Growing Common Ground

PATHWAYS TO ADVANCE AGROECOLOGY POLICY IN CANADA

Report of the Agroecology Policy Research Initiative

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Report of the Agroecology Policy Research Initiative | December 2022

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GLOSSARY OF ACRONYMS

AAFC	Agriculture and Agri-food Canada
APF	Agriculture Policy Framework
ALUS	Alternative Land Use Services
BRM	Business Risk Management
BMP	Beneficial Management Practices
CAFO	Concentrated Animal Feeding Operations
CAP	Canadian Agriculture Policy
CFIA	Canadian Food Inspection Agency
CFRA	Canadian Farm Resilience Administration
CFS	Committee for World Food Security
COG	Canadian Organic Growers
ECCC	Environment and Climate Change Canada
EFAO	Ecological Farmers Association of Ontario
FSC	Food Secure Canada
FPT	Federal-Provincial-Territorial
HLPE	High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome
IPES-Food	International Panel of Experts on Sustainable Food Systems
LFIF	Local Food Infrastructure Fund
OMAFRA	Ontario Ministry of Food and Agriculture
MAPAQ	Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec
PES	Payment for Ecosystems Services
UPOV	International Union of Protection of Plant Varieties
USFSA	US Food Sovereignty Alliance

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photo: Erin Nelson

SUMMARY: GROWING COMMON GROUND

This report assesses the state of agroecology policy in Canada, based on conversations with 20 knowledgeable Canadian experts in agricultural and social policy, and supplemented by relevant sources. It searches for opportunities and pathways for change that will advance policies for agroecology, and addresses the challenges (policies, practices, narratives and mindsets) that are currently standing in the way of change. The report contains six sections:

1. The current state of agroecology policy in Canada and worldwide.
2. How agroecology is viewed from different quarters in Canada.
3. What are the key challenges to agroecological transition, in the form of both structural barriers in the system and within the agricultural sector itself?
4. Reflections on how a transformative change might happen.
5. Where are the opportunities and pathways to unlock the barriers that are hindering the widespread adoption of agroecology?
6. An agenda for movement building and engagement; research and knowledge sharing; and policy and advocacy to advance agroecology.

Main Findings

1. Agroecology is still in its infancy in Canada, but is finding its way into policy debates from different angles—including climate adaptation, ecological agriculture, 'nature-based' solutions, biodiversity, health, local food, farm renewal, youth and gender equity, food justice and food sovereignty. While the concept of 'agroecology' is still relatively unknown to the wider public, many intersecting movements for justice and equity are increasingly connecting to the core values agroecology represents.
2. Support and research for agroecology have grown tremendously around the world. Yet they remain scant in North America. Farmers' and food provisioners' organizations have been at the forefront of the agroecology movement—without much support from governments, and despite direct or indirect opposition from corporate interests.
3. Within Canada, there are some examples of policies that are moving in the direction of agroecology and adopting some of its core practices, such as soil health. These can be found more at the provincial level, particularly in Quebec, PEI, and Manitoba. However, they do not address all the thirteen principles of agroecology. Quebec's long history of supporting 'environmental agriculture' and its recent food and agriculture policies have been successful in attracting new farmers to acquire land and establish agroecological farms in the province.
4. The state of agricultural research in Canada is fragmented, and largely serves the interests of the biggest actors in the food system rather than family farmers. There is little support for the kind of peer-to-peer learning that is key to agroecology, and there is no national research effort or baseline to determine the level of agroecological transition in the country.
5. There are some commonalities between agroecology and related movements, particularly regenerative agriculture. But these movements are yet to forge a common front for agroecology, as there also remain many divergences. Regenerative and nature-based approaches are capturing the bulk of the policy and funding support that has recently emerged for ecologically sound agriculture—and mostly at the farm level.
6. While agroecology and regenerative agriculture share some common practices (such as soil health, crop rotation and diversification), agroecology

is about much more than changing agricultural production to be more ecologically sound. What distinguishes agroecology is its emphasis on social and political dimensions, and on farmer agency and rights. Moreover, agroecology and agroecological transition are also about what happens beyond the farm, and at the landscape, territory and food systems levels.

7. A shift that is beyond the farm requires a suite of inter-related policies that are much beyond agriculture policy. A food systems lens is required in order to advance in all areas. A food systems lens is key to situating agroecology within the structures of the system, identify synergies and tradeoffs, and go beyond the discourse on 'production' and 'efficient value chains' to include environmental, social, health, energy, infrastructure and economic development policies.

8. Farmers and food producers have been the biggest agents of change when it comes to agroecology. Many possess the desire and will to transition away from a system that entraps them. However, they need supportive policies and substantial incentives to move in a different direction.

9. Incentives and support measures are essential to creating policy nudges in order to move Canadian farmers and society towards agroecology. These include access to land, support to Business Risk Management (BRM), payments and rewards for ecosystems conservation and sustainable use, financial support to transition, and pilot programs to save energy on-farm.

10. Regulatory measures are also essential to shift practices to be more sustainable. These can involve legislation and fiscal policies, including carbon taxes, measures to reduce carbon and methane in farm operations, and the reduction or prohibition of pesticides.

11. The best pathways to advance agroecology policy change are through climate change, health, social policy, and municipal and bioregional policies. Canadian provinces and municipal/regional governments make for strong allies in the advancement of local food systems with agroecology.

12. Inputs, infrastructure, and farm machinery are highly fruitful avenues to advance agroecological solutions and can make a significant difference in greenhouse gas emissions.

13. What is essential now is a clearly articulated National Agroecology Strategy that is embedded in a comprehensive and joined up national food policy, and that integrates agroecology coherently into all major sectors and policy planks. This should include the establishment of a new agency (a proposed Canadian Farm Resilience Administration) that would significantly strengthen agroecological transition.

14. Canada needs a more 'fit for purpose' national research agenda on agriculture and food systems—one that produces transdisciplinary knowledge, spurs innovation, and fosters the kind of research and knowledge exchange that will support, rather than undermine, agroecological transition. This new research agenda would focus on redesigning of agricultural systems for more resilience; the development of tools and metrics to assess agroecological transition; as well as the impacts, co-benefits, true costs and value of specific agroecological practices and innovations.

15. The potential of co-optation is a real and present danger to agroecology. Big tent strategies do create wider alliances and common pathways for collaboration, but will also surface tensions and tradeoffs that will require negotiation between a systemic agroecology approach, and the related approaches of regenerative agriculture, organics and other forms of ecological agriculture.

16. Agroecology involves a deep cultural shift away from the long-held productivist mindset of Canada as an agricultural power geared to exporting food as its main contribution to food security and pros-

perity in Canada and internationally. It also requires a shift away from the mindset of commodifying food and keeping it cheap by devaluing nature, animals and the people involved in the food system.

17. There is a conversation within the agroecology community regarding what change trajectories are most strategic for transition. For some, a widespread transformation in the food system is the only path towards real change. But most others do not foresee an 'uprising' in the food system in the near future, arguing that despite being presented with major disruptive opportunities (such as COVID), corporate interests working hand in hand with governments have kept the food system to 'business as usual' for the most part. Due to entrenched power blocking change, it is highly likely that agroecological transition will be gradual and incremental, as opposed to rapid and transformational.

18. The gradual transition pathway involves a multipronged, progessive change strategy across many sectors, policies and practices. It entails advocating for both incentives and disincentives (a 'push-pull' approach) to advance agroecology through the system. Legislative and regulatory measures (such as carbon taxes and mandates) are seen as essential to change behaviour, while incentives and rewards would create a 'pull' by increasing consumer demand for more agroecologically produced food, and spur growth in investment and supply.

19. These transitions involve changes in practice, while transformation involves changes in power. A careful theory of change is needed to map out how incremental actions towards transition (i.e. changing individual policies and practice) can affect transformative change in the system (i.e. altering political structures and institutions). Agroecology cannot accept transitions that keep the system 'locked-in' to business as usual, and transformative agroecology involves breaking these lock-ins across various domains of society.

20. For any real progress in influencing policies, the agroecology movement must first engage deeply with allied movements for climate and food justice, racial and gender justice, Indigenous and land reconciliation, and food sovereignty and human rights. Deep solidarity and thoughtful engagement strategies will be required that build 'big tent' and intersectional approaches, with an uncompromising political focus on power, rights and food sovereignty. Only when agroecology is seen as an essential vehicle for change by many movements acting together, can a more inclusive and broad based platform for agroecology emerge.

21. Agroecology advocates need to collectively build stronger agendas for: engagement and movement building, research and knowledge sharing, policy and advocacy in Canada:

    a. Priorities for an engagement and movement building include: forging stronger alliances with other movements, developing peoples' platforms for agroecology, implementing communications strategies to counter the narratives against agroecology, and finding convergence with regenerative agriculture and other ecological agriculture movements.

    b. Priorities for a research and knowledge sharing agenda include working towards a cross-Canada agroecology research network, setting up national spaces for knowledge co-creation and sharing, using transdisciplinary approaches, and featuring annual Agroecology Schools (national or regional).

    c. Priorities for a policy and advocacy agenda include advocating for a National Agroecology Strategy, calling for a national research agenda for agroecology, establishing baselines and using internationally recognized measurement tools, and working with allies to integrate agroecology into climate, biodiversity, health, economic and social development plans, at national, provincial and regional levels.

photo: Kath Clark/SeedChange

1. INTRODUCTION

This report shares the findings of the Agroecology Policy Research Initiative, which examines the state of agroecology policy in Canada by gathering insights from those involved in policy, research and practice related to agriculture and food. This includes government staff, parliamentarians, lobbyists, farmers, food systems researchers and NGO policy advocates. The aim was to look for opportunities and levers of change that will advance policies and practices for agroecology, and address the challenges (policies, practices, interests, narratives and mindsets) that are currently standing in the way of change.

The study asks:

- What policies would influence a greater shift towards agroecology in Canada? What are the current gaps in policy, and where are the greatest opportunities? What are the 'low hanging fruits', or existing policy measures that could be easily or quickly implemented?
- What policy measures will help in an incremental way, towards a larger, more systemic transition? What new measures can be enacted easily to accelerate the transition? And, what are the longer term policy shifts needed for a more transformative agroecology?
- What are the strategies that Canadian agroecology proponents need to carry out their work? How can farmers, practitioners, policy advocates, researchers, civil society, Indigenous and youth networks collaborate strategically to shift policies? How can the science, practice and movement of agroecology be brought to bear, and in which policy arenas (i.e. international/federal/provincial/municipal/territorial levels).

Methodology

The research consisted of twenty semi-structured interviews with key individuals in Canada with valuable perspectives on agroecology, including civil society policy advocates, researchers, representatives of farmer organizations, government staff, elected officials, and philanthropic foundations. The interviews involved directed questions followed by open ended conversations, and lasted approximately 60 minutes. The conversations were confidential. Quotations used in the report are obtained directly from interviews, but no attributions are made[1].

The author complemented the interviews with extensive literature and document reviews from a variety of sources including the Government of Canada, Canadian and international research institutes, reports and statements from farmer and civil society organizations, as well as bilateral and multilateral donor and funder agencies.

1.1 What is Agroecology

Agroecology is the application of holistic ecological principles adapted to specific landscapes, production systems and social contexts[2]. It brings together diverse disciplines, movements, and sectors of society, with a transformative vision of just and sustainable food systems. It has existed as a body of knowledge since the early 20th century, but was elevated in the 1970s as a holistic framework for understanding and managing ecosystems for resilience, food security and justice. It encompasses transdisciplinary approaches and intercultural knowledge systems, and brings science, practice and movements to focus on sustaining food systems and food provisioners (farmers, animal

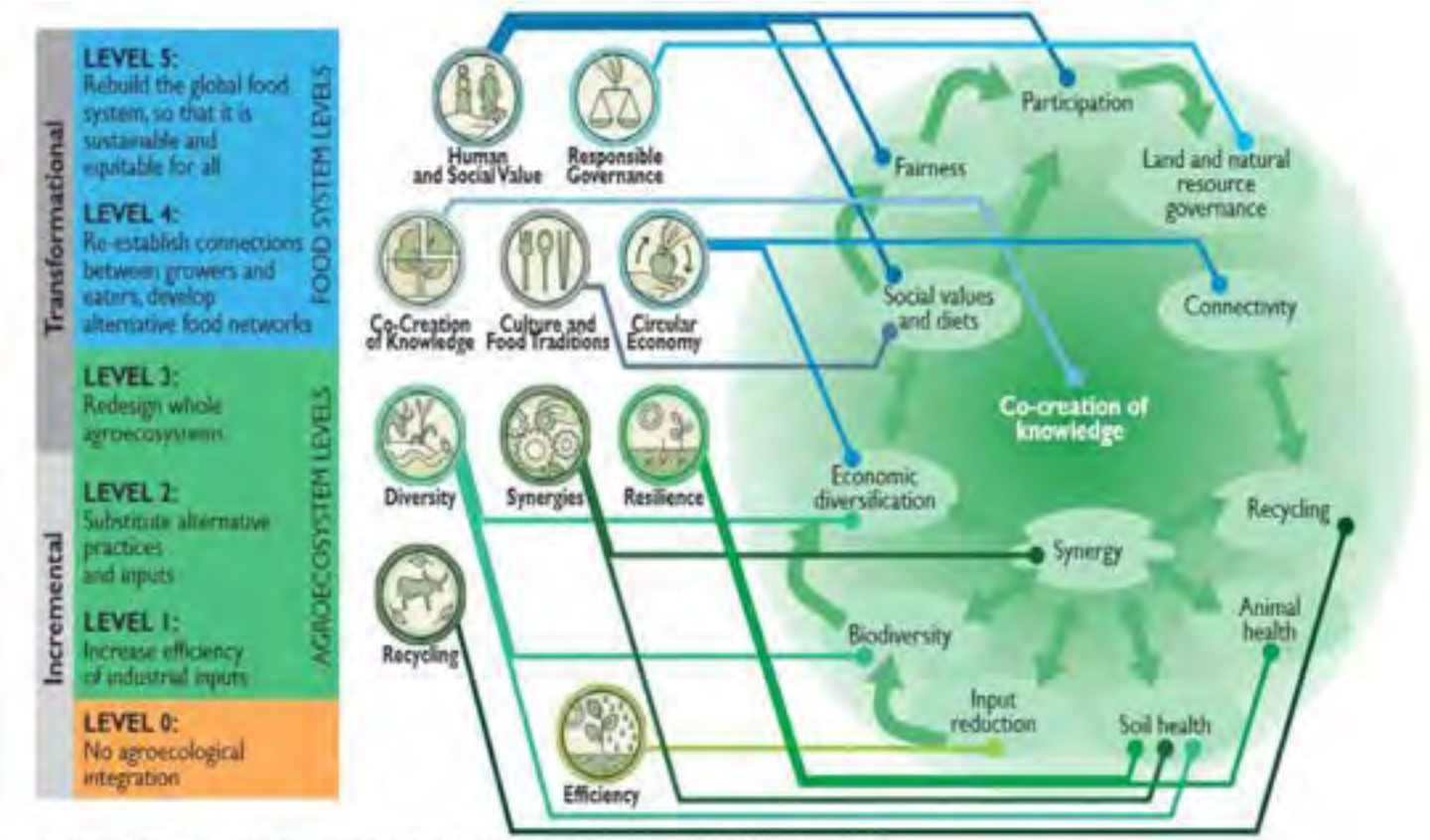
1 The interview methodology, questions and related concerns were approved by the Carleton University Research Ethics Board (CUREB).

2 For a more complete description of agroecology see https://www.fao.org/agroecology/overview/en/ and works by Altieri (1997) and Gleissman (2016) cited in this report.

keepers, fishers, hunters and gatherers of uncultivated foods) for generations to come. As FAO describes it,

> *Agroecology is a holistic and integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of sustainable agriculture and food systems. It seeks to optimize the interactions between plants, animals, humans and the environment while also addressing the need for socially equitable food systems within which people can exercise choice over what they eat and how and where it is produced. Agroecology is concurrently a science, a set of practices and a social movement and has evolved as a concept over recent decades to expand in scope from a focus on fields and farms to encompass the entirety of agriculture and food systems. It now represents a transdisciplinary field that includes the ecological, socio-cultural, technological, economic and political dimensions of food systems, from production to consumption*[3].

While agroecology does not fit well into a standard definition, specific practices can be classified along a spectrum of transition, and assessed based on the context in which they are being applied, and their utilization of local techniques, methodologies and resources. The most widely applied principles are the 2018 FAO Ten Elements of Agroecology, and the 2019 HLPE Thirteen Principles of agroecology[4]. FAO's ten elements aim to guide policymakers, practitioners and stakeholders in planning, managing and evaluating agroecological transitions. They include: diversity, co-creation and sharing of knowledge, synergies, efficiency, recycling, resilience, human and social values, culture and food traditions, responsible governance, and circular and solidarity economy.



▲ *Linking FAO's 10 elements, Gliessman's 5 levels of food system transformation and the 13 HLPE principles*
Correspondence based on Wezel et al., 2020. Agroecological principles and elements and their implications for transitioning to sustainable food systems. A review. Agronomy for Sustainable Development, (2020) 40: 40.

Fig. 1. The principles. elements and levels of agroecology (Wezel et al, 2020)

3 FAO Agroecology Knowledge Hub, https://www.fao.org/agroecology/overview/en/

4 FAO (2018) The 10 Elements of Agroecology. https://www.fao.org/documents/card/en/c/I9037EN/; and HLPE (2019) *Agroecological and Other Innovative Approaches for Sustainable Agriculture and Food Systems that Enhance Food Security and Nutrition.*

Figure 1 outlines these interrelated elements that are universal and can be promoted and applied across geographies, production systems and scales, to guide the transition towards sustainable food systems. In practice, these principles are locally adapted, generating a diversity of agroecological strategies suited to local circumstances.

1.2 Co-existing Frames

Agroecology remains contested in a battleground of narratives and counter-narratives that characterize the highly charged debates about the food system—specifically whether agroecology can 'go to scale' and 'feed the world'[5] (see Section 4). Furthermore, numerous co-existing and at times competing frames for ecological forms of agriculture—including regenerative agriculture, conservation agriculture, climate smart agriculture, nature positive agriculture, nature based solutions, and organics—further confuse the field. As IPES-Food notes, "Powerful, agenda-setting actors are pushing back against agroecology as ideologically contentious or deploying it interchangeably with other terms as merely another tool in a toolbox of alternative solutions"[6]. They stress, however, that "Agroecology is not one of the tools in a toolbox; it is a different toolbox altogether"[7].

There are significant and legitimate questions about whether agroecology can find common ground with some of these competing frames, as agroecology represents a much more holistic approach applied to the entire food system. Yet, as the Global Alliance for the Future of Food sees it, convergence can be found particularly between agroecology, some regenerative approaches, and Indigenous foodways as they share the same roots.

> *The roots of agroecology, regenerative approaches, and Indigenous foodways represent a continuous source of knowledge that can inform a repaired relationship between people and nature.... The principles underpinning these inherently diverse and intercultural processes of co-creating knowledge, which have existed for thousands of years, need to be central to efforts to transform food systems*[8].

1.3 A Response to an Unjust Food System

> *Agroecology is ... a transformative and science-based movement that aims to radically counter a history of policies, practices, and ideologies that have prioritized maximizing agricultural yields over other socioeconomic, environmental, and biocultural objectives*[9].

Agroecology is rising across the world, from small scale peasant farms in Central America and West Africa, to mixed food production landscapes in Asia, to urban gardens in Europe and Agroecology Schools in Canada. In its current form agroecology comes predominantly from the global South: brought to North America by farmer and food provisioner organizations such as La Via Campesina, with a deep connection to international food sovereignty movements.

For social movements and food provisioners organizations, agroecology is a holistic response to the many rapidly escalating crises in the system—climate change, biodiversity loss and ecosystem destruction, widespread hunger and malnutrition, as well as the urgency of farm renewal. Social change organizations see these interconnected crises as symptoms of a deeper crisis of inequality, corporate hegemony, of financialization and a mindset of 'othering' nature, and dominating it through technological fixes. A main driver of these crises is increasing corporate concentration, and the unbridled expansion of industrial agriculture and the

5 Global Alliance for the Future of Food (2021). The Politics of Knowledge: Understanding the Evidence for Agroecology, Regenerative Approaches and Indigenous Foodways.
6 IPES-Food (2022). Smoke and Mirrors. Examining Competing Framings of Food System Sustainability: Agroecology, Regenerative Agriculture, and Nature-based Solutions.
7 IPES-Food (2016).
8 Global Alliance for the Future of Food (2021).
9 Isaac, M. E., et al. (2018). *Agroecology in Canada: towards an integration of agroecological practice , movement and science.* Sustainability: Special Issue on Agroecology for the Transition Towards Social-Ecological Sustainability 10 (3299), 1–23. https://doi.org/10.3390/su10093299.

associated land use change[10].

> *Agroecology is a reaction by farmers of the overemphasis on industrial farming, high input agriculture and the debt it creates. It's a political response to the system*[11].

As the landmark declaration of the International Symposium on Agroecology states, "We see agroecology as a key form of resistance to an economic system that puts profit before life"[12]. This political stance dovetails agroecology with food sovereignty and has been driven by La Via Campesina, the international peasant movement, over the last three decades. Close connections between the agroecology and Indigenous food sovereignty movements have inspired the agroecology movement to see it as 'a way of life, and the language of Nature that we learn as her children.... not a mere set of technologies or production practices"[13]. Finally, feminist agroecology brings in elements of gender equity and intersectionality, with issues such as racial justice, and the rights of food and agricultural workers. This emphasis on social justice and equity clearly differentiates agroecology from other ecological approaches to agriculture.

photo: Kath Clark/SeedChange

1.4 Agroecology Rising

As the evidence linking industrial agriculture to the current food and climate crises continues to mount, agroecology and agro-ecosystems approaches have gathered considerable momentum around the world as viable pathways to sustainable food systems. The evidence to support agroecology, and the actions, are growing rapidly around the world. Pressed by strong and consistent advocacy from farmer organizations and civil society, the FAO and the CFS launched workstreams on agroecology following a series of FAO symposia starting with Rome in 2014, and in each geographic region in subsequent years. The CFS High Level Panel of Experts (HLPE) offers a detailed analysis of the benefits of agroecology in its authoritative 2019 report, with wide ranging policy recommendations for national governments[14]. FAO and other international organizations have since held dozens of regional workshops and webinars on specific questions related to advancing agroecology, including on specific agroecological practices, measuring agroecological performance, the role of markets in agroecology, and engaging women and youth, among others.

At the same time, there is a growing body of knowledge on the multiple impacts and co-benefits of agroecology for food security and climate resilience as well as gender equity, economic and livelihood security with multiple impacts right across the Sustainable Development Goals. The case studies, best practices and policy positions in support of agroecology, driven by farmer organizations and civil society—are now essential components of contemporary research, establishing an irrefutable case for agroecology[15].

10 IPBES (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services; and IPCC (2020). Special Report on Climate Change and Land. Summary for Policymakers.
11 Interview with farmer, Ontario.
12 Nyeleni Declaration 2015.
13 Ibid.
14 HLPE 2019.
15 See case studies by Alliance for Food Sovereignty in Africa (AFSA), Biovision, the Global Alliance for the Future of Food, World Future Council, and others. There are few case studies of good agroecological practices in Canada or the US, although farmers' organizations regularly share information and knowledge on agroecology through their own networks and communications outlets. One example of collected experiences is Dale et al. 2018.

Fig. 2: Agroecology contributes directly or indirectly to 15 of the 17 Sustainable Development Goals. (Source: IPES-Food 2016)

Much of the impetus for agroecology is coming from farmers organizations and civil society networks. The role of government policy in agroecology has been negligible with few deliberate and comprehensive policy measures coming from government agencies. In addition, the research itself on the scope and role of government agencies in agroecology policy is scant: studies are limited, particularly in North America. In the research that does exist, the most common picture that emerges is that governments are either absent, or tied to a model of agricultural development that works against, or constitutes a barrier to the advancement of agroecology. In addition, as documented by IPES-Food and others, by removing the systemic barriers and redirecting the perverse incentives and subsidies that are currently keeping us locked into the industrial agriculture path (ie path dependency), we could make significant progress in this area[16].

It is significant to note that agroecology has caught the imagination of many philanthropic foundations. For example, the Global Alliance for the Future of Food—which has produced the above-mentioned compendium on the evidence for agroecology, regenerative approaches and Indigenous foodways—has been one of the leading philanthropic voices calling for food systems transformation through agroecology, along with many of its more than 30 alliance members[17].

16 IPES-Food 2016.

17 Global Alliance for the Future of Food. How to Transform Food Systems: 7 Calls to Action. https://futureoffood.org/insights/how-to-transform-food-systems-7-calls-to-action/

Who Supports Agroecology Around the World[18]

Many **governments** have enacted policies and measures aimed specifically at growing their agroecology programming.

> France developed a national approach to agroecology under the banner of 'produire autrement', led by Agriculture Minister Stephane Le Foll, between 2012 and 2017, and created a Ministère de la Transition écologique et solidaire in 2017.[19]

> Mexico's sustainable agriculture program contains a strong focus on agroecology, and a rejection of many aspects of industrial agriculture, including GMOs.

> Senegal supports several national and regional agroecology initiatives including the DyTAES (Dynamique pour une transition agroécologique) initiative, involving government, farmer and community based organizations advancing agroecological transition in the country.

> In India, Andhra Pradesh's Community Natural Farming program has attracted significant support from the State Government, gained worldwide attention, and is now supported by the Federal Government.

> Cuba's ANAP program supports farmer led research in agroecology.

> Vietnam has embraced agroecology as an important part of its national agricultural policy.

> Brazil's early support for locally driven policy making and agroecological approaches were a significant step—but were reversed by many of the Bolsonaro government's policies.

> Regionally, ECOWAS (Economic Community of West African States) has developed a West Africa program of agroecology, while FAO is developing a ten year regional agroecology mainstreaming program. Many governments across Southeast Asia are also participating in agroecology knowledge sharing initiatives.

International Aid and Donor Agencies

> The Swiss Agency for Development Cooperation (SDC) aims to move towards 50% of its global food security programming in support agroecological agriculture and food security[20].

> Germany provides considerable support to agroecology programs in many countries, through the development assistance programing of the German Development Ministry (BMZ), and through GiZ (German Agency for International Cooperation).

> The International Fund for Agricultural Development (IFAD) conducted an internal global stock-take on agroecology; and has made agroecology an important component of its replenishment cycle (IFAD12) for funding on sustainable agriculture[21].

18 This is a snapshot and does not represent every agroecology policy or program around the world.

19 Lampkin, N., G. Schwarz and S. Bellon. Policies for agroecology in Europe, building on experiences in France, Germany and the United Kingdom. J Sustainable Organic Agric Syst 70(2):103–112 https://doi.org/10.3220/LBF1611684471000

20 Swiss Agency for Development and Cooperation (SDC), Global Programme on Food Security (GPFS), 2021-24 Framework. See https://www.agroscope.admin.ch/agroscope/en/home/about-us/agroscope/work-programme-2022-2025.html

21 IFAD (2021). Stock-take report on agroecology in IFAD operations: An integrated approach to sustainable food systems. https://www.ifad.org/en/web/knowledge/-/stock-take-report-on-agroecology

- FAO has held international and regional agroecology symposia, and established an Agroecology Knowledge Hub[22].
- The Agroecology Coalition, consisting of more than 65 members (including about 40 governments) was borne out of the UN Food Systems Summit and has an ever growing membership. Similarly, the Transformative Partnership (TPP) focuses on international research organizations and is led by ICRISAT and CIRAD among others.

Philanthropic foundations

- In 2021 the Global Alliance for the Future of Food published The Politics of Knowledge, examining the different forms of knowledge and evidence for agroecology, regenerative approaches and Indigenous foodways[23].
- Numerous philanthropic foundations like the Agroecology Fund, 11th Hour Fund, A Thousand Currents, and others have long standing programs supporting agroecology and food sovereignty movements around the world.

It is worth asking where Canada is in this picture of agroecology. The answer, this research concludes, is far behind. There can be a strong case made that not only does Canadian agricultural policy need to catch up to its peers, but that there is much to lose if Canada falls behind. Many of Canada G7 partners are developing strategies that link agriculture and food systems with climate, health, biodiversity, local food policies etc. Canada has taken laudable steps with its feminist approach, and particularly Global Affairs Canada (GAC)'s Feminist International Assistance Policy. GAC also provides some funding for some organizations that support agroecology programming, and is growing its funding envelope for biodiversity. However, most of its 'ecological' agriculture programming falls under conservation agriculture, climate smart agriculture or increasingly, nature based solutions.

Domestically, the picture is even more wanting. As noted at many points in this report, AAFC has historically allocated most of its dollars to high external input, industrial agriculture geared to increasing production and export—while offering pennies for other forms of agriculture (as outlined in next sections). If this continues, as Farmers for Climate Solutions point out, Canada risks losing competitive advantage in this growing field, failing to benefit from market demand, and most importantly, losing out on all the co-benefits that come with agroecological transition and innovation[24].

22 https://www.fao.org/agroecology/home/en/
23 Global Alliance for the Future of Food (2021). The Politics of Knowledge.
24 Farmers for Climate Solutions (2020). A Better Future Starts on the Farm.

2. THE STATE OF AGROECOLOGY IN CANADA: AN APPRAISAL

> *With nearly 65 million hectares of land used for crop and livestock production, Canada has one of the largest agricultural sectors in the world, and is the fifth largest agricultural exporter in the world. As stewards of much of Canada's rural land base, farmers are increasingly aware of the impact that agricultural production can have on the quality of our air, water, soils and biodiversity*[25].

When it comes to Canadian policy, agroecology appears to be a non-starter. But this is changing. While the term itself does not appear in written policy, many forms of indirect support and enabling conditions are emerging, thanks to the traction generated for agroecology internationally, and by the persistent advocacy of a few organizations in Canada—particularly farmers organizations. Is agroecology about to break through? These are still early days for Canada, even as many of its G7 peers forge ahead on agroecology.

However, policies that are capable of enabling agroecology in Canada do exist. They are disparate and fragmented, and are not under any cohesive policy framework. There are certainly no national or provincial/territorial frameworks or plans that have brought them together. For these reasons, few people have a complete Canada-wide picture of where these policies are, at what level of government, what they aim for and at what scale.

Conversely, there is a better sense of what policies, structures and practices are *holding back* real progress on agroecology. These are discussed below.

2.1 A Policy Lens

> *In reality, there is not only no policy support, but there are obstacles to agroecology...*[26]

From a strictly policy perspective, agroecology is invisible in Canada. There are no national policies or statements that specifically refer to agroecology. Governments of all levels and policymakers have generally steered clear of the term, citing a variety of reasons, including confusion about its meaning and intent, and an aversion to embracing such a broad concept that is difficult to implement. Moreover, many in the policy world interpret agroecology through the lens of competing narratives put forward by others: Can such a 'niche' and marginal idea as agroecology to go scale and feed the world, when we have an urgent food crisis, and a growing number of mouths to feed right now? Can an approach that keeps us in the past, using antiquated tools and drudgerous labour, ever be reconciled with 'modern' agriculture? Is agroecology simply the pipe dream of the ideological elite, and unaffordable for the rest of society[27]? In short, there are numerous reasons to find agroecology an unpalatable proposition. In real terms what this means is that agroecology is often dismissed in the mind of the policy maker before the conversation about its co-benefits and its transformative impacts can even happen.

> *...it's very difficult for members of the public to find the evidence behind government policy. Too often, policies failed to provide a reference or citation for any evidence mentioned, and rarely acknowledged alternative policy options, or any absent, weak or contradictory evidence*[28]

Yet agroecology is taking hold in many policy circles, and these circles are closing in on the national, provincial and regional policy conversations about the need to break out of a food system that is simply not fit for purpose (and some argue that Canada's agriculture policy was expressly designed for an altogether different purpose; to continuously increase exports and grow its

25 Clearwater L., et al. AAFC 2016.
26 Interview with federal parliamentarian.
27 For a deeper discussion of the narratives that hold back agroecological transformation, see Global Alliance for the Future of Food (2021). The Politics of Knowledge.
28 Evidence for Democracy (2022). Eyes On Evidence II: An assessment of the transparency of evidence usage in the Government of Canada.

international markets, rather than sustain food systems or livelihoods). Even for something as widely discussed as soil health (a key elements of agroecology), there are no comprehensive national policies or legislation[29]. Agroecology then becomes a complex puzzle whose scattered pieces must be fit together by aligning key elements of policy and practice—whether related to climate adaptation, soil health, ecosystems and biodiversity conservation, health and urban poverty, farm renewal or rural economic development.

Key National Policy Frameworks: Think Farm to Fork?

The centrepiece for agriculture policy in Canada is a series of five year agricultural policy frameworks (APFs), previously called the Canadian Agriculture Partnership, and prior to that, 'Growing Forward'[30]. The complex Federal-Provincial-Territorial negotiations for the current APF, the main driver of agricultural development in Canada, are near completion. The Guelph Statement, a document that articulates the vision for Canadian agriculture into 2028, is very revealing about where government policy intends to go. It envisions that:

> *Canada is recognized as a world leader in sustainable agriculture and agri-food production and drives forward to 2028 from a solid foundation of regional strengths and diversity, as well as the strong leadership of the Provinces and Territories, in order to rise to the climate change challenge, to expand new markets and trade while meeting the expectations of consumers, and to feed Canadians and a growing global population[31].*

Federally, a few key policy frameworks are helpful in constructing a partial picture of Canadian priorities in agriculture and sustainable economic development. The Federal Sustainable Development Strategy, a key policy plank, envisions an approach to 'sustainable food' as: Innovation and ingenuity contribute to a world leading agricultural sector and food economy for the benefit of all Canadians. This is also revealing in terms of the bottom line for Canadian agriculture policy:

> *In 2016, the agriculture and agri-food system generated $110 billion, or close to 7% of Canada's GDP, and employed 2.3 million Canadians. Strengthening the agriculture and agri-food sector includes finding innovative ways to respond and adapt to new and emerging issues, and seizing new value-added market opportunities to ensure sustainable growth[32].*

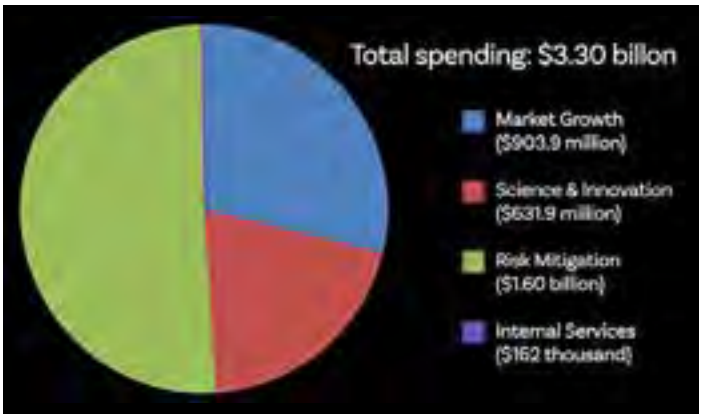


Fig. 3: AAFC's Core Areas of Responsibility[33]

Canada's National Food Policy, released in 2019, signaled the arrival of the long-awaited 'whole of government' policy framework that Canada needed. A National Food Policy Council was created along with the policy—both very welcome developments which food policy advocates had awaited for almost a decade. They have yet to deliver any major food systems policies.

29 Rod McRae and Sarah Rotz, *Food system sustainability in Canada and other jurisdictions*. (webpage: Food system sustainability in Canada and other jurisdictions) Accessed January 7, 2022. Notably, Bill C-203, introduced by NDP Agriculture Critic Alistair MacGregor, proposes a National Strategy for soil health and conservation, and underwent first reading in November 2021. https://www.parl.ca/legisinfo/en/bill/44-1/c-203

30 For an overview of Canadian agriculture and related policy frameworks, see the Ministerial Transition Book, prepared by AAFC for the Minister of Agriculture. https://agriculture.canada.ca/en/about-our-department/transparency-and-corporate-reporting/briefing-documents/ministers-transition-books/ministerial-transition-book-overview-documents.

31 AAFC, Guelph Statement. https://agriculture.canada.ca/en/about-our-department/key-departmental-initiatives/meetings-federal-provincial-and-territorial-ministers-agriculture/guelph-statement

32 Government of Canada, Federal Sustainable Development Strategy 2019–22. https://www.fsds-sfdd.ca/

33 This chart is generated from numbers in the AAFC Ministerial Transition Book. https://agriculture.canada.ca/en/about-our-department/transparency-and-corporate-reporting/briefing-documents/ministers-transition-books/ministerial-transition-book-overview-documents

Canada's National Food Policy

Released in 2019, the National Food Policy includes the following Action Areas[34]:

1. Help Canadian Communities Access Healthy Food: Community-based initiatives will invest in projects that increase access to food, with the potential to provide social, health, environmental, and economic benefits in support of vibrant communities across Canada. The Government of Canada will also engage with provinces, territories, and key stakeholder groups to work toward the creation of a National School Food Program.
2. Make Canadian Food the Top Choice at Home and Abroad: Making Canadian food the top choice will include efforts to diversify exports, support food processors, and enhance the potential of Canadian agriculture and food products to stand out as safe and healthy in domestic and international markets.
3. Support Food Security in Northern and Indigenous Communities: Actions will advance efforts towards Reconciliation with Indigenous Peoples by strengthening First Nations, Inuit, and Métis food systems, recognizing the importance of food to Indigenous culture and well-being, and, in so doing, supporting Indigenous food self-determination.
4. Reduce Food Waste: Actions to reduce food waste will support a shift toward more sustainable food practices. They will consist of a more systematic approach to reducing food waste in Canada by transforming operations for the processing, retail, and food service sectors, and reducing food waste within the federal government.

It is important to note that during the consultations for the development of the policy, there was an additional action area on 'healthy soils', but it was removed in the final version. In fact several civil society proposals were diluted or removed from the picture. By placing a strong focus on economic security, the National Food Policy diminished its 'food security' aspects. Other elements such as the Right to Food, and the entire Action Area on "Conserving our Soil, Water and Air" which was part of the original consultation documents, were quietly dropped from the final version, even though civil society put a substantial amount of stock in this pillar[35].

At the subnational level, some provinces and territories including Quebec, PEI, and Manitoba have enacted supportive policies for sustainable food systems that would favour agroecological approaches[36]. These include regional designations; policy incentives and payments to farmers for particular practices; regulations and pricing mechanisms; and increasingly, 'net zero' pledges. Many of these are discussed below.

A Federal-Provincial-Territorial Matter

The nature of Canadian confederation is a key factor in how policy is developed, coordinated and implemented in Canada. Jurisdiction over agriculture is split between federal and provincial levels of government. Shared Federal-Provincial-Territorial policy frameworks involve negotiations, but also take place in a politically challenging and fragmented setting. Each province, region

34 https://agriculture.canada.ca/sites/default/files/legacy/pack/pdf/fpc_20190614-en.pdf
35 This pillar was a significant proposal in the Food Secure Canada-led civil society recommendations, Building a Healthy, Just and Sustainable Food System: Food Secure Canada's Recommendations for A Food Policy for Canada September 2017.
36 Robert, Mullinix: Municipal policy enabling regional food systems in British Columbia, Canada: Assessing focal areas and gaps

and culture has its political demands and priorities, and while some provinces are more advanced in ecological agriculture, they are not necessarily well coordinated with federal mandates, policies or targets.

But this is a relatively new development, as Canadian federalism has continued to erode. As one interviewee remarked, "Harper proceeded to offload all the [work] to the provinces"[37]. As a result, the federal government holds limited authority over many important policy areas. In the case of agriculture, the APF is one way the federal government attempts to bring in nation-wide priorities, but has to rely on provincial governments to implement them. Conversely, a potential benefit of this fragmentation is that an individual province can gain leeway in developing and implementing new policy ideas, and influence other provinces to adopt them. This also prevents the federal government from undoing policy advances made by provinces in one fell swoop.

Climate Policy Warms up to Farmers

Climate policies, spurred on by Canada's Paris Treaty commitments and ratcheted up through recent funding announcements, currently offer the most significant room to introduce and integrate agroecological practices like improving soil health and reducing petrochemical inputs and on-farm energy use. It has taken a long time and considerable advocacy, but the federal government has finally warmed up to the idea of farmer-led agricultural solutions as climate solutions. It is significant to note that this push is now coming from AAFC, as opposed to Environment and Climate Change Canada (ECCC), but in the previous budget, AAFC earmarked funds for agricultural solutions to climate change. This is a small but significant shift for AAFC which for decades has remained captured by industry lobbying, and locked into a mindset of increasing efficiency in agricultural production, and raising farm incomes through technological solutions that will enhance Canadian farmers' ability to export food and capture global markets. However, the hope is the funding will show convincing results, and grow the envelope for climate-friendly agriculture policies that are congruent with the thirteen principles of agroecology.

The COVID Opportunity

COVID significantly altered the landscape when it comes to opportunities for policy change. This is most apparent in eco-fiscal policy where billions were allocated for recovery, but the opportunity to focus 'green' or 'clean' initiatives on food and agriculture was largely missed. Emphasis was placed on green infrastructure, clean energy and transport—which diminishes the scope for connecting agriculture with these other sectors. More discussion of this follows below in Section 4.

photo: Kath Clark/SeedChange

37 Interview with agricultural researcher, prairies.

(Looking for) Agroecology in the Federal Party Platforms[38]

- The Green Party of Canada's Election Platform (Vision Green, 2020) did not name agroecology, but mentioned small, ecologically-sustainable family farms', and contains numerous references to ecological integrity and soil health.
- The New Democratic Party Election Platform, Ready for Better (2021) envisioned a 'Canadian Food Strategy that will take a whole-of-government approach to address regional needs and priorities by investing in our agricultural communities, supporting young and new farmers and taking steps to ensure that rural livelihoods are good and sustainable'. While it contained references to agriculture's link with climate change, there is minimal treatment; and 'ecological' is only mentioned once in reference to agriculture.
- The Liberal Party of Canada's Platform, Forward. For Everyone (2021) promised further progress on the implementation of a National Food Policy. It emphasized agriculture's links to climate action and child nutrition in their agriculture priorities, as well as restated some priorities related to pesticide reduction, support to young farmers and Indigenous Peoples; and a noteworthy recognition of the "right to a healthy environment" for the first time in federal law.
- The Conservative Platform, Canada's Recovery Plan (2019), focused on strengthening agriculture through ensuring a supply of workers, boosting jobs and exports to position Canadian agriculture to feed the world with a safe and trusted supply of food. It spoke of agriculture's role in climate response, through carbon sequestration and carbon credits.
- The Bloc Quebecois' Plateform Politique Bloc (2021) contained language on ecological transition, climate change, agriculture and safe food (with specific mentions of pesticides and transgenics), and supporting local, small food producers.

2.2 A Farmer and Food Provisioner Lens

"Family farms are being systematically destroyed by dysfunctional, extractive, agribusiness-controlled markets and ill-conceived and damaging government policies" writes Darrin Qualman in the National Farmers Union report Tackling the Farm Crisis and the Climate Crisis[39]. Canadian farmers and small scale food provisioners are feeling the squeeze of multiple crises like never before. Climate change, the dismantling of supply management, and the inaccessibility of land for new farmers, was already signalling the coming collapse of family farming as we know it. Canadian farm debt has nearly doubled since 2000 and continues to rise, now standing at a record $129 billion[40]. Agribusiness corporations have captured 95% of all farm revenues, through the sales of fertilizers, chemicals, machinery, fuels, technologies, services, credit, rent, interest, and other materials and services. That has left farmers with only 5% of the share of revenues—which continue to be eaten up by rising land, input and machinery costs. The only recourse for increasingly squeezed farmers is

38 NFU The farm crisis (2020). Also see National Farmers Union (2021). *Federal Election 2021: Ag Platforms of the Major Parties.* (webpost accessed January 7, 2022) https://www.nfu.ca/federal-election-2021-ag-platforms-of-the-major-parties/

39 Darrin Qualman and the National Farmers Union (2019). *Tackling the Farm Crisis and the Climate Crisis: A Transformative Strategy for Canadian Farms and Food Systems.*

40 Statistics Canada, 2021.

to obtain off-farm employment income, or abandon the family farm—as one-third of farmers have done in the past generation[41].

Family farms face serious challenges that have made farming more unpredictable than ever, affecting farmers' bottom lines, and their ability to gain farm livelihoods and sustain farm incomes. Conventional farmers remain caught on the treadmill of being forced to keep using high priced inputs, seeing lower margins and net incomes, and higher debt—all the while losing their grip on the farm's future. Organic, agroecological and new farmers are facing prohibitive barriers to entry into an arena where they could have an opportunity to escape the high-input-high-debt treadmill. And they find themselves in an equally risky place where government programs are not geared to supporting a transition, nor to softening the risks of failure in the first years of a new venture[42]. Deeply connected to and compounding these challenges is the crisis of ageing farmers and the urgency of farm renewal. Intergenerational farms, and access to land for new farmers are a desperate need with few supports from policy.

Moreover, dominant market institutions can significantly shape what practices farmers are willing and able to adopt. Without orderly marketing, and in a global economy, the only time commodity prices paid to farmers increase is when there are widespread shortages (which is often temporary, once supply chains are 'fixed'). Thus, farmers rely increasingly on yields to make an income, which benefits large companies that supply inputs and trade in grains. The realities of the economic system, and the way markets are structured, are what dictate farmers' options and therefore their choices.

With the COVID-19 pandemic making farming and farm livelihoods more unpredictable than ever, there also came a less predictable side: the invigorated public demand for local and ecologically produced foods. Community supported agriculture (CSA) experienced an unexpectedly large spike in popularity. Small seed companies were flooded with demand for locally grown and adapted seeds, including heirloom varieties—which indicated a clear and growing public appetite for shunning the global food system in favour of building stronger personal relationships with local producers, and supporting food production within one's own community[43].

Don't Blame the Farmer

While voicing exasperation with a broken system, farmers are also adamant not to be blamed for it, and keen that their efforts to adapt be supported by clear, long term and systemic policies. With so much confusion about the variety of ecosystems approaches and emerging concepts currently in use—agroecology, regenerative agriculture, conservation agriculture, nature based solutions, and organics 3.0, among others—discussions on agroecology tend to polarize farmers as well as the public. Tensions are created between farm-based approaches that simply try to improve efficiencies in crop production or soils, versus holistic approaches like agroecology that consider multiple dimensions, reaching beyond the farm level to the landscape level. Many farmers do not see growing food as a system change project, nor have a power analysis that is in solidarity with food sovereignty movements. This tension has created a divide between farmers who sit at various points along the spectrum of 'transition', and who could all be moved collectively towards more agroecological practices, through enlightened policy that is currently missing. Instead, it has prompted one industry association official to claim that "most farmers we deal with have very little understanding of agroecology. It's often used as a means of condemning conventional agriculture".[44]

41 Ibid.
42 Canadian Organic Growers (2018). Transitioning to Organic: A Risk-Based Analysis
43 FAO (2020). Impacts of COVID-19 on food security and nutrition: developing effective policy responses to address the hunger and malnutrition pandemic. https://www.fao.org/3/cb1000en/cb1000en.pdf
44 Interview with official at agriculture industry association.

As farmers look for solutions, more often than not they will find common ground between many agroecological practices and principles—particularly soil health and ecosystem conservation—and the urgent need to build climate resilience. Many would want to reduce dependency, but need financial and technical support to make the transition. As one interviewee said, "There's a case and a bottom line for producers - a financial case, a biodiversity case, a climate case … we're doing a disservice to producers by not helping them do this"[45].

Going it Alone, or Seeking Government Support?

We've been doing this with almost no support at all[46].

Two other distinct strands of thinking were captured in the conversations with farmers' organizations. First, the palpable sentiment of the farmers who are practicing agroecology (or transitioning to ecological approaches), who said they are 'doing it all on our own', and pointing to a total lack of government support for this much needed shift. Second, within agroecological farm leaders that are deeply embedded in food sovereignty movements, there is an ambivalence about the role of governments: while some would like to see more support from government, others are strongly opposed to letting governments wade into agroecology which they believe will dilute and divert the strong movement that farmers are building. This is founded in deeply held 'hands off, government' beliefs of some farmers, and also legitimate concerns about co-optation of social movements' strong political approach to agroecology, and the close alignment of Canada'a agroecology movements with food sovereignty[47].

There is also a pronounced divide between the proponents of agroecology as a systemic and rights-based movement, and those in related spaces (such as regenerative and conservation agriculture) where the emphasis is often on one aspect of sustainability, such as soil health, removal of synthetic inputs, or consumer power to shape agricultural practices. Gleissman's work on the stages of sustainability in agriculture (moving from input substitution at farm level, to landscapes and ecosystems, and eventually towards a food systems approach) is therefore instructive in situating various forms of agriculture and identifying transition points for each[48].

The Slow Growth of Organics

The organics industry continues to represent a very small fraction of agricultural production in Canada. According to the Canadian Organic Trade Association, Canada's organic market is worth an estimated $6.5 billion (3.3% of total food sales), of which 80% is spent on certified organic foods and non-alcoholic beverages[49]. There are currently 7,500 organic producers in Canada, who account for approximately 2 percent of total agricultural land acreage in Canada[50]. Fruits and vegetables account for 7.4% of cultivated areas in Canada, with Quebec accounting for the majority of production[51]. Much of the emphasis of AAFC's recent funding announcements for organics has been on developing export markets for Canadian organic products[52].

While organics focus mostly on modes of production in contrast to the food systems approach of agroecology, organics can be an entry point to reach environment and health conscious consumers who may then be introduced to the more holistic principles of agroecology.

45 Interview with civil society environmental specialist, Ontario.
46 Interview with farmer, Ontario.
47 See Dale et al. (2019).
48 Gliessman (2016).
49 Canadian Organic Trade Association (2021).
50 AAFC. Government of Canada supports expanded market opportunities for the organic industry. https://www.canada.ca/en/agriculture-agri-food/news/2022/03/government-of-canada-supports-expanded-market-opportunities-for-the-organic-industry.html (March 2022).
51 Statistics Canada 2020. https://www150.statcan.gc.ca/n1/daily-quotidien/200715/dq200715c-eng.htm
52 Op cit. Also see Canadian Organic Trade Association, Quick Facts about Organics in Canada (2022). https://drive.google.com/file/d/1-QtFhnti_HeWKT-P3rz66fpEoZX6reTDs/view

2.3 A Civil Society Lens

> *Agroecology offers both a practical and aspirational approach to addressing these issues—one that encompasses various aspects of alternative agricultural systems thinking, and which aims to support local economies while strengthening biodiversity, resilience, and social justice*[53].

Within Canadian civil society, the agroecology agenda is quite fragmented. Mainstream NGOs have been conspicuously absent from the discourse, and many are wary of using the term 'agroecology' because they feel it is not strategic: in their view, agroecology polarizes debates very quickly—and many indeed feel that agroecology is an ideological stance of 'the left'. While most NGOs are reluctant to engage in the agroecology discourse—even as some are supportive of its transformative basis—it has been largely driven by farmer and food movements, as well as by academic proponents of agroecology in Canada.

In addition, some farmers' organizations view NGOs with suspicion and often refer to the 'NGO-ization' of agroecology where certain organizations, unwilling to question donors because of the funding they receive from them, may opt to support diluted versions of agroecology and thereby weaken the larger cause[54].

In one interviewee's perspective, civil society must aim to build the biggest tent possible, otherwise any advocacy for agroecology is futile:

> *The term 'agroecology' polarizes rather than unites... so it may be necessary to lose that stuff in order to advance agriculture towards more sustainability. The term that's least polarizing is Regenerative Agriculture. Lots of conventional farmers are using that. The popularity of regenerative agriculture is because it's so ill defined ... People can reduce tillage a bit and say they're regenerative agriculture. Soil health idea has been totally embraced by conventional farmers.*[55]

Contributing to this bifurcation is the lack of a commonly agreed upon definition of agroecology, despite the well known precepts of agroecology agreed upon at the Rome based agencies, namely the 10 Elements (FAO) and the 13 Principles (CFS) of agroecology. Moreover, the rise of numerous approaches in agriculture (including agroecology, regenerative agriculture, organics, climate smart agriculture, nature based solutions and others) have created division amongst civil society groups, and more competition than convergence' between groups, who are pursuing their preferred terminologies (and related funding envelopes) that most match their views, while doing little to find common ground between them. At times, agroecology has found itself distanced from 'all the rest', being the most holistic and transdisciplinary, and firmly rooted in political questions of power and justice—and therefore seen by some in the mainstream as 'too hot to handle'.

Related to this, constantly emerging new environmental concepts have given rise to confusion amongst food sovereignty, environmental, climate and conservation groups. Significant increases in funding have allowed conservation and environmental groups to flourish and grow their programs. These often involve 'nature based solutions', that do not have transformative elements, and are hence viewed with caution by food sovereignty groups, who are concerned about co-optation, the financialization of nature, and are keen to maintain a strong political element in their work.

New Convergences

At the same time agroecology has demonstrated its strong appeal to individual activists and grassroots organizations engaged in food sovereignty, land and workers rights, anti-poverty and food justice, climate justice, racial justice, community health, youth and local food movements. New movements for Afroecology in the US, for example, are inspiring African-American

53 Isaac et al. (2018).
54 Dale et al. (2019).
55 Interview with farmer, Ontario.

farmers to seek land, food and racial justice through agroecology[56]. Many others new to agroecology are now entering the discourse through the doorway of climate change, particularly as they make the links between extreme weather in Canada and the precarious state of farming and food production. It is clear that substantial resources are needed for climate adaptation, and that is giving rise to ecological and regenerative farming initiatives across the country—who are also demanding policies to support this shift, often at the local and provincial level, but including the national level[57].

> *Without food sovereignty, agroecology is only a technology; without agroecology, food sovereignty is merely a slogan*[58]

For farmers and food provisioners, there are also bright spots amidst the many challenges. The COVID-19 crisis has sparked a huge interest and resurgence in local and agroecological food initiatives. Community supported agriculture (CSA) is taking off, as are organic businesses, and the sale of local seed varieties. The sharp increases in sales of local vegetable seeds in 2020 left small seed companies scrambling to meet demand[59]. Vibrant, self-organized and farmer-led and consumer-supported movements for change are growing, and increasingly registering on the policy radar, especially at municipal and regional levels.

photo: Kath Clark/SeedChange

56 ActionAid USA (2021). Food Connects us All.

57 For a list of civil society and farmer organizations engaged in agroecology see Appendix 3.

58 Rosset, Peter, and Maria-Elena Martinez-Torres. Food Sovereignty and Agroecology in the Convergence of Rural Social Movements. December 2014 Research in Rural Sociology and Development 21:137-157. https://doi.org/10.1108/S1057-192220140000021001

59 *Pandemic panic sees seed sales spike.* CBC News, April 7, 2020. https://www.cbc.ca/news/canada/british-columbia/seed-demand-spikes-amid-pandemic-1.5524298

Driven by International Food Movements

In Canada, the earlier work of international NGOs working in solidarity with social movement counterparts, brought agroecology forward as a vital transformative concept, coupled with food sovereignty[60]. It was Inspired by the Nyeleni Conference (Mali 2007), which named the Six Pillars of Food Sovereignty—including 'working with Nature', which relates directly to agroecology. This strongly influenced the work of Food Secure Canada's Peoples Food Policy Project, which adopted the Six Principles, and added a seventh ("Food is Sacred"), valuing Indigenous food systems[61].

2.4 A Research Lens

> *There are total gaps in our aggregate knowledge.... it would be really good to have a baseline: Where are we at with agroecology in the country?*[62]

Agroecology has been long starved of research funding that is vital to its ability to flourish[63]. This is no surprise as agricultural research and development in Canada has been historically geared to a productivist, export-oriented model of agriculture, with a strong emphasis on producing a few commodity crops for international export. The research has focused largely on technological improvements, food safety, business risk management, and market development for trade expansion and protected by intellectual property law. While there are research initiatives to improve ecological integrity and climate footprints of conventional agricultural practices, there is no larger picture of the state of knowledge on agroecology, nor a comprehensive strategy for research on agroecological transition, particularly at the national level. This is a huge research gap—even according to the Government's own researchers[64].

Yet in specific regions, farmer innovation and research are vibrant, often self-supported or funded by civil society and foundations. Given the constraints of time and funding, these research efforts tend to focus on farm level initiatives, and often do not get widely shared[65]. Research in Canada has therefore missed a major opportunity to generate knowledge beyond the farm, at the landscape level, feed it into diverse research networks, and mobilize this knowledge so that it is included in agricultural extension and curricula. In these ways the research and education system effectively short circuits itself, to remain locked in to the industrial agriculture paradigm.

Pennies for Agroecological Research

A key piece of research by DeLonge et al. in 2014 showed that in the US, only about 10% of USDA budget for Research, Extension and Economics was earmarked for research on sustainable agriculture[66]. More importantly, the vast majority of national and regional agricultural research in the US and Canada is focused on conventional agricultural practices rather than on interdisciplinary agroecology and diversified farming[67]. Research on the percentage of Canadian funding directed to agroecology is very difficult to pin down, but Isaac et al. estimated in 2017 that it is likely in the

60 Inter Pares, for example, brought forward agroecology following its participation in the Nyeleni food sovereignty conference (2007); and in 2015. SeedChange, the National Farmers Union, Union Paysanne, SUCO and Development & Peace (and Food Secure Canada, to a certain extent) were early proponents, linking their international work to their Canadian policy work. They drove the agroecology agenda for civil society.

61 See Food Secure Canada (2011). Resetting the Table: A Peoples Food Policy for Canada. For a list of the Seven Pillars see https://foodsecurecanada.org/who-we-are/what-food-sovereignty?gclid=EAIaIQobChMIrcvb2a6c7QIVjZOzCh2AywK8EAAYASAAEgIevPD_BwE.

62 Interview with AAFC staff.

63 See Isaac et al. (2018); and DeLonge, M., et al. (2020). The state of sustainable agriculture and agroecology research and impacts: A survey of U.S. scientists.

64 Interview with AAFC staff.

65 There are some opportunities for farmer-to-farmer sharing of low-input methods at field days and organic conferences organized by farm groups (mostly organic) and sometimes by or with AAFC.

66 DeLonge, M., et al. (2020).

67 Isaac et al. (2018).

range of 1–2%[68]. Similarly, an in-depth examination of international research and development for agriculture by Biovision and IPES-Food found very little is dedicated to agroecological, transdisciplinary and transformative research[69].

A promising area of growing research and innovation is related to agroecology is on-farm participatory plant breeding and varietal selection, involving horizontal, farmer-to-farmer knowledge exchange, and supported by universities, family foundations and provincial governments[70]. Some participatory research methodologies originated in the global South, and are being adopted by government research programs such as the Living Labs program of AAFC.

Urban and peri-urban agroecology and permaculture, are another growing area of interest that require more research—with strong links to community health, anti-poverty, and racial justice. With community-led initiatives in cities across Canada, there is tremendous potential for ecological enhancement, community engagement and food justice. But there do not appear to be many sound research studies or curriculum on urban agroecology in Canada.

2.5 An Indigenous Lens

> *Indigenous food provisioning practices are tremendously important to food sovereignty struggles in Canada, and the advancement of agroecology in this country will therefore need to address the realities of ongoing settler colonialism and Indigenous dispossession*[71].

Agriculture in Canada is embedded in the history of settler colonialism and the appropriation of land from Indigenous Peoples. Canada's First Nations who have long standing stewardship of territory (including lands, waters, forests, ecosystems), articulate the notion of Indigenous food sovereignty as a first principle for organizing food systems. Indigenous food sovereignty starts with land, reconciliation and decolonization. As many have noted, agroecology is deeply connected with land and agrarian justice and reconciliation with Indigenous Peoples.

The agroecology movement has been said to both acknowledge but at times disregard this important historical connection. For agroecology to be seen as truly aligned requires an approach that appreciates existing Indigenous cosmologies (or cosmogonies), and intercultural ways of knowledge sharing that dovetail ecological, socio-cultural and spiritual worldviews along with more narrow western science[72]. Agroecology, a term not originating from Indigenous populations, is founded upon the same holistic principles—yet at times has found an awkward fit, as some argue that agroecology and related concepts are part of the same colonial tools brought forward by settlers in ignorance of sophisticated Indigenous foodways that pre-existed and actually inspired agroecology. As Jewell Price et al. find, many aspects of agroecology are already being

68 Ibid.

69 Biovision Foundation and IPES-Food (2020). Money Flows: What is holding back investment in agroecological research for Africa? https://www.agroecology-pool.org/moneyflowsreport/

70 Such as the work of the Bauta Family Initiative on Canadian Seed Security, which supports farmer-researchers and often collaborates with university and government agricultural research programs. Also noteworthy is the research done by the Ecological Farmers of Ontario (EFAO) in collaboration with Guelph University and others.

71 Isaac et al. (2018).

72 Francisco J. Rosado-May et al. (2020). "Intercultural Leadership: An Indigenous Perspective in a Multicultural World," Management for Professionals, in: Satinder Dhiman & Joan Marques (ed.), New Horizons in Positive Leadership and Change. Also see Global Alliance for the Future of Food (2021). *The Politics of Knowledge*.

practiced in northern Indigenous communities as part of traditional hunter-gatherer food systems[73].

The mindset of the sacredness of food comes from the deep spiritual and cultural beliefs of Indigenous Peoples around the world, who are stewards of its biodiversity, ecosystems. According to Byron Beardy, food is a way of life, and it is relational [74]. As another informant stated,

> *We can learn much from the wisdom and practices of Indigenous food systems, especially related to sequestering carbon, maintaining water quality and increasing diversity*[75].

2.6. Politics and the Pandemic

> *It's the best time I've ever seen to iterate these issues… it's a really critical opportunity to tie these things together, and make some gains*[76].

Did COVID change everything? As many pointed out at the start of the pandemic, COVID exposed the vulnerable points in a long and fragile food system and value chain. The pandemic demonstrated how a system said to be 'efficient' can actually be brittle and lack resilience. It opened our eyes to the destructive impacts of our food system. As IPES-Food put it,

> *The lockdowns and disruptions triggered by COVID-19 have shown the fragility of people's access to essential goods and services. In health systems and food systems, critical weaknesses, inequalities, and inequities have come to light. These systems, the public goods they deliver, and the people underpinning them, have been under-valued and under-protected. The systemic weaknesses exposed by the virus will be compounded by climate change in the years to come. In other words, COVID-19 is a wakeup call for food systems that must be heeded*[77].

Crisis, as they also say, opens up opportunity—and COVID created an opening for policy change like no other: to rethink how we address a broken food system, and to reconnect our fragmented approaches to human and animal health, ecosystem degradation and habitat loss, water pollution and so on. Risks that need strong and preventive policies were exposed: the climate risks, the risk to our food supply, the risks of extreme corporate concentration. The pandemic also exposed the most vulnerable people: those who work in various parts of the food supply chain. Miguel Altieri et al. offer an astute view of this opportunity[78]:

> *Long before the coronavirus pandemic, agroecologists have warned that industrial agriculture became too narrow ecologically, highly dependent on off-farm inputs, and extremely vulnerable to insect pests, diseases, climate change … and now as demonstrated by the COVID-19 pandemic, prone to a complete shut down by unforeseen crisis. Like never before, COVID-19 has revealed how closely linked human, animal and ecological health are… Agroecology shows a different way forward by providing the principles on how to design and manage agricultural systems best able to withstand future crises—whether pest outbreaks, pandemics, climate disruptions, or financial meltdowns. Agroecology offers the best agricultural system able to cope with future challenges by exhibiting high levels of diversity and resilience while delivering reasonable yields and ecosystem services.*

In the first year of the pandemic there were major openings by policymakers to entertain big questions about the most fundamental aspects of our food system: Have we lost sight of the underlying values that should underpin our food system? Who has it been constructed to serve, and who pays the price when things fail? Why are we fed the same narratives about what needs to be done to fix the system, while

73 Jewell Price, M. et al. (2022).Agroecology in the North: Centering Indigenous Food Sovereignty and Land Stewardship in Agriculture "Frontiers". Agriculture and Human Values. https://doi.org/10.1007/s10460-022-10312-7

74 Byron Beardy, Four Arrows Regional Health Authority in Manitoba, quoted in Dale, B., LaForge, J, and Levkoe, C. Z. (2019). Building an Agroecological Movement in Canada: Report from the 2018 Agroecology Field School and Research Summit. Ontario, Canada.

75 Interview with food policy researcher.

76 Interview with foundation leader.

77 IPES-Food (2020). COVID-19 and the crisis in food systems: Symptoms, causes, and potential solutions.

78 Miguel A. & Clara I. Nicholls (2020): *Agroecology and the reconstruction of a post-COVID-19 agriculture*, The Journal of Peasant Studies, https://doi.org/10.1080/03066150.2020.1782891.

photo: Kath Clark/SeedChange

other viable options are ignored? Where are the most vulnerable spots, and the most vulnerable people? For a moment it appeared that everything was on the table, and the time was ripe to construct new narratives and possibilities for a truly resilient food system. Government officials openly received COVID response and 'green recovery' plans from many quarters. Some came from civil society and farmers organizations like the NFU, and others were taken up at policy consultations and through lobbying efforts[79].

The ensuing recovery funds that were offered by the Government helped farmers to some extent, but were not considered visionary or game changing. Three years into the pandemic, the much-heralded fundamental change in the early days of COVID has not happened, and those conversations are being set aside. The Russian invasion of Ukraine has once again exposed the flaws in the food system and the dangers of relying on a few global suppliers of grains and fertilizers. However, the emergent narrative of the need to increase fertilizer production (and therefore industrial agriculture) to feed the world, threatens to supplant the narrative of transforming food systems towards more local, biodiverse agriculture.

79 NFU and Farmers for Climate Solutions policy recommendations were among those that led to new funding and initiatives to reduce the carbon footprint of agriculture in Canada. Also see: Sébastien Goupil and Alison Blay-Palmer. As COVID-19 lockdowns lift, let's build a more sustainable and environmentally resilient Canada. May 28, 2020 https://www.ipolitics.ca/opinions/as-covid-19-lockdowns-lift-lets-build-a-more-sustainable-and-environmentally-resilient-canada . And Canadian Commission for UNESCO and UNESCO Chair on Food, Biodiversity, and Sustainability Studies. Now is the time to build sustainable food system resilience. iPolitics, July 15, 2020 https://ipolitics.ca/2020/07/15/now-is-the-time-to-build-sustainable-food-system-resilience/

3. KEY CHALLENGES TO AGROECOLOGICAL TRANSITION

3.1 Systemic Challenges

This research project asked the question of all informants: What challenges do you see that prohibit more widespread adoption of agroecology? In their responses, most included corporate power, narrow mindsets, fragmented policies, underfunded research, and the risks of transition as major barriers. It is useful to place these responses alongside the now well known 'lock-ins' first articulated by IPES-Food in 2016. According to IPES-Food, the following factors keep us locked in to an industrial agriculture paradigm, and prevent a systemic shift to diversified, agroecological food systems[80]:

- Short term thinking and compartmentalized approaches
- How we measure sustainability and success
- Export orientation and path dependency
- Expectation of cheap food, and subsidizing the wrong types of agriculture / production systems
- Feed the world narratives / and the focus on producing more food, rather than distribution
- Concentration of power in the industry

Entrenched Corporate Power

Entrenched power was frequently raised in conversations as one of the biggest barriers to transition in Canada. As one informant stated, "It's universally accepted that the bureaucracy at AAFC has been completely captured by corporations"[81].

Corporate concentration and the domination of input supply and agrochemical companies is well documented in North America, as is the industry's lobbying power to keep the system as it is, while deriving generous subsidies[82].

With the numerous mega-mergers of the last decades, consolidated agriculture, food, chemical, seed and data companies have unbridled power to influence agriculture policies. While claiming that consolidation can build an efficient, innovative food system, there is strong evidence it is are doing the opposite, by stifling the creativity of small agricultural enterprises, not only in production but in trade and distribution as well[83].

Moreover, as one interviewee remarked, the biggest corporate interests gain the most from selling to farmers. "Corporations cannot make money from low input farmers", they said.[84] Others pointed out that from the outset, the primary objective of Canadian agriculture has been colonialist, productivist and technocentric; a system geared to growing and exporting more quantities of food. As Clearwater et al. see it[85],

> *Since the early 20th century, the primary objective of Canadian agricultural policy has been to increase output and promote income stability in a sector that has to cope with variable weather conditions, volatile commodity prices and strong international competition. Over the past few decades, government support has shifted to agricultural research focusing on ways to increase productivity and limit environmental impacts, long-term capital to finance growth and technology, income stability and trade liberalization.*

The Commodification of Food

The dominant neo-liberal paradigm that has emerged in the last half-century has not only solidified the power

80 IPES-Food (2016). From Uniformity to Diversity.
81 Interview with farmer, Ontario.
82 IPES-Food (2018), Too Big to Feed; ETC Group (2016) "Who Will Feed Us".
83 Jennifer Clapp (2021), The problem with growing corporate concentration and power in the global food system. Nature Food volume 2, pages 404–408. Also see Rod McRae, A Food Policy for Canada (website: https://foodpolicyforcanada.info.yorku.ca/goals/goal-3/corporate-concentration/current-state/
84 Interview with agricultural researcher, Prairies.
85 Clearwater et al. (2016).

and reach of the conglomerated agri-chemical-pharma-data industry, but also shaped a commodified mindset of food[86]. This contributes to the structural lock-ins that maintain a technology-focused, industrially driven and productivist approach to food and agriculture bent on increasing production while disregarding the critical negative impacts, burdens and economic costs to the system. At the heart of this is the neo-liberal mindset and policies that have been driving agriculture in the global North for almost a century. Based on a reductionist mindset, these policies disregard the vast evidence of the significant co-benefits of multifunctional approaches to agriculture found in agroecology, as well as in some aspects of regenerative approaches to agriculture.

Isaac et al. present the state of affairs this way[87]:

> *The processes associated with the biological homogenization, including the adoption of monocultures, and the industrialization of agrarian landscapes have also contributed to a new array of social problems, including widespread and growing inequality, financial indebtedness, and the loss of farmer knowledge, all while increasing the power of transnational agrifood corporations. In addition, the industrial agrifood system often constrains farmer autonomy and has negative impacts on the wellbeing of agricultural producers and farm workers. Upstream, legal decisions supporting the rights of commercial plant breeders and a corresponding raft of mergers and acquisitions among seed and agrichemical companies over the past three decades have significantly reduced the number of technologies available to farmers while subjecting them to price discrimination.*

3.2 Barriers in the Agricultural Sector

Fragmented Agricultural Policies

For many respondents interviewed, the biggest drawback within the agriculture sector is the absence of a comprehensive national plan to make agriculture and food systems more sustainable, ecological and climate friendly. While the Federal Sustainable Development Strategy and recently announced climate measures do address parts of the picture, they do not produce the impact of a comprehensive framework—and some can be incompatible with each other. This can be applied to a range of measures coming from AAFC, such as farm related Beneficial Management Practices (BMPs), as one respondent noted:

> *We have a tendency to focus on farm management practices as if they are a system .. they're not a system. Decision makers love BMPs because they're an easy buffet to choose from. It doesn't work ... we've had 26 years of working on BMPs; it's a menu of incompatible options*[88].

Another researcher lamented, "No one in agriculture talks to anyone in biology... we've got blinkers on"[89].

The compartmentalization of approaches and neglect of the multifunctionality of agriculture is one strong argument made in favour of agroecology.

photo: Kath Clark/SeedChange

86 Clapp, Patel, Holt-Gimenez, IPES-Food and others.
87 Isaac et al, 2018
88 Interview with food systems researcher, Prairies.
89 Interview with civil society environment specialist, Ontario.

photo: Kath Clark/SeedChange

One informant at AAFC agreed that 'We could be doing better job of documenting of how effective these practices are in their co-benefits and environmental benefits; and recognize producers for their efforts[90]. Finally, as Martorell found,

> *The regulatory landscape is uneven among the provinces, both in terms of agri-environmental and organic policy. Organic agriculture, which has positive environmental externalities, is not recognized as an agri-environmental practice under the current agricultural policy frameworks[91].*

Martorell also noted that the Federal Sustainable Development Strategy "does not reorient agricultural policy instruments towards multi-functional agriculture, agro-ecosystem resilience, climate change adaptation or mitigation[92]. Moreover, as agriculture is a shared jurisdiction, the development of shared agricultural policies continues to be hampered by FPT incompatibilities[93].

As one agriculture researcher stated, "many of these projects are focused on single practice or technology or approach, not going beyond. Some of the success factors are not single discipline, they're multi-discipline. We need soil, weed, and ecology scientists… That kind of project will give you an output that's vital to understanding the whole system and its sustainability and resilience. That's the agroecology challenge, it's an evolving science in Canada.[94]"

90 Interview with AAFC staff.
91 Martorell, H. (2017). *Canadian Policy Instruments in Sustainable and Organic Agriculture*. Food Secure Canada and Fledge.
92 Ibid.
93 For example, when it comes to farm programs, each province determines its own portion of cost sharing with the federal government. It is also important to note that the provinces have jurisdiction over electricity, heating, energy projects, buildings, agriculture, logging, transportation and industrial infrastructure.
94 Interview with agricultural researcher, Prairies.

AAFC: Overview of Federal Agricultural Solutions

Clearwater et al. lay out the Canadian agriculture policy architecture as follows[95]:

> CAP [the Canadian Agriculture Partnership] is the cornerstone of agri-environmental policy in Canada and includes cost-shared programs that support voluntary on-farm environmental risk assessments, such as environmental farm plans (EFPs), in which environmental risks are identified and remedial action. The federal-only Agri-Innovation (AIP) and Agri-Marketing (AMP) programs support industry initiatives and projects including some related to environmental parameters of sustainable sourcing. In addition, a suite of Business Risk Management (BRM) programs help farmers manage risks related to severe market volatility and disaster situations. Governments also help the industry with its efforts to research, develop and implement new agricultural risk management tools.

Agriculture Minister Bibeau's 2021 Mandate Letter states[96]:

> As part of a green agricultural plan for Canada, increase support to farmers to develop and adopt agricultural management practices to reduce emissions, store carbon in healthy soil and enhance resiliency; triple funding for clean tech on farms, including for renewable energy, precision agriculture and energy efficiency; and work with farmers and stakeholders to reduce methane and fertilizer emissions in the agricultural sector.

In July 2022, an agreement in principle was reached between federal, provincial and territorial agriculture ministers on the next five-year agricultural policy framework, with the new name "Sustainable Canadian Agriculture Partnership". It is the successor to the Canadian Agriculture Partnership ($3 Billion over 2018–2023) encompassing trade programs (Agri-Marketing, Agri-Competitiveness), innovation programs (Agri-Innovate, Agri-Science), and diversity programs (Agri-Diversity and Agri-Assurance)[97].

AAFC's $200-million On-Farm Climate Action Fund is part of the Agricultural Climate Solutions Initiative announced in Budget 2021, under the larger ($4 billion) Natural Climate Solutions Fund, jointly managed by Natural Resources Canada, Environment and Climate Change Canada, and Agriculture and Agri-Food Canada. The objective of the Fund is:

> To support farmers in adopting beneficial management practices (BMPs) that store carbon and reduce greenhouse gases, specifically in the areas of: nitrogen management; cover cropping; rotational grazing practices. These practices also provide other environmental benefits such as improved biodiversity and soil health. Other activities to support the adoption of beneficial management practices, such as outreach, education and training are supported[98].

95 Clearwater et al. 2016.

96 Agriculture Minister Mandate Letter, 16 December 2021. https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-agriculture-and-agri-food-mandate-letter

97 AAFC, Canadian Agriculture Partnership website. https://agriculture.canada.ca/en/about-our-department/key-departmental-initiatives/canadian-agricultural-partnership

98 AAFC, Agricultural Climate Solutions—On-Farm Climate Action Fund. https://agriculture.canada.ca/en/agricultural-programs-and-services/agricultural-climate-solutions-farm-climate-action-fund-0

Disincentives and Barriers to Entry

> *A system that pays people for crop failure is not a viable system. It's not a way to shift. And it's bad management from a financial standpoint*[99]

To say that there are no incentives for entry into agroecology, is to paint only half the picture. The other half are the significant barriers to entry, disincentives, and a patchwork of policy measures that have failed to support new farmers from entering into ecological farming. Overall, informants for this research felt that the financial incentives to farmers entering agroecology are inadequate, misdirected or poorly matched to their needs. The few initiatives or funds that were mentioned as potentially positive were the recently established Local Food Infrastructure Fund (LFIF), some allowances under the CAP, and the federally supported Living Labs program[100].

In 2018, participants in the Agroecology School and Research Summit identified three challenges to entry for farmers who want to practice agroecology[101]. First, the challenge of succession planning with agriculture being seen as a less and less viable livelihood. Second, prohibitive land prices and the steep costs of certification and reconfiguration for agroecological production. Third, the challenges of marketing agroecological produce, unless farmers are able to take advantage of direct marketing (CSAs and farmers' markets), or through support for organic certification. These market mechanisms are critical in allowing farmers to gain a premium, retain more net revenue, and overcome the low profit margins (due to rising costs and supply issues, among other factors) that make it difficult to engage in agroecological practices.

Finally, there are the risks and costs of transition: the financial challenges and costs of organic certification, reconfiguring production, operations and land are often borne by the farmer in transition. Moreover there are no allowances or policies to explicitly support the more labour, knowledge and time-intensive work that agroecological farmers do since, as Dale puts it, "the required physical labor is one of the most substantial challenges that comes with efforts to transition to a climate-friendly, agroecological food system[102].

Restrictive Seed Laws

Farmers in Canada and around the world have been increasingly squeezed by oppressive seed legislation that have continually shrunk their practices and privileges, eliminating their rights to seeds that they have always maintained as custodians of agriculture and the food system. Whereas seed regulations allowed farmers to participate in an established and trusted system that oversees the development of new seed varieties, new oppressive seed laws have seriously eroded and limited farmers options and rights, including the option of agroecology. For Terry Boehm of the National Farmers Union, this constitutes 'an attack on the very basis of agriculture'[103].

Under the guise of 'seed modernization', AAFC and CFIA have been implementing increasingly restrictive seed laws, based on UPOV91 (international union of protection of plant varieties), implemented through the Plant Breeders Act (amended by Canadian legislation Bill C-18 in 2015). Increasingly plant breeders (companies and patent holders) have been given exclusive rights over seeds, while farmers have received a mere recognition of their 'privilege' to save and reuse seed on their farms (but are prohibited from selling or exchanging it). These rules restrict or place conditions on farmers saving and replanting seeds. Alarmingly, even farmer privilege is now under threat as the Canadi-

99 Interview with philanthropic foundation leader, Ontario.
100 However there were also misgivings about Living Labs. See page 36.
101 Dale, B. (2019). *Alliances for agroecology: from climate change to food system change*. Agroecology and Sustainable Food Systems. https://doi.org/10.1080/21683565.2019.1697787.
102 Ibid.
103 NFU Save our Seed campaign website., https://www.nfu.ca/campaigns/save-our-seed/.

an Government's new proposed royalty regime would charge increased royalties on saving seeds, without giving farmers a say in how they will be set. This would cost farmers who use their own seed millions of dollars in royalties, according to NFU, and "would harm farmers, citizens and society in general".[104]

Dismantling of Supply Management

The erosion of critical institutions like supply management and single desk marketing removes the 'breathing room' farmers need in order to invest in long term measures and ecologically friendly choices. These institutions capture more of the value of the produce and return it to the farmer. But when faced with fewer options to survive economically, farmers have no choice but to turn to high-input practices to increase yields in the immediate term, continuing to incur debt, deplete soils and further contribute to climate change.

According to NFU, "The supply management system is a resilient, democratically controlled institution that provides food security to Canadians while delivering viable farm incomes and retaining billions of food dollars within our economy"[105]. They add that recent trade agreements such as CETA, the CPTPP and the CUSMA, have taken away 18% of the domestic market from Canada's supply managed farmers and increased their costs of production[106].

Limited Funding for Research and Education

Funding for R&D in agroecology is limited and precarious (as described above). Furthermore, heavily industry-funded university research programs are captured by a proprietary and productivist agenda, which creates the lock-ins that preclude research on viable and innovative alternatives such as agroecology. As one interviewee remarked,

photo: Kath Clark/SeedChange

104 Ibid.
105 NFU, 2020. Creating the Foundation for a Climate-friendly Post-Pandemic Food System for Canadians.
106 Ibid.

> *The funding structure of universities is very detrimental to agroecology... why, because some industry are funding entire programs of research and entire curricula. They're bought and paid for by agrochemical companies. We need to start clean and we need to be harshly critical of this, and that needs to be shared publicly because it's holding back the system, not advancing it*[107].

Moreover as some within AAFC described, the federal government is missing an overall picture of the state of agroecology in Canada, and is thus prevented from determining a course of action unless it makes efforts to obtain this information about who is at what level of agroecological transition[108]. Are most farmers at the level of input substitution, or focusing on changes in efficiency? As one AAFC staff stated, 'it's worth doing the deeper research on AAFC: how many projects were there over a recent period of time, and what was the focus, and how much of it went to what level of transition?[109]'

> *We need a better understanding of the status quo, and have a clear understanding of the levels [of agroecological transition]. Identify which level is more dominant, where funding is going, where there are variances across the country. We also need to think about the synergy in crop and animal crop production*[110].

The poor state of research and development on agroecology has been documented by many, including DeLonge (2020) in the US, and by Biovision and IPES-Food worldwide (2021). In Canada, there is no baseline and therefore no ability to measure trends in agroecology across the country. There is no national research strategy or framework for R&D in agroecology—and where research exists, it is isolated at universities or small farmer organizations, and not shared nationally. At the university and research institution level, there is a large gap in the curricula when it comes to agroecology; and especially missing is a transdisciplinary approach. This both creates and reinforces the significant lack of awareness and visibility of agroecology amongst farmers and agricultural researchers.

Finally, the absence of extension support from governments to agroecological farmers means that they must rely on their own peers—and not research extension facilities—to educate themselves through farmer-run knowledge sharing initiatives. For young farmers, one of the few ways of learning is through unpaid internships. Extension programs were terminated by provincial governments, and the extension space was relinquished to private sector advisors who have mostly used it to promote input sales[111].

The Canadian Centre for Policy Alternatives, in its 2020 Alternative Federal Budget, suggested an allocation of $70 million a year to a new Agricultural Education Fund. The fund would provide bursaries for young and new farmers who participate in farm apprenticeship programs and will reduce the cost of self-directed farmer education offered outside of the formal education system[112].

> *I would argue there's a lot of agricultural policy is NOT designed for agroecology. If you look at OMAFRA, almost all of their policies are designed for conventional farmers, in extension, research, etc. If you could start redirecting these and even including organic agriculture in business and crop insurance programs, more appropriate research would come out of it*[113].

107 Interview with agriculture researcher, Prairies.
108 One commonly used measure of agroecological transition is Stephen Gliessman's levels of transition. Another is FAO's TAPE. (See FAO Tool for Agroecological Performance Evaluation, https://www.fao.org/agroecology/tools-tape/en/.)
109 Interview with AAFC staff.
110 Interview with AAFC staff.
111 For example, here is an account of how extension services were changed in Saskatchewan: "On March 31, 2004, the extension service that has focused on supporting agricultural production throughout rural Saskatchewan was discontinued. It was replaced with an Agricultural Knowledge Centre, located in Moose Jaw and staffed by several specialists in various fields of specialization. Replacing the existing extension service are nine Regional Centres situated in rural Saskatchewan, whose mandate is to assist in the commercialization of agriculture, and thus in the development of value-added enterprises." From Encyclopedia of Saskatchewan, https://esask.uregina.ca/entry/agriculture_and_food.jsp
112 CCPA, 2020. Alternative Federal Budget. Agriculture and Food.
113 Interview with Provincial Member of Parliament, Ontario.

Living Labs: A Promising Model?

AAFC's Living Laboratories Initiative is part of a $70-million investment in Budget 2017 to support "agricultural discovery science and innovation, with a focus on climate change and soil and water conservation[114]" . It is "a new approach to agricultural innovation in Canada, which brings together farmers, scientists, and other collaborators to develop and test innovative practices and technologies. Through a nation-wide network of living labs, the initiative focuses on innovative solutions to environmental issues related to agriculture, such as climate change, soil health, water quality and biodiversity. The goal of the Living Laboratories Initiative is to accelerate the development and adoption of sustainable practices and technologies by Canadian farmers"[115]. The initiative is based on three core principles: Focusing on farmer needs and collaboration, multidisciplinary and diverse partnerships; and testing on local farms and real agricultural conditions.

The Living Labs project is seen by many in the agricultural research and farming community as a leading program that held great promise, and was on the right track. The research facility at Lac St. Pierre (Quebec) receives high marks for its quality research work on-farm, and for using a transdisciplinary and farmer-centric approach. As one interviewee remarked, "It could be very useful for researchers in Canada to get out of their offices and conduct research on farms, which they don't tend to do[116]".

Yet many have remarked that Living Labs has not been able to capitalize on its tremendous potential. As one interviewee said, 'it's a tiny drop in the bucket of what they spend in agriculture'[117]. Another informant commented on the high level of bureaucracy involved for farmer-researchers to access funds: "The pie gets divided too much and loses focus", they said[118].

In December 2020, AAFC provided $4.2 million for the Living Laboratories Initiative in Quebec's Saint Pierre Lake region, in collaboration with the Union des producteurs agricole (UPA) and others. Living Labs Quebec is meant to help farmers in the region develop innovative practices in reducing fertilizer and pesticide use, retain ground cover year round to decrease soil erosion and maintain the soil health, protect waterways and riparian zones, and reduce the environmental impact of animal production[119].

At the same time, Living Labs announced up to $5.9 million for on-farm research activities as part of its Eastern Prairies project in Manitoba, with the Manitoba Association of Watersheds (Upper Oak Lake, Swan Lake, North Shannon Creek and Main Drain watersheds). The research aims to help Manitoba farmers adjust to climate change and better address water quality, soil conservation and improve biodiversity on agricultural landscapes, through land and watershed management practices including:

114 AAFC. Government of Canada Supporting Manitoba Farmers to Develop and Implement Solutions to Combat Climate Change. https://www.canada.ca/en/agriculture-agri-food/news/2020/12/government-of-canada-supporting-manitoba-farmers-to-develop-and-implement-solutions-to-combat-climate-change.html. Accessed August 24, 2022.

115 AAFC, About the Living Laboratories Initiative. https://agriculture.canada.ca/en/agricultural-science-and-innovation/living-laboratories-initiative/about-living-laboratories-initiative. Accessed February 9, 2022.

116 Interview with agriculture researcher, Prairies.

117 Interview with farmer, Ontario.

118 Interview with agriculture researcher, Prairies.

119 https://www.canada.ca/en/agriculture-agri-food/news/2020/12/minister-bibeau-announces-new-support-for-quebec-farmers-at-the-union-des-producteurs-agricoles-annual-congress.html

enhanced habitats for beneficial insects; better tile draining practices; preventing nutrient, water and habitat losses; and regenerative grazing to sequester carbon in grassland soil[120].

These initiatives, while not 'agroecology', include many of its principles and methodologies, and are aligned with the perspective of many AAFC staff and farmer beneficiaries. One interviewee stated "We need to pilot a lot more projects, do more field testing, take [the projects] into landscapes and see how farmers feel about them, ask how it helps them with transition[121]".

photo: Kath Clark/SeedChange

120 https://www.canada.ca/en/agriculture-agri-food/news/2020/12/government-of-canada-supporting-manitoba-farmers-to-develop-and-implement-solutions-to-combat-climate-change.html

121 Interview with AAFC staff.

4. REFLECTIONS ON TRANSITION AND TRANSFORMATION

Transition involves shifts in practices, but transformation involves shifts in power.

4.1 Power Analysis

This section brings together some reflections on system change gathered from the conversations during this research. The need to understand and map out what change might look like in the context of food systems in North America, was a critically important thread. Many felt that in 'fortress North America' where corporate power is so deeply entrenched, we will need to think carefully about the continuum of transition-and-transformation. Transition involves shifts in practices, but transformation involves shifts in power. The goal is not transition, but rather transformation—methodically moving policies to accelerate transition in parts of the system, while being mindful that small policy shifts rarely transform the whole system. As the HLPE suggests,

> *Both incremental transitions at small scales and structural changes to institutions and norms at larger scales need to take place in a coordinated and integrated way in order to achieve the desired transformation of the global food system*[122].

For transformation to happen, we need larger 'seismic shifts' that are beyond agroecology, and involve larger societal transitions: changes in mindsets, enacting comprehensive and joined up national policies, and addressing systemic barriers such as corporate concentration, farm debt and land laws. Precipitating these larger shifts requires a deep understanding of power and hegemony, a long term theory of change, finding the right change moments, and connecting movements. Moreover, in a crowded 'marketplace of ideas', well-honed and unifying messages are powerful tools to help to dismantle the persistent narratives that have locked agroecology out. Most of this starts with a concerted, collective effort to grow common ground.

In their influential report "From Uniformity to Diversity", IPES-Food identifies the structures and mindsets that lock the industrial food system in place, and create barriers to change. These are perpetuated by entrenched power that takes a monochromatic view of the food system, based on a production and efficiency focus and mastered by technological prowess. They are further characterized by commodification, export orientation and path dependency, combined with short term, compartmentalized thinking, narrow measures of success and sustainability, and no accounting for the externalized costs of the food system. IPES-Food further elaborate how each of these barriers can be unlocked through specific policy measures, opening up pathways and creating virtuous circles for an accelerated transition to agroecology[123].

- Shift public support towards diversified agroecological production systems
- Develop 'joined-up' or integrated food planning and policies at all levels (such as on health, poverty, environment and climate)
- Support short supply chains and alternative retail infrastructure (CSAs etc)
- Establish institutional policies for public procurement
- Mainstream agroecology and holistic food systems approaches into education and research agendas
- Develop new indicators for sustainable food systems
- Strengthen movements that unify diverse constituencies around agroecology

122 HLPE (2019).
123 IPES-Food (2016), From Uniformity to Diversity.

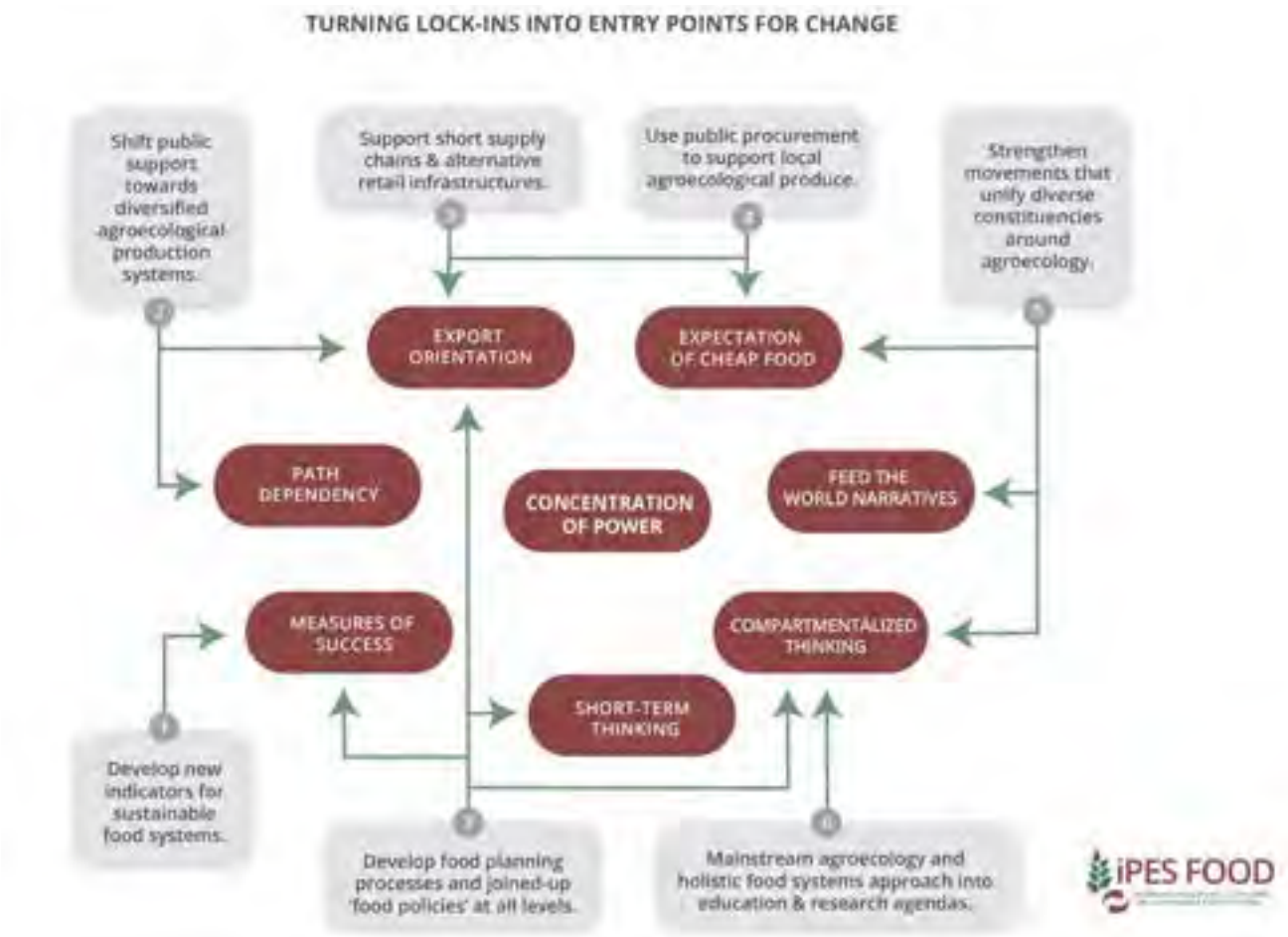


Fig. 4. Tackling the Lock-ins that Keep the Current Food System in Place (IPES-Food, 2016).

These barriers cannot be left for governments to unlock—nor do they possess the political will to do so. Food sovereignty and agroecology movements, led by farmers' organizations and civil society must be supported to continue playing a leading role in affecting policy change, and challenging the concentration of power in the food system (as depicted at the centre of the above graphic).

4.2 Countering Persistent Narratives

For some, the validity of agroecology as a viable path comes down to 'the evidence', which in turn opens up large political questions about the very nature of knowledge and evidence itself. Whose knowledge systems matter, and whose evidence prevails? These questions of epistemological justice are examined in detail in The Politics of Knowledge, which also offers some unifying counter-narratives in support of agroecology[124] (See Appendix 2). The proponents of agroecology must be able to defend it from the following questions[125]:

1. Can these approaches feed the world?
2. Can these approaches be scaled?
3. Can these approaches provide meaningful livelihoods?
4. Can these approaches solve the climate and biodiversity crises?
5. Can these approaches accelerate transformation?

124 Global Alliance for the Future of Food (2021). The Politics of Knowledge.
125 Ibid.

The Global Alliance explains how the politics of knowledge "keeps these approaches from being understood, taken up, and acted upon, even when we need them most." They add:

> *A narrow view of what counts as evidence means certain kinds of expertise are elevated over others and a broad array of evidence is not considered, documented, published, or heard. Entrenched histories that uphold colonial and Western ways of thinking and knowing continue to invalidate certain forms of evidence about food systems. Without diverse evidence, we will see more solutions that are not contextually relevant and have potentially harmful, unintended consequences.*[126]

4.3 Strategic Moments: Crisis and Consensus

In articulating their vision of a future food system, A Long Food Movement, ETC Group and IPES-Food make the following observation about how food movements can seize opportunities for change.

> *...it is possible to identify four basic ingredients that food movements will need in order to drive forward transformation over the next quarter century: 1) collaborating across multiple scales; 2) broadening alliances and restructuring relationships; 3) connecting long-range commitment to wide range 'horizon scanning'; and 4) being ready for change and disruption*[127].

'Change moments' allow clarity of vision and can accelerate transition. A crisis moment, such as COVID, released energy, lifted bureaucratic barriers and allowed diverse groups to fix on a higher shared common goal. Is there a change moment that could allow this level of collective focus for agroecology? The last few years have presented several moments that have shone the spotlight on an agricultural sector that is experiencing deep, multiple crises. The NFU makes the strong case that these are inter-related and symptomatic of the deeper systemic crisis of a broken food system. They can be addressed together through comprehensive, system-wide policies. The movements advocating for a Green New Deal, COVID-related 'green recovery' packages, and 'green strings' are largely seizing this strategic change moment to insert proposals for policies that would have transformative impacts on the system. These would have been largely ignored by the establishment, or seemed politically unrealistic at other times—but are able to capture the imagination during an emergency[128].

Calls for a national reckoning on our food system during a time of crisis are therefore one of the most compelling opportunities for agroecology. But the question why agroecology failed to register on the policy radar in a substantial way, is related to questions of consensus, capacity, and collaboration within civil society; confusion over terminologies; and of the hegemonic power that keeps the system from heeding to such demands.

> *Our agriculture sector is a good ten years behind ... but it's at a tipping point.*[129]

However, consensus moments are emerging from all sides and increasing the space for agroecology to be 'mainstreamed' into various policy sectors. As outlined above, the Rome-based agencies (FAO, CFS) have been contributing to international consensus on agroecology since the 2014 international agroecology symposium. The impetus for these undoubtedly came from farmer, food provisioner and civil society organizations, and supported by researchers and a handful of philanthropic organizations. Many institutions have created new avenues for further research and funding, and have conducted internal assessments of their own programming[130]. Similarly, the UN Food Systems Summit (UNFSS)

126 Global Alliance for the Future of Food, 2021.
127 ETC Group and IPES-Food (2021). A Long Food Movement.
128 See recent publications by ETC Group and IPES-Food (Long Food Movement), IISD (Green Strings), UNESCO Chair on Food, Biodiversity, and Sustainability Sutdies, Food Secure Canada, Canadian Centre for Policy Alternatives, and Farmers for Climate Solutions.
129 Interview with food systems researcher, Ontario.
130 For example, IFAD's global stocktake of its programming to assess how much funding is going to agroecology. IFAD, 2021. Stock-take report on agroecology in IFAD operations: An integrated approach to sustainable food systems. https://www.ifad.org/en/web/knowledge/-/stock-take-report-on-agroecology

gave rise to at least two international initiatives on agroecology—including the Agroecology Coalition, and the Transformative Partnership on agroecology[131].

These new coalitions represent strong evidence of a major shift in international consensus on agroecology. Yet, consensus moments also come with risks of powerful interests capturing the emerging space created for action. Social movements and civil society organizations expressed concern about the legitimacy and inclusivity of the UNFSS, as well cautioning against the dominance of 'business as usual' solutions that emerged at the summit, many of them simply doubling down on industrial agriculture-based models that would sideline systemic approaches such as agroecology[132].

4.4 Domains of Transformation

Anderson et al. have developed a useful framework that examines six domains through which transformative change can be accelerated and create the enabling conditions for agroecology[133]. Each domain contains forces that can either enhance or hinder the pace of change, and can be analyzed at multiple levels (farm, landscape, region, national or international). Within a food system, these domains are closely connected, and positive actions in each domain can multiply the overall transformative impact (for example, farmers exchanging agroecologically produced seeds through participatory networks, can be seen as acting in the combined domains 1, 2, 3, 4 and 5).

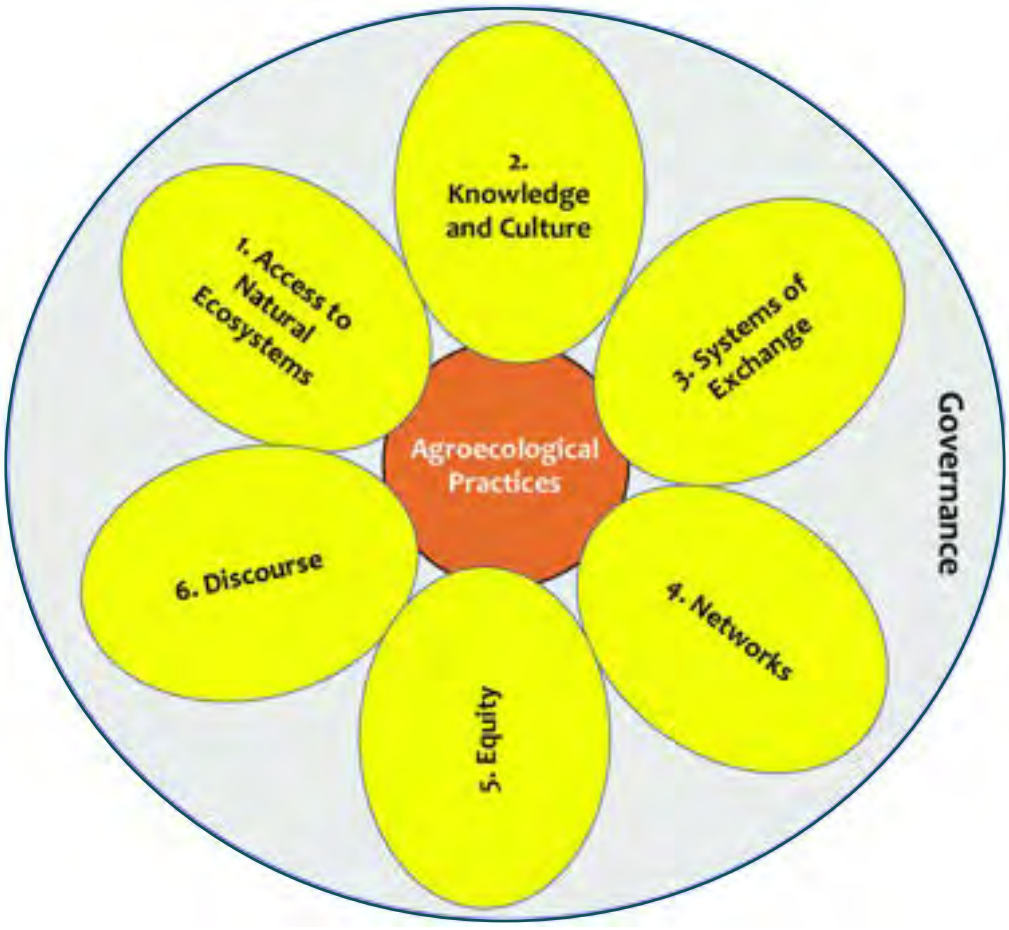


Fig. 5: Source: Anderson et al. (2021). Agroecology Now.

131 Agroecology Coalition, https://agroecology-coalition.org/; Transformative Partnership Platform on Agroecology, https://www.fao.org/agroecology/database/detail/en/c/1376154.

132 The critiques of the UNFSS are articulated here by the Civil Society and Indigenous Peoples' Mechanism (CSIPM) of the Committee for World Food Security: Challenging the UN Food Summit. https://www.csm4cfs.org/policy-processes/challenging-the-food-systems-summit/

133 Anderson et al., Domains of Transformation.

photo: Kath Clark/SeedChange

4.5 Growing Common Ground

> *The connections between agroecology and the food sovereignty movement must be maintained if agroecology is to avoid being interpreted along overly technical and apolitical lines*[134]

Growing common ground and building a basis of unity that connects movements is perhaps the most critical element for lasting and transformative change. Few moments have brought together Canada's many food networks the way the Food Secure Canada-led People's Food Policy Project (PFPP) did. Developing a shared political platform under the PFPP umbrella served to create a much more connected and coordinated alliance across the country that lasted two election cycles, linking food justice, health, ecology, youth, Indigenous and human rights organizations to rally around a national food policy based on the principles of food sovereignty[135]. The common ground that was built during this time is more akin to, as Dale notes, 'longer-term, counter-hegemonic struggles, as opposed to the creation of tactical links between disparate groups and more temporally limited campaigns[136].

A strong and collectively owned platform is the outcome of these laborious, patient and inclusive movement building efforts. Consolidating the place of agroecology within a powerful food movement involves tying together many threads, including strengthening the rights of food and migrant workers, building territorial food systems and markets, shifting diets, and enhancing diversified agroecological systems[137]. It will also necessitate an uncompromising focus on the Right to Food, food sovereignty and Indigenous foodways. Similar peoples' processes on agroecology need to be developed across North America. While there have been some regional gatherings, it is a time for a Peoples' Convergence on Agroecology in North America.

134 Dale (2019).

135 The PFPP was initiated in 2009 and the platforms developed subsequently lasted through the 2011 and 2015 federal elections. See Food Secure Canada, *A Peoples Food Policy for Canada*. https://foodsecurecanada.org/people-food-policy

136 Dale (2019).

137 ETC Group and IPES-Food. A Long Food Movement. Also see The People's Agroecology Process: Unlocking Our Power Through Agroecology (2020). https://whyhunger.org/wp-content/uploads/2020/06/1132-People-Agroecology_ENGLISH_ONLINE-Single.pdf

4.6 Revaluing Nature and the Culture of Agriculture

> *We are looking at a future wherein agriculture must increasingly re-merge with nature and culture to create a much more integrated, life-sustaining, and community-sustaining agroecological model of human food provision, nutrition, and health*[138].

Making a case for agroecology is very difficult in the context of an agro-industrial model that ignores people's deep cultural and spiritual ties with food, devalues our ecosystems, and excludes their true costs to our health and our economy. When nature is commodified, and when the act of growing food is devalued and humans are disconnected from nature, these mindsets become significant barriers to change.

As one farmer interviewed for this report cautioned, one should not underestimate the role of societal and cultural values in shaping mindsets of how we see our food system; and in determining our agricultural policies[139]. A deep shift in mindsets entails revaluing the Indigenous foodways that hold food as sacred; and embracing intercultural ways of thinking about food systems[140]. It also presents the complex challenge of finding common ground with Canadian settler-farmers, alongside the important conversations about a history of oppression and appropriation of land, as many settler-farmers have also historically shared the value of living off the land while nurturing it for future generations.

A growing field of research that attempts to demonstrate the true value of nature (and the true cost to nature when we externalize it) is True Cost Accounting. It is playing an important role in food systems policy and discourse. As Baker et al. affirm "evaluating food systems in a holistic way is paramount to their transformation"[141]. Research studies in true cost accounting can help expose key pathways to incorporate value and costs in food systems into policies aimed at many levels from farm and landscape to regional and national policy.

4.7 Protecting Agroecology's Core Principles

Concerns about the dangers of co-optation of agroecology are very real. As Dale cautions, agroecologists must be mindful of the high possibility of dilution of agroecology's core intent.

> *... agroecology [must be] enacted through research, on-farm practices, and activism in ways that do not undermine its ability to be scaled out in order to begin to supplant industrial agriculture. Further, the risk of agroecology being co-opted or marginalized in capitalist contexts is particularly acute given that corporations are always ready to appropriate developing trends and incorporate them into regimes of profit accumulation*[142]

As some have pointed out, some agrifood companies are taking it upon themselves to navigate around ecological, regenerative agriculture and organics, in their own ways. As one interviewee remarked, this requires monitoring and vigilance (as well as recognition where there is good practice).

> *Agrifood leaders like Danone, McCain, Loblaws, are investing in regenerative agriculture, which is a form of BRM for them... We've downloaded responsibility to the public, and business don't always make this their first priority* [143].

What would a future 'agroecology program' of the Canadian government, or the corporate sector, look like? In light of the high possibility of dilution, upholding the 13 Principles of Agroecology[144] is a solid measure to ensure that agroecology programs adhere to its

138 Qualman (2019).
139 Interview with farmer, Ontario.
140 Rosado-May (2020).
141 Baker (2020).
142 Dale (2019).
143 Interview with environment researcher, Ontario.
144 HLPE, (2019).

core principles and maintain a strong focus on equity and agency for food producers—rather than merely incorporating ecological agriculture practices within existing programs. Agroecology as a body of knowledge and a set of principles applied to specific contexts, would look very different in BC, or the Prairies, or the Canadian North. But maintaining a focus on the integrity of the 13 Principles, and the science, practice and movement, as well as food sovereignty and rights, would ensure that it is well anchored in transformative change.

Laforge et al. offer the following caveats regarding the risks inherent in a slow transition:

> *We avow that an abrupt, whole of system transition is unlikely to occur, unless motivated by crisis or shocks to the system… While the transition is likely to be gradual, we are concerned that it may create barriers, co-optation and/or misdirection of efforts to move towards genuinely transformative agroecological approaches—in addition to prolonging the current level of harm to the environment, climate, and the lives of farm workers who are directly impacted by the current system. We are advocating for more inspired policies, and decisive actions be taken immediately*[145].

Agroecology Now authors Anderson et al. offer this perspective:

> *There is no single monolithic transformation unfolding in any one place. Indeed, the large-scale transformation of food systems is actually many transformations, in which cultural shifts, policy changes, struggles and networks intervene in complex, dynamic, often contradictory ways*[146].

Moreover, agroecology practitioners need to find congruence and strategic convergence where possible, with related approaches such as regenerative agriculture, which is growing rapidly in Canada. While valid questions continue in the debate over whether agroecology and regenerative approaches can share common ground, some recent literature suggests that agroecology, regenerative agriculture and Indigenous foodways share the same holistic roots[147]. Civil society should adopt a big tent approach, looking for convergence with other movements such as regenerative agriculture (as well as permaculture and other ecological approaches). But when doing so, it is critical to put the wishes of farmers and food provisioners first: How do they see the possibilities for strategic convergence, and how would this improve their livelihoods as well as the ecosystems they steward every day? As one interviewee stated, "those who are practising regenerative agriculture on and around their farms, see themselves as part of the solution[148]."

145 Laforge et al. (2021)
146 Anderson et al. (2021). Agroecology Now!
147 Liz Carlisle (2022); Global Alliance for the Future of Food (2021).
148 Interview with agricultural researcher, Quebec.

5: POLICY PATHWAYS TO AGROECOLOGY

It's the best time I've ever seen to iterate these issues[149]

It's our last chance to save the family farm[150]

Several interviewees for this research asserted that this critical juncture represents the best chance in recent memory for fundamental change—with less than a decade remaining for decisive action before we cross planetary boundaries, particularly on climate change and biodiversity loss. The conversations identified the space created by crisis moments and emerging consensus, and the opportunity for timely, targeted policy shifts at national and sub-national levels to support agroecology in Canada. The greatest opportunities identified were the climate crisis and the COVID19 pandemic—about which much has been written by now. Given that the pandemic amplified the inherent structural inequalities within food systems and the inadequacies of social protection, Food Secure Canada, in their policy paper Growing Resilience and Equity called for a visionary response and bold structural changes through an inclusive public interest approach. FSC advocated for policies to establish a universal liveable income; to foster shorter, more diverse and resilient food supply chains; and to prioritize food sovereignty approaches, supporting family farms and low-input, low-emissions agroecological food production as well as sustainable processing and distribution[151].

In a similar vein, the NFU and Farmers for Climate Solutions issued several reports during this period that identified many low hanging fruits to immediately reduce the climate footprint of agriculture by bringing down the use of energy and synthetic inputs at the farm (among many other things)[152]. The combination of a 'crisis' and a 'consensus' moment on climate change, along with strong civil society advocacy for climate solutions, has made an impact on the Canadian government, with AAFC finally stepping up and releasing more than $200 million for climate solutions in the 2021 Federal Budget, including an On-Farm Climate Action Fund, a new fund under Agricultural Climate Solutions[153].

With the realization that the multiple crises and solutions facing Canadian farming are connected, there is broad consensus that we need systemic policies with multiple impacts to address them. And, we need aligned, whole of government policies and measures inside and outside the food system, while building a strong foundation of social policy. Finally, there is increasing recognition that in order to enable agroecology, we must remove powerful structural barriers, such as perverse agricultural subsidies that disable agroecology. However as one interviewee remarked with specific reference to the flagship CAP program, "a large ship is hard to change on a dime"[154]. A close look at AAFC's next policy framework shows scant evidence of this occurring in the coming years, as Canada remains geared to the mindset of continually increasing the volume of production and export.

Agroecology advocates need to continue calling for a combination of targeted 'push' and 'pull' policies (or 'carrots and sticks') that respond to crisis and consensus moments, and reshape the food policy environment using these levers in the system. 'Pull' policies create incentives and investments to stimulate interest and public demand, drawing in producers, retailers, consumers and other actors in the food system. They create

149 Interview with a philanthropic foundation leader.
150 Qualman and the NFU (2019).
151 Food Secure Canada (2021). Growing Resilience and Equity.
152 NFU 2019; and 2021.
153 AAFC Agricultural Climate Solutions (website). https://agriculture.canada.ca/en/agriculture-and-environment/agricultural-climate-solutions
154 Interview with AAFC staff.

niches or spaces, such as the creation of bioregions (or other regional designations) to pull in more support. 'Push' policies involve the tools of regulation, pricing, and other fiscal instruments that mandate and shape practices, including pushing out destructive practices. They also include policy nudges that precipitate action away from one direction and towards another.

According to the Green Budget Coalition,

> *Canada has the potential to become a world leader in environmentally sustainable agriculture that also meets international targets such as the UN Sustainable Development Goals (SDGs) by delivering social benefits, including gender equality, food security, economic development, reconciliation with Indigenous Peoples, and support for the next generation of farmers. This will require decisive action through strategic and targeted investments beyond announcements already made under the new Canadian Agricultural Partnership and a National Food Policy*[155].

5.1 A National Agroecology Strategy

> *What we're asking for is a ten year plan. These policies come along, but what's the long term objective and vision?*[156]

> *We need to reshape the role of AAFC: their mandate letter needs to talk about agroecology. And less emphasis on exports; more emphasis on local agriculture and local food systems*[157].

Foundational to an agroecological transition is a far-reaching national vision of what a food system is meant to accomplish for people, nature and planet over the long term[158]. This vision must be based on the pillars of upholding human rights and food sovereignty, working with nature and planetary boundaries, and respecting the spiritual and cultural value of food. Moreover, a long term vision must include the imperatives of Indigenous reconciliation, land and racial justice, farm and intergenerational renewal, and valuing all food workers and provisioners in the food system—including those who are not always included in the picture of 'agroecology' (such as fishing and food gathering communities).

Where can such a vision come from? While Canada's National Food Policy can be considered a small 'win', many do not see it as an inspiring vision for long term change, but rather, an effort to simply coordinate diverse national policies to achieve a greater focus on food. Indeed many would characterize the NFP as lining up a number of planks in a platform that keeps the system operating the way it currently does, but with a lighter footprint and sustainable touch[159]. However, the research for this project reveals a great need for a clearly articulated national agroecology strategy, embedded within a comprehensive and joined up national food policy that integrates agroecology coherently into all major policy planks: environment, climate, health, poverty, Indigenous, economic and social development. It also needs to incorporate land and territorial rights; farm renewal, the Right to Food, as well as social and technical innovation in agroecology coming from farmers and others in the food system. This strategy is a critical component of an agroecological shift that strengthens recovery, enhances resilience and builds prosperity through a long term vision.

This National Agroecology Strategy should be initiated through a task force or committee of the National Food Policy Council, where a more comprehensive food systems approach can be taken. This would be an ideal opportunity to publicly recognize that agroecological transition is about much more than transition in agricultural production. It could engage, as the National Food Policy intends, important sectors such as economic development, energy and transport, health and education—with a whole of government approach

155 Green Budget Coalition (2020). Recommendations for Budget 2020–21.
156 Interview with agriculture researcher, Quebec
157 Interview with environment policy specialist, Ontario.
158 For a discussion of the possible pathways for an equitable and resilient food system, see IPES-Food and ETC Group, The Long Food Movement (2021).
159 Conversation with food systems researcher, Ontario.

and a ten year transition frame. As AAFC states on the National Food Policy website[160],

> *The social, health, environmental, and economic components of food systems are interdependent; however, they are often addressed in isolation. To tackle complex food issues, coordinated and coherent approaches are needed.*

This is congruent with the view of the Global Alliance for the Future of Food, "By shifting the focus from agriculture to the entire food system, a wider range of stakeholders can be meaningfully involved in designing and assessing policies for agroecological transformation[161].

The idea of a national agroecology strategy is not new at the international level. At least ten countries around the world (and many sub-national/regional authorities) have committed to developing a national agroecology plan, strategy or directive. Moreover, almost 40 governments have joined the international Agroecology Coalition formed after the UN Food Systems Summit[162], a strong indication that governments and institutions are increasingly committing to system-wide transition approach that yield multiple benefits across a range of sectors[163].

In their recommendations for Budget 2022, the Green Budget Coalition underscored the need for a comprehensive national vision and strategy on sustainable agriculture. Their ask to the Government of Canada was to "publicly commit to making transition to sustainable agricultural production a primary focus of its negotiations for the renewal of the Next Policy Framework in 2023". The GBC suggested that in preparation for the FPT negotiations, that AAFC "assess the efficacy of environmental strategies and risk management in agricultural support programs in comparable countries. FPT negotiations should focus on developing a comprehensive and ambitious agri-environmental strategy adapted to Canada's different regions and production systems, covering soil health, adoption of science-based stewardship models such as 4R and IPM, natural ecosystem preservation, diversification, and GHG reductions"[164].

5.2 A 'Fit for Purpose' National Research Agenda

> *Recognizing that agroecology is a broad concept, and having a clear understanding of the levels [of transition] helps to identify where funding is going, and which level is more dominant. Where there are variances? For example, in the Prairies, where is there more diversity, or synergy in crop and animal production? We haven't brought it all together and analyzed it and [looked at] how intensive the interactions are. These kinds of projects exist. They are all there. But many of them are focused on single practice or technology or approach, not going beyond that. They aren't classified according to agroecological transition level, and which ones are more advanced... We're not asking how we frame them, and how then to take them to a higher level... (T)here's a crying need for a national agricultural research institute[165].*

The above remarks by a federal agricultural staff member highlight both the existence of notable projects supported by AAFC (and its provincial counterparts), as well as the keen interest within the agency, for assessing the levels of transition within particular projects in order to improve them. With large gaps, and a narrow focus within the agricultural research system, this is currently impossible: Canada's current research system is simply not fit for purpose (or rather, some may argue that it was designed expressly for purposes other than ecological agriculture). A new national research agenda on agriculture and food systems is therefore need-

160 AAFC (2020). The Food Policy for Canada. https://agriculture.canada.ca/en/about-our-department/key-departmental-initiatives/food-policy/food-policy-canada.

161 Global Alliance for the Future of Food (2021). The Politics of Knowledge.

162 Personal communication with Agroecology Coalition coordinator. There is currently no systematic inventory of government policies on agroecology around the world, but numerous policies have been posted on the FAO Agroecology website: https://agroecology-coalition.org/agroecology-coalition/membership/. August 27, 2022.

163 IPES-Food (2016); IPES-Food and ETC Group (2021).

164 Green Budget Coalition (2022). Recommendations for Budget 2022, Appendix 1: Environmentally-Sustainable Agriculture. https://greenbudget.ca/wp-content/uploads/sites/4/2021/11/GBC-Recs-2022-Appendix-1-Agriculture.pdf

165 Interview with AAFC staff.

ed that produces transdisciplinary knowledge, spurs innovation, and fosters the kind of knowledge exchange that will support, rather than undermine, agroecological transition. This new research agenda would focus on redesigning agricultural systems for more resilience; the development of tools and metrics to assess agro-ecological transition, as well as the impacts, co-benefits and trade-offs for specific agroecological practices and innovations. It would incorporate existing measurement tools such as FAO's widely used Tool for Agroecological Performance Evaluation (TAPE), the food systems assessment tools developed by Kwantlen Polytechnic University (KPU) in BC; and the tools developed to measure true cost and true value in food systems[166].

> *Green Budget Coalition recommendation: Strategically re-invest in public sector extension advisors for $100 million per year to facilitate better knowledge transfer*[167].

Engaged Research and Knowledge Mobilization

While the efforts made to develop participatory and transdisciplinary research projects and demonstration sites (such as Living Labs) were applauded by many informants, there was a feeling that most of the vital, engaged research in ecological agriculture, agroecology and seed diversity has been carried out without significant government funding. The farmers and researchers interviewed for this project strongly urged more support for participatory research and knowledge sharing through peer-to-peer approaches, accompaniment, mentorship, and community-based training and extension—which is currently only happening on the margins of agricultural research[168]. This was echoed by an AAFC staff member.

> *We need to pilot a lot more projects … take them into landscapes and to see how farmers feel about them. What's happening on the ground, and field test it. What are the barriers? Are there different incentives that can be offered?*[169].

The horizontal learning methodologies of agroecology can play a key role in fostering innovation beyond the farm, and across the food system including markets, citizen science, community and consumer engagement with strong links to urban food security. As Anderson et al. point out, participatory approaches succeed when they shift power away from professional experts, integrate different knowledges and ways of knowing (epistemological justice), and make research truly transformative[170].

photo: Kath Clark/SeedChange

166 For FAO TAPE website: https://www.fao.org/agroecology/tools-tape/en/. For KPU: Harris, G., Nixon, D., Newman, L., & Mullinix, K. (2016). Delineating the Southwest British Columbia Bioregion for Food System Design and Planning: A Practical Approach. Journal of Agriculture, Food Systems, and Community Development, 6(4), 71–86. https://doi.org/10.5304/jafscd.2016.064.010. For TCA: Global Alliance for the Future of Food (2021). True Value: Revealing the Positive Impacts of Food Systems Transformation.

167 Green Budget Coalition, Recommendations for Budget 2022, Appendix 1: Environmentally-Sustainable Agriculture https://greenbudget.ca/wp-content/uploads/sites/4/2021/11/GBC-Recs-2022-Appendix-1-Agriculture.pdf

168 Isaac et al. (2018); Dale et al. (2018).

169 Interview with AAFC staff.

170 Anderson et al. (2019).

Farmer-led Research in Canada

There are a growing number of Canadian organizations and communities of practice supporting agroecology through farmer-led, participatory research. Funding for this work from foundations, federal and provincial governments has increased[171]. One of the more prominent organizations supporting these types of research initiatives is the Bauta Family Initiative on Canadian Seed Security, which collaborates with seed growers and farmer-researchers to preserve seed diversity and improve the quality and quantity of farmer managed seeds. This involves collaboration with a range of partners, particularly universities and farmer-led research centres in different regions of Canada. Participatory plant breeding, field trials and varietal selection are major components of the research. The Ecological Farmers Association of Ontario (EFAO) is another organization that supports agroecology research, related to improving farmer-bred seed varieties, cover cropping, soil health, ecological disease, pest and weed management, and regeneration of pastures and pollinators.

There have been two Agroecology Schools held in Canada (Guelph 2016, Ottawa 2018) to connect farmer-led agroecology initiatives, and provide a peer-to-peer space for practitioners, researchers and policy campaigners to build a stronger agroecology movement across Canada, and linked to the global South. The 2018 Agroecology Field School and Research Summit featured a keynote by Peter Rosset of ECOSUR (Mexico), and farm visits and workshops on rotational grazing, soil and animal health, Indigenous foodways and food cultures, and the role of fisheries and agroforestry in agroecology[172].

Re-imagining Extension and Education

A major thread identified in this research is the critical need to reorient the agricultural extension and education system in Canada. In the words of one interviewee,

> *Extension has become a dirty word that no one wants to do anymore—but they all believe in knowledge transfer. Bring back knowledge, transfer the knowledge, support the systems for shared learning, and just darn good programming[173].*

Others point to the gaps in the current scope of the extension and university curricula:

> *We need to move to the landscape level ... we're often stuck talking about the farm level. We need people that are trained in practice and policy at landscape level, not just field scale and farm level[174].*

Many interviewees highlighted the case of Quebec, where support to environmental farm clubs, agroecological extension and farm educational programs have not only been vital in growing the base of knowledge and support for agroecology, they have also helped non-farm youth acquire and establish successful farms in the province[175]. A reinvigorated national extension and education program, perhaps as a key component of the NFU's proposed Canadian Farm Resilience Administration, could be a main vector of knowledge sharing, through demonstration farms, farmer-led curricula and field days, and communities of practice on various agroecological practices[176].

171 This is a program of SeedChange, and is supported by the Weston Family Foundation, McConnell Foundation and ECHO Foundation, among others.
172 For a full report of the Ottawa Agroecology Field School and Research Summit, see Dale et al. (2018).
173 Interview with environment specialist, Ontario.
174 Interview with agriculture researcher, Quebec.
175 Interview with agriculture researcher, Quebec.
176 NFU (2021). Imagine If.

5.3 Funding for Agricultural Transition

Recommended Investment: $596 million over the next five years (2020-2025) to improve the sustainability, resilience and competitiveness of the agricultural sector, including,

1. *Agri-Environmental Programs: $471 million over five years [AAFC, ECCC]*
2. *R&D in Regenerative Agriculture: $80 million over five years [AAFC].*[177]

Funding is an absolutely critical need for breaking lock-ins and propelling an already dynamic but highly underfunded agroecology community[178]. Historically, funding for ecological agriculture (if not agroecology) in Canada has been paltry. However, small steps are now being taken. The Agricultural Climate Solutions (ACS) is a multi-stream program aimed at supporting farming practices to tackle climate change by reducing emissions and storing carbon through agricultural practices. ACS is part of the $4 billion Natural Climate Solutions Fund of AAFC, Natural Resources Canada (NRCan) and Environment and Climate Change Canada (ECCC), and includes NRCan's 2 Billion Trees program and ECCC's Nature Smart Climate Solutions Fund. These solutions will contribute to meeting Canada's greenhouse gas reduction targets[179].

ACS includes program streams of Living Labs ($185 million) and the three-year On-Farm Climate Action Fund ($200 million)[180]. This fund is the largest envelope for potentially funding agroecological transition, and already includes support farmers in adopting beneficial management practices (BMPs) such as nitrogen management, cover cropping, rotational grazing practices and outreach and training related to the adoption of these BMPs.

The newly agreed Federal-Provincial-Territorial agricultural policy framework, entitled the Sustainable Canadian Agricultural Partnership, contains several welcome measures—including an increase in cost-sharing funding (to $2.5 billion); a commitment to reduce GHG emissions (by 3 to 5 MT by 2028); a new $250 million Resilient Agricultural Landscape Program (RALP), and other initiatives. While acknowledging these small steps, NFU responded with the following statement[181]:

> *The Sustainable Canadian Agricultural Partnership … has yet to make the bold steps needed to ensure the prosperity of Canada's farmers and the future for our grandchildren on the farm. The NFU hopes future planning within AAFC and negotiations between the federal government and individual provincial and territorial governments will move us from incremental to transformative solutions.*

Following COVID, the Government of Canada (AAFC) opened up several promising funding envelopes including the five year, $60 million Local Food Infrastructure Fund (LFIF). This fund supports community-based, not-for-profit organizations to reduce food insecurity by strengthening their local food systems, improving infrastructure and providing equipment to increase access to healthy, nutritious and local foods[182].

A New Federal Agency? The Canadian Farm Resilience Agency

An early program that was acclaimed by Canadian agriculture experts was Manitoba's Prairie Farm Rehabilitation Administration (PFRA) which provided prairie-wide oversight and coordination of agri-food policies. According to the National Farmers Union, the time is now to establish a national version of the PFRA—entitled the Canadian Farm Resilience Administration—which

177 Green Budget Coalition (2020). Recommendations for Budget 2020–21.
178 For issues related to financing agroecology see the *Agroecology Now* webpage: https://www.agroecologynow.com/financing-agroecology/
179 AAFC Agricultural Climate Solutions (website). https://agriculture.canada.ca/en/agriculture-and-environment/agricultural-climate-solutions
180 AAFC On-Farm Climate Fund website https://agriculture.canada.ca/en/agricultural-programs-and-services/agricultural-climate-solutions-farm-climate-action-fund-0
181 NFU (2022). APF Moves on Climate but Needs to be Broadly Transformative. https://www.nfu.ca/apf-moves-on-climate-but-needs-to-be-broadly-transformative/
182 AAFC, https://agriculture.canada.ca/en/agricultural-programs-and-services/local-food-infrastructure-fund

would essentially drive a national transition plan towards a more resilient and climate-responsive agriculture sector; and provide research, extension and funding support for ecological agriculture, lowering emissions and raising farm incomes. The NFU propose the following:

> *Modelled on the Prairie Farm Rehabilitation Administration (PFRA) but updated for the 21st century and emerging climate threats, a CFRA could lead on-farm mitigation and adaptation, oversee wetlands restoration and tree planting, manage extension agrologists and independent soil testing, and operate demonstration farms where emission-minimizing production practices could be refined and showcased. We need wartime levels of government action and leadership to avoid massive damage to our climate, farms, food supply, and future.*[183]

Province-led Programs

At the provincial level, Quebec, Prince Edward Island, Manitoba and Ontario have existing (or recently introduced) programs such as Environmental Farm Plans (EFP), Payments for Ecosystems Servics (PES), and other programs that can be strategic entry points for agroecology. Quebec's Politique bioalimentaire was a visionary first step in advancing sustainable agriculture in the province in such areas as environmental cross-compliance, agri-environmental extension services, farmland preservation and organic transition[184] (see Box: Quebec's Agriculture Policies).

As Martorell found, Ontario was an early adopter of Environmental Farm Plans, and Prince Edward Island and Manitoba are leaders in province-wide ALUS interventions[185]. The Agricultural Research and Extension Council of Alberta (ARECA) operates a municipal program that works on habitats and has produced an Environmental Farm Plan for the province[186].

183 Qualman and NFU (2020). Tackling the Farm Crisis and the Climate Crisis; A Transformative Strategy for Canadian Farms and Food Systems.
184 Martorell (2017).
185 Ibid.
186 The Alberta Environmental Farm Plan (EFP) is a voluntary, whole farm, self-assessment tool that helps producers identify their environmental risks and develop plans for mitigation. It was designed for farmers, by farmers. https://www.areca.ca/alberta-environmental-farm-plan.

5.4 Supports and Incentive Measures

> *Supporting food providers in a widespread shift to ecological production in both urban and rural settings (organic agriculture, community-managed fisheries, Indigenous food systems, etc.), including policies for the entry of new farmers into agriculture*[187].

Farmers across Canada, whether ecological or conventional, have not felt supported in their efforts to make agriculture more sustainable. That is because federal agricultural policy has often worked against them, rather than for them. As one farmer stated, "We need to see policies to explicitly increase on-farm biodiversity. BRM programs could be retooled to achieve that goal"[188].

A variety of incentives and policies were named in the course of this research, and many are listed in recent reports as a priority for agricultural transition. These include[189]:

- Incentives and payments for ecological services (PES), including soil health, diversifying crops, extending rotation, planting trees, maintaining water quality, building synergy in crop/animal production, establishing corridors and protecting riparian zones, wetlands, and ecologically sensitive ecosystems and species at risk, in their farms and landscapes.
- Rewarding sustainable use and conservation such as: farmland protection, conservation of grasslands, wetlands, forests, fisheries; incentives and allowances for crop and animal diversity (including rotational grazing, pollinators, green corridors, and agroforestry).
- Incentives and pilot programs for a clean energy transition on farms, including renewable energy generation, fuel switching and building retrofits.
- Business risk management (BRM) support, incentives, crop insurance, and supply management. The Green Budget Coalition, for example, recommends a target of 10% of total BRM investment geared towards incentivizing agroecological transitions.
- Financial instruments that are tailored to supporting transition (including multi-year grants and loan programs to support farmers or products that support farmers in building climate resilience).
- Support to farmers and consumer organizations to build on organics (which have a well developed legal framework and market share), and supporting further transitions including certification, reconfiguration, and reporting; and the use of appropriate digital technologies for assessment and knowledge sharing.
- Affirming support to participatory guarantee systems (PGS) and local quality assurance systems, where groups of food producers and eaters agree on production methods, standards, and processes to self-certify, through democratic processes.
- Flexible farm insurance programs that adequately account for the heightened climate risks and market volatility faced by family farmers, and compensate for infrastructure, crop and other related losses.

5.5 Regulatory Measures

While incentives create a demand pull, there also needs to be an important regulatory push that motivates changes in practice, and shapes them towards transition. Many involve fiscal policies, and Canada has

187 Food Secure Canada (2011). Resetting the Table. https://foodsecurecanada.org/people-food-policy.
188 Interview with farmer, Ontario.
189 Recommendations are summarized from NFU/Farmers for Climate Solutions (2020 and 2021); GBC (2021) and CCPA (2020).

moved to enact recent measures on carbon, methane and nitrogen as part of new commitments towards the Paris Agreement (see next section on climate policy). Reducing petrochemical inputs has a direct impact on emissions, but also on soil health and farmer debt—and is one of the first steps towards transitioning to agroecology.

Other pillars of environment policy that are important for agroecology include the regulation of pesticides. Related to this, the lack of transparency in decision-making on regulating GMOs has been a serious problem for organic as well as conventional farmers. Much stronger oversight, and the application of the Precautionary Principle is needed to be upheld in order to avoid serious negative impacts on ecosystems and on ecological farmers. As the Canadian Centre for Policy Alternatives recommends, Canada must;

> *Implement a regulatory system that effectively enforces the precautionary principle to safeguard the air, water, biodiversity, and lands, and which protects farmers and consumers against hazards, balances power in the marketplace, and prevents decision-makers from being insulated from the impacts of their policies*[190].

5.6 Climate and Environment Policy

> *I can't see any scenario of 1.5 degrees without significant GHG reductions, especially methane, and agroecology can play a clear role in that*[191].

> *Farmers have everything to lose if climate change rages uncontrolled. But solutions are at hand—already on display on many farms. Supportive government policies are critically needed to help spread positive practices and to enable the sector to make this crucial transition*[192].

In their comprehensive assessment of the GHG footprint of Canadian agriculture, the NFU emphasizes that the farm crisis and the climate crisis share many of the same causes—and therefore many of the same solutions"[193]: However, "with adequate policy and program support and a clear understanding of GHG sources, farmers can make a large contribution to Canada's success both in meeting its international emissions reduction commitments and also in helping stabilize the climate."[194] A large portion of this can be done by addressing the use of nitrogen fertilizers, fossil fuel energy use, and beef production, which are the largest contributors to agricultural GHG emissions[195].

According to NFU, the common thread in many of the crises facing agriculture today is high input use—which creates high debt, high emissions, and reduces farm income and viability. They conclude that scaling up agri-environmental incentives is vital to a green energy transition in Canada, and would create savings, rural jobs and new revenues[196]. Yet, the agricultural sector, especially family farmers, have thus far been left out of the conversation. While they are often blamed for their high emissions, their solutions have remained invisible, according to one farmer interviewed[197].

> *Here is a provocative idea: farming does not produce greenhouse gas emissions; agricultural inputs produce greenhouse gas emissions. The emissions coming out of our farm and food systems are simply the downstream outputs of the petro-industrial inputs we push in*[198].

Many new climate measures coming from the Canadian Government and the provinces are related to fiscal solutions and levies (carbon taxes)[199]. Meanwhile, other important areas have been historically overlooked, such as emissions from on-farm energy use. Qualman

190 CCPA (2020). Alternative Federal Budget Recovery Plan.
191 Interview with a Member of Provincial Parliament, Ontario.
192 NFU (2021)
193 Qualman and the NFU (2019).
194 Darrin Qualman and National Farmers Union (2022). Agricultural Greenhouse Gas Emissions in Canada: A New, Comprehensive Assessment.
195 NFU (2022).
196 Ibid.
197 Interview with farmer, Ontario.
198 NFU (2020).
199 For example, PEI's net zero plan. https://www.princeedwardisland.ca/fr/nouvelles/government-releases-net-zero-plan

photo: Kath Clark/SeedChange

suggests that government regulatory measures should aim to reduce input use overall, helping farmers find alternatives; and build resilience in the food system by diversifying production approaches and expanding the use of low-input, regenerative, organic and agroecological methods and practices[200].

The Livestock Sector

Livestock is a large part of farming in Canada that no transition effort can ignore. The enormous climate and environmental footprint of industrially raised cattle in concentrated animal feeding operations (CAFOs) is not only a major problem, it precludes the many beneficial agroecological practices that already exist in small-scale, mixed crop-animal farming. For instance, rotational grazing provides many benefits for soil health and carbon management, biodiversity and can boost farm diversity and income[201].

For maximizing benefits from livestock while minimizing emissions, NFU recommends: "Government programs should propagate best-possible grazing systems (rotational, holistic, and regenerative) and support farmers in reducing emissions by pursuing best-possible genetics, herd health, and feeding[202]".

Putting the spotlight on the livestock sector also presents opportunities to engage consumers, and the communities working on health and nutrition, environment, animal welfare and other sectors that are outside 'agriculture'.

200 Qualman & NFU (2022).
201 For a case study on rotational grazing in Quebec, see Dale et al. (2019).
202 NFU (2022).

Snapshot of Quebec's Agriculture Policies

Quebec has historically been a leader in Canada when it comes to agricultural policies that favour the environment. Quebec developed its own organic standards (Prime Vert) in 2001—much before the federal government—which offered various supports to farmers to convert to organic agriculture[203]. Similarly, since the 1990s, Quebec has supported Clubs agri-environmentaux (agri-environmental clubs) a platform for farmers for knowledge sharing and collaboration in ecological approaches, integrated pest management, ecosystems functions etc. The 2008 Pronovost report[204] precipitated some visionary changes to agriculture in the province, including farm income stabilization and support to emerging organic and ecological farming[205].

According to one interviewee, the MAPAQ (ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec)'s politique bioalimentaire[206] food policy (2018) has transformed agriculture in Quebec. Its major planks include greater investment, locally produced foods, increasing organic production, and responsible business practices. Even though Quebec is still only at about 4% organic, the province is seen as relatively advanced compared to other provinces. The 'pull-effect' of Quebec's policies has been undeniable. One researcher described the many incentives offered by this policy as follows:

> There are dozens of policy incentives.... if you use cover crops, if you modify your livestock for improving welfare, you get subsidies. If you want to have a windbreak on your farm, they'll support 80%. The government will give you $20,000 for planned field production, and if you have animals you get another $20,000. And if you're a dairy farmer you get $4000. That's the way of sharing the financial risk, and that convinced a lot of farmers.[207]

These policy incentives under the program d'appui pour la conversion (program that supports ecological transition) attracted many Quebec farmers, helping reach the five year goal of 8% farmers certified organic, within two years. An additional benefit of this program has been a growing critical mass of farmers: many new and agroecological farmers have flocked to the Quebec region, including from Ontario[208].

As one interview observed, it is farmers that made sure that MAPAQ made good policies, on the strengths of the clubs environnementaux: "In Quebec farmers have been the ones pushing for research on organic farming"[209].

However, the successes, in policy as well as in technical and social innovation have remained unknown outside the province. One agricultural researcher remarked, "Ninety per cent of the innovation in Quebec never leaves Quebec"[210].

203 MAPAQ, Prime Vert website https://www.mapaq.gouv.qc.ca/fr/Productions/md/programmesliste/agroenvironnement/Pages/Prime-Vert.aspx
204 Government of Quebec (2008). Commission sur l'avenir de l'agriculture et de l'agroalimentaire quebecois. Jean Pronovost.
205 AgCanada.com, (2008). Quebec to shift priorities after CAAAQ report. https://www.agcanada.com/daily/quebec-to-shift-priorities-after-caaaq-report (website, accessed February 16, 2022).
206 MAPAQ, *Alimenter Notre Monde: La Politique en un coup d'œil*. https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/agriculture-pecheries-alimentation/publications-adm/dossier/politique-bioalimentaire/PO_politiquebioalimentaire_coupdoeil_MAPAQ.pdf?1631561533
207 Interview with agriculture researcher, Quebec. Also see Union Paysanne, Pour une politique de la terre à la table https://www.unionpaysanne.com/wp-content/uploads/2020/11/PourUnePolitiqueAgricole.pdf
208 Isaac et al. (2018).
209 Interview with staff of farmer organization, Quebec.
210 Interview with agriculture researcher, Quebec.

5.7 Health Policy

Health is one of the most important drivers of change[211].

Many interviewees during this research pointed to health policy (alongside climate and environment) as a key lever of change in facilitating an agroecological transition in Canada. One interviewee said:

> *Agroecology is a framework that has to be grouped with food justice, and social determinants of health. Those are the three legs of the stool. All three are in play now in a way like not seen before, even if they're not new. They now have a presence*[212].

The COVID pandemic shone a very bright light on the direct connection between healthy ecosystems and healthy people. Aside from the dangers to animal habitats and the spread of zoonotic disease, researchers pointed to the enormous and unaccounted costs of large scale industrial agriculture to human health and society, its highly polluting nature; and the health risks of pesticides and herbicides.

This strengthens the compelling case for supportive 'upstream' elements in health policy that can enhance human, animal and ecosystems health downstream. A clear example is improving nutrition outcomes through biodiverse agriculture and animal keeping, and reducing health risks by moving away from factory farming, pesticides and petrochemical inputs. These principles and practices of agroecology are inherently beneficial for diversifying diets, healthy populations, food and nutrition security, and the increased availability of locally grown fruits, vegetables and legumes.

5.8 Social Policy and Just Transition

Thinking outside the farm and beyond agricultural policy is essential for transformative change across the system. We know that change must come from many policy fronts, and address many of the domains of transformation to create synergy and multiply impact. But first, as Dale puts it, start with a just transition for *all* farmers.

> *All farmers must be incorporated into a just transition in agriculture. So-called 'conventional' farmers have become ensnared in the industrial and capitalist mode of agricultural production, which means they are typically compelled to rely on the fossil-fuel-driven machinery and chemical inputs that are required to operate at vast economies of scale.... A just transition would see significant training opportunities made available for those who could contribute to an agroecological transition in Canada—including conventional farm owners, in addition to other agricultural workers and new entrants to the field—just as the means of production in a transformed food system would be controlled by those performing the labor as opposed to extractive corporations*[213].

A social policy basis for change would include elements of ensuring a minimum or universal basic income, policies to support food justice and the Right to Food, gender equity, intergenerationality, and Indigenous food sovereignty (including land and territory reconciliation[214]). Some within the agricultural community have advocated for a Universal Basic Income (UBI) for family farmers in order to mitigate the high risks of income and livelihood losses due to climate change and market volatility. They argue that the increasingly frayed safety nets that are no longer protecting family farmers or food security in Canada[215].

Gender and Intergenerational Equity in the Food System

An important element of social policy related to agroecology is acknowledgment and support to the growing number of women (many of them youth), playing an increasingly larger role in agriculture, and embracing agroecology. According to the Green Budget Coalition,

211 Interview with philanthropic foundation leader.
212 Interview with food systems researcher, Ontario.
213 Dale (2019).
214 See comments by Sherry Pictou in Dale et al. (2018).
215 R. MacInnis and H. Beach, National Farmers Union. Flexible Support— Consistent Income Needed for Farmers to Continue Their Essential Work. March 23, 2022. https://www.nfu.ca/flexible-support-consistent-income-needed-for-farmers-to-continue-their-essential-work/

> *An increasing number of women are choosing environmentally sustainable agriculture (organics, small ecological diversified farming)—sectors that are still vastly underfunded and for which Business Risk Management Programs are poorly adapted.... Supporting the next generation of women farm leaders is therefore an essential way to guarantee a viable future for agriculture in Canada, as well as moving towards climate-resilient agricultural practices*[216].

Supports and incentives for change are equally critical in the market system, and in urban settings. As Isaac et al. note, 'the expansion of agroecology in Canada is not only contingent upon 'production practices', but also the social relations of exchange[217]. They underscored the importance of urban food environments and food initiatives such as Toronto's Black Creek Community Farm, The Stop; Thunder Bay's Roots to Harvest's urban farm, Vancouver's Inner City Farms; and Montreal's Lufa Farms—all significant indicators of "mounting consumer interest in purchasing foods grown agroecologically and locally by farmers with whom they can interact"[218]. There is strong evidence of a generational interest, as well as interest from new Canadians, in these kinds of innovative agricultural and food initiatives[219].

The CCPA recommends that Canadian policies strengthen the social fabric and innovation that is coming from these kinds of initiatives:

> *Expand the capacity of local food institutions such as food hubs and farmers' markets to provide aggregated processing, storage, and distribution facilities for smaller-scale producers*[220].

An assessment of the 'Greater Golden Horseshoe' area of greater Toronto-Niagara, done as part of the FAO City-Region Food Systems Programme, yielded similar conclusions. The priority recommendations involve creating mid-scale infrastructure and providing financial, regulatory, public food procurement and educational supports (such as food hubs), to further develop regional food flows[221].

A related essential component is providing funding for farmers organizations and allies to build community engagement strategies, particularly for youth, women and BIPOC communities. Some engagement strategies include celebrating climate champions, and establishing awards and campaigns to recognize farmers who implement climate-friendly practices, and providing financial support for them to share their stories and knowledge.

5.9 Regional Policies

Regional food systems approaches have proven to be highly appealing to policymakers, researchers and activists, as they represent an important avenue for agroecological transformation while strengthening local food systems and climate resilience. First, working at the spatial scale of a region or territory allows for proximity, easier assessment, conceptualization and planning for joined up food policies (and avoids the frustrations of working at the expansive federal level). Second, it is easier to adopt the holistic approaches of agroecology and connect intersecting issues and sectors such as climate and environment, local economic development, urban and city-region planning, and community cohesion. Third, the growing numbers of good practices in regional food systems assessments, in territorial approaches to agroecology, and the rise of regional and municipal networks around the world has created valuable opportunities for collaboration, learning and policy advocacy (for example the work of FAO

216 Green Budget Coalition (2020).
217 Isaac et al. (2018).
218 Ibid.
219 Knezevic et al. (2018). Nourishing Communities: From Fractured Food Systems to Transformative Pathways.
220 CCPA,2020. "Agriculture", in Alternative Federal Budget Recovery Plan.
221 FAO, City Region Food Systems Program, Assessment of Toronto and the Greater Golden Horseshoe, Canada. https://www.fao.org/in-action/food-for-cities-programme/pilotcities/toronto/en/

on City-Region Food Systems[222], and the global C40 cities network's actions on climate and just transition[223]). These communities of practice also enable regional policy making to align with international instruments such as the Paris Agreement and the Sustainable Development Goals.

A strong Canadian example of research and action to strengthen bio-regional food systems is the Okanagan Bioregion Food System Project in British Columbia. This project, supported by the Kwantlen Polytechnic University, works with local governments, public health experts, farmers, local policymakers and community leaders to support dialogue, decision-making and planning in the Okanagan around sustainable, resilient food systems, specifically highlighting key trends and trade-offs embedded in decision-making on food in the Okanagan region[224].

5.10 Governance: Creating Enabling Environments for Change

> *Federal and provincial governments must refocus Canadian agricultural policy—away from maximum-export, maximum-production, maximum-input, maximum-emission farm and food systems, toward sustainability, resilience, higher net incomes, and increasing the number of farmers stewarding the land[225].*

> *We need a national, a whole of government approach, include a strong role for ECCC[226]*

Questions of political will tend to dominate discussions of what is necessary to drive a just transition in food systems towards agroecology. The conversations with informants tell the story of a politically unwilling state captured by corporate interests and locked into an industrial agricultural paradigm, intent to continue in that direction with only minor adjustments to its trajectory. And this raises questions about how to change political will, and what forms of governance are most suited for agroecological transition.

Nurturing the political will and inclusive governance is at the heart of every transition process, and involves multiple pathways. As one researcher noted, for an agroecological transition to happen, 'many changes will have to come from outside the food system, and with a strong social policy base[227]". Agroecology advocates thus need to construct the political will to move government policies and actions, from disabling to enabling transformative agroecology. Anderson et al. describe this as moving along the spectrum: from resistance, to co-optation, to support, to nurturing and finally to anchoring agroecology[228]. Food sovereignty and the rights to food, lands, seeds and waters, they argue, are central to transformative governance interventions and the active nurturing of political agroecology. This is realized, as they explain,

> *...through resources to facilitate the development of agroecological initiatives, networks, markets, innovations and more... Nurturing of agroecology involves support that adheres to the principles of a political agroecology, especially the idea of bolstering the agency of food producers, democratic governance and food sovereignty[229].*

222 FAO (2018). City-Region Food Systems Toolkit. https://www.fao.org/3/i9255e/i9255e-Food-Governance-Barometer.pdf
223 The C40 Network consists of more than 100 mayors of cities around the world. https://www.c40.org/?gclid=CjwKCAjw2OiaBhBSEiwAh2ZSP-ARwuro4tuetwNluONT13qgZD_cjscyzGjOZ9_Fxnny6YltX3uL-BoCYoUQAvD_BwE
224 Robert, N., and Mullinix, K. (2018). Municipal Policy Enabling Regional Food Systems in British Columbia, Canada: Assessing Focal Areas and Gaps. Kwantlen Polytechnic University, British Columbia. Also see Kwantlen Polytechnic website https://www.kpu.ca/isfs/okanagan-bioregion
225 NFU (2020).
226 Interview with environment researcher, Ontario.
227 interview with food systems researcher, Ontario.
228 Anderson et al. (2021) identify these as key elements of a participatory and inclusive transition to agroecology.
229 Ibid.

photo: Kath Clark/SeedChange

6. CONCLUSION: BUILDING AN AGENDA FOR CHANGE

> *Agriculture must increasingly re-merge with nature and culture to create a much more integrated, life-sustaining, and community-sustaining agroecological model of human food provision, nutrition, and health*[230].

> *Governments don't lead change; they follow it*[231]

With governments largely absent from agroecology, civil society still ambivalent, and corporate power strongly at play, what are the prospects for a transformative agroecology in North America? Can a movement so far driven by family farmers succeed, and what does it need from its allies in society? Indeed, agroecology needs research, advocacy and movement building, but most of all, it needs to be built from the ground up—starting with deeper connection and broader alliances. This section offers an agenda for what agroecology advocates must do in this regard, in terms of communications and movement building, knowledge sharing and research, and policy advocacy. These are essential prefigurative actions needed to grow common ground, alliances across sectors, and linking the politics of agroecology with food sovereignty (see Appendix 1).

6.1 A Movement Building and Engagement Agenda

Given that engagement, deep listening and convergence came out so strongly in the conversations, this is the top priority for the agroecology movement. While farmer and researcher activists have been working to move agroecology forward in their own circles, it has lacked the widespread understanding and acceptance that would give it the force it needs to break through the noisy (and confusing) terrain, and past the numerous competing frames for 'nature-friendly' agriculture. A Movement Building and Engagement Agenda is therefore needed that builds connection and solidarity between movements, through an inclusive and intersectional engagement strategy that brings in Canadian farmers, environmentalists, consumers, health and biodiversity advocates strongly into the tent[232]. Through inclusive political education, it must also engage alongside Black, Indigenous and racialized communities, and in alliance with organizations working on poverty and food justice, the Right to Food, and workers' rights. Without widespread solidarity, support and ownership of the agroecology agenda, it is likely to stay in the margins. Specifically, this agenda needs to:

- Build an intersectional basis of unity with other movements, focusing on building alliances with climate and food justice, new farmer, human rights, feminist, youth, BIPOC and Indigenous food sovereignty movements.
- Develop processes to formulate peoples' policies and platforms to amplify agroecology—such as a "Peoples' Convergence on Agroecology in North America".
- Develop a shared communications strategy that challenges prevailing mindsets, counters persistent narratives, and builds a stronger case for supporting agroecology (see Appendix 2).
- Find convergence with regenerative agriculture, permaculture, and other ecological agriculture movements, where there is common ground based on strong values and principles.

230 Qualman (2019).
231 Farm movement leader, cited in Dale et al. (2019).
232 In summarizing the discussions on movement building during the 2018 Agroecology School, Dale et al. name the following groups as potential allies: "Indigenous communities, climate activists, feminists, local food organizations, youth, academics and researchers, local businesses, community gardens, community health centres, teachers, fair trade organizations, co-operatives and credit unions". (see Appendix 1).

6.2 A Research and Knowledge Sharing Agenda

Most informants commented on the poor and fragmented state of research on agroecology, and the need to rebuild a national agroecology research agenda. Therefore a significant priority is to develop a national Research and Knowledge Sharing Agenda that addresses the questions of power and justice in knowledge-making and sharing, as part of a transformative approach[233]. This includes the following:

- Work towards a Canada-wide agroecology research network, setting up national spaces for knowledge co-creation and sharing, using transdisciplinary and intersectional approaches, and featuring annual Agroecology Schools (national or regional).
- Grow the existing regional networks of participatory research and peer-learning, based on farmer-to-farmer methodologies that are central to agroecology.
- Reshape the Canadian government's research agenda to emphasize more fit-for-purpose, public research on agroecology, and to curb conflict of interest in agricultural research.
- Influence university and agricultural extension curricula by developing farmer and researcher friendly materials that can be used in agricultural institutions and strengthen agroecological knowledge.
- Cross pollinate with agroecology movements in the global South, in international arenas and forge stronger links with research networks across North America.

6.3 A Policy and Advocacy Agenda

It is clear that a Canadian agroecology policy agenda needs to stand on the engagement and research agendas outlined above, in order to affect policy change in a substantial way—otherwise it will fail. Yet, there are also some specific policy opportunities to develop a Policy and Advocacy Agenda that presents agroecology as an imperative part of the climate, biodiversity, health, social and economic development priorities for the country—and vital for the survival of Canadian family farmers, agriculture and food security. A bigger policy tent must be constructed to grow unity and solidarity across different sectors of society. This is highly timely and relevant to the whole of government space created by the National Food Policy, and conducive to advocating for joined up, coherent policy. Agroecology advocates must ensure that it is found in every policy brief, research paper, and call to action that speaks of a just transition to a more resilient food system. Finally, linking agroecology to the major international frameworks—and Canada's corresponding commitments and pledges—is essential and strategic.

photo: Kath Clark/SeedChange

233 Global Alliance for the Future of Food (2021), *The Politics of Knowledge.*

However, in order to avoid cooptation and distortion of its principles, agroecology must be used consistently and uncompromisingly, while remaining strongly underpinned by key rights-based instruments (such as the Right to Food, UNDRIP, UNDROP and CEDAW). Indigenous food sovereignty and rights to land, territory, seeds and waters are critical components of agroecology. As IPES-Food suggests,

> *To advance the sustainable transformation of food systems, policy actors, observers, and advocates in global governance spaces on food, climate, and environment should: (1) Foster inclusive deliberation in global policy spaces, consistently challenging ideas and concepts that disregard entrenched power differentials. (2) Strive to use terms consistently across different fora, ensuring that broadly agreed definitions, principles, and practices are carried forward between policy spaces. (3) Promote awareness and clarity of proposed food system solutions, rejecting those that exploit ambiguity instrumentally to favour business as usual*[234].

Key components of a policy and advocacy agenda:

- Advocate for a whole-of-government, National Agroecology Strategy, potentially as part of Canada's National Food Policy.
- Call for a national research agenda for agroecology, establishing baselines and using internationally recognized measurement tools based on the FAO's TAPE tool, and the HLPE's thirteen principles of agroecology.
- Integrate agroecology and regenerative approaches more strongly into national climate, biodiversity, health, economic and social development plans; as well as at provincial, territorial and regional levels.

photo: Kath Clark/SeedChange

234 IPES-Food (2022). Smoke and Mirrors.

Final Word: Agroecology is Reconnection

When asked about some of the most valuable and strategic aspects of an agroecological transition, one farmer replied:

> *Where [our organization] really benefits from agroecology is as a community of ecological farmers. That's a very core pillar of our organization: creating that community so that members can learn from each other. We don't have a huge connection with international movements. But we share the same ideas in the sense that the whole organization was set up around knowledge sharing... We have field days at every farm. We've been doing it for 40 yrs. We have farm tours, kitchen table meetings, and annual conferences in December. Those physical gatherings are the core of the organization. We have farmer led research projects, we disseminate research results to rest of the membership*[235].

This sentiment is underscored in the recent publication, The Politics of Knowledge, by the Global Alliance for the Future of Food:

> *Agroecology, regenerative approaches, and Indigenous foodways are relationship-intensive (as well as knowledge-intensive). Where agroecology, regenerative approaches, and Indigenous foodways are at work, community is engaged, relationships are rekindled, and society flourishes. Relationships bring together growers with eaters, farmers with policymakers, youth with elders, and humans with the land, animals, and nature — in other words, a reconnection with our ontological selves*[236].

First and foremost, agroecology is about the deep relationships between people, communities, nature and the land. Yet, the narrow economic and technical focus of 'modern' farming broke this connectivity, and now it is being sewn back together by courageous and visionary communities across Canada and the US[237]. Through agroecology, they are finding cracks in the concrete of the industrial food system, and regenerating a future based on agroecological principles. Through agroecology, they are confronting a history of oppression against communities and violence against nature and living beings. For, without the connections inherent in agroecology, neither incrementalism nor radical proclamation will move us towards transformative agroecology in Canada. But relationships, solidarity, and understanding between communities will.

235 Interview with farmer, Ontario.
236 Global Alliance for the Future of Food (2021). The Politics of Knowledge.
237 ActionAid USA (2021). Food Connects us All; The Peoples' Agroecology Process (2019).

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APPENDIX 1: THE FUTURE OF AGROECOLOGY IN CANADA

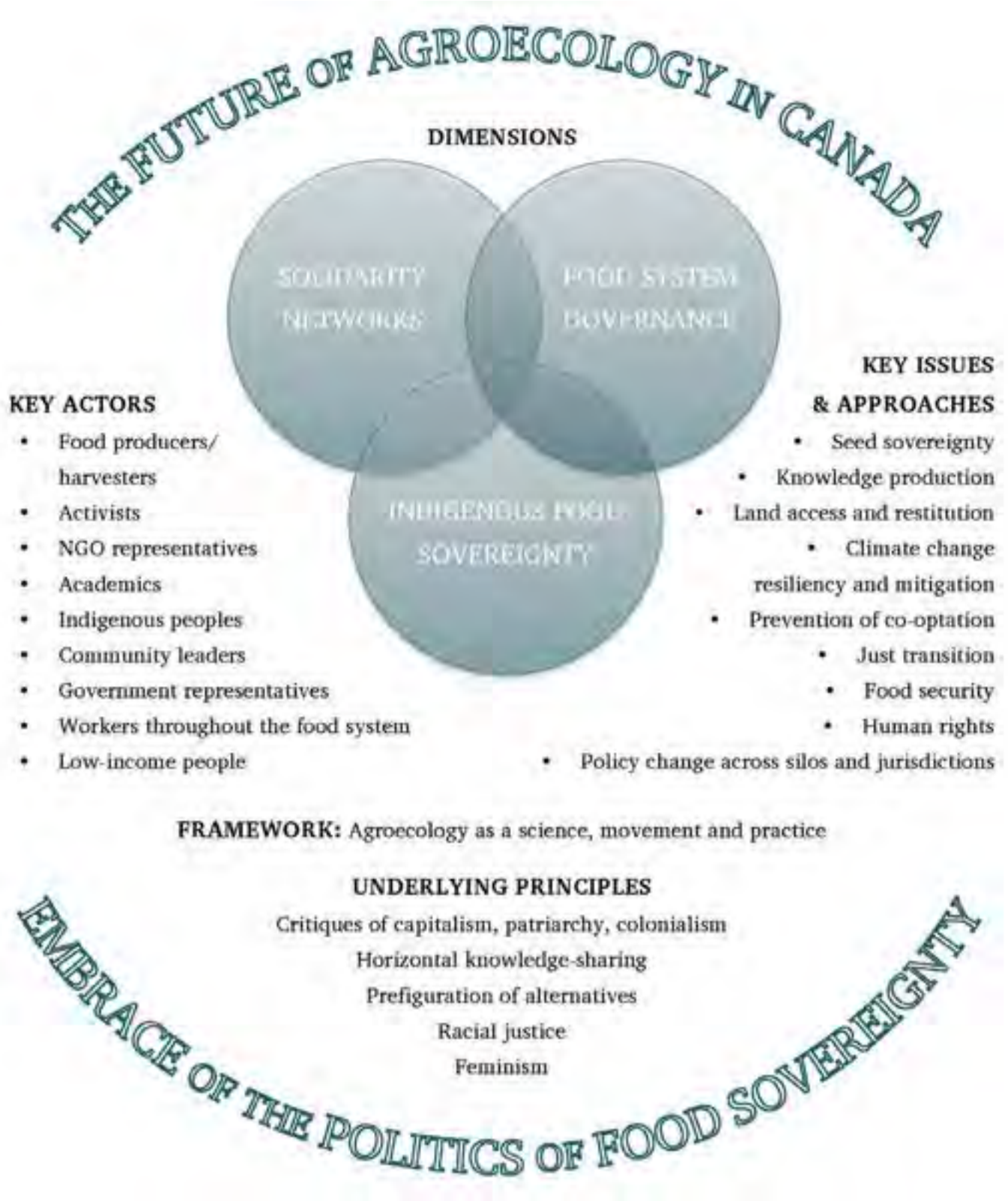

Fig. 6: The future of agroecology in Canada: Embracing the politics of food sovereignty (LaForge, J., Levkoe, C., Dale, B. and Ahmed, F. [2021])

APPENDIX 2: UNIFYING NARRATIVES FOR AGROECOLOGY

These are "ascendent narratives" with the power and potential to transform and reshape food systems in the face of the multiple and overlapping global crises we face: climate change, growing inequality, food insecurity and malnutrition, and biodiversity loss.

- **The interconnectedness narrative**: The interconnectedness of the multiple crises — in their root causes and their systemic solutions — leads us directly to agroecology, regenerative approaches, and Indigenous foodways. It also strengthens the argument that singular technical fixes cannot solve these problems, will distract us from systemic change, and often create further problems.
- **The resilience narrative**: The dynamism and inherent capacity of agroecology, regenerative approaches, and Indigenous foodways to build climate and ecological resilience and to foster biodiversity and sustain ecosystems as a way to withstand multiple shocks to the system by maintaining a diversity of options.
- **The multifunctionality narrative**: The co-benefits of agroecology, regenerative approaches, and Indigenous foodways — societal, ecological, economic, health, well-being. This dynamic and multifunctional system is the "way out of the trap" of multiple global crises.
- **The political narrative**: Agroecology, regenerative approaches, and Indigenous foodways are a political response, and entail a shift in power and paradigm toward a new society. Agroecology, regenerative approaches, and Indigenous foodways are about food sovereignty and democratizing the food system. They are about the rights of peasants; the rights to food, land, waters, and seeds; and the rights of agricultural and food workers. They are also a powerful narrative of self-determination.
- **The engine of innovation narrative**: Lauding the dynamic power of agroecology, regenerative approaches, and Indigenous foodways to generate vital new ideas and systemic solutions that drive community agricultural development, sustainable food systems, and enrich local and national economies. These approaches are constantly adapting to respond to changing socioecological realities.
- **The good food is good health narrative**: The higher quality, taste, and variety of agroecologically grown foods, and their superior organoleptic properties, compared with the harmful human health impacts of chemically grown foods.
- **The hopeful way of life narrative**: Strengthening the narrative of farming as a way of life, and the dimensions of intergenerationality, social solidarity, and food sovereignty (including Indigenous foodways). The narrative of young farmers taking on stewardship of the land and renewing rural communities. This is also a narrative of building a new world with hope.
- **The Indigenous roots narrative**: The intimate connections and roots of agroecology, regenerative approaches, and Indigenous foodways, cosmovisions, and cultures (including pastoral, coastal, and forest peoples, and hunter/gatherer communities). A continuous source for learning to inform a repaired relationship between people and nature.
- **The relationships narrative**: Agroecology, regenerative approaches, and Indigenous foodways are relationship-intensive (as well as knowledge-intensive). Where agroecology, regenerative approaches, and Indigenous foodways are at work, community is engaged, relationships are rekindled, and society flourishes. Relationships bring together growers with eaters, farmers with policymakers, youth with elders, and humans with the land, animals, and nature — in other words, a reconnection with our ontological selves.

(Source: Global Alliance for the Future of Food [2021]. The Politics of Knowledge p. 68)

APPENDIX 3: WHO'S WORKING TOWARDS AGROECOLOGY IN CANADA

Organizations directly supporting agroecology related work (policy, research, practice):

- National Farmers Union
- FLEDGE (Food, Locally Embedded, Globally Engaged)
- Inter Pares
- Food Secure Canada
- Just Food
- Ecological Farmers of Ontario
- Union Paysanne
- SeedChange
- Bauta Family Initiative on Canadian Seed Security
- SUCO
- Development et Paix (Development and Peace)
- Atlantic Canadian Organic Regional Network (ACORN)
- Canadian Organic Growers
- Canadian Organic Trade Association
- Centre paysanne
- Equiterre
- Everdale Environmental Learning Centre
- Farm Folk/City Folk
- Organic Agriculture Centre, Nova Scotia
- Organic Alberta
- Organic Federation of Canada
- Regeneration Canada
- Seeds of Diversity
- ETC Group
- Young Agrarians

For a more detailed list of organic organizations see: https://www.cog.ca/organic-organizations-in-canada/

Canadian Universities and Colleges with Ecological/Organic Agriculture Programs:

While there are several Canadian universities that offer courses and support research related to agroecology and/or organics agriculture in Canada, the only program offered on agroecology is at the University of Manitoba (Bachelor of Science in Agroecology). Quebec has many farmer organizations and research networks on ecological agriculture (https://cetab.bio/liens/). In the US, there are three universities (Vermont, California, Wisconsin) that offer programs with specific curricula and research programs on agroecology).

Sources:

Organic Agriculture Centre of Canada https://www.dal.ca/faculty/agriculture/oacc/en-home/education/university-organic.html (accessed Jan 13) and https://cetab.bio/liens/ (accessed August 2022).

Also see Schreiner, L., Levkoe, C. Z., & Schumilas, T. (2018). Categorizing Practical Training Programs for New Farmers: A North American Scan. Journal of Agriculture, Food Systems, and Community Development, 8(2), 9–17. https://doi.org/10.5304/jafscd.2018.082.012

APPENDIX 4: INTERVIEW GUIDE FOR THE CONVERSATIONS

1. Why is agroecology important to Canada? What is the strongest case for supporting agroecology policies in Canada?
2. What are good examples (best practices) of agroecology in Canada? What are their impacts? Have they affected policy change? Please give examples from science, practice and movement.
3. What are the most supportive Canadian policies—at any level (federal, provincial, territorial, municipal) that can help advance agroecology.
4. What challenges do you see that prohibit more widespread adoption of agroecology? Which policies, practices or other factors constitute the blocks to agroecology? How can these be addressed?
5. Are you aware of cases where policy was successfully shifted to favour agroecology or agroecosystems approaches, anywhere in the world? What lessons can we draw for Canadian policy?
6. Where are there gaps (movements, sectors, issues etc) that agroecology advocates have missed? What are the spaces that AE advocates need to connect with?

photo: Kath Clark/SeedChange