

EXECUTIVE
SUMMARY

ADVANCING REGENERATIVE AGRICULTURE IN CANADA:

Barriers, Enablers, and Recommendations

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Executive Summary

Agriculture plays a vital role in the Canadian economy, contributing over CAD 143.8 billion annually to the country's gross domestic product (Agriculture and Agri-Food Canada 2023a).¹ The most recent Agriculture and Agri-Food Canada (AAFC) survey on Agriculture Strategic issues shows that producers are primarily concerned with the rising costs of production inputs, climate change and its impacts, and labour shortages in farming (Agriculture and Agri-Food Canada 2022a).

Environmental concerns are growing, particularly in agriculture, which relies heavily on the natural environment. Farmers face pressure to produce sustainable products, lower carbon emissions, and engage in ecosystem regeneration rather than degradation or merely conservation. Regenerative agriculture emerges as a solution for sustainable land development.

A systems shift is needed to advance regenerative agriculture to respond to the sector's ecological crises, develop more resilient landscapes, and improve the industry's long-term sustainability. These goals span beyond carbon targets, requiring a shift in agricultural production mindsets and practices. This requires the support of actors, including farmers, business leaders, investors, politicians, and municipal planners. This report takes a systems perspective, identifying the critical actors in the system and the barriers and enablers to the regenerative agriculture transition. It advocates for developing financial infrastructure to incent and support the transition toward sustainable farming.

The scope of this report extends beyond the land management practices required of farmers to transition to regenerative agriculture, taking instead a systems approach to capture the perspectives of diverse agricultural players in their interactions and relationships with land. Each section focuses on critical actors and activities in the system, from land acquisition and planning to downstream food consumption. Woven throughout the report is a focus on the financial infrastructure needed to advance regenerative agriculture.

THE NEED FOR REGENERATIVE AGRICULTURE

Forces such as a growing population, demand for crop-related products, and increased exportation required industrial techniques for agricultural production. The

industrialization of farming enabled higher production but, over time, resulted in ecosystem degradation and a decline in productivity. To ensure the needs of the present are not met at the expense of future generations, regenerative agriculture has emerged as a solution. Regenerative agriculture's overarching principle is farming in a way that seeks to enhance ecosystems. This can include a multitude of practices, based on local landscapes. A regenerative model creates value through ecosystem regeneration, which leverages nature's goods and services to support agricultural production.

HOW THE REGENERATION OF ECOSYSTEMS SUPPORTS FARMING

Farming requires an understanding and cultivation of natural ecosystem functions on the land. Water, biodiversity, and soil are interconnected aspects of nature that impact farming. Regenerative agriculture, which enhances ecosystem health, seeks to support these natural processes. Biodiversity (including soil microorganism, crop, and land biodiversity) supports crop pollination, produces healthy soil, purifies water, prevents erosion, provides resilience in extreme weather events, and contributes to other ecosystem services (Pilling and Bélanger 2019; Moyer et al. 2020).

Prioritizing soil health has long been considered a farming best practice; farmers who improve soil benefit from reduced fertilizer, pesticide, and irrigation costs (Anderson and Gough 2021; Ministry of Agriculture, Food and Rural Affairs 2018). Healthy soil helps with water retention and carbon capture, critical inputs in farming. Industrial agriculture practices can disrupt natural flows, reducing biodiversity, water, and soil health.

Investing in regenerative practices that restore the ecosystem's health creates value through mechanisms like carbon sequestration, risk management and developing resilience on the land, food security and subsistence, reducing costs of inputs, sustaining yields, achieving science-based targets, and increasing farmland valuation.

¹ All currency figures will be represented as CAD (Canadian Dollar), EUR (Euro), or USD (U.S. Dollar).

Despite the value created by regenerative agriculture, many barriers and enablers in the system require attention if we want to shift the agriculture system toward sustainable development.

FROM A FARMER'S PERSPECTIVE²

A farmer's economic livelihood depends on the land's ability to produce. Thus, many farmers consider their role as stewards of the land both in terms of their identity and as a best management practice. However, agricultural production's current business models do not adequately compensate farmers for investment in the long-term health of their land. An essential challenge farmers face is the high costs of transitioning farming practices. It may take several years until farmers see results. Land ownership challenges further disrupt farmer willingness to invest in long-term outcomes on their land. Almost half of farmers rent the land they farm, making multi-year investments in soil health and ecosystems risky. There are mixed incentives depending on land tenure, which can delay investments that improve soil health. Farmers also cannot guarantee the regenerative practices of neighbours, which affects the results the farmer would see on a particular parcel. A business case around the transition to regenerative agriculture must make sense to justify farmers adopting new practices.

Financial incentives are needed to bridge the transition, overcome lagging incentives, and stabilize the economic livelihood of risk-averse farmers in the transition to regenerative practices. Farmers rely on their communities for education and support for on-farm practices. Farmers also need communities to rally support around regenerative practices and knowledge sharing.

THE NEED FOR A JUST TRANSITION

As the agriculture industry shifts to a more regenerative model, it must do so through a just transition. Sustainable development in the agricultural system is more than environmental regeneration; it also includes the social considerations of honouring cultural traditions and ensuring equitable access to land and food production. The transition to a regenerative agriculture system must honour the traditions of Indigenous communities that have long used regenerative practices. It also involves the inclusion of Black, Indigenous, and People of Colour (BIPOC) communities in food subsistence and considers the importance of the

migrant worker community. The report shows that multiple perspectives of systems actors must be considered, including those often silenced.

FROM A DOWNSTREAM INDUSTRY PERSPECTIVE

The government, downstream food companies, and consumers are all interested in regenerative agriculture. For the Canadian Government, advancing a regenerative agriculture transition supports achieving environmental and climate targets, including biodiversity, by protecting, at minimum, 30 per cent of lands and waters (Conference of the Parties to the Convention on Biological Diversity 2022). The federal government has funded collaborations with scientists and practitioners to demonstrate the effectiveness of regenerative agriculture.

Downstream food companies have significantly shifted toward sustainability targets and climate change, including science-based targets. They are increasingly looking across the value chain to see how to reduce their environmental impact. Despite significant global companies' pledges, there are variable levels of reporting quality regarding outcomes at the farm, landscape, and global levels (Ewer et al. 2023). A sustainable finance taxonomy for regenerative agriculture could advance downstream activity and direct financial flows toward sustainable farming practices.

Consumers create demand for sustainably sourced and produced products at the end of the value chain. Some consumers are willing to pay a premium for food produced using regenerative agriculture practices (Saba 2021; Montgomery et al. 2022). However, farmers rarely receive this premium from wholesale or retail products. Additionally, not all consumers can afford the price premium of regeneratively grown food. The rising food costs have exacerbated this in recent years, and consumers are cutting grocery expenses (Ferreira 2023; Krashinsky Robertson 2023). Crop production also channels into animal feed and fuel markets, making the link to sustainable consumption less direct for consumers.

Actors such as financiers and insurers are interested in regenerative agriculture from a risk perspective. Threats posed by droughts, floods, pests, and disease in the agriculture sector are risky for financial institutions and insurers; the ecological crises of climate change and biodiversity loss exacerbate these risks. These downstream actors place demands on farmers for the transition to regenerative agriculture. It is in insurers and financiers' interests for farmers to practice more regenerative

² In this report, when we refer to farmers, we also intend to include ranchers' perspectives in efforts to capture the broader category of producers.



PHOTO: Hill and field on the Oak Ridges Moraine in Ontario, Canada in 2007, Rick Harris

agriculture. However, those downstream actors rarely support pricing regenerative practices and other required investments.

FROM A LAND PLANNING PERSPECTIVE

A regenerative agriculture system starts with the land. Land planning and acquisition practices affect producers and can act as barriers or enablers to incenting regenerative practices. The timing of public policy to protect agriculture is crucial. Urban sprawl and increased fragmentation have pressured farmland to industrialize production. The proximity of farming to urban centres is crucial for food security and beneficial for specialty crops due to their proximity to markets (Wu, Fisher, and Pascual 2011). However, this is where farmers experience the highest competition for land use. Protecting farmland also requires the proximity of a range of support services, including large-animal veterinarians and equipment retailers (Akimowicz, Cummings, and Landman 2016) Thus, planners in rural municipalities have a pivotal role to play; urban sprawl-friendly legislative and regulatory changes accelerate land fragmentation and threaten regenerative production. To support a system of regenerative practices, land planning should resist the disappearance of farmland, tighten local supply chains, and create communities of practice.

FROM A FINANCING PERSPECTIVE

The government has a history of concessional financing and financially supporting the agriculture industry due to the variability of supply and demand at harvest time and the misaligned timing of harvest revenue and capital expenditures required for farming. In the face of a growing population, projected labour shortages in the agricultural sector (RBC 2023) and growing concerns

over climate change, more investment is needed in the agriculture industry to mitigate and adapt (Huang and Wang 2014). Investing in nature-based solutions, such as regenerative agriculture and natural infrastructure, provides an opportunity to restore ecosystems and enhance the resiliency of the landscape. Current financial flows into nature fall short of where they need to be to achieve biodiversity, climate, and land restoration targets. More private capital is required to address the nature-funding gap (Rally Assets and Nature Conservancy of Canada 2020).

Several barriers make investing in the regeneration of ecosystems different than investing in typical agriculture structures. These include challenges with financing at scale, integrating ecosystem goods and services into current financial frameworks, the long-time horizons of nature-based solutions, and the need for existing reporting.

By taking the perspective of various actors across the system, the report demonstrates that shifting to regenerative agriculture is more than just a financing challenge; it requires various other conditions for success, involving the whole value chain. These include developing a standard definition of regenerative agriculture, creating a culture surrounding regenerative practices, convening actors to create communities of practice, and considering structures' implications, including land ownership and zoning and its influence over long-term land use.

There are a variety of different financial instruments available that currently seek to support the financing of regenerative agriculture. Financial tools like crop insurance, payments for ecosystem services, green bonds, blended finance, and impact bonds can be used to support the transition. The report calls for the improvement of financial infrastructure to support regenerative agriculture. It argues that the financial

infrastructure needs to consider various perspectives across the system to unlock barriers to supporting regenerative agriculture. It goes beyond current financing challenges and considers social and environmental conditions for success.

KEY IMPLICATIONS FROM THE REPORT:

Recommendation 1: Clarify ‘regenerative agriculture’ and its role in supporting current farming practices.

The term regenerative agriculture’s recent popularity has led to confusion over its meaning. It is often conflated with other terms, such as organic and sustainable farming. Many are challenged to develop a standard definition and set list of practices. In this report, we have defined regenerative agriculture according to its core farming principles, which seek to enhance ecosystems. However, there are many examples of “regenerative” practices and principles that are encapsulated in other approaches (e.g., conventional farming or organic farming). In other words, there are multiple paths to farming in ways that also maintain the health of surrounding ecosystems. In this report, we do not intend to give a standard definition, but rather view regenerative agriculture as a systemic paradigm-shift to how nature is viewed and valued in production. It is our hope to rid the term “regeneration” of its connotation as an antonym to productivity and, instead, as a channel to leverage natural ecosystem services to support production.

Recommendation 2: Account for the value of nature in agricultural production to create markets and translate ecosystem services into financial value.

The value created from adopting regenerative practices can be realized through cost reduction, sustained yields, food security, resilience and risk management, and land valuation. However, this value is too rarely translated into current land or agricultural production accounting models. There is a need to develop instruments that value biodiversity to attract investment toward nature-based solutions. Current economics make implementing and scaling regenerative agriculture difficult. Decision-making tools in organizations are not equipped to handle systems-level challenges. We need to be more provocative than ethical consideration of biodiversity impacts in current investments, and instead integrate externalities into investment decisions.

Recommendation 3: Develop an inclusive financial infrastructure in cooperation with the various actors along the value chain.

Infrastructure advancements are needed to redistribute the risk, overcome time horizon challenges, and support regenerative agriculture. Although more offerings of current models are required, the report encourages actors to think innovatively, developing hybrid approaches and going beyond the limitations of current offerings. The financial infrastructure must go beyond considering the economic issues and include instruments that remove other barriers identified in the report in tandem with the financial obstacles to develop a systemic response to farmers’ challenges.

Recommendation 4: The need for a just transition. Empowering other ways of knowing and doing.

As the agriculture industry shifts to a more regenerative model, it must do so through a just transition. This includes the perspectives of those often silenced in the agriculture systems, including BIPOC communities, migrant workers, Indigenous farming methods, and the land itself. Only through allyship and recognition of an inherited colonial structure can we build an empowering and just food system that addresses issues of food security, food sovereignty, and cultural revitalization.

Recommendation 5: The need for systems-level solutions to create a systems shift. Engaging a variety of actors through small actions to make significant change happen.

This report considers the viewpoints of various actors within the system. Multiple actors have different levels of agency and influence in the system. Small changes from a variety of actors in the system can contribute to an overall systems transformation. We call for actors in public policy, planning, financial services, and the agricultural industry to help make change happen.

This includes the need for the involvement of both private and public actors. More involvement of private actors, including financiers and food companies, is required to address the nature-funding gap and enhance ecosystems for resilience in the face of ecological crises and related consequences.

Our recommendations go beyond the financial solutions required to support regenerative agriculture and call for other considerations, like communities of practice, co-benefits, and opportunities to shift the business models around regenerative agriculture to value the role of nature (including biodiversity, water, and soil health) in agricultural production.

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