



Water Stewardship as an Agricultural Opportunity

Leading global provider of crop inputs and services

Upstream

World-Class Production



>26Mmt NPK manufactured sales volumes



~2,000 proprietary products

Midstream

Global Supply Chain Excellence



~460 wholesale fertilizer distribution points



>17,000 owned or leased railcars

Downstream

Largest Ag Retail Network



>2,000 Retail selling locations

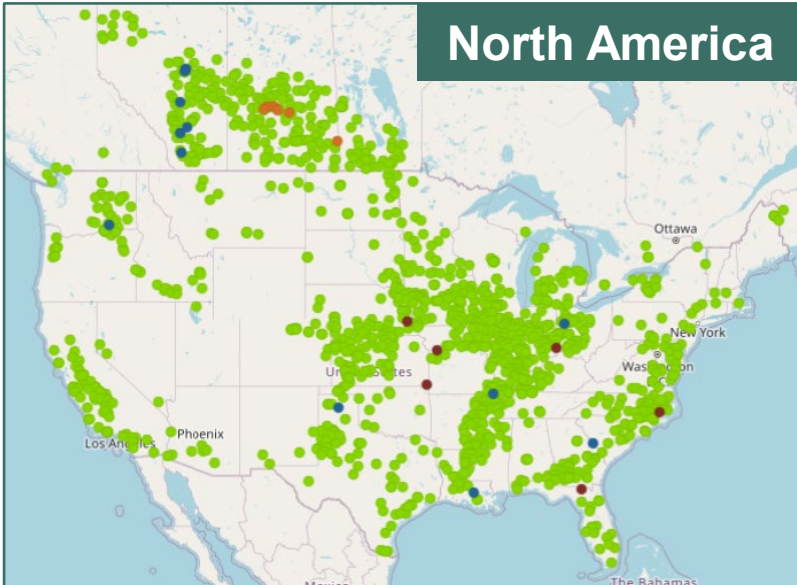


>4,000 crop consultants

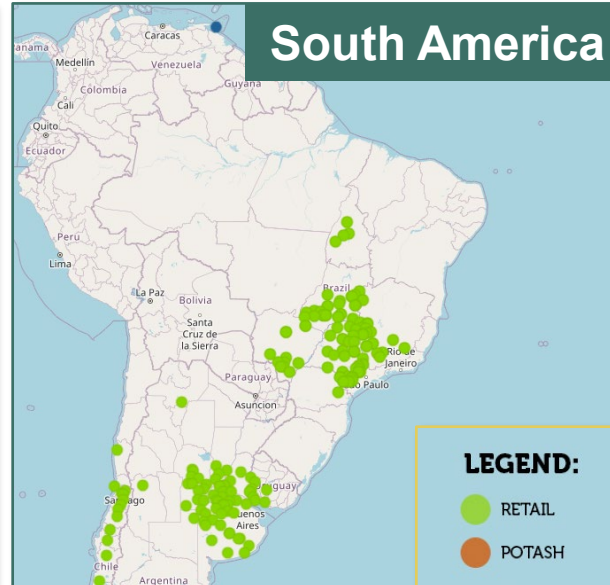
Strong and trusted relationship with growers is at the heart of Nutrien's business

Footprint

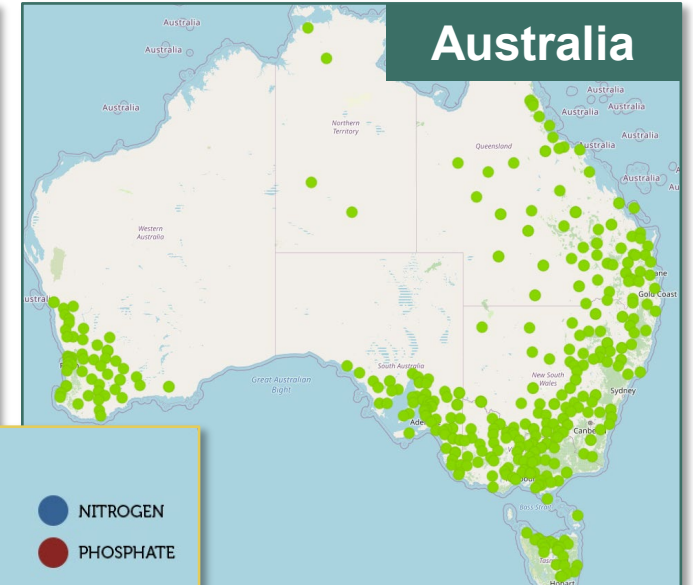
North America



South America



Australia



LEGEND:

- RETAIL
- NITROGEN
- POTASH
- PHOSPHATE

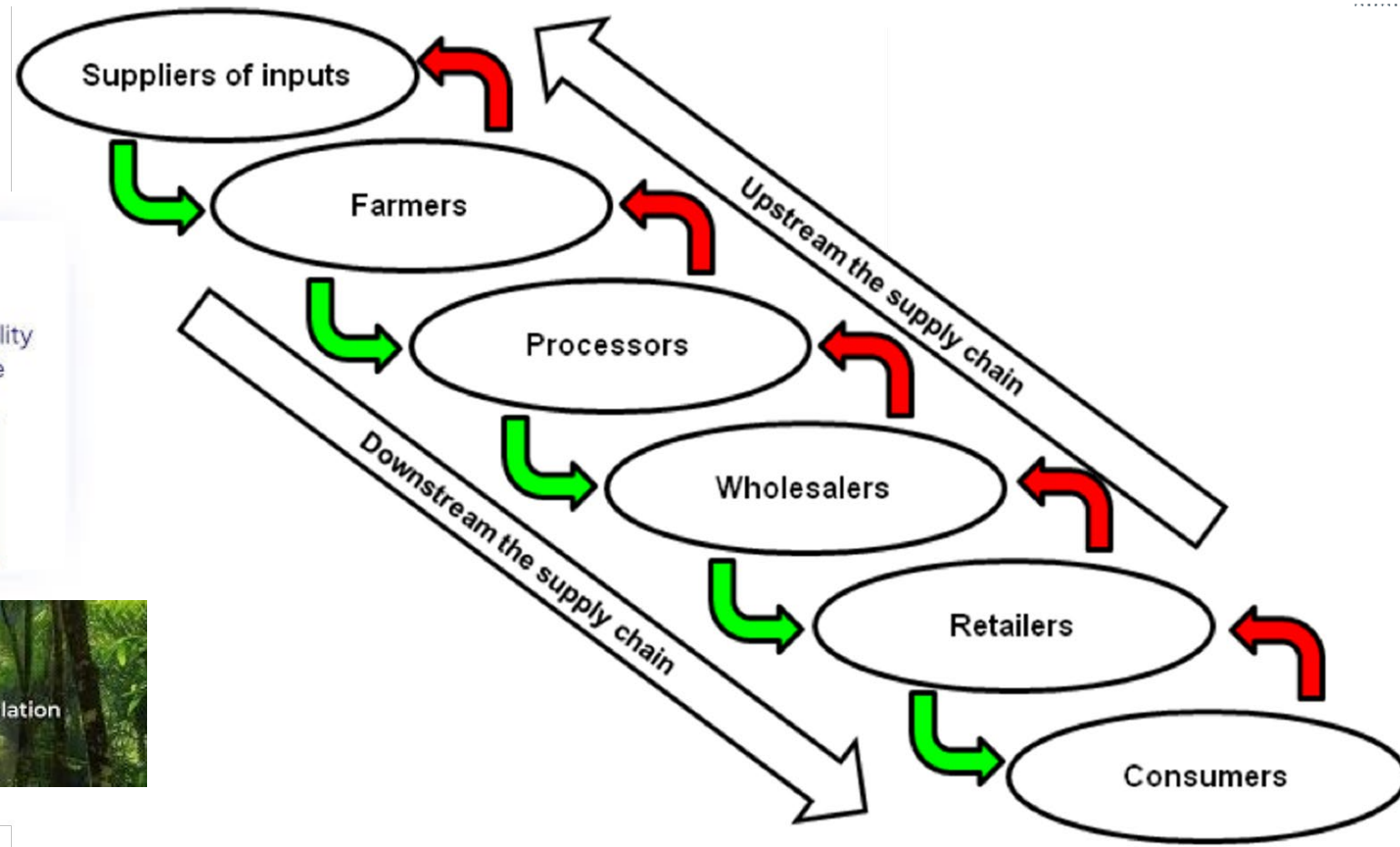
What is sustainability?

- “Meeting the needs of the present without compromising the ability of future generations to meet their own needs.”
- “A sustainable product is a good that doesn't deplete resources while offering environmental, social, and economic benefits throughout its life cycle.”



What is driving the sustainability discussion in agriculture?

Global reporting and disclosure frameworks



Agri-food value chain example for potatoes

Bulk of environmental impacts and dependencies are from use of inputs and management practices for crop production



Input provider: Risks and impacts result from use of products sold (i.e., non-point source pollution, GHGs from nitrogen fertilizer use)

Processors and retailers: Risks and impacts result from crops sourced (e.g., water, management practices, and inputs used to produce crops).

3 Problems with Water

too much



too little



too dirty



Calgary

Dwindling water supply leaves some southern Alberta farmers dry

Almost all of south, southeast and central Alberta is experiencing drought conditions



Bryan Labby · CBC News · Posted: Aug 21, 2023 5:00 AM MDT | Last Updated: August 21



New Canada Water Agency to tackle water pollution and protect natural resources

By Miranda Leybourne

Published: October 16, 2024
News

Reading Time: < 1 minute



The New York Times



UNCHARTED WATERS

Big Farms and Flawless Fries Are Gulping Water in the Land of 10,000 Lakes

When Minnesota farmers cranked up their wells in a drought, they blew through state limits. Thirsty crops included corn, soybeans and perfect, fry-friendly potatoes.

Sept. 3, 2023



The Canada Water Agency (CWA) will be headquartered in Winnipeg. The agency will work to advance Canada's Freshwater Action Plan, which, according to Environment Canada's website, was funded in the 2017 federal budget. This includes improving freshwater management through efforts to improve the water quality of Lake Winnipeg and other waterways throughout Canada. | Getty Images

Water management vs. water stewardship

Water Stewardship is defined as:

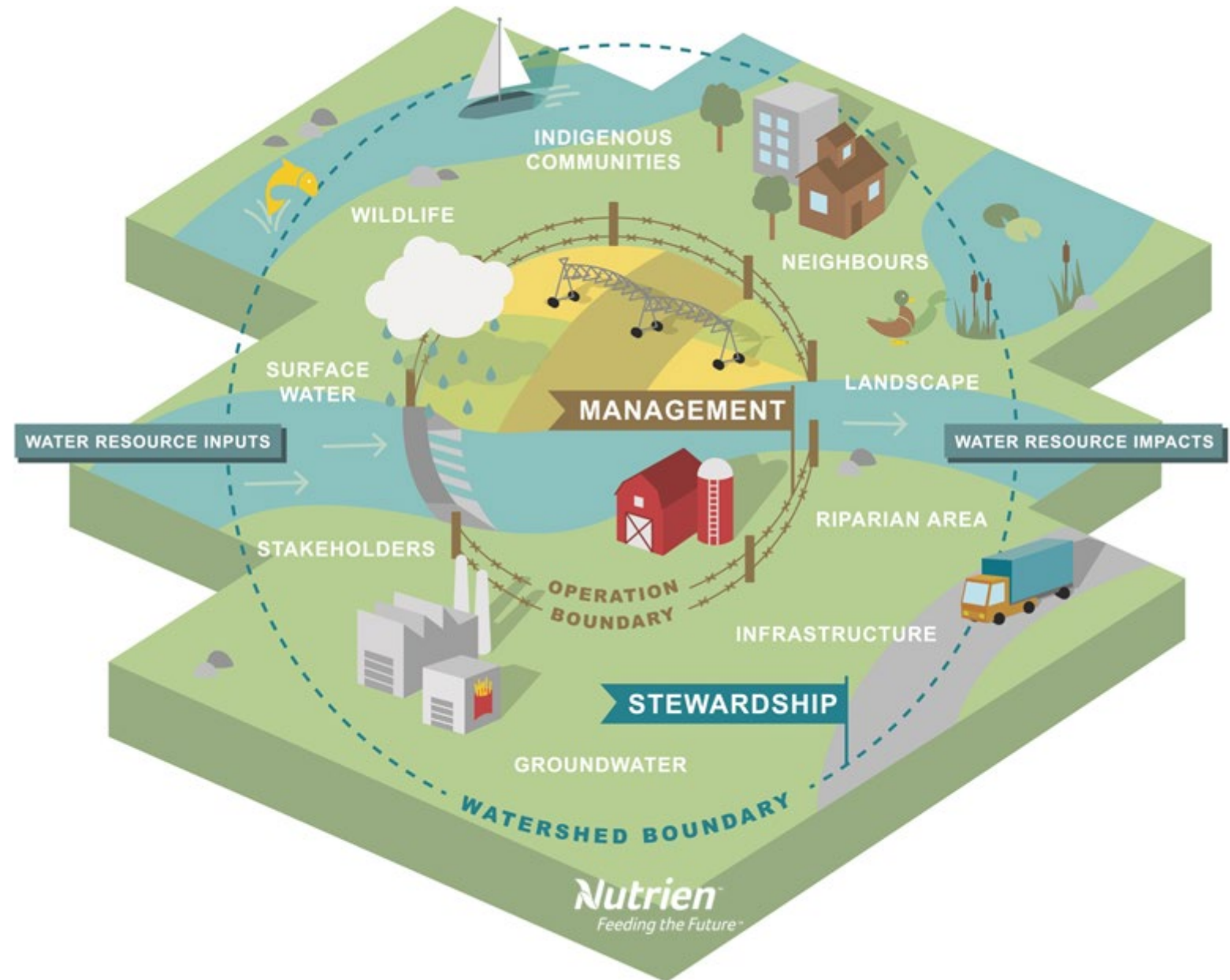
“the use of water that is socially and culturally equitable, environmentally sustainable and economically beneficial, achieved through a stakeholder-inclusive process that involves site-and catchment-based actions.”

- Alliance for Water Stewardship International Water Stewardship Standard, version 2.0, 2019

Watershed = Basin = Catchment

Water management vs. water stewardship

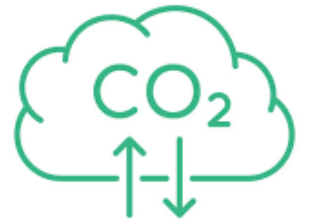
**So why is
water
stewardship an
opportunity for
agriculture?**



Exploring pathways for environmental attributes in a landscape-based (watershed) approach

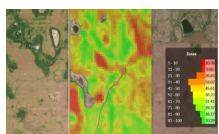


**How can we create value
from farm to fork by
measuring, tracking, and
documenting
environmental outcomes?**



Think global, act local

On farm practices, based on good agronomy, that support profitable, productive farms and positive environmental outcomes

Water management		Effective on-farm water management
Land management		Farm the best acres, diversify the rest (marginal land use changes)
		Low/no-till cropping
		Conservation cropping
Nutrient management		Slow/controlled release fertilizer OR N inhibitors
		Variable rate fertilizer application & improved timing
		Nutrient management plans 
Optimized productivity		Other value added products ¹

¹ e.g., micro-nutrients, fertilizer catalysts, biostimulants

Water stewardship actions are quantifiable and have co-benefits

VOLUMETRIC AND WATER QUALITY BENEFITS IN WATER STEWARDSHIP

AUGUST 25, 2024

BONNEVILLE ENVIRONMENTAL FOUNDATION

Bluerisk

LimnoTech

The Nature Conservancy

WORLD RESOURCES INSTITUTE

STARBUCKS

Coca-Cola

Meta

Microsoft

aws

ECOLAB

PEPSICO

DIAGEO

Constellation Brands

Nestle

Google

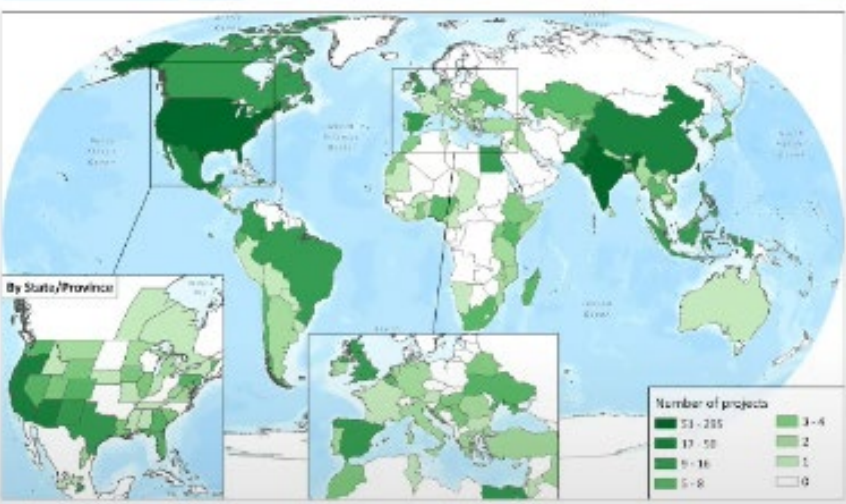
P&G

Apple

Cargill

=

BENEFIT QUANTIFICATION OF 1000+ WATER STEWARDSHIP PROJECTS



Number of projects

53 - 205

17 - 50

9 - 16

5 - 8

3 - 4

2

1

0

- Land conservation and restoration
- Irrigation technologies
- Rainwater harvesting / aquifer recharge
- Leak detection and repair
- Agriculture best practices
- Stormwater management
- Wastewater treatment
- Wetland protection / restoration
- Instream flow restoration

Source: LimnoTech map showing distribution by country of approximately 1000 resolution projects with Volumetric Benefit Quantification

Shared Water Challenge



Water quality degradation & habitat loss



INPUTS



\$350K
\$USD Invested

50 volunteer hours

ACTIVITIES



Plant Trees

OUTPUTS

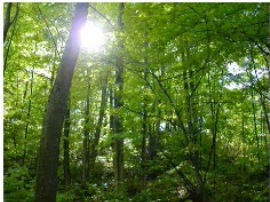


Reduced Runoff Volume

of trees planted
of acres planted

OUTCOMES

Improved water quality
Enhanced biodiversity
Increased carbon sequestration



 +  + 

IMPACTS

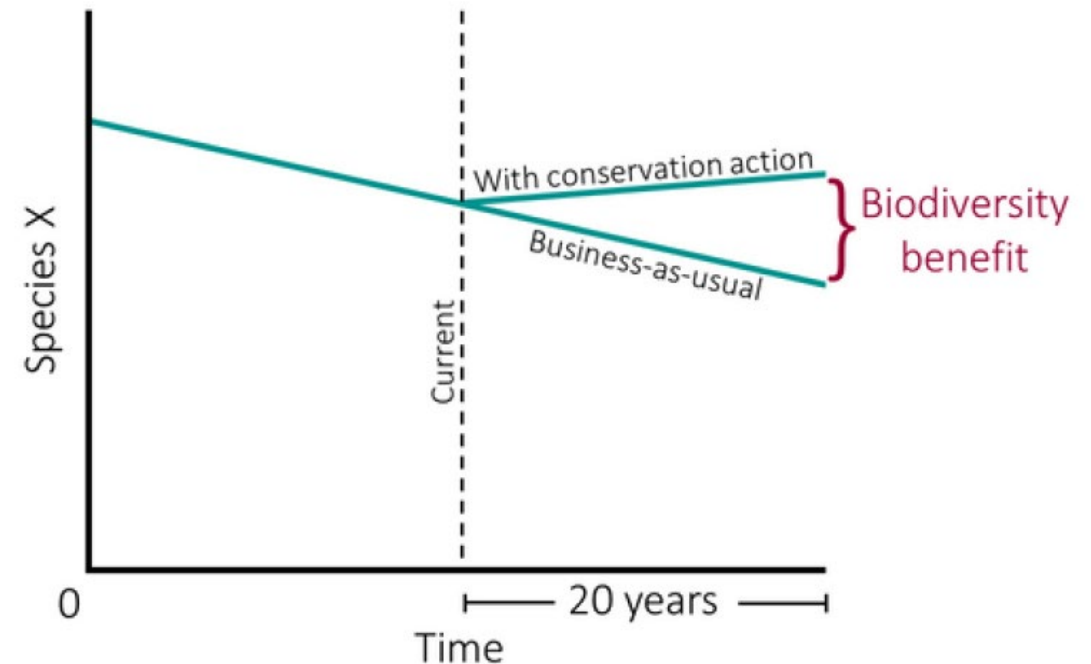
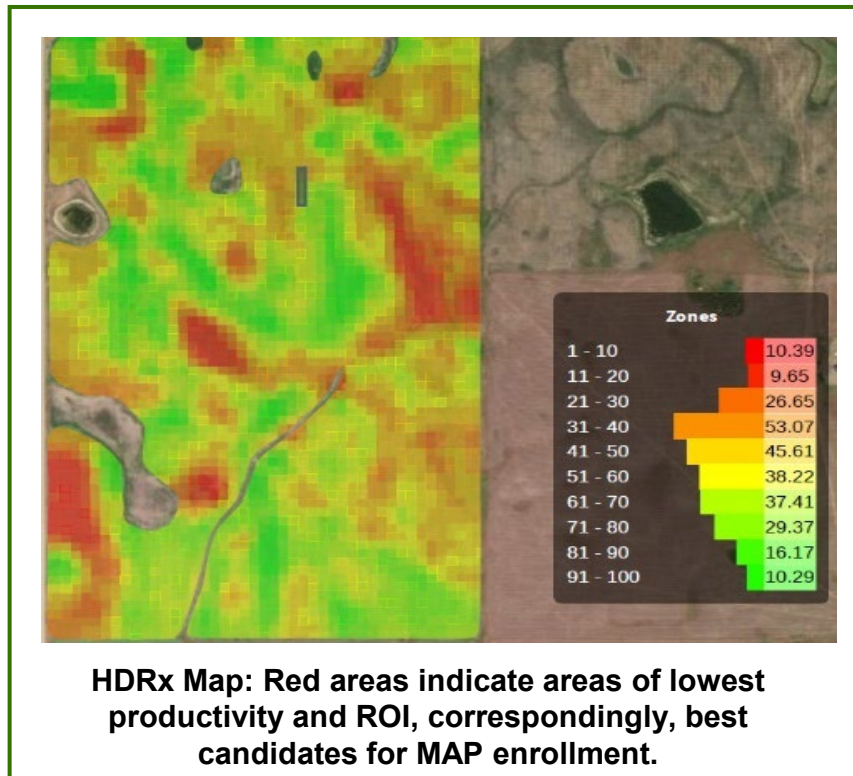


Nutrien™
Feeding the Future™

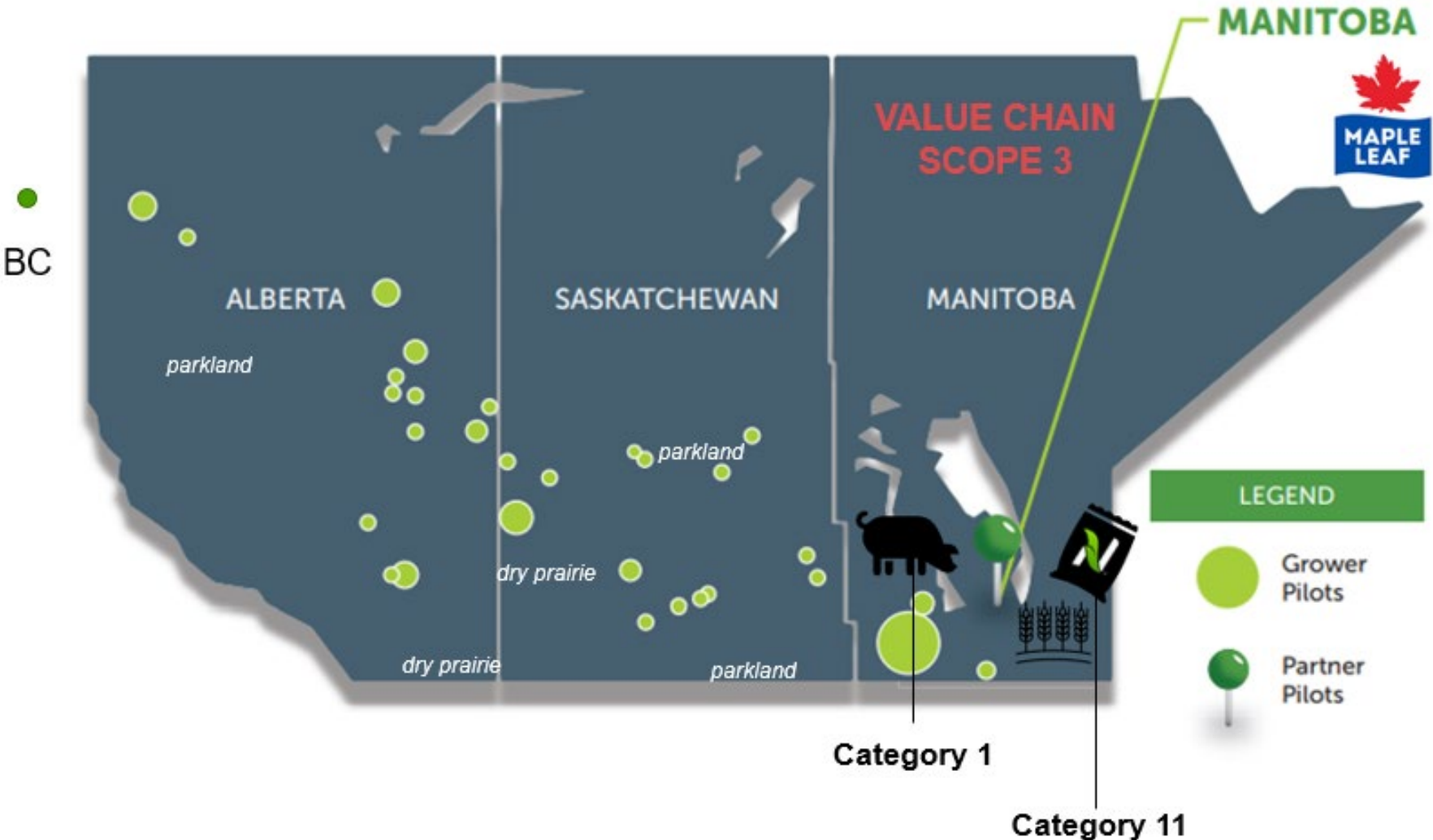
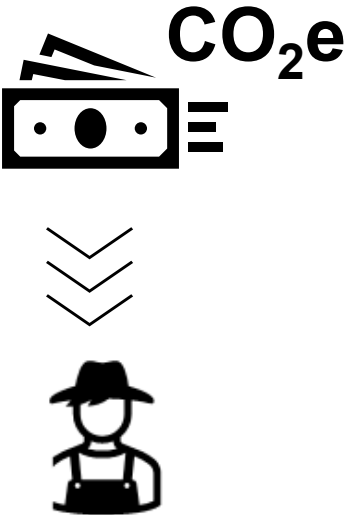
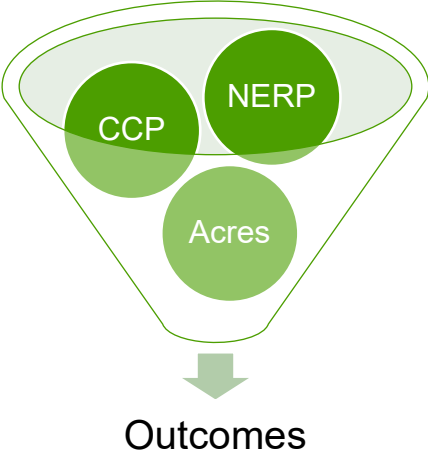
Exploring biodiversity value creation pathways

Conservation Exchange Pilot Program

- Pilot program aiming to incentivize private sector investment in conservation
- **DUC's Marginal Areas Program (MAP)** increases farmer profitability and biodiversity on farms
- **Government of Canada estimates the biodiversity benefits** and **issue government-backed certificates** that describe the positive impacts of the investment in terms of biodiversity benefits.



Exploring climate (carbon) value creation pathways



Water stewardship: Agriculture's opportunity



Pulling it all together with a watershed approach: a water stewardship planning and implementation process

Exploring water value creation pathways: Lake Winnipeg Basin (LWB) Project



Phase 2







← Post

 **Bud McKnight Seeds**
@budmcknightseed

Winnipeg has dumped 250 million L of raw sewage into the red river lately. Combined with their CSO infrastructure it is staggering how much sewage goes into the river and ultimately the lake on a yearly basis. Billions of L yearly.

But agriculture is the problem...

7:15 PM · Feb 22, 2024 · 1,476 Views

6 Reposts 22 Likes



Lake Winnipeg Basin (LWB) Water Stewardship Project and the Potato Sustainability Alliance (PSA)



PSA Water Stewardship Framework

A tool for farmers to advance their farm water stewardship efforts by helping to:

- 1. Document your current actions.
- 2. Tell your farm water stewardship story.
- 3. Identify opportunities
- 4. Guidance and ‘how to’ information



Scaling: value chain partnership opportunities



Thank you!

For further information, please visit: www.nutrien.com



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