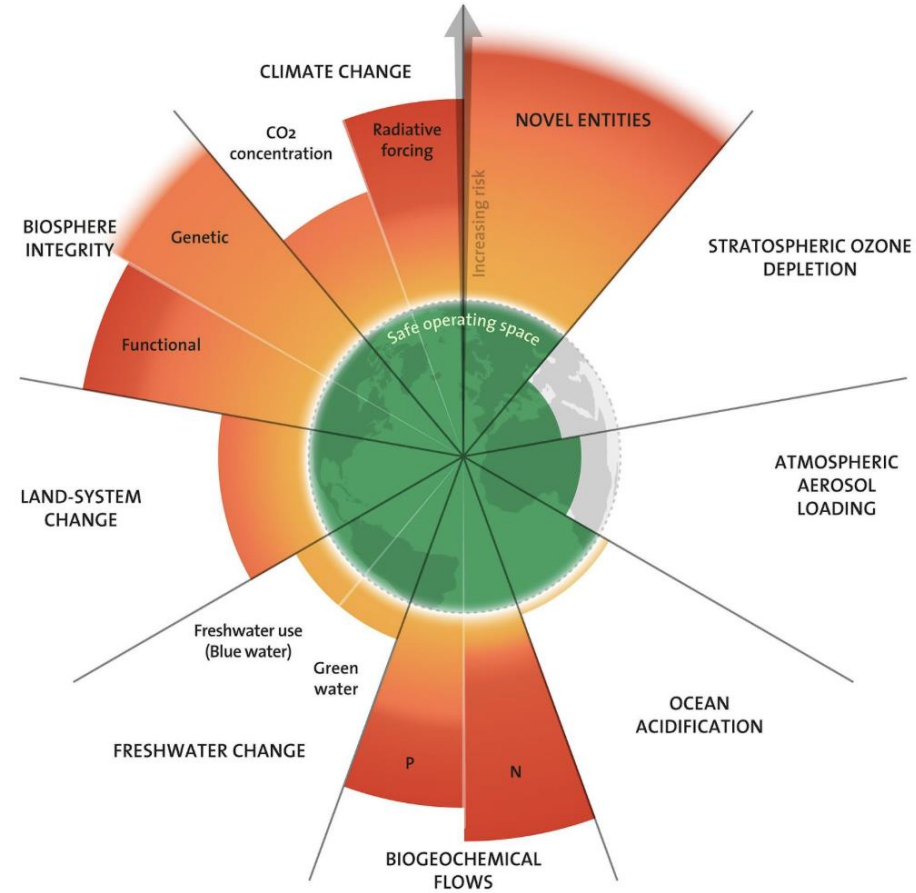


Limiting global warming to 1.5°C remains a cornerstone of the Paris Agreement, yet under current policies and alternative near-term trajectories, exceedance of 1.5°C is now widely assessed as unavoidable.

FULL REPORT

FURTHER RESOURCES

- [Full Report](#)
- [Key messages - Chinese](#)
- [Key messages - English](#)
- [Key messages - Russian](#)
- [Key messages - Spanish](#)
- [Web story: Overshoot explained: 5 things to understand about a world beyond 1.5°C](#)



The 2025 update to the Planetary boundaries. Licensed under CC BY-NC-ND 3.0. Credit: "Azote for Stockholm Resilience Centre, based on analysis in Sakschewski and Caesar et al. 2025".

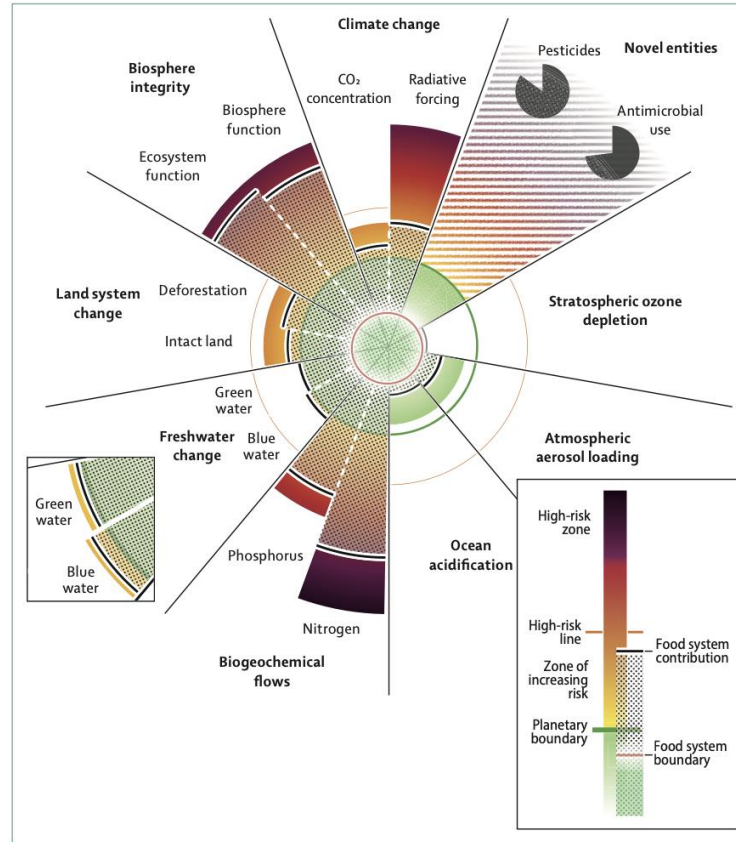
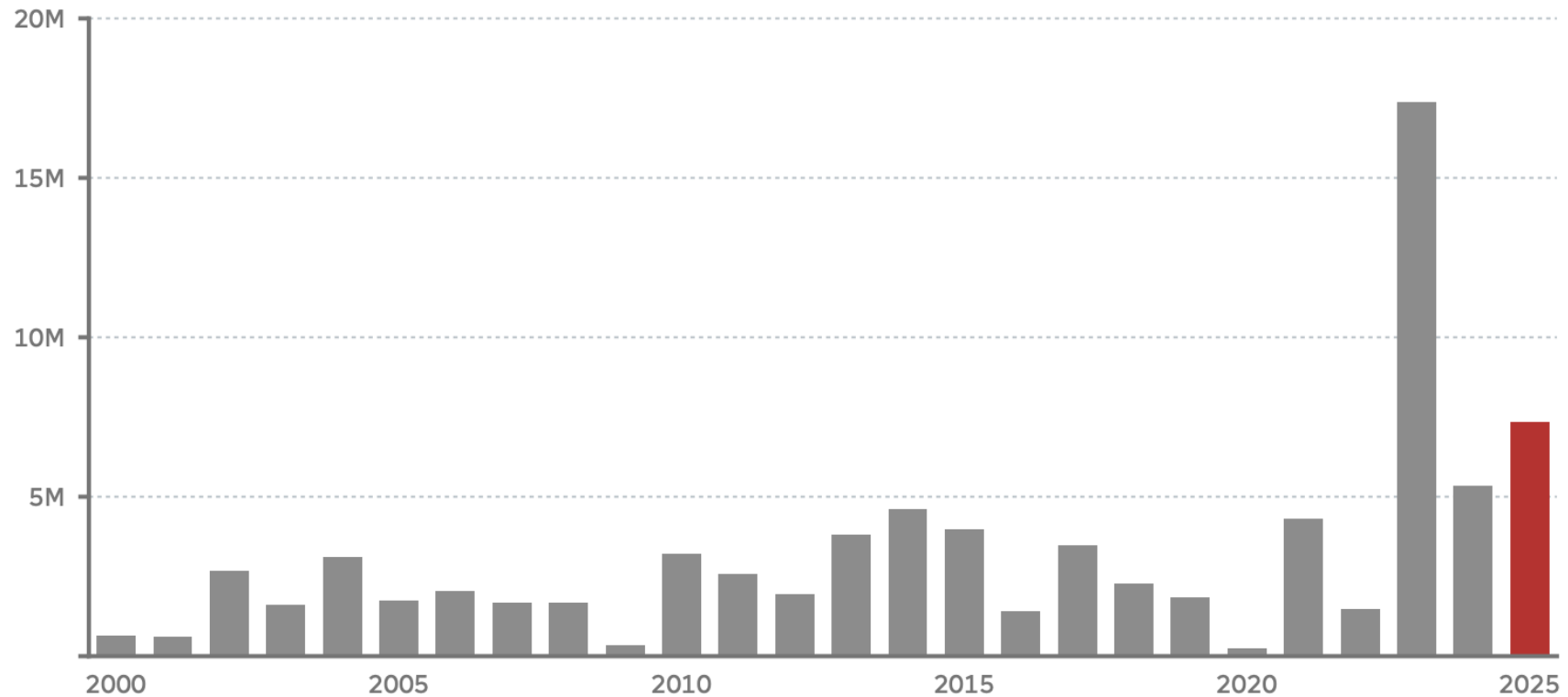


Figure 1: Status of food system pressures across all nine planetary boundaries (indicated by the black dotted pattern) and the food system boundaries (red line)

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 al¹⁶ 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 CO₂ concentration is provided in terms of CO₂ equivalents, as in table 2. Adapted from te Wierik et al.¹⁶

How much has burned so far this year in Canada **this 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)

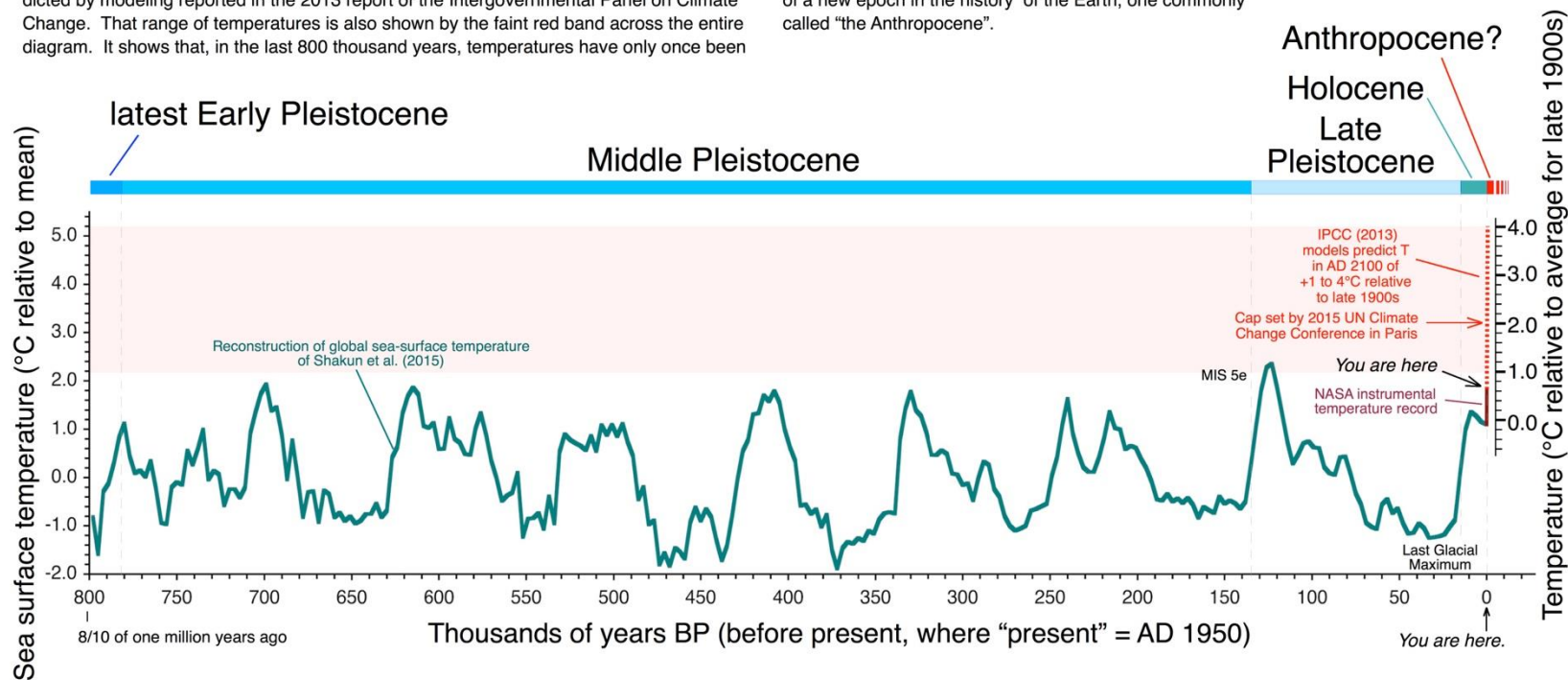
Temperatures from the Middle Pleistocene to the future

The diagram below shows in green a reconstruction of sea-surface temperature made from multiple marine sediment sequences, using the Mg/Ca ratios in the calcite (CaCO_3) of fossil planktic foraminifera. The record is plotted relative to its mean because temperatures at lower latitude locations were greater than those at high-latitude locations, but all show the same pattern and thus can be “stacked” to give one record of relative temperature.

In the rightmost part of the diagram, in the part representing the last 150 years, a dark red solid curve shows average Earth-surface temperature as derived from multiple thermometer records. A dashed bright red line shows the range of temperatures predicted by modeling reported in the 2013 report of the Intergovernmental Panel on Climate Change. That range of temperatures is also shown by the faint red band across the entire diagram. It shows that, in the last 800 thousand years, temperatures have only once been

as high as those expected by AD 2100. That one time was during the last interglacial, the Eemian or MIS 5e, when sea level was at least six meters higher than present.

Another FQS page shows the last 22 thousand years in more detail; it is called “Temperatures from the Last Glacial Maximum to the future”. Like this one, it shows that the rate of temperature increase in the last 150 years and the temperatures expected in the coming century are strikingly unlike those of the Holocene and Pleistocene. The changes that have happened and are expected are so great that they merit great concern from a societal standpoint and, from a geological standpoint, merit recognition of a new epoch in the history of the Earth, one commonly called “the Anthropocene”.



Sources, from left to right:

Shakun, J. D., Lea, D.W., Lisiecki, L.E., and Raymo, M.E., 2015, An 800-kyr record of global surface ocean $\delta^{18}\text{O}$ and implications for ice volume-temperature coupling. *Earth and Planetary Science Letters* 426, 58-68.

U.S. National Aeronautics and Space Administration (NASA) GISS Surface Temperature Analysis at data.giss.nasa.gov/gistemp/graphs_v3/ accessed 20 December 2015.

Intergovernmental Panel on Climate Change (IPCC), 2013. Summary for Policymakers.

In: Stocker, T.F., Qin, D., Plattner, G.-K., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., Midgley, P.M. (Eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Temperatures from the Last Glacial Maximum to the future

This page shows estimates of past variation in global temperature and model predictions of temperature change in the 21st century. Another *FQS* page shows a similar but much longer record, for the last 800 thousand years; that page is called "Temperatures

from the Last Glacial Maximum to the future". Both pages show that the predicted warming is unprecedented in recent geologic history.

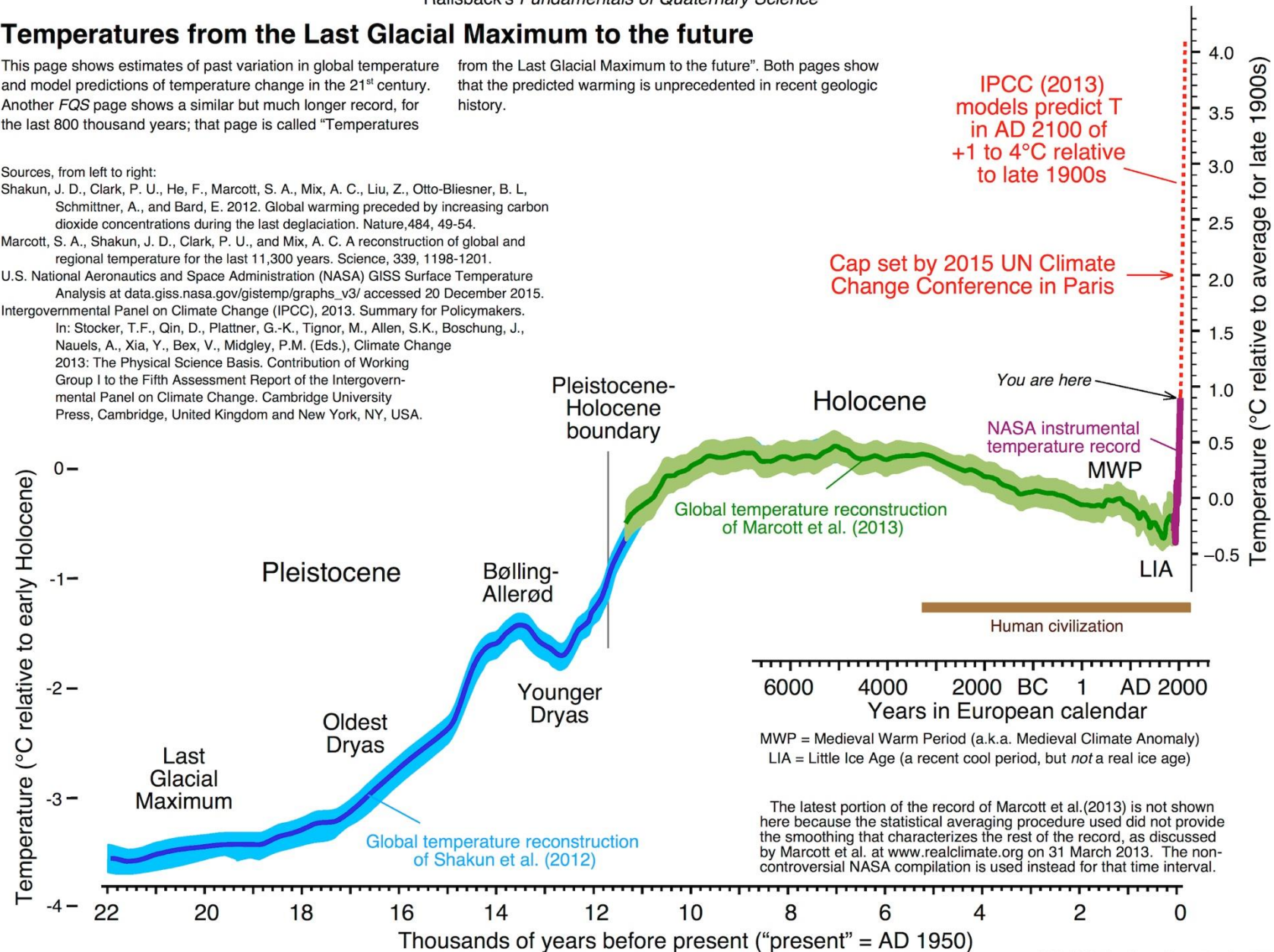
Sources, from left to right:

Shakun, J. D., Clark, P. U., He, F., Marcott, S. A., Mix, A. C., Liu, Z., Otto-Bliesner, B. L., Schmittner, A., and Bard, E. 2012. Global warming preceded by increasing carbon dioxide concentrations during the last deglaciation. *Nature*, 484, 49-54.

Marcott, S. A., Shakun, J. D., Clark, P. U., and Mix, A. C. A reconstruction of global and regional temperature for the last 11,300 years. *Science*, 339, 1198-1201.

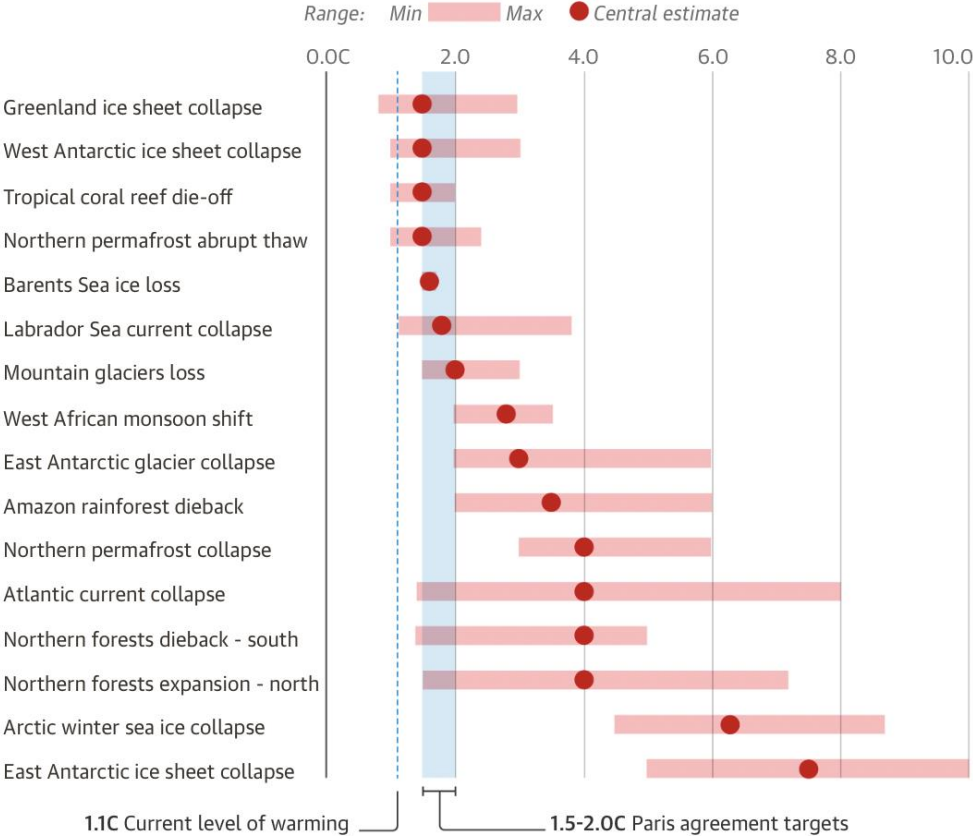
U.S. National Aeronautics and Space Administration (NASA) GISS Surface Temperature Analysis at data.giss.nasa.gov/gistemp/graphs_v3/ accessed 20 December 2015.

Intergovernmental Panel on Climate Change (IPCC), 2013. Summary for Policymakers. In: Stocker, T.F., Qin, D., Plattner, G.-K., Tignor, M., Allen, S.K., Boschung, J., Nauels, A., Xia, Y., Bex, V., Midgley, P.M. (Eds.), *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

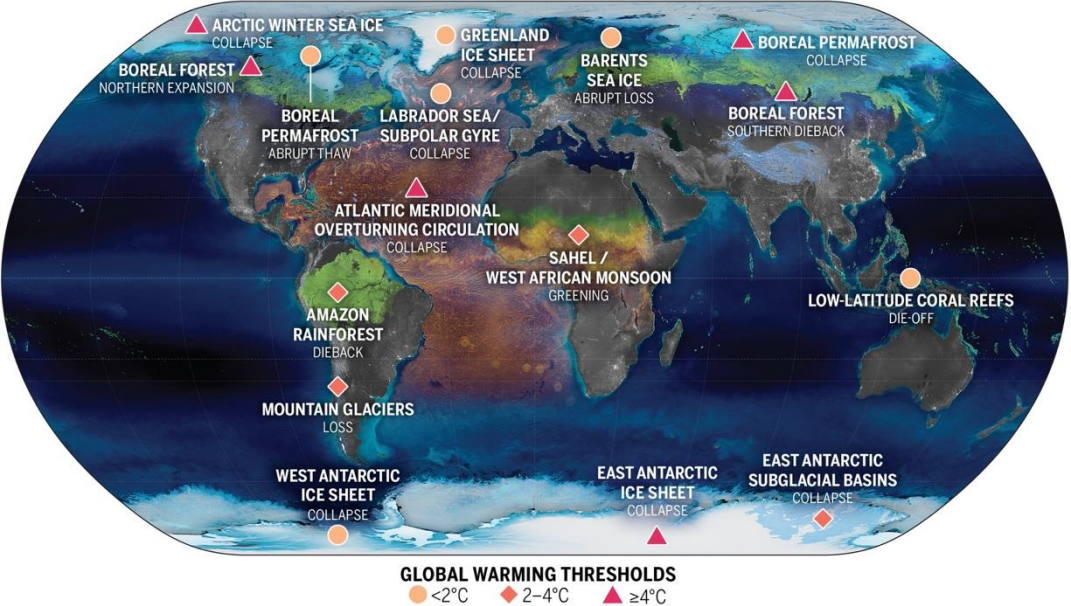


The risk of climate tipping points is rising rapidly as the world heats up

Estimated range of global heating needed to pass tipping point temperature

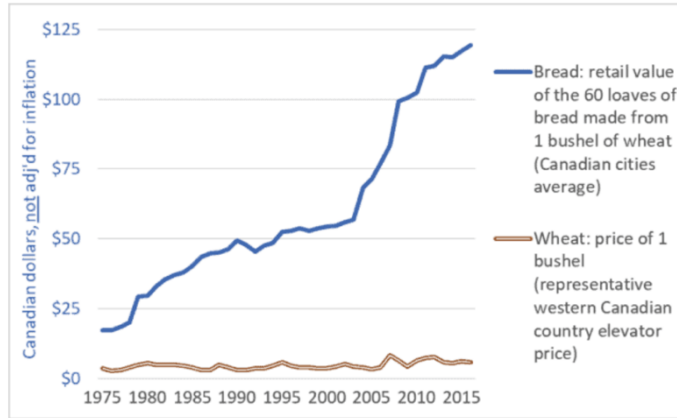


Guardian graphic. Source: Armstrong McKay et al, Science, 2022. Note: Current global heating temperature rise 1.1°C Paris agreement targets 1.5-2.0°C



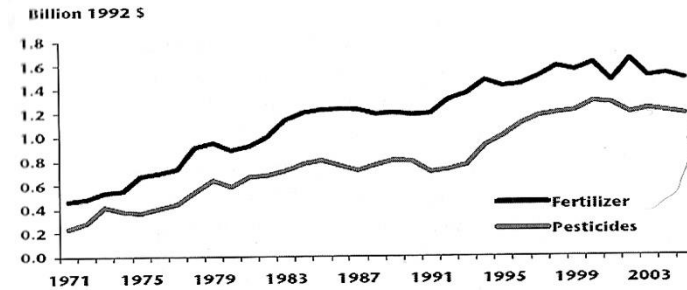


THE GLOBAL FOOD SYSTEM IS ALSO NOT SOCIALLY JUST, NOR ECONOMICALLY VIABLE

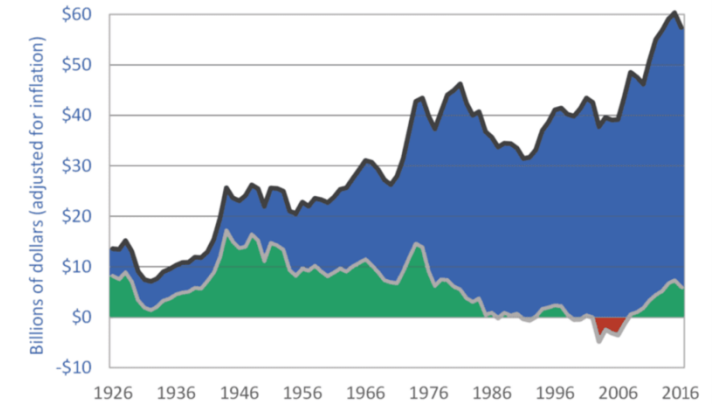


Canadian retail store bread price and farm-gate wheat price, 1975-2016

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

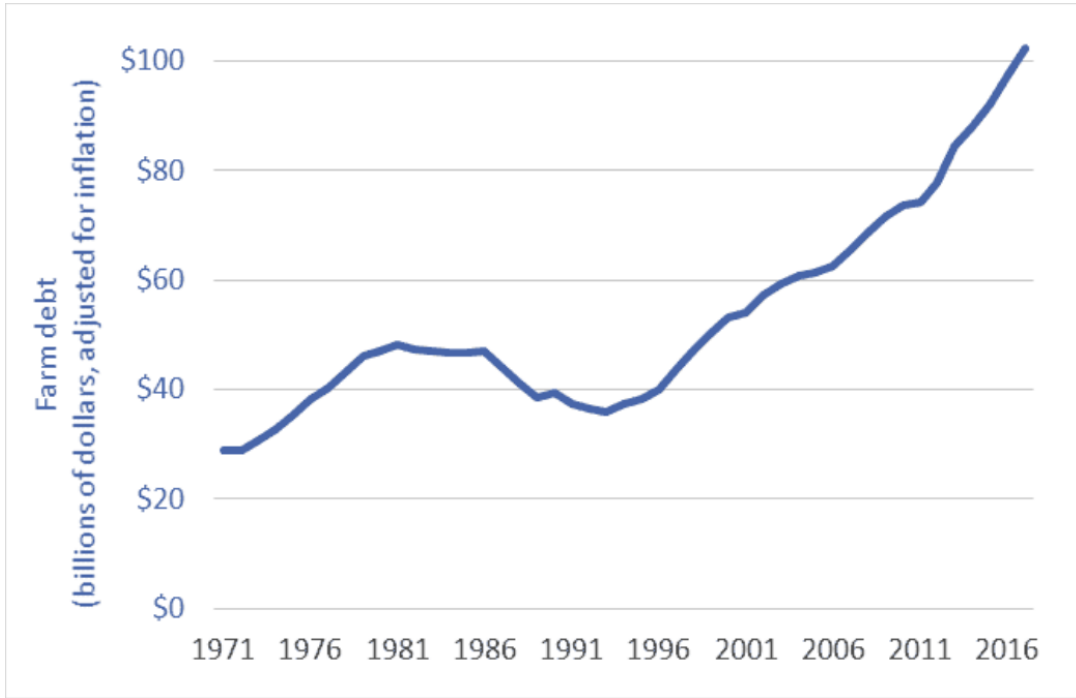


Sources: Agriculture and Agri-Food Canada, *An Overview of the Canadian Agriculture and Agri-Food System: 2007*, p. 124.

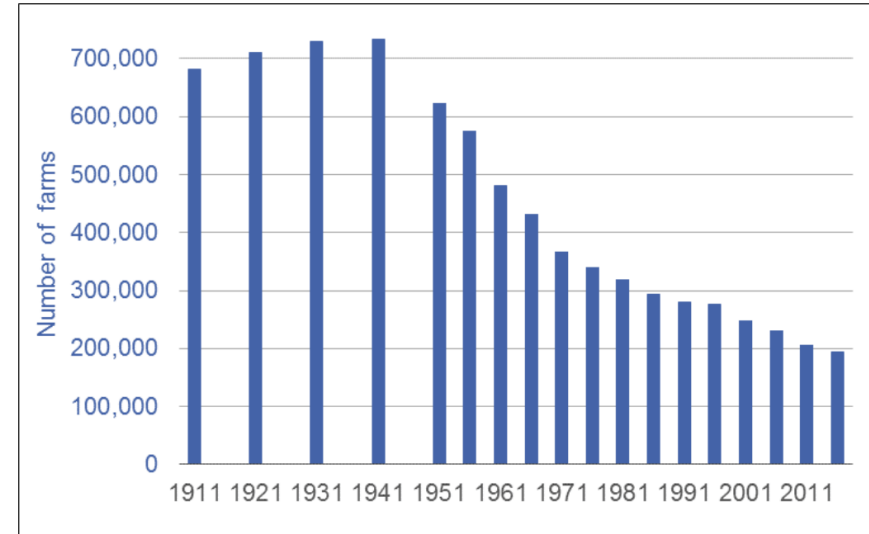


Canadian net farm income and gross revenue, inflation adjusted, net of government payments, 1926-2016.

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

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

Figure 2.1
Real Average Canadian Hourly Wage in 2015 dollars 1914-2000
CANSIM ii V I603501 ; Urquhart et al "Historical Statistics of Canada"



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

CONNECTING TO THE BIGGER PICTURE



Heinrich Himmler (second left) visits the IG

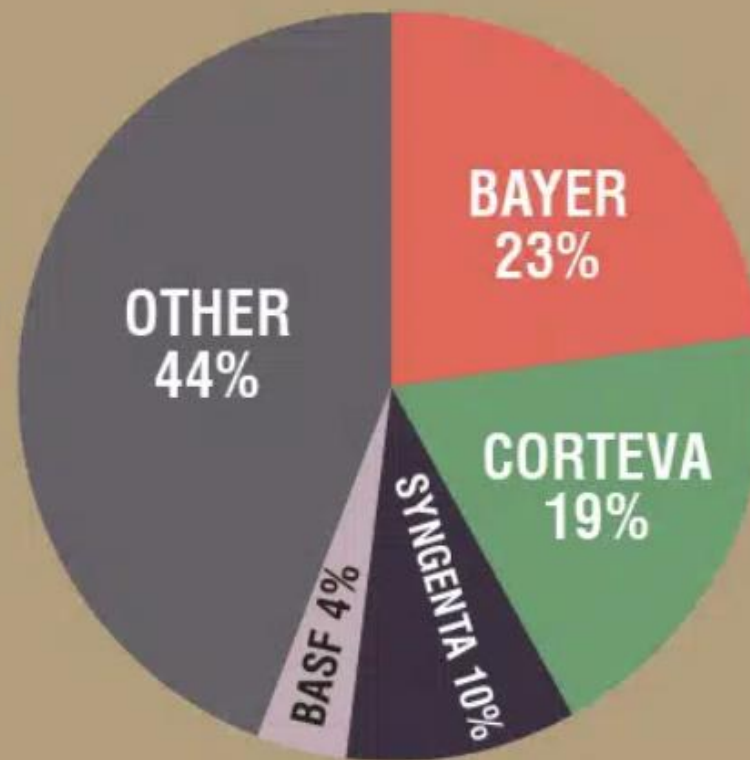


The Global
Food System is
Rooted in War,
Death and
Destruction

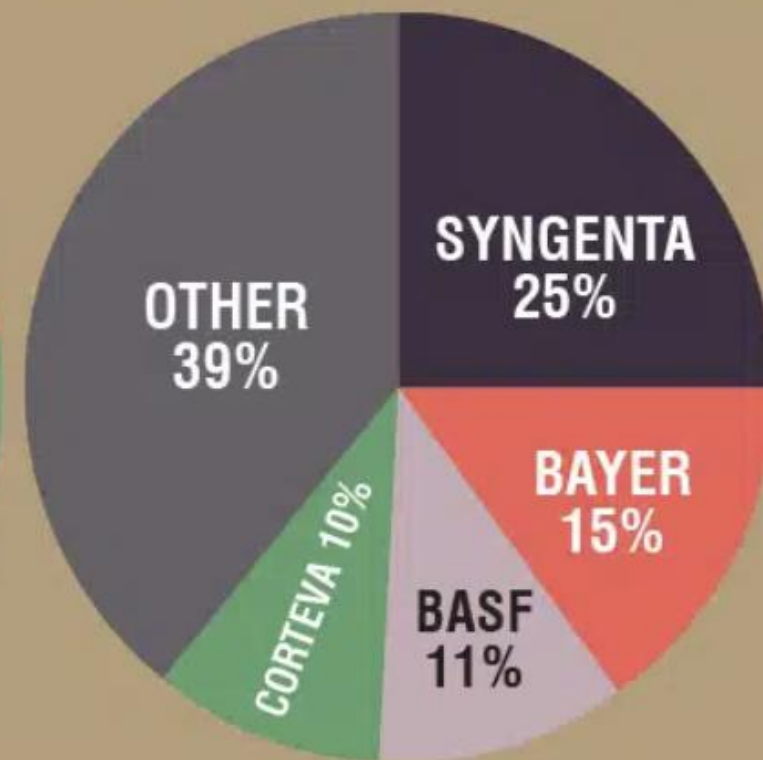


CORPORATE CONTROL IN GLOBAL SEEDS+ AGROCHEMICALS

SEEDS



AGROCHEMICALS



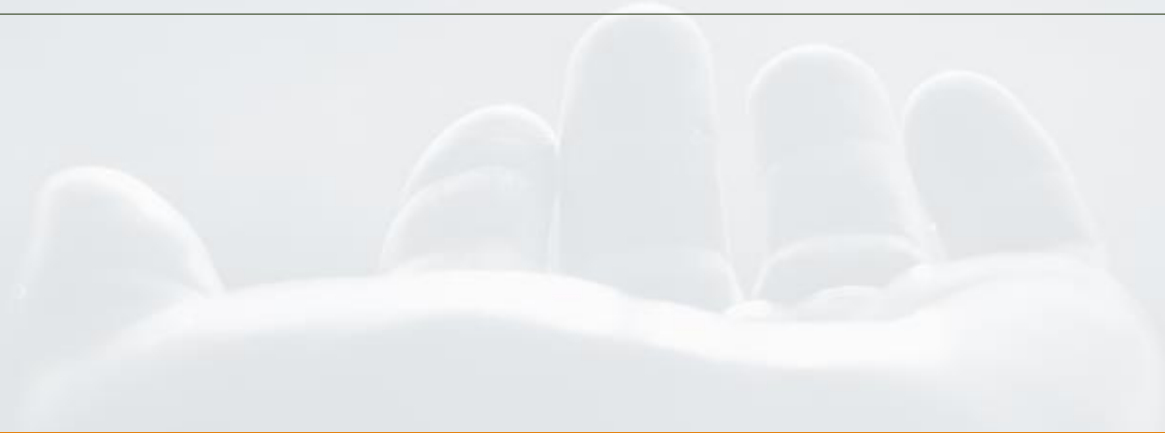
The Global Food System Becoming Increasingly Concentrated

We Need To Transform Our Food System

Calls to “fix a broken food system” assume that the capitalist food system used to work well. This assumption ignores the food systems long, racialized history of mistreatment of people of colour. The food system is unjust and unsustainable, but it is not broken. It functions precisely as the capitalist food system has always worked, concentrating power in the hands of the privileged minority and passing off the social and environmental “externalities” disproportionately to racially stigmatized groups.

Holt-Gimenez, E. (2017) A Foodie's Guide to Capitalism: Understanding the Political Economy of What We Eat, Monthly Review Press, New York.

There is Hope!





Erik Chevrier

CultivAction Solidarity Cooperative

Concordia Food Coalition

Communal Lunch Project

Duff-Court Urban Farm

Lachine Mapping Project

Concordia Food Groups Research Project

How can postsecondary campuses act as hubs to cultivate food sovereign communities?

Ph.D. = Building Food Sovereign Campuses: A Case Study of the Campus-Community Food Groups at Concordia University

Postdoctoral Research = How can urban agroecology farms sustain themselves through diverse economic frameworks?





Get-to-Know-You Activity

In small groups, introduce yourselves and discuss the following questions:

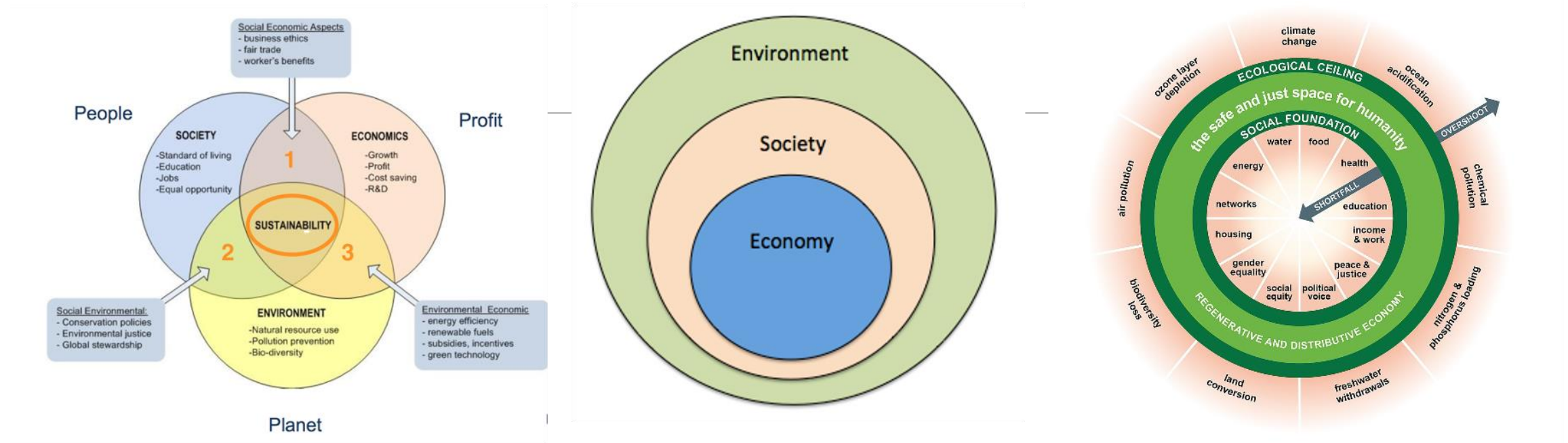
- What are your names, and what programs or areas of study are you coming from?
- What is something interesting about you?
- Why did you take this course, and what do you hope to learn?
- What experience or knowledge do you already have with food systems, sustainability, food justice, food sovereignty, or food security?
- What food-related practices are part of your life? For example, do you cook, bake, garden, farm, compost, shop at farmers' markets, participate in a community-supported agriculture program, or work with food?
- What experience do you have with research methods, theories of knowledge, or community-based research?
- What topics related to sustainable foodscapes interest you most?
- How might you use what you learn in this course in your studies, work, community involvement, or future research?

What are methods for studying sustainable foodscapes?

What are foodscapes?

What is sustainability?



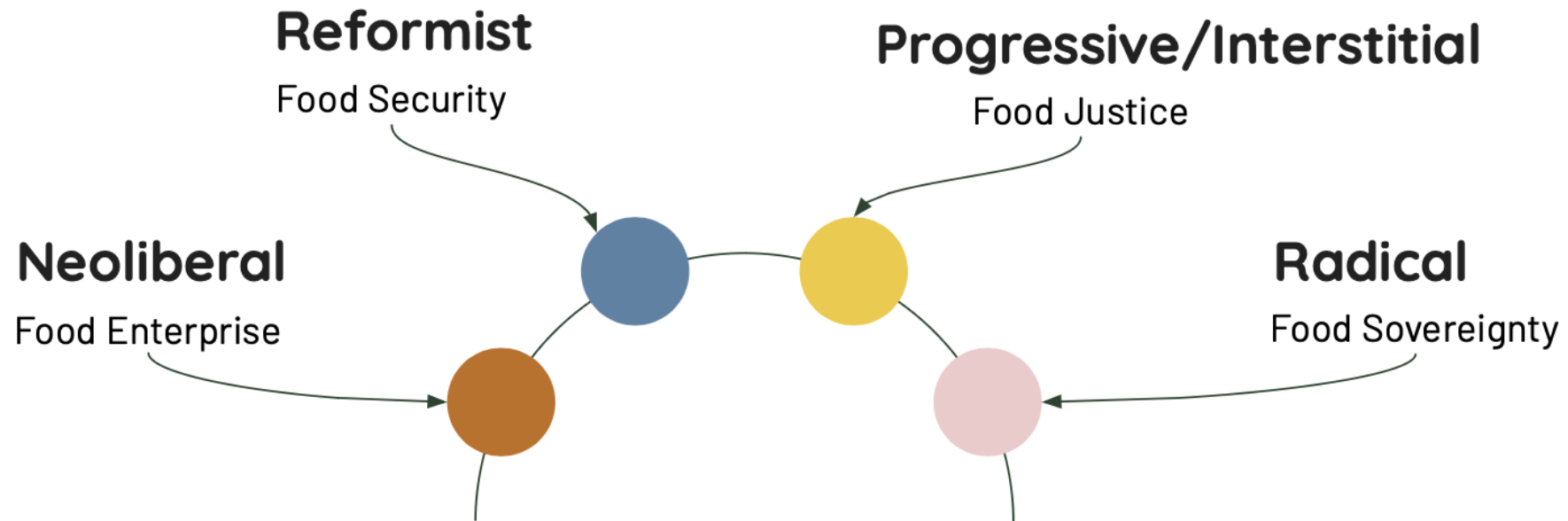


From Weak Sustainability to Food Sovereignty

Food System Change

CORPORATE FOOD REGIME

FOOD MOVEMENTS



Holt-Gimenez, E. (2017) A Foodie's Guide to Capitalism: Understanding the Political Economy of What We Eat, Monthly Review Press, New York.

Foodscape

A foodscape is the spatial, social, cultural, and political environment through which people encounter, access, and experience food. It connects the organization of food across places with the practices, meanings, relationships, and policies that shape them, revealing implications for public health, social justice, and sustainability.

[*\(Vonthron S, Perrin C, Soulard C-T \(2020\) Foodscape: A scoping review and a research agenda for food security-related studies. PLoS ONE 15\(5\): e0233218\)*](#)

The Dominant Epistemological View of Food?

The world has or will soon have the agricultural technology available to feed the 8.3 billion people anticipated in the next quarter of a century. The more pertinent question today is whether farmers and ranchers will be permitted to use that technology. Extremists in the environmental movement, largely from rich nations and/or the privileged strata of society in poor nations, seem to be doing everything they can to stop scientific progress in its tracks. It is sad that some scientists, many of whom should or do know better, have also jumped on the extremist environmental bandwagon in search of research funds. When scientists align themselves with antiscience political movements or lend their name to unscientific propositions, what are we to think? Is it any wonder that science is losing its constituency? We must be on guard against politically opportunistic, pseudo-scientists...

(Borlaug, N., E. (2000) Ending World Hunger. The Promise of Biotechnology and the Threat of Antiscience Zealotry, Plant Physiology, 124(2) pp. 488.)

Critique of Dominant Epistemological View of Food

When poisons are introduced into agriculture to control pests, or when GMOs are introduced under the argument of “feeding the world,” the justification given is always “science”. But “science” does not have a singular entity, and it did not come into existence within a vacuum. Today, what we generally refer to as “science” is in fact Western, mechanistic, reductionist modern science, which became the dominant practice of understanding the world during the Industrial Revolution and has continued as the dominant paradigm....To shape the industrial system in the form of new, violent technologies, and to shape the capitalist system in the form of new, profit-driven economics, a certain *type* of science was promoted and privileged as the *only* scientific knowledge system. Two scientific theories came to dominate this new, industrial paradigm, and they continue to shape practices of food, agriculture, health, and nutrition even today. The first is a Newtonian-Cartesian idea of separation: a fragmented world made of fixed, immutable atoms...The second significant theory that has framed the knowledge paradigm for industrial agriculture is Darwin’s theory of competition as the basis for evolution...The Newtonian-Cartesian theory of fragmentation and separation and the Darwinian paradigm of competition, have led to a nonrenewable use of Earth’s resources, a nonsustainable model for food and agriculture, and an unhealthy model of health and nutrition. An emphasis on the legitimacy of these arguments as the sole “scientific” approach has created a knowledge apartheid by discounting the knowledge of Mother Earth.

Shiva, V. (Shiva, V. (2016) Who Really Feeds the World, North Atlantic Books, pp. 4 – 7.

An aerial photograph of a rural landscape featuring a large pond, fields, and a cluster of buildings. Overlaid on the image are several thin, light-colored lines representing architectural sections and boundaries. These lines are labeled with letters: 'A' and 'A'' near the buildings, 'B' and 'B'' near the pond, and 'C' and 'C'' further to the right. The text is white and positioned on the left side of the image.

How can Bishop's Experimental Farm contribute to campus-community food sovereignty?

What can Bishop's learn from campus farms at other post-secondary institutions about strengthening this contribution?

LEGEND

A-A' : lateral view p.26

B-B' : lateral view p.27

C-C' : lateral view p.28-29

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!

Concordia Campus- Community Food System

Le Frigo Vert



The People's Potato



The Hive



The Concordia Greenhouse?



The Concordia Food Coalition

Our Vision

Food sovereign communities at Concordia University and beyond.

Our Mission

The CFC brings together students, faculty, staff and community members to co-create campus-community food sovereignty. Through education, incubation and innovation, we collaborate to build sustainable, accessible and democratic local food systems.

Our Values

Community, Cooperation, Inclusion, Solidarity, Innovation and Regenerative Practices.



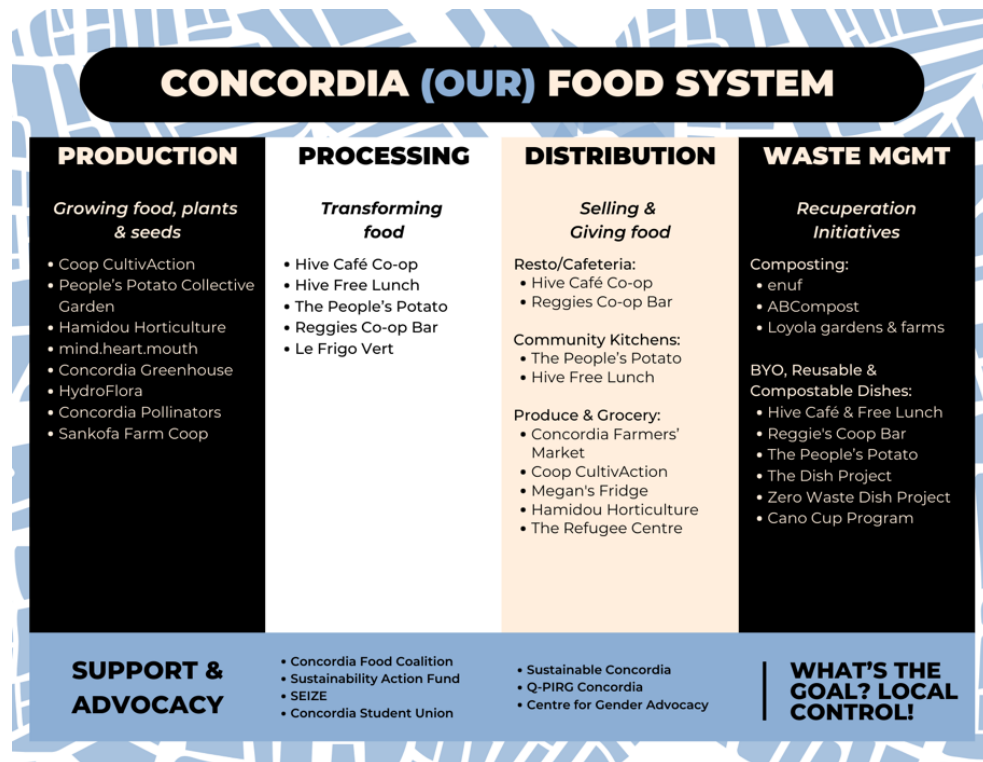
The Garden Groups





CultivAction Solidarity Cooperative





How CultivAction Solidarity Cooperatives Came to Be



Mission of CultivAction Solidarity Cooperative

*To facilitate transitions towards a **food sovereign campus-community** by practising **urban agroecology** to **nourish local populations with hyper-local, organic produce**, cultivate urban green spaces and to support **sustainable food production at Concordia and beyond**.*

*We offer urban agriculture workshops and volunteer learning opportunities to empower people with the knowledge to grow their own food and participate in a movement to cultivate a more resilient, just and food secure future. **We see our work as a political act and look to create networks of reciprocity and connection with other groups who share a deep commitment to social justice and food sovereignty.***



Vision of CultivAction Solidarity Cooperative

Coop CultivAction envisions a biodiverse, and abundant campus-community foodscape (healthy soil, animals, insects, nutritious food, beneficial plants, etc.) that facilitates hands on community education and engagement and builds social and economic justice.



Structure of CultivAction Solidarity Cooperative

Solidarity Cooperative – Multistakeholder Board Composition

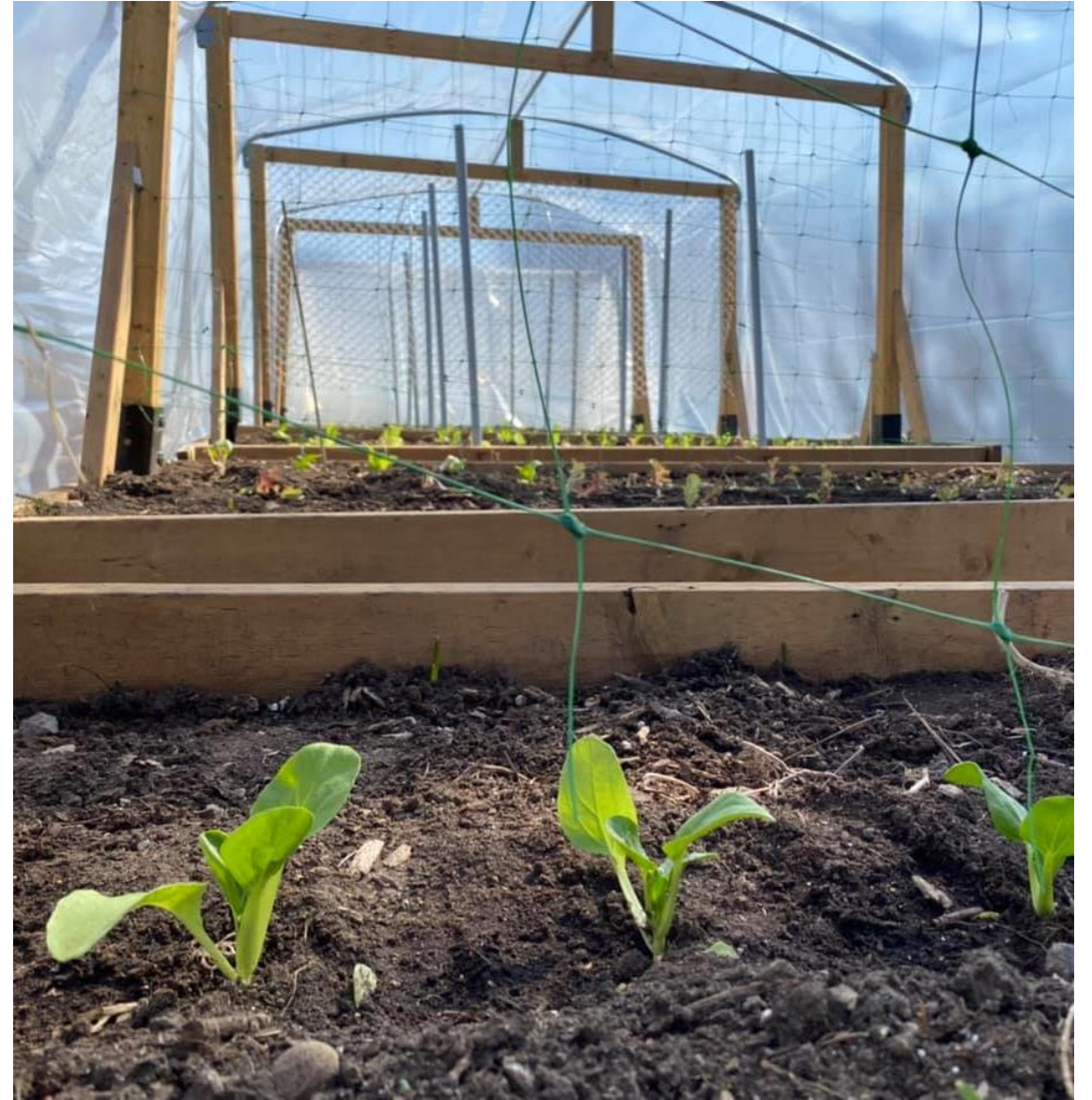
- *Worker members - 6*
- *User members - 4*
- *Support member - 1*

Diverse Economic Model

- *Non-profit cooperative*
- Pay-what-you-can markets at Concordia
- Farmers markets in the community
- Donation (Organizations and Volunteers)
- Wholesale
- Direct sale (CSA/You Pick)
- Fee Levy
- Paid and volunteer labour













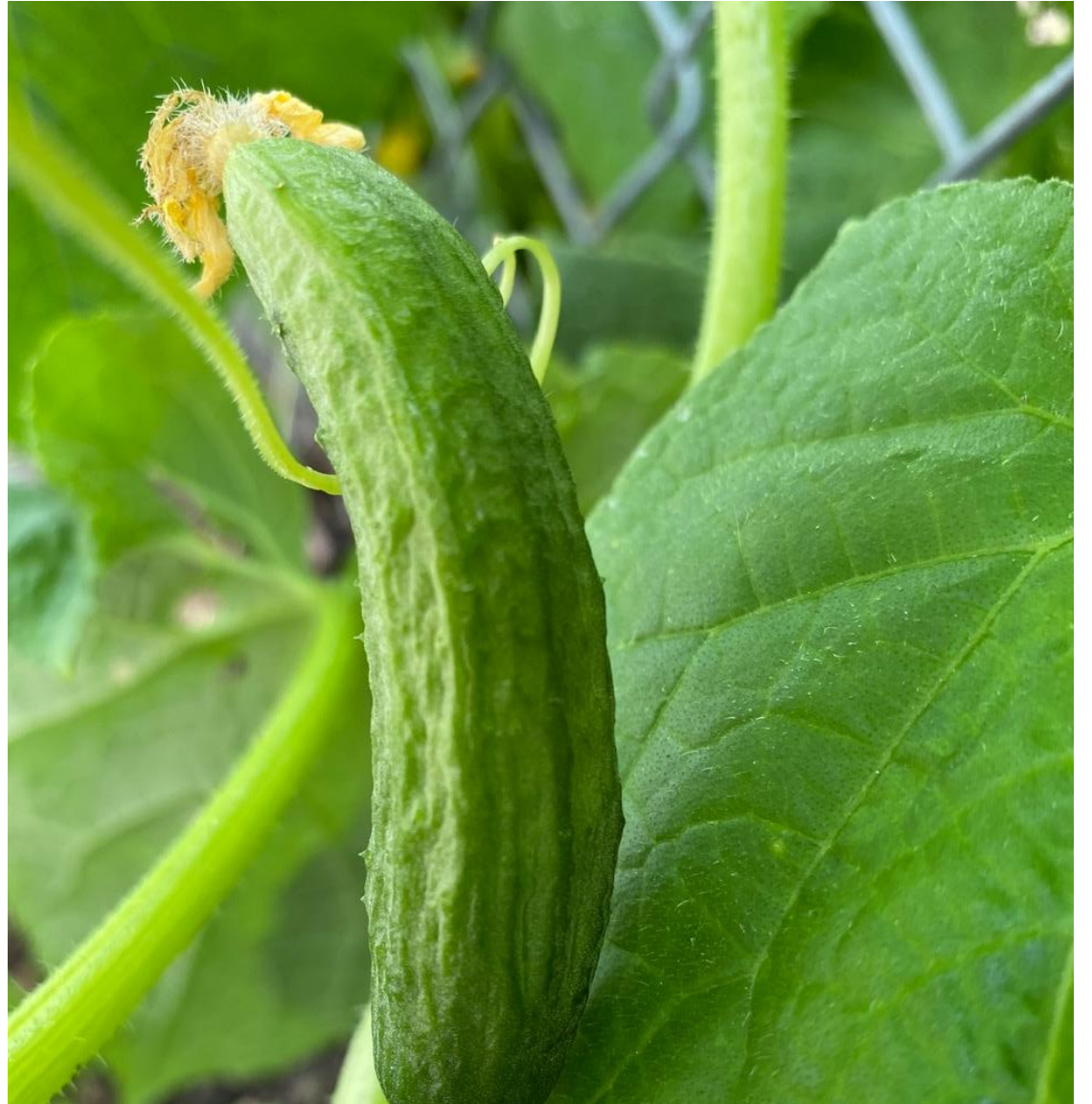




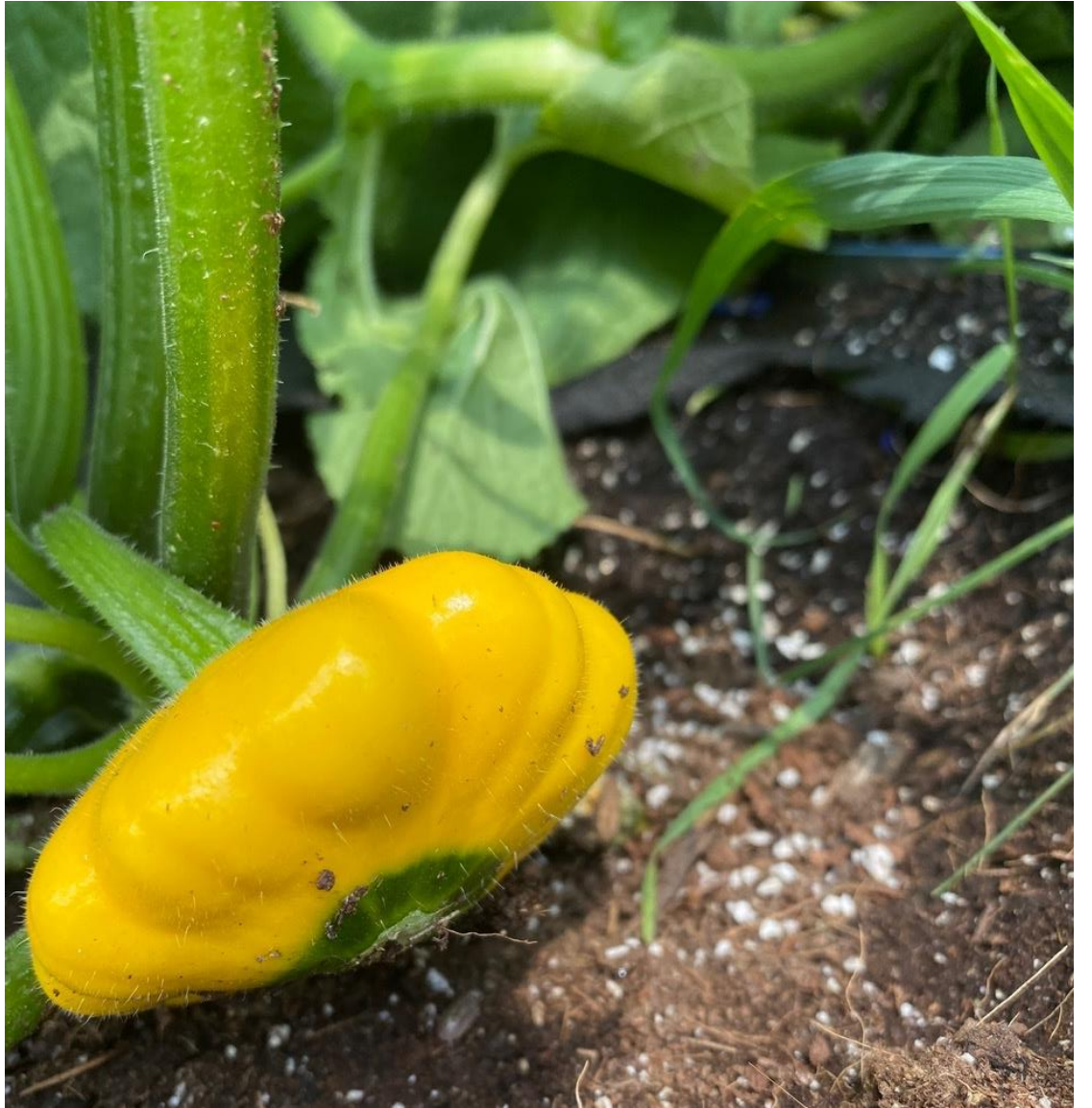






















Loyola Farm





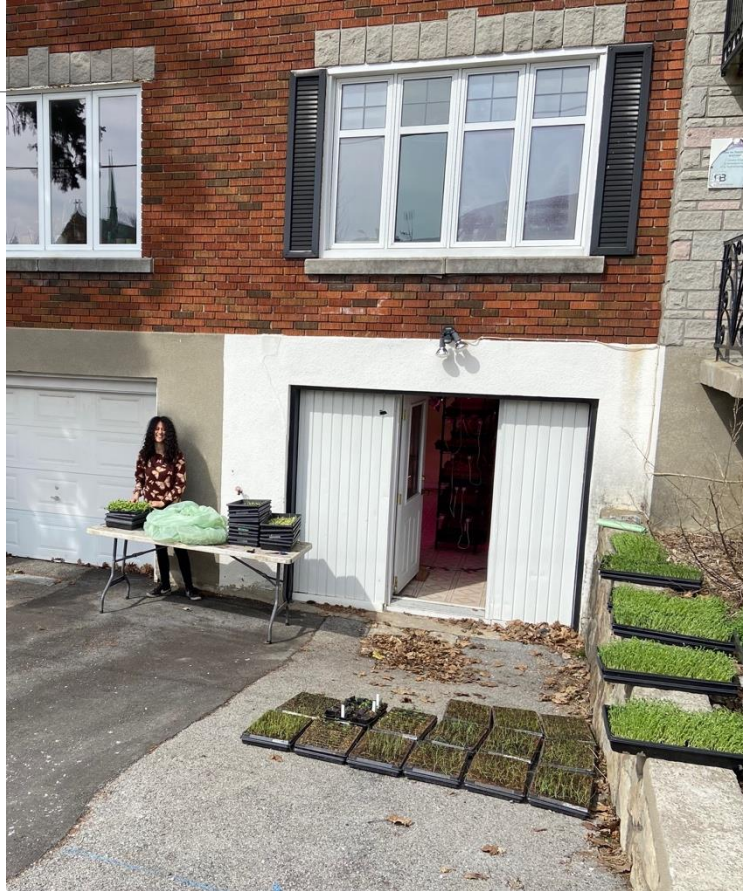


























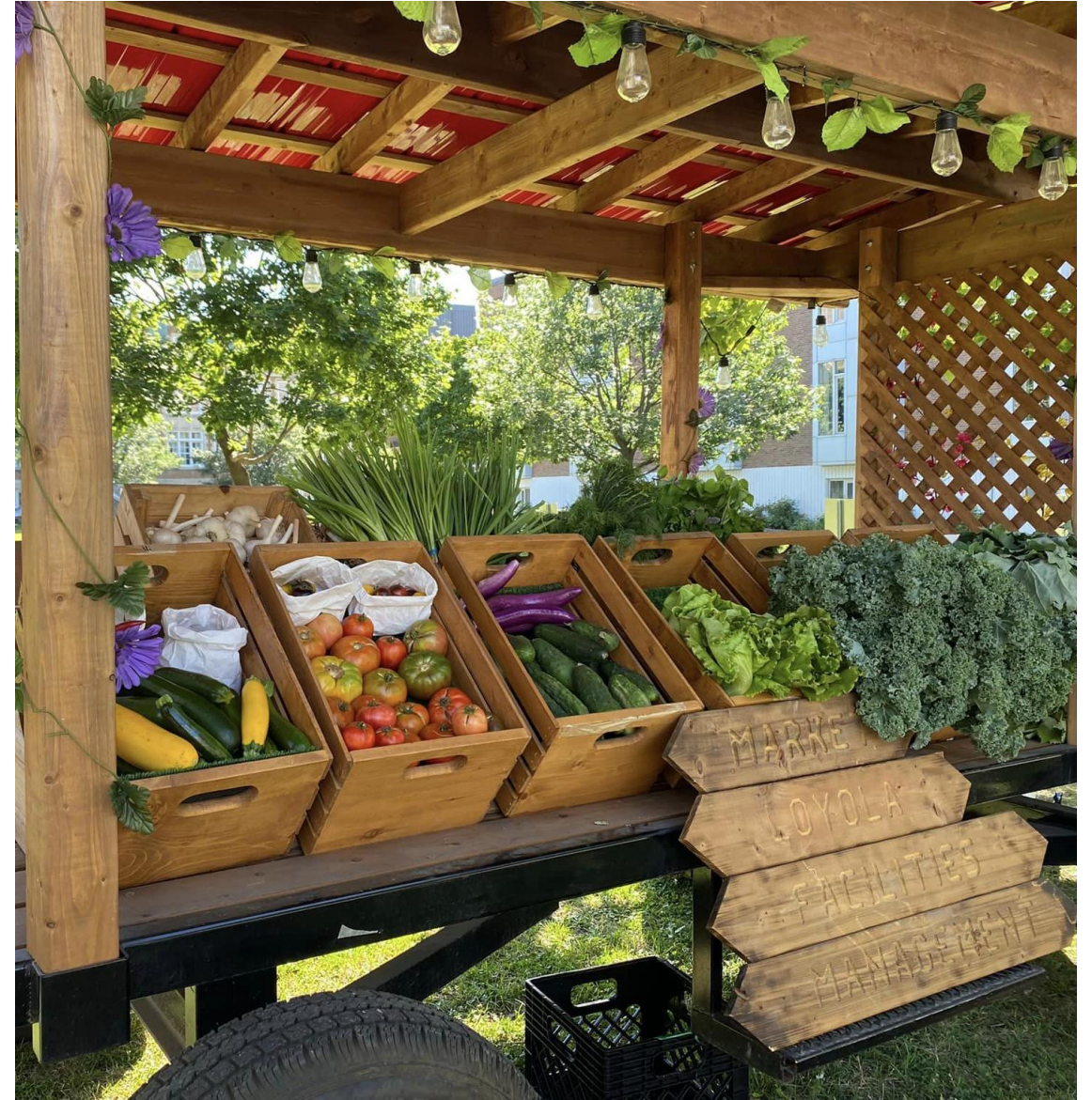


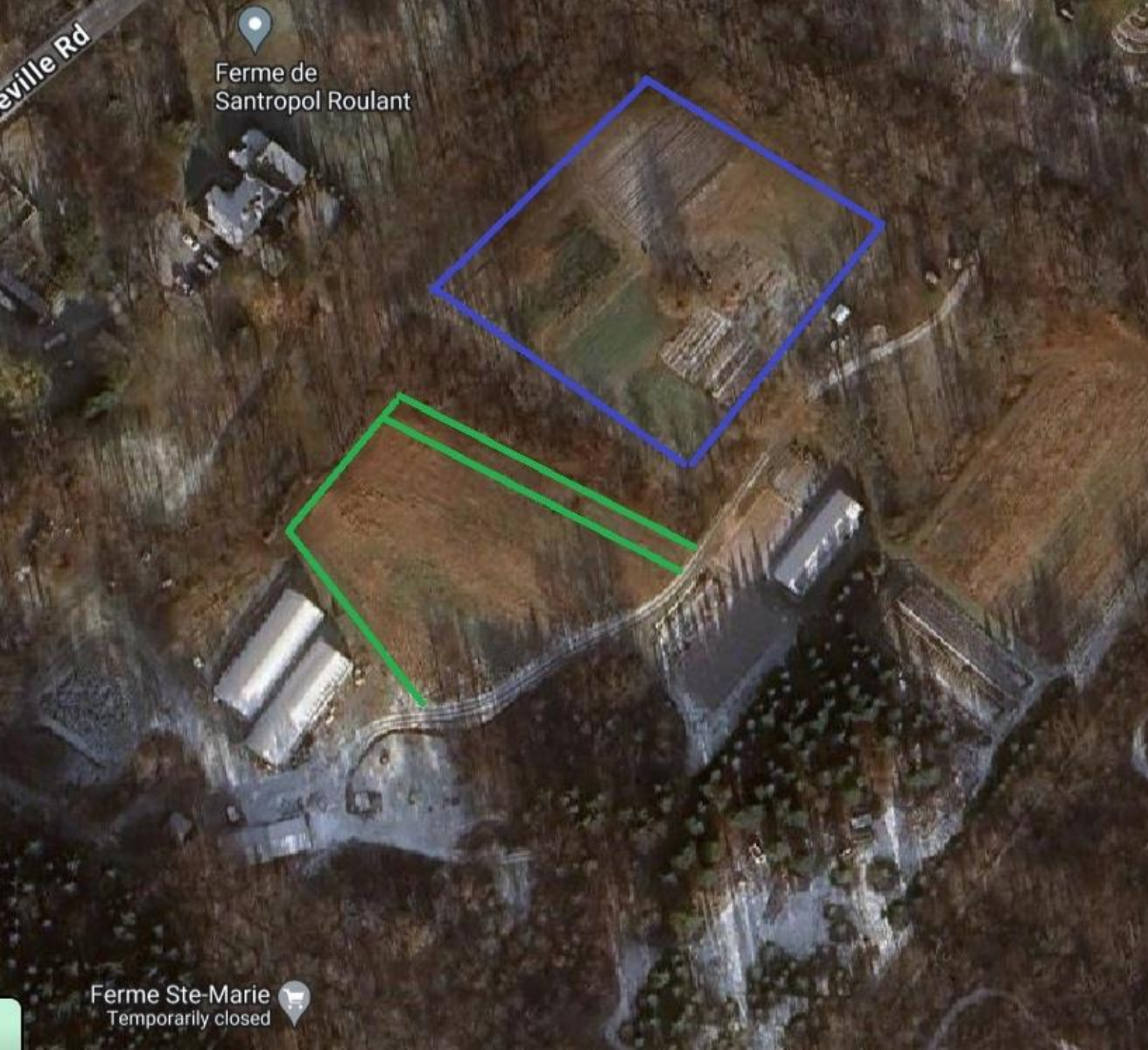












Senneville Farm

























An aerial photograph of Bishop's Experimental Farm, showing various agricultural plots, a central pond, and surrounding campus buildings. Overlaid on the image are three section lines: A-A' (horizontal, across the lower farm plots), B-B' (vertical, through the central pond area), and C-C' (diagonal, from the top left towards the bottom right).

How can Bishop's Experimental Farm contribute to campus-community food sovereignty?

What can Bishop's learn from campus farms at other post-secondary institutions about strengthening this contribution?

LEGEND

A-A' : lateral view p.26

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Planning Our Collective Research

Guiding Question

How can Bishop's Experimental Farm contribute to campus-community food sovereignty?

Learning from Other Campus Farms

- Which campus farms could offer relevant experiences or lessons?
- What can Bishop's learn from these farms?
- What questions should we ask during the interviews?

Learning from the Bishop's Community

- Who should be invited to participate in the World Café?
 - What do we want to learn from them?
 - What questions should guide the World Café discussions?
- 

Thank You!

Questions, concerns, comments?