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Growing Sustainably:
Canada's Journey Towards Agroecological Farming

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In an era marked by the pressing challenges of climate change, environmental sustainability and food security, the need for transformative solutions in agriculture has never been more crucial. Canada, with its vast agricultural landscape, is presented with a unique opportunity to adopt the principles of agroecology. This progressive approach to farming harmonizes ecosystems and encourages environmentally and socially beneficial practices, all while enhancing the economic resilience of farming communities. This essay explores the application of agroecology to Canadian investment practices, educational infrastructure, and legislation. Agroecology is a sustainable pathway that addresses some of the most significant challenges faced by Canada's agriculture sector. It is a complex framework that proposes a practical, cultural, political and economic transformation of our food system[1]. Beyond environmental benefits, it promises to produce nutritious agriculture that promotes food sovereignty in Canada. With global concerns over climate change and the need for resilient agricultural practices, agroecology emerges as an imperative solution.

Investment Strategy

To transform the national food system in Canada, governing authorities, investors, farmers and agriculture organizations must reevaluate their investment strategies.
Canada has made several advancements in bioengineered food, gene editing, and precision fertilizer. Last year, Canada invested $42 million towards pesticide advancements[2]. There are claims that Canada is moving towards a sustainable farming investment plan with a proposed $1 billion to support climate-friendly practices; however, there needs to be a clear framework established for how this investment will be allocated[3].

Investment strategies moving forward need to adopt an agroecological lens to establish synergies between the financial and environmental spheres of the farming industry. This means that the entire life cycle from seed to plate is considered. From regenerative agriculture research funding to certification and labelling programs, several value chain points can work synchronously to establish change. The industrial food system takes a *farm-as-a-factory* approach, favouring fast and cheap processing and distribution channels[4]. Farmers have demonstrated their understanding of incorporating new methods of production. However, their

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[1] Soil Association, "What Is Agroecology?," Soil Association, 2023, https://www.soilassociation.org/causes-campaigns/a-ten-year-transition-to-agroecology/what-is-agroecology/#:~:text=Agroecology%20is%20sustainable%20farming%20that,concepts%20and%20principals%20in%20farming.

[2] Government of Canada, "Pest Management Regulatory Agency Annual Report 2021–2022" 10 August 2023 https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/corporate-plans-reports/annual-report-2021-2022.html

[3] Government of Canada, "Agriculture and Agri-Food Canada" 1 April 2022 https://www.canada.ca/en/agriculture-agri-food/news/2022/04/government-of-canada-invests-in-the-adoption-of-sustainable-practices-and-clean-technologies-in-agriculture.html

[4] National Farmers Union, "Agroecology Campaigns," National Farmers Union, 2023, https://www.nfu.ca/campaigns/agroecology/.

efforts are challenged by a competition regime prioritizing greater returns for owners and short-term cost-cutting practices. Professor Anthony Winson outlines the history of forming North American farming systems in his book *The Intimate Commodity*[5]. He highlights how the power has shifted from producers to processing and distribution companies to retailers[6]. Beginning with resource access, Canadian farmers experience some of the most restrictive contracts with little buying power. The four-firm concentration ratio (CR4) represents the market share of the four most prominent companies. Any CR4 over 40% presents a dangerous oligopoly[7]. Farming supplies like seeds, chemicals, and equipment have a CR4 of 52%, 65%, and 45%, respectively[8].

These challenges persist even after the food leaves the farm. The retail market is dominated by a few large grocery chains that limit the contractual power given to producers and set unaffordable price markups for consumers. The CR4 for this segment of the value chain is 69%[9]. Disrupting this system is incredibly difficult because of the lack of resources for small-scale local producers and the financial incentives that do not align with the cost structure of a healthy, resilient farm. This has led to farmers taking on debt to combat their losses from various climate struggles. Canadian farm debt has steadily increased, reaching over $120 billion in 2020[10]. These oligopolies have significantly strained farmers' mental and financial well-being. Canadians can only expect farmers to invest in nutritious, organic agriculture by challenging the competitive landscape of every aspect of the food value chain.

The agroecological philosophy uses a *farm-as-an-ecosystem* lens to establish direct and fair distribution networks, transparent relationships, and community self-governance. It leverages local knowledge and maintains equitable relationships along the food value chain. Leveraging corporations and movements prioritizing a positive transformation is crucial from an investment lens. For example, the Municipality of Wellington and Guelph have partnered in the Our Food Future project to create a circular food economy[11]. In our conversation with members from Wellington County, they explained that the Our Food Future project has exposed the opportunistic landscape of regenerative agriculture. They emphasize the importance of the investor's role in establishing the appropriate infrastructure and relationships these farmers need to expand regenerative agricultural practices. Wellington county has applied the agroecological framework within the municipality, which has led to significant environmental impacts and

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[5] Winson, Anthony. "The Intimate Commodity: Food and the Development of the Agro-Industrial Complex in Canada" University of Toronto Press, 1994.
[6] *IBIT*
[7] Bester, Keldon; Nixon, Andrew "Canadian agriculture cannot become an innovation engine without competition" *Policy Options*, 25 February 2022. https://policyoptions.irpp.org/magazines/february-2022/canadian-agriculture-cannot-become-an-innovation-engine-without-competition/
[8] *IBIT*
[9] *IBIT*
[10] Government of Canada "Agriculture and Agri-Food Canada" December 2021. https://agriculture.canada.ca/en/about-our-department/transparency-and-corporate-reporting/farm-debt-mediation-service-review
[11] https://foodfuture.ca

increased consumer knowledge about the importance of local, nutrient-dense food. Funding small businesses, promoting farmers' markets, establishing local food hubs, and investing in farmer cooperatives are all ways Canada can begin to heal the unjust flaws of the food system.

Innovative Education

An ideal farmer education program is at the heart of fostering sustainable and regenerative agricultural practices in Canada. To educate farmers effectively, the principles of agroecology should incorporate *two-eyed seeing*, respecting indigenous farming practices that have sustained the land for generations. This program must encompass comprehensive and accessible education for farmers, covering essential topics such as agroecology, soil health, crop rotation, sustainable pest management, and regenerative farming practices. Farmers can make informed decisions that reduce their environmental impact and enhance productivity. Innovation and research should be integrated into the program, continually updating farmers on the latest sustainable agricultural techniques and technologies. Collaborations with agricultural research institutions and universities can facilitate this transfer of knowledge. The Canadian government has a role to play in funding such initiatives, building upon the success of programs like The Sustainable Canadian Agricultural Partnership, which strengthens the competitiveness, innovation and resiliency of the agriculture sector.[12]

Creating a network of farmers is another crucial element of the ideal program, allowing them to share experiences. This collaborative environment facilitates horizontal learning and offers a connection between farmers and retailers. Investments from organizations such as Outlaw Ventures can bridge the gap between producers, distributors, and consumers, promoting regenerative agricultural brands. Outlaw Ventures is a family of food system builders, entrepreneurs, investors, and innovators that invest in early-stage food and agriculture businesses with the capacity to provide substantial financial returns while having a positive impact on human and environmental health.[13] Expanding a community education program nationwide can capitalize on this foundation's success. The government can allocate resources, provide financial incentives, and coordinate efforts across provinces to ensure a consistent and effective program. FarmLink, the central platform for this initiative, must adhere to agro-ecological principles, promoting biodiversity, reducing synthetic chemicals, and optimizing resource use.[14]

Regenerative farming practices that enhance soil health, conserve water, and bolster agricultural ecosystems should be a priority. The timeline for scaling the program nationally would involve a phased approach. It can commence with a few pilot projects in different regions to learn from successes and challenges and then gradually expand to cover the entire country

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[12] Government of Canada. "Sustainable Canadian Agricultural Partnership." Language selection - Agriculture and Agri-Food Canada / Sélection de la langue - Agriculture et Agroalimentaire Canada, June 19, 2023. https://agriculture.canada.ca/en/department/initiatives/sustainable-canadian-agricultural-partnership.

[13] Outlaw Ventures, "Thesis," Outlaw Ventures, 2023, https://www.outlaw.ventures/thesis.

[14] FarmLink, "About," FarmLINK, 2023, https://farmlink.net/about.

over several years. The whole supply chain should be integrated into the program, from farmers to consumers. At the same time, local grocery stores can access ethical distributors through a dedicated platform, ensuring consumers have access to sustainable produce. Promoting regenerative relationships in supply chains and emphasizing fair trade and equitable partnerships is crucial for the program's sustainability. Adhering to agroecological principles ensures Canadian agriculture is economically viable and ecologically and socially responsible.

Policy

A pivotal element that needs attention is the role of legislation in shaping the future of sustainable farming practices. Canada can implement carbon policies and provide tax breaks to incentivize sustainable farming practices. Such policies can include carbon pricing mechanisms, emissions caps, and initiatives that reward carbon sequestration through agroecological practices. Tax incentives for farmers who adopt these practices can boost the agricultural sector and promote agroecology principles, where reducing synthetic inputs is central to the approach. In the context of grocery stores, the integration of agroecological products can be introduced. Labels with organic certifications would allow consumers to make informed choices that align with agroecological values.

Furthermore, government funding from Agriculture Canada can be pivotal in advancing agroecology. These funds can enable farmers to transition to agroecological methods that reduce synthetic inputs and enhance soil health, contributing to a healthier environment and safer food production. Many government programs are in place to incentivize farmers to create and utilize more sustainable options. AgriStability protects Canadian producers against significant declines in farming income for reasons such as production loss, increased costs and market conditions.[15] This financial protection offer for farmers reduces the financial risks associated with the transition to regenerative agriculture, making it a more attractive option. Additionally, The Advanced Payments Program is a federal loan guarantee program offered by the Canadian government that provides agricultural producers with easy access to low-cash advances, which may be used to help sell agricultural products based on market conditions rather than the need for cash, making it a beneficial tool for starting the regenerative agriculture journey.[16] Political movements such as carbon policies, tax breaks, regulated labelling, and government funding are vital components of this transition. Embracing agroecology in these ways aligns with environmental and social sustainability and fosters a resilient agricultural sector that benefits both farmers and consumers.

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[15] Government of Canada, “AgriStability,” Language selection - Agriculture and Agri-Food Canada / Sélection de la langue - Agriculture et Agroalimentaire Canada, September 25, 2023, https://agriculture.canada.ca/en/programs/agristability.

[16] Government of Canada, “Advance Payments Program,” Language selection - Agriculture and Agri-Food Canada / Sélection de la langue - Agriculture et Agroalimentaire Canada, May 10, 2023, https://agriculture.canada.ca/en/programs/advance-payments.

Impact

Applying the agroecology framework to Canada's future investment plans will generate significant short and long-term benefits for citizens and the planet.

Engaging in supplier relationships and disrupting the current oligopoly can reduce the input costs that burden farmers and help alleviate debt. As well, these synergistic local relationships will eliminate markups from middle-men distributors. Consumers can purchase local, nutritious food at a price much closer to what it is being sold for at the production level.

The social benefits, however, extend past the increased affordability for both eaters and farmers. With agroecology farming practices, biodiversity increases, and the healthier soil encourages plants to absorb more nutrients. These practices have been shown to increase the magnesium, calcium, potassium and zinc in crops[17]. Agroecological farming can significantly increase produce's B1, B12, C, E and K vitamins. But the impact of these nutrients not only serves Canadians' health but has been proven to harvest food with extended expiry dates[18].

These vitamins and nutrients have been shown to extend the life cycle of food and vegetables, which can significantly reduce food waste. Preventing food waste has become a high priority for tackling climate change due to its high secretion of methane into the environment[19]. Additionally, the sustainable farming practices incorporated with agroecology can increase carbon sequestration, eliminate pesticide dependence, reduce water usage, and create higher crop yields per land acre.

Considerations

One significant risk is the resistance to change within the existing agricultural industry, which is heavily reliant on synthetic inputs.[20] Mitigation measures for this challenge involve targeting farmer education programs that provide support and training in transitioning to agroecological methods. Additionally, the government can offer financial incentives to encourage farmers to embrace these sustainable practices. Another risk is the potential economic impact on farmers, who may initially reduce yields during the transition period. To mitigate this, targeted government funding and support can be provided to ensure farmers are not adversely

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17 https://www.foodnavigator.com/Article/2022/03/18/Study-reveals-nutritional-benefits-of-regenerative-agriculture-crops#:~:text=The%20food%20grown%20under%20regenerative,inflammation%20and%20boost%20human%20health.

18 *Ibit*

19 https://www.worldwildlife.org/stories/fight-climate-change-by-preventing-food-waste#:~:text=When%20we%20waste%20food%2C%20we,more%20potent%20than%20carbon%20dioxide.

20 National Forage Information System, "Discuss Advantages and Disadvantages in Using Synthetic Agrichemicals in Forage Production," Forage Information System, January 6, 2016, https://forages.oregonstate.edu/nfgc/eo/onlineforagecurriculum/instructormaterials/availabletopics/environmentalissues/agrichemicals.

affected by the shift. This includes subsidies, grants for agroecological practices, and insurance mechanisms to safeguard against potential financial losses. Legislation to promote agroecology might also face opposition from powerful agricultural lobbies. To counter this, the government can engage in comprehensive stakeholder consultations to address concerns and demonstrate the long-term benefits of agroecological practices. Ultimately, a carefully planned and collaborative approach can effectively mitigate the potential risks and challenges associated with transitioning Canada towards agroecological farming practices.

In conclusion, the implementation of agroecology in Canada requires a multidimensional approach. Investments in research and legislative movements are necessary to lay the foundation for agroecological farming practices. By drawing inspiration from successful initiatives in countries like Brazil and France, Canada can adapt and develop politics tailored to its unique agroecological landscape. Through research investments, farmer education programs, and advocacy partnerships, Canada can set in motion the transformative journey toward agroecology. It is a pathway that resolves critical challenges and delivers affordable, nutritious food harmoniously with the planet.