



Regenerative Agriculture in Canada

*And Why it is Important to a
Wildlife Conservation
Organization*



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- 6.2% of Canada's land mass;
- 622, 002 km² reported in 2021 Census of Agriculture
- 189,874 farms; 327 ha/farm average



Snapshot of Agriculture in Canada

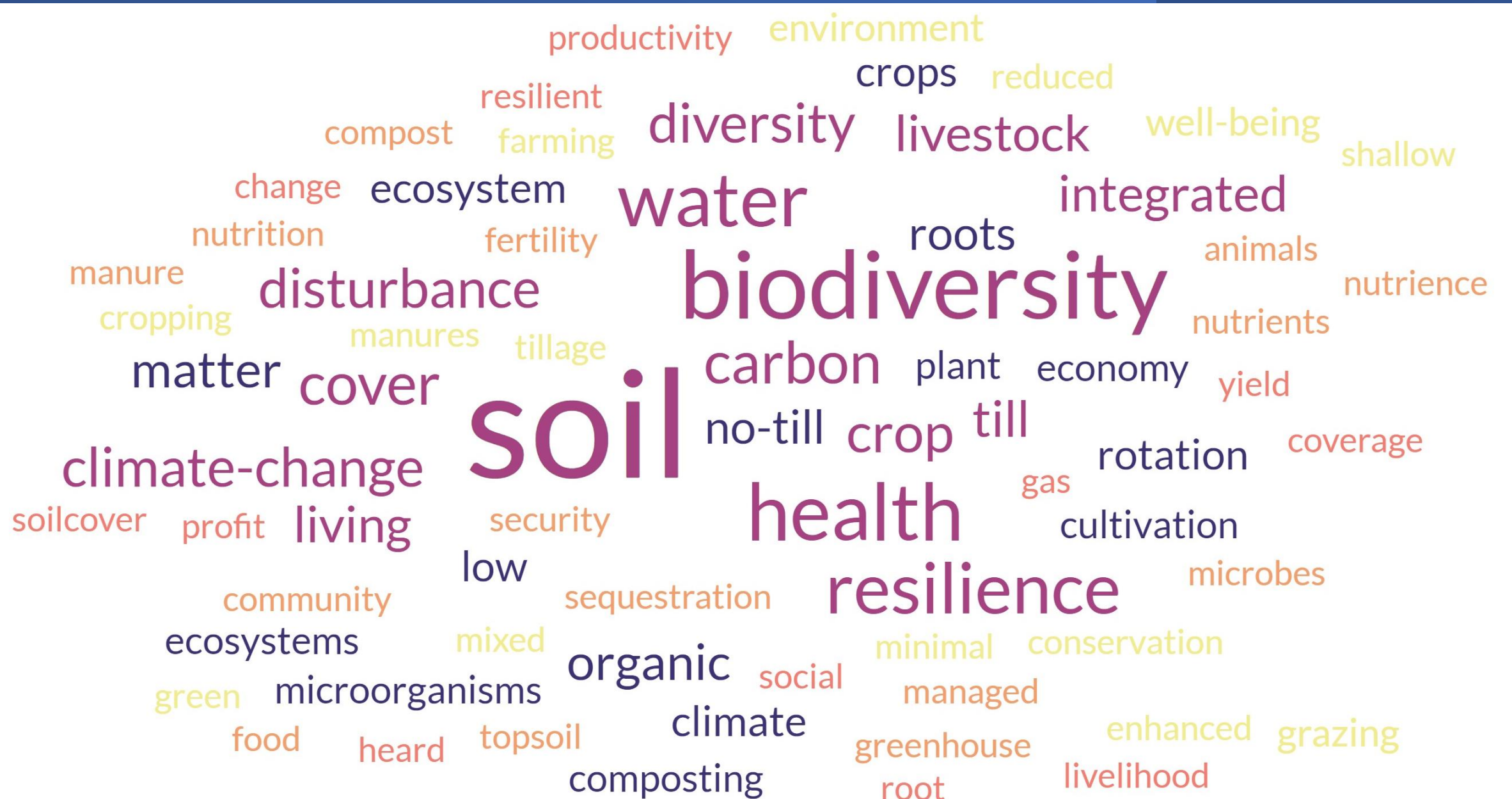
- Agriculture and Agri-food sector employs 2.3 M people (1 in 9 jobs)
- 7.0% of GDP
- Canada is the 5th largest exporter of agri-food and seafood in the world.
- Agriculture and agri-food is the sector with the highest economic growth potential in Canada
- Source: Statistics Canada 2022

Stewards of Natural Habitat



What *is* Regenerative Agriculture?





“Regenerative agriculture is an approach to farming aimed to conserve and restore soil health as a means of contributing multiple supporting services to agricultural lands extending beyond the environmental but also the social and economic dimensions of sustainable food production”
(Schreefel et al., 2020)



The 5 Principles of Regenerative Agriculture



Why Encourage Regenerative Agriculture?



To improving
resilience of land to
impacts of climate
change



To increase soil
carbon sequestration



To improve
productivity without
increasing agricultural
land footprint



To address the dual
crises of climate
change and
biodiversity loss



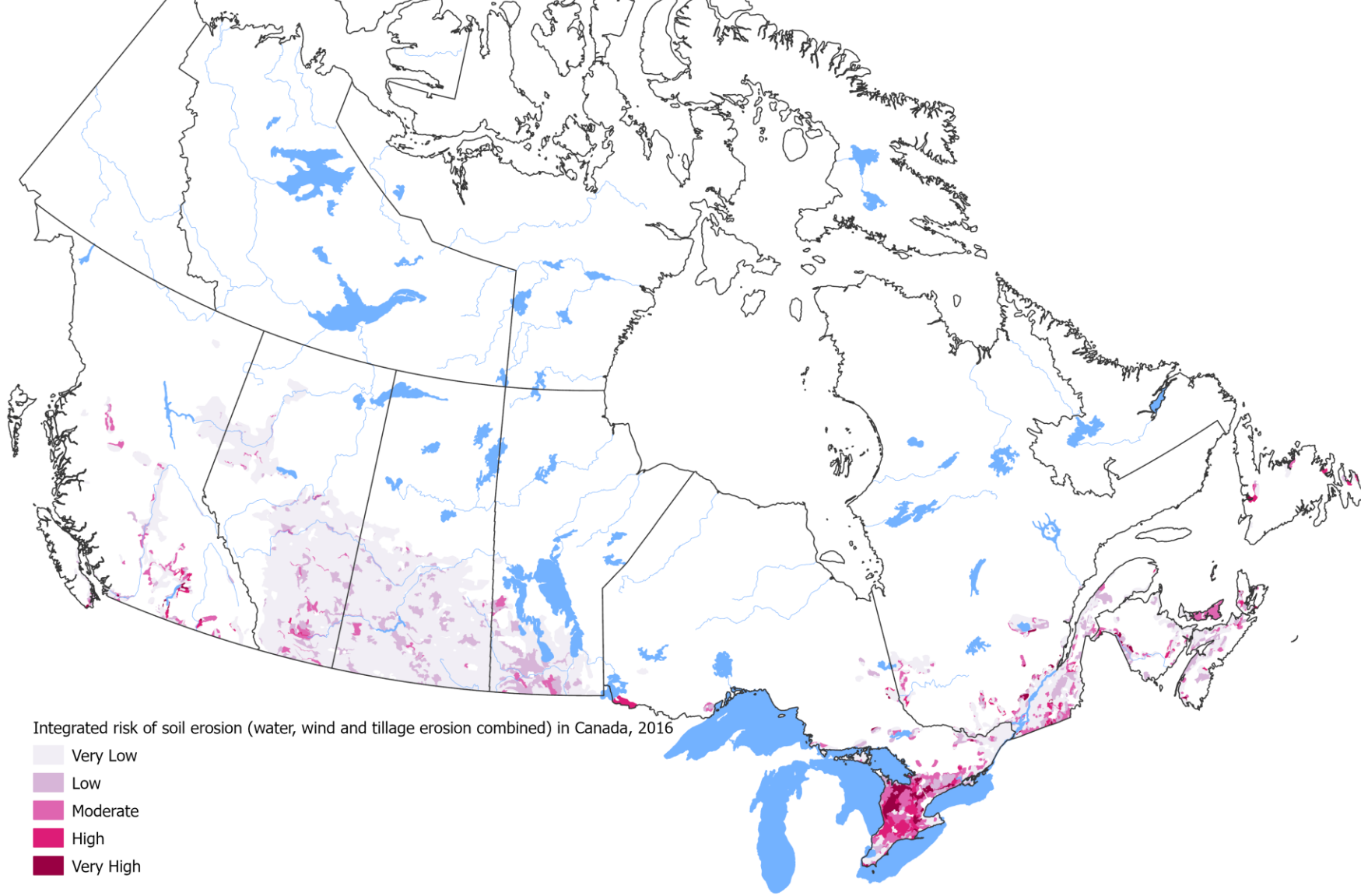
To improving the
financial health of
farmers



To address consumer
concerns about
environmentally
unsustainable food
production



What are indicators that Canadian farmland would benefit from Regenerative Agriculture?



Source: Agriculture and Agri-Food Canada

Figure 1: Soil organic carbon change (in kilograms per hectare, per year) in Canada in 2016

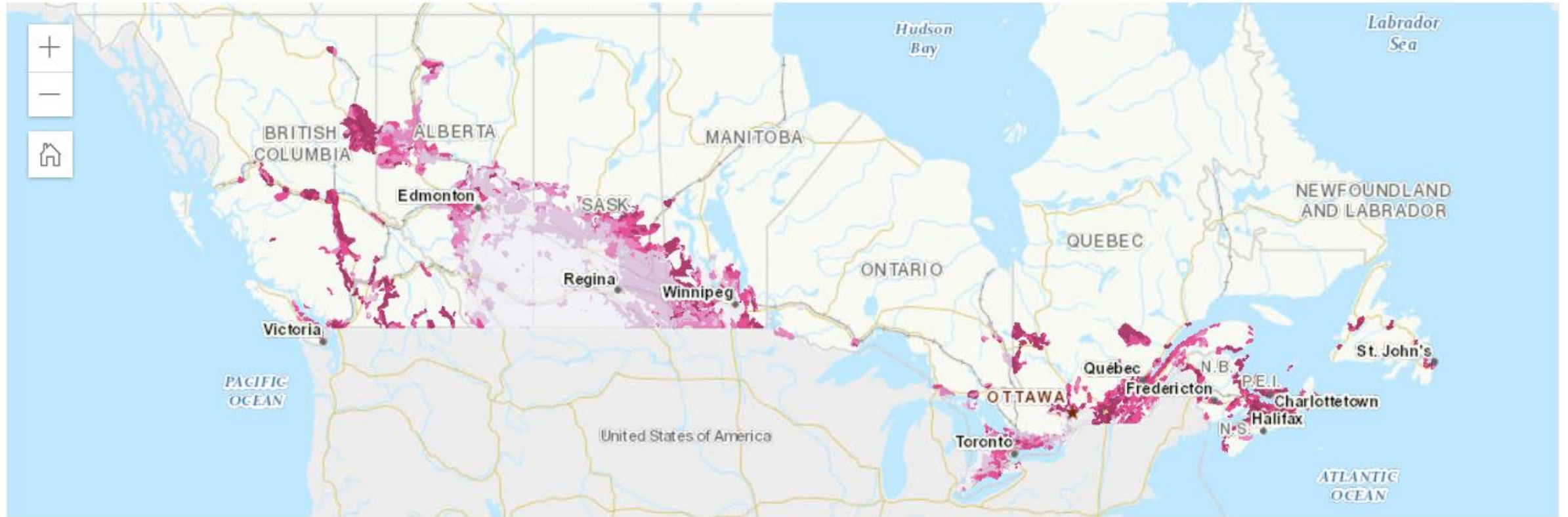


Legend:



Source: Agriculture and Agri-Food Canada

Figure 2: Risk of contamination of surface water by nitrogen in Canada in 2016



Legend:



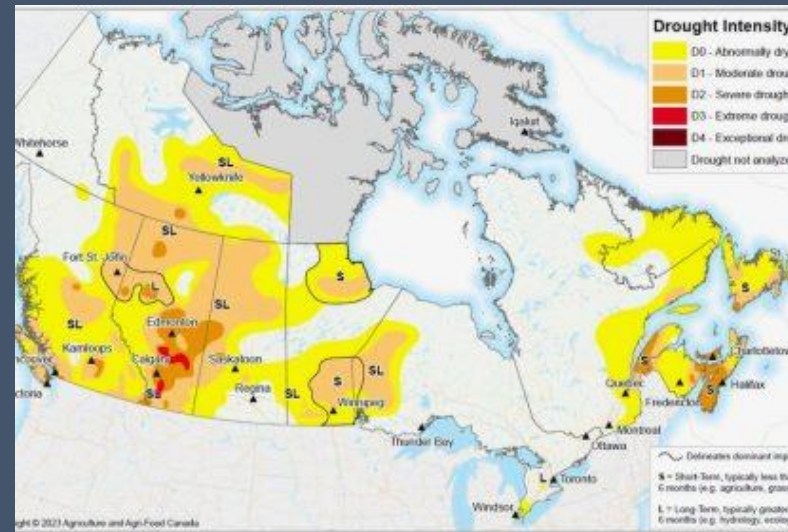
British Columbia

Flood damage could cost farmers hundreds of millions of dollars, B.C. Agriculture Council says



Saskatchewan

Prairie farmers struggle as drought set to become among worst in Canadian history



Government Programs

Sustainable Canadian Agriculture Partnership (SCAP)	Federal-Provincial-Territorial cost-shared on-farm programs delivered by PTs (\$500M 2022-27)	Resilient Agricultural Landscapes Program (RALP) to help producers conserve and enhance the resiliency of agricultural landscapes.
Agricultural Climate Solutions	On-Farm Climate Action Fund (\$684.1M, 2021-28)	Aims to support farmers in adopting BMPs, currently in three areas: nitrogen management, cover cropping, and rotational grazing.
Agricultural Climate Solutions	Living Labs (\$185M, 2021-31)	Aims to support the co-development and testing of BMPs on working farms through the establishment of a network of living labs across Canada.

Ontario Living Labs



Perennial Pasture Rotation

CORN **SOYBEANS** **WINTER WHEAT** **PASTURE MIX** **CORN**

Spring Year 1 Spring Year 2 Spring Year 3 Spring Year 4 Spring Year 5 Spring Year 6 Spring Year 7

Plant corn into strip till No-till soybeans into corn stalks Harvest beans and plant winter wheat into bean stubble Plant pasture into wheat stubble Rotationally graze with rest periods Fall strip till Plant corn into strip till

Perennial Covercrop

Soybeans winter wheat Corn

Three - year rotation with four crops

CORN SOYBEANS WINTER WHEAT BUCKWHEAT

Spring Summer Fall Winter Spring Summer Fall Winter Spring Summer Fall Winter

Plant corn in 20' rows into residue Harvest and leave corn stalks No-till soybeans into corn stalks Harvest beans and plant winter wheat into bean stubble Harvest wheat and plant buckwheat Harvest buckwheat and leave residue

Partners: Innovative Farmers Association of Ontario, Ecological Farmers Association of Ontario, Ontario Soil Network, Essex Region, Lower Thames, and Upper Thames Conservation Authorities, Canadian Wildlife Federation, scientists and researchers from AAFC, Environment and Climate Change Canada, and universities.

Coordinator: Ontario Soil Crop Improvement Association. Funder: AAFC and Partners

Marginal Land

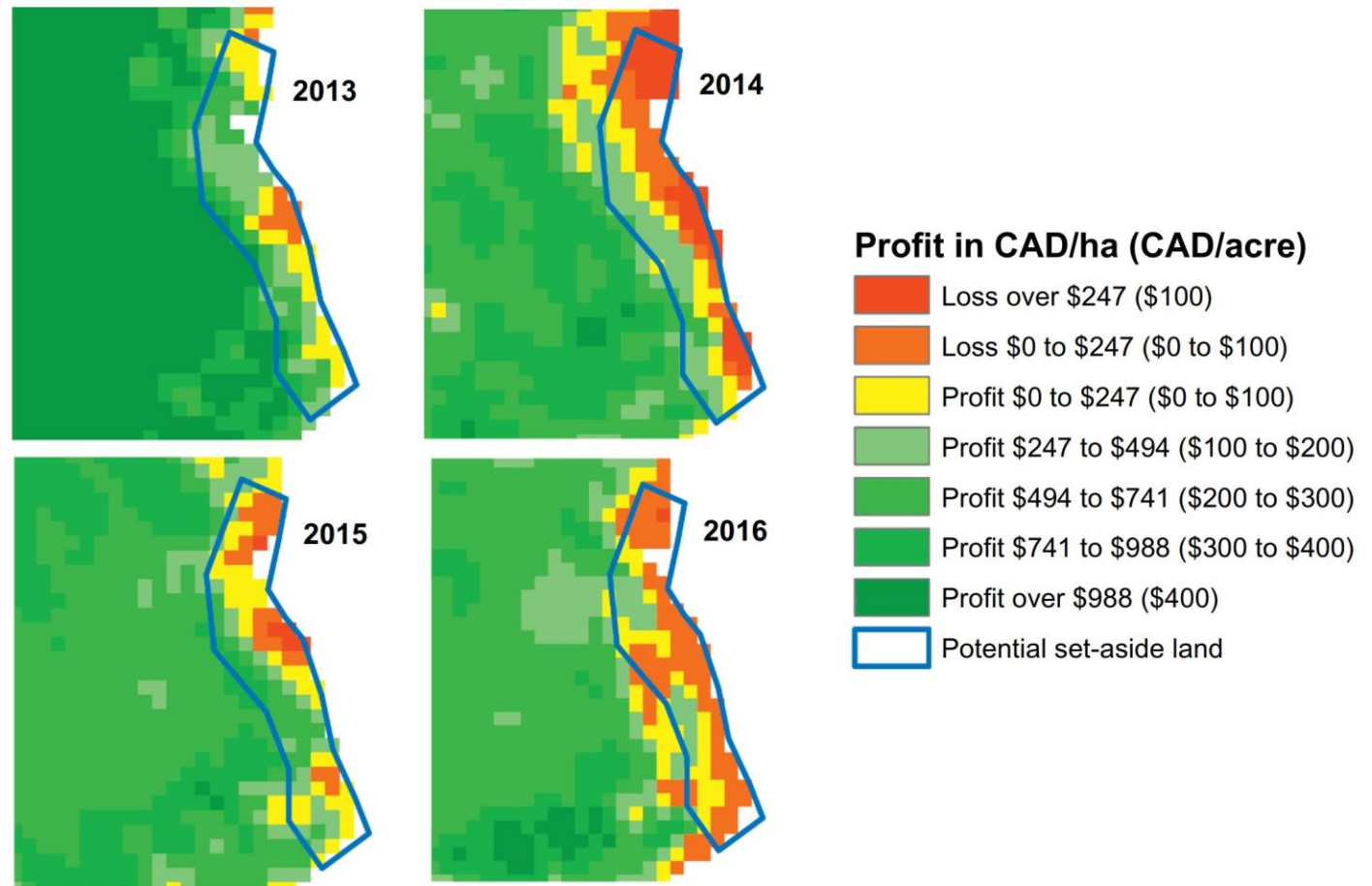
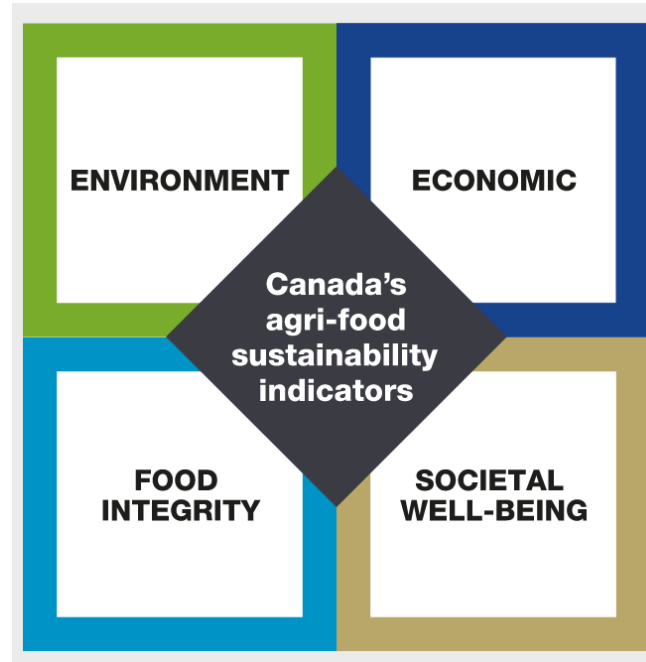


Fig. 4. Spatial distribution of profit in the potential set-aside land identified in Farm A.

National Index on Agri-Food Performance



Partners



Private Initiatives in the Supply Chain

2022: McDonald's Canada and McCain Foods Limited investing \$1M in education, demonstration, and cost-sharing grants to support potato farmer **adoption of regenerative practices** and technology.

2022: General Mills invests \$2.3 million to **advance regenerative agriculture** in Canada with ALUS

2022 Maple Leaf Foods and Nutrien: supported 100,000 acres of crops harvested with **regenerative agriculture practices** (no till and 4R)

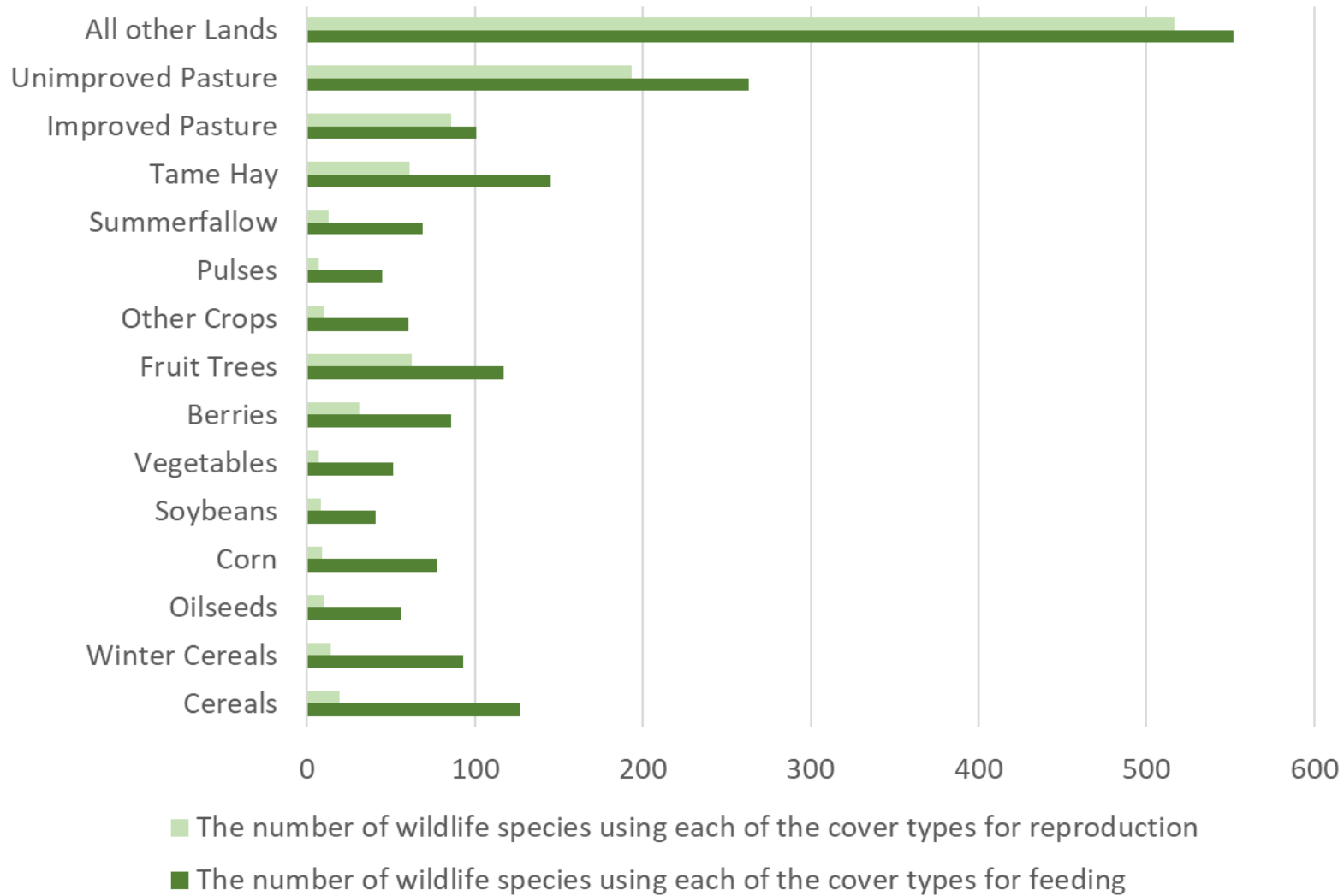
2021 Cargill: Advance regenerative agriculture practices across 10 million acres of North American farmland by 2030; Provide training on sustainable agriculture practices and improve access to markets for 10 million farmers by 2030

Danone: North American **Regenerative Agriculture Program** in partnership with Equiterre on more than 140,000 acres across the U.S. and Canada



Why is Regenerative Agriculture
important to the Canadian
Wildlife Federation?

The number of wildlife species using each of the cover types for breeding and feeding on agricultural land in Canada



Source: Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report #4

Species at Risk on farmlands in Canada

- 513 species with digitized ranges
- Schedule 1 SAR and COSEWIC listed
- 462 occur within agricultural extent (90%)

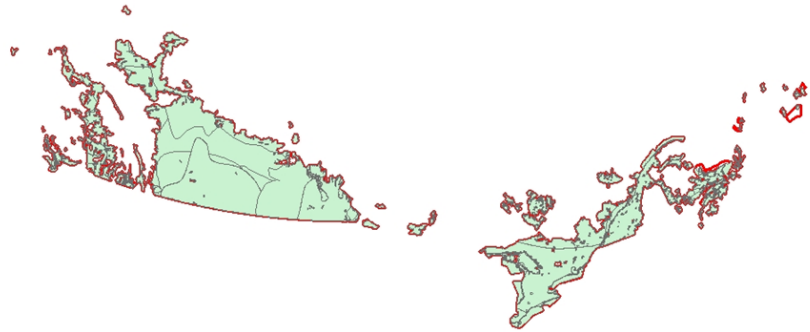
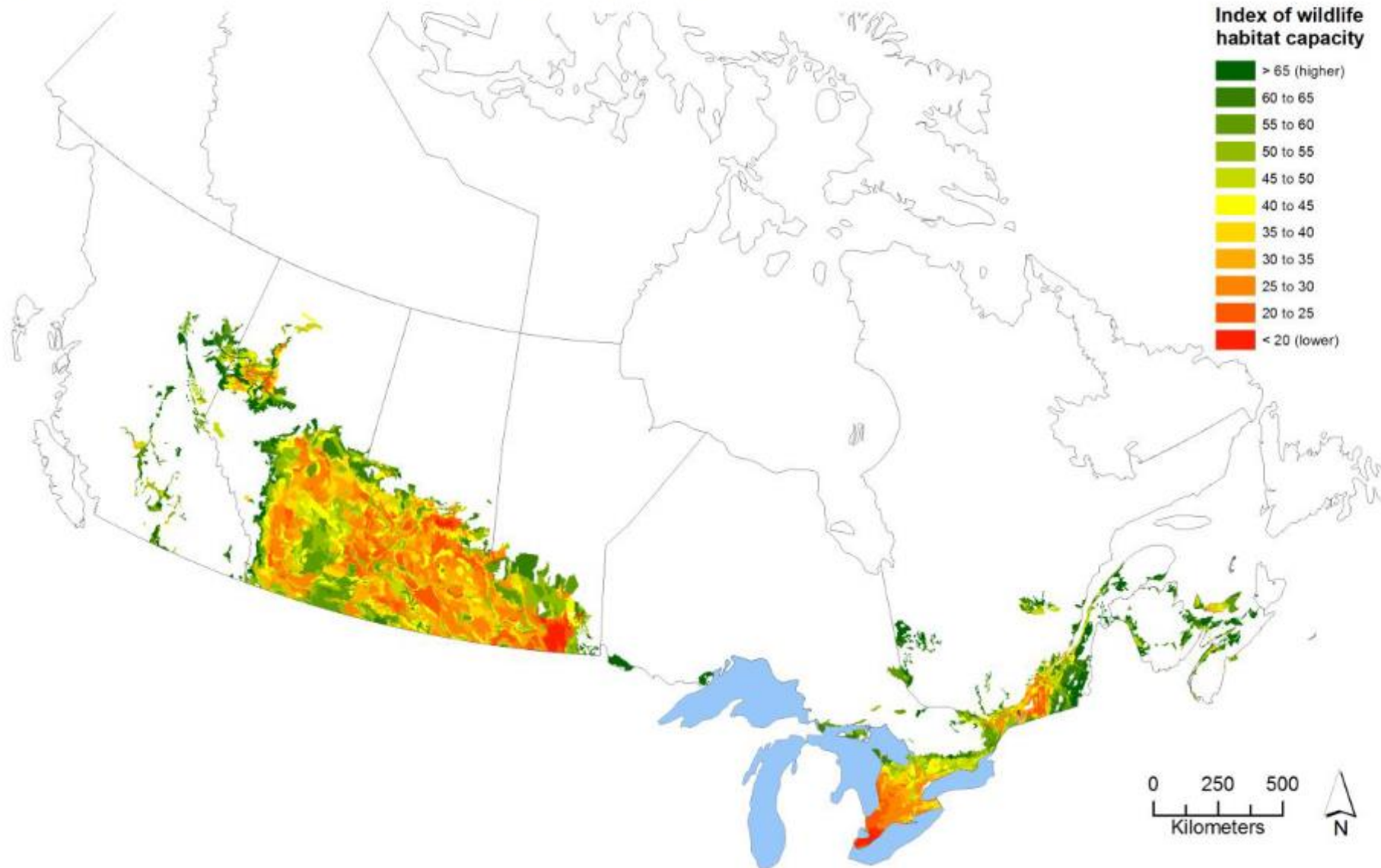
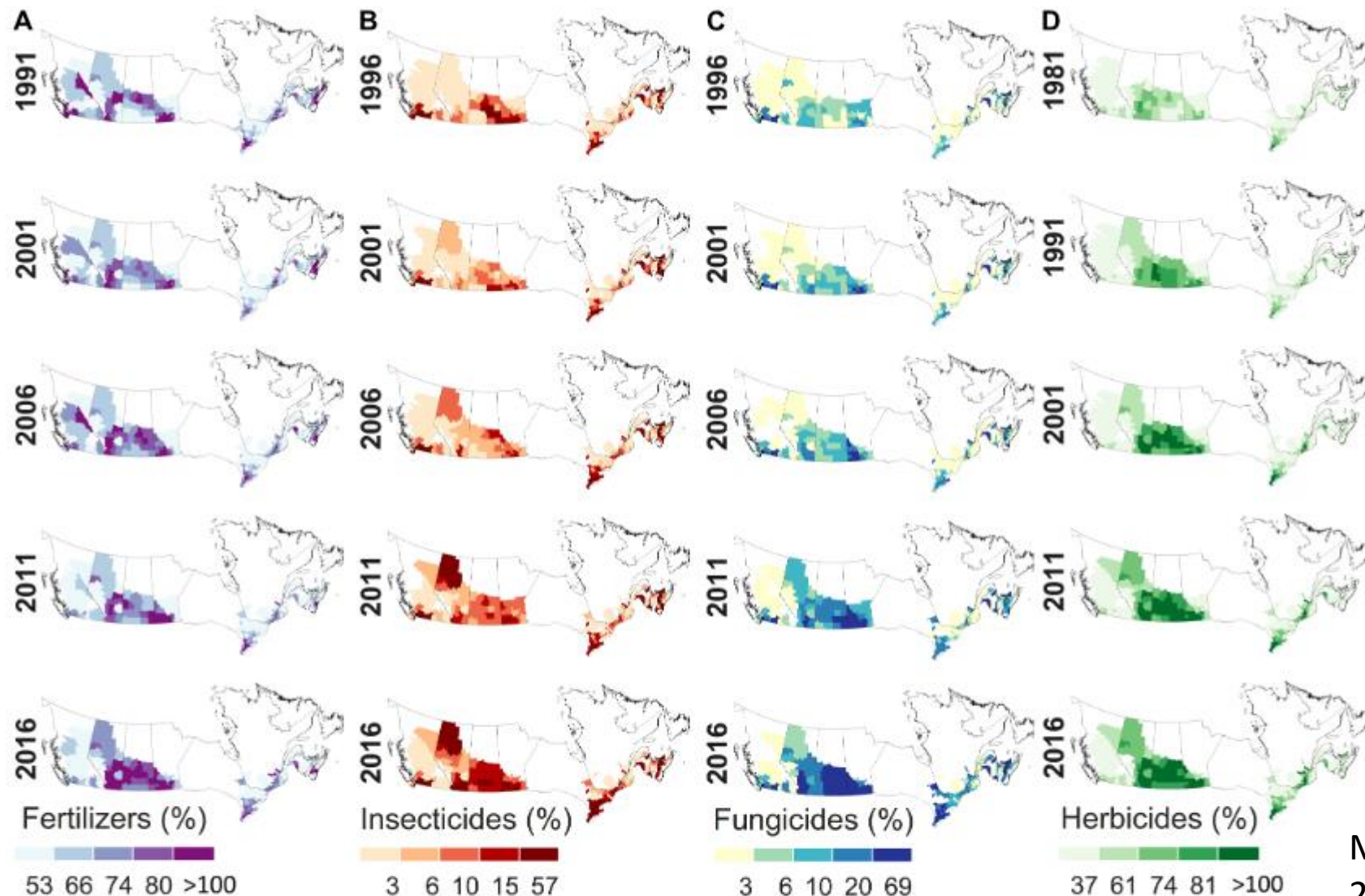


Figure 1. Index of wildlife habitat capacity on agricultural land, Canada, 2017



Source: Agriculture and Agri-food Canada



Malaj et al.
2020

FIGURE 1 | Geographic distribution of agrochemicals calculated as percent of cropland treated with fertilizers (**A**), insecticides (**B**), fungicides (**C**), and herbicides (**D**) for each census of agriculture year across Canada. Note that the date range from the Census of Agriculture varies by agrochemical group: fertilizers (1991–2016), insecticides and fungicides (1996–2016), and herbicides (1981–2016). Two census division units for herbicides and 11 census division units for fertilizers reported > 100% area cropped, suggesting frequent, repeated applications in a growing season.

Summary

- RA in Canada is nascent
- RA is not being practiced by many producers
- Government programs have begun – primarily focused on C sequestration, reducing emissions, and reducing nutrient loading
- Commodity groups and governments need to connect the dots between regenerative practices, resiliency to climate change, and financial well-being of producers
- Canada's soil health plan needs updating with metrics
- The public does not recognize the important role of producers in climate solutions and the public goods and services farmers provide to society gratis
- Producers need support to retire their unproductive acres (R&D Full cost accounting)
- OECD metrics matter!



Questions?