



# The Next Green Revolution

Making Canada the world's  
sustainable breadbasket

# | Why is agriculture important to RBC?

## Economic engine

---

Canada's farmers supply more than \$75 billion worth of food to +200 countries annually.



## Critical to national fabric

---

Agriculture is essential to Canada's identity – threading east to west.



## Innovation is vital

---

Without an innovative agriculture sector, Canada cannot be prosperous.





# | Agriculture is vital to achieving Canada's net zero goals

However, agriculture is also a major contributor to Canada's emissions footprint

Current emissions: 93 MT

Future emissions\*: 137 MT

\*with current practices and market share

# | Russia-Ukraine War is not a singular event, but the beginning of future disruptions

**9.7 billion**

Expected population growth by 2050 is already testing the limits of global food production.

**5<sup>th</sup>**

Canada's global ranking in food exports. Now, more than ever, the world needs reliable producing partners like Canada.

**25%**

Increase needed in Canadian food exports to meet growing global demand by 2050.

# | Current initiatives at RBC

## Climate Action Institute

---

The RBC Climate Action Institute brings together economists, policy analysts, and business strategists to help advance ideas that can contribute to Canada's climate progress. One of the key pillars of study is agriculture.



## CANZA

---

The Canadian Alliance for Net-Zero Agri-Food is a coalition of major stakeholders across the ag supply chain to find potential net-zero solutions in the sector to reduce ag emissions by 50 MT by 2030 and 150 MT by 2050.



## Next Green Revolution

---

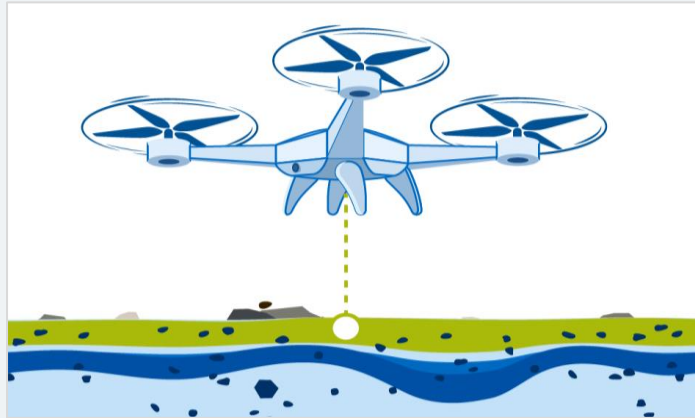
Recent publications, Fertile Ground and Farmers Wanted, have generated incredible levels of media attention and is putting agriculture in the national conversation.





# Technologies That Can Drive Canada's Next Green Revolution

Status: Ready to Scale



## Precision technology

Precision technologies gather data of on farm productivity and fertilizer use to empower farmers to make better decisions.

Economics & Thought Leadership

Status: On Track



## Feed additives

Feed additives like 3-NOP, algae, and seaweed supplements suppress enzymes that trigger production methane.

Status: Least Ready



## Ag biotechnology

By using selective breeding, genetic engineering, gene editing, and tissue culture, we can produce crops and livestock with desirable traits to tolerate disease or drought.

# | Farmers wanted: 40% of Canadian farm operators will retire

## Short-term: Immigration

---

In 10 years, 60% of today's farm operators will be over the age of 65. The number of operators below the age of 55 has declined by 54% since 2001.

-24K

## Medium-term: Education

---

Since bottoming out in 2003, admissions have grown by more than 40%—a sign of shifting attitudes toward agricultural studies



## Long-term: Technology

---

Public investments represent the largest source of funding for Canada's agriculture R&D at CAD \$450 million in 2020, but private in-house R&D lags by comparison at CAD \$108 million.





# The Next Green Revolution

How soil carbon can be a cash  
crop for the climate age





# | Soil is a financial opportunity

This soil could be a powerful “carbon sink”.

Potential annual emissions sequestered by 2050 (CO<sub>2</sub>e)



Mitigation potential in 2050 106 MT

Source: BCG analysis

Canadian farmers manage the 12<sup>th</sup> largest cultivated land area globally.

---

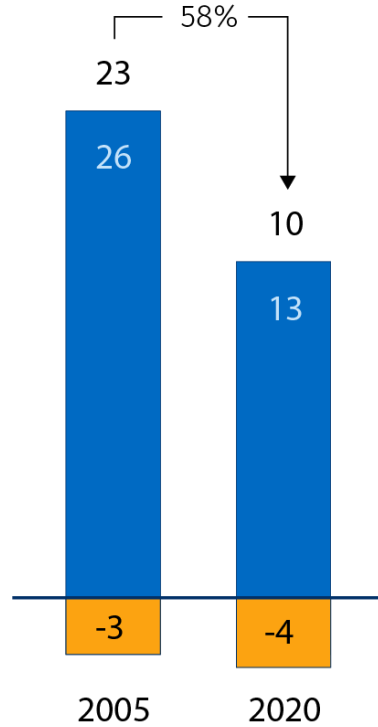
In total, 155 million acres of farmland, can act as a powerful “carbon sink”

---

As land stewards, farmers are key players in Canada’s Net Zero transition.

# Significant challenges limit advancement

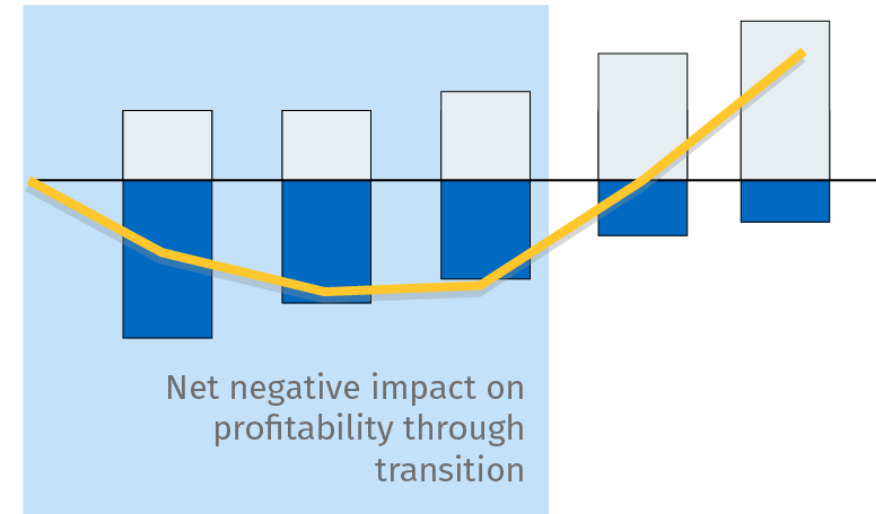
Annual emissions sequestered (MT CO<sub>2</sub>e)



■ Cropland remaining cropland  
■ Land converted to cropland<sup>1</sup>

Cumulative cost/benefits

Benefits  
Costs



Year 0 Year 1 Year 2 Year 3 Year 4 Year 5

**Soil sequestration on Canadian farms plummeted 58% since 2005**

**Major economic and monitoring barriers deter farmers from adopting sustainable practices**



# | Financial tools will accelerate adoption



Carbon Offsets



Carbon Insets



Government funding

# | For farmers, the return of offsets does not add up



## Opportunity

If challenges are addressed, the agricultural credit market could grow to \$2B-\$4B by 2050 (were 38MT in emissions removed).

## Challenge

The market has been held back by uncertainties about MRVs, which have impacted the quality of credits. Regulatory uncertainty, and fears of greenwashing are related problems.



### Poor revenue

~\$8-\$13

Carbon credits per acre



### Large deductions

Costs - 35%

Fees - 25%

Insurance - 20%

### Weak incentive

~\$2-\$4

Carbon credit per acre after deductions



Source: Research on North American MRV trials; BCG analysis



# | Insets: Sustainably-grown foods can cut supply chain emissions



## Opportunity

Higher prices for 'green' products can allow a portion of additional revenue to flow to farmers to help fund their transition to more sustainable farming.



## Challenge

Sustainable farming is not well understood by consumers and no widely accepted certification to identify a sustainably-grown food product is available. Further it's not clear consumers are willing to pay more for these products.

### Most consumers won't buy for sustainability alone<sup>1</sup>

10%

of consumers are **buying** just to "save the planet".

10-30%

of consumers are willing to buy when sustainability<sup>2</sup> is linked to other benefits such as health, safety and quality.

40-60%

of consumers express concern for sustainability but are limited by **barriers<sup>3</sup>** like **income, cost and convenience**.

1. including shoppers often/very often purchasing sustainably and considering themselves as sustainable; 2. including shoppers that sometimes buy sustainably; 3. includes non-buyers that would be willing to pay a >5% premium at parity of other benefits.

# Government support: most effective tool, but Canada needs to catch up



United States

Total farm receipts<sup>1</sup>

**\$545B**



Ag support as a % of receipts

**\$64B | 12%**

Climate funding as a % of total farm receipts

**~1.7%**



European Union

Total farm receipts<sup>1</sup>

**\$699B**



Ag support as a % of receipts

**\$122B | 18%**

Climate funding as a % of total farm receipts

**~1.8%**



Canada

Total farm receipts<sup>1</sup>

**\$83B**



Ag support as a % of receipts

**\$8B | 10%**

Climate funding as a % of total farm receipts

**~0.5%**

**Discrepancy in funding may put Canadian farmers at a disadvantage globally.**



# | RBC's call to action

## Three ways you can help

### Scale promising technologies

We need technology to grow to help measure soil carbon sequestration and become affordable to increase adoption.  
Collab

### Ag supply chain support is needed

Collaboration across the supply chain is essential to help move the sector forward.

### Help us create a MRV framework

Help RBC and its partners establish a national MRV system that can standardize climate smart practices across the country.

# More Information

## CONTACT:

Mohamad Yaghi  
Agriculture & Climate Policy Lead  
[mohamad.yaghi@rbc.com](mailto:mohamad.yaghi@rbc.com)

## OUR REPORTS AND BLOGS:

[www.rbc.com/nextgreenrevolution](http://www.rbc.com/nextgreenrevolution)

