



FERTILIZER CANADA  
FERTILISANTS CANADA

# 4R NUTRIENT STEWARDSHIP

ENVIRONMENTAL FARM PLAN PILOT

# No longer enough to *'Do the Right Thing'*

Public is demanding credible evidence  
that farmers are making sound crop  
management decisions for the  
economy, society and environment

# The Advantage

- Through implementing 4R Nutrient Stewardship, growers can demonstrate to the International markets that “X” percent of “X” crop is being produced sustainably
- Select crops (ie: barley) have increased demands for sustainable use in livestock feed

**earls**  
KITCHEN + BAR

The Earls fallout: Customers, especially millennials, driving changes to beef industry standards



**IT TASTES  
GOOD TO DO  
THE RIGHT  
THING.**




Introducing beef that's  
100% Certified Humane®.

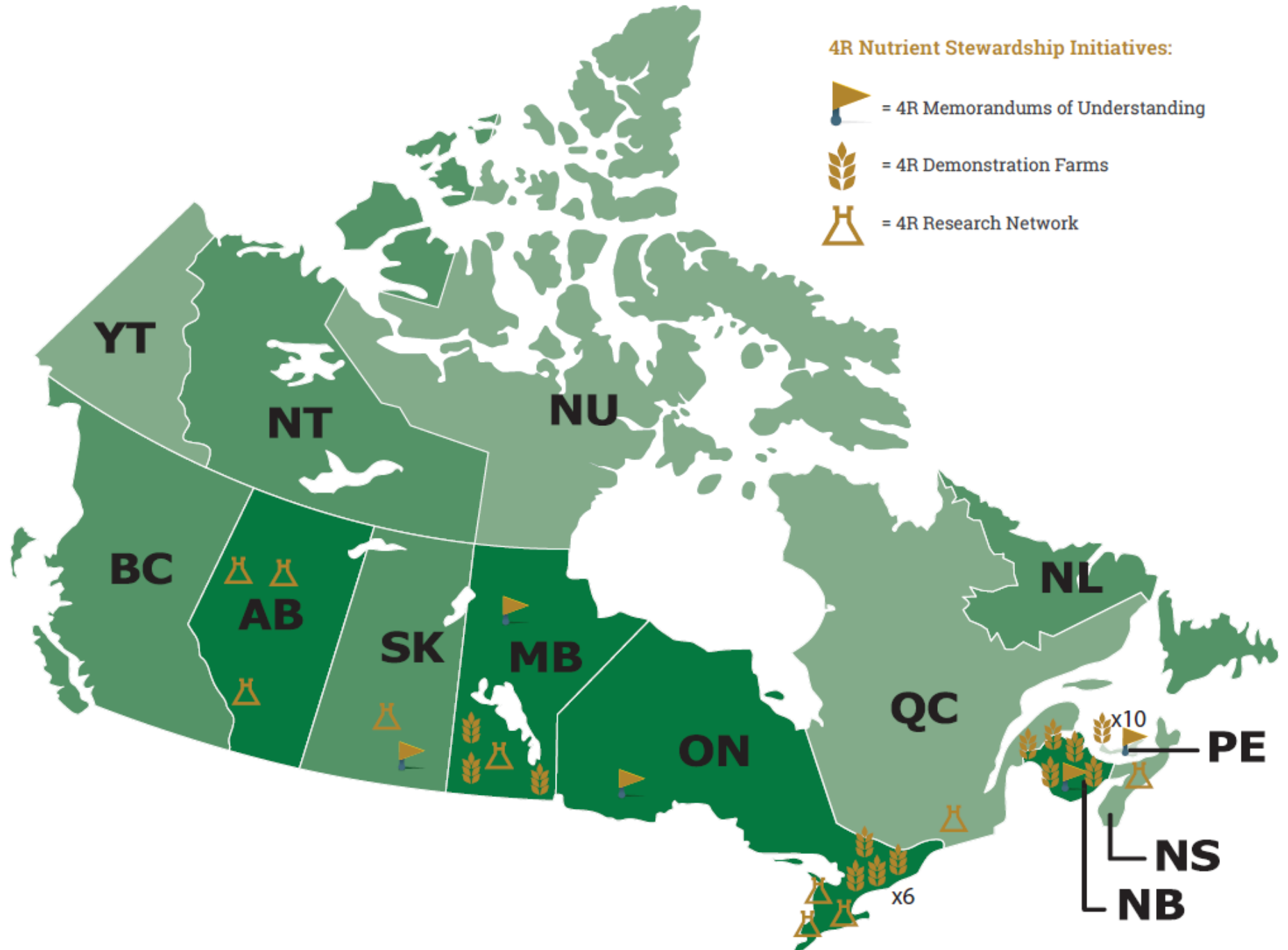
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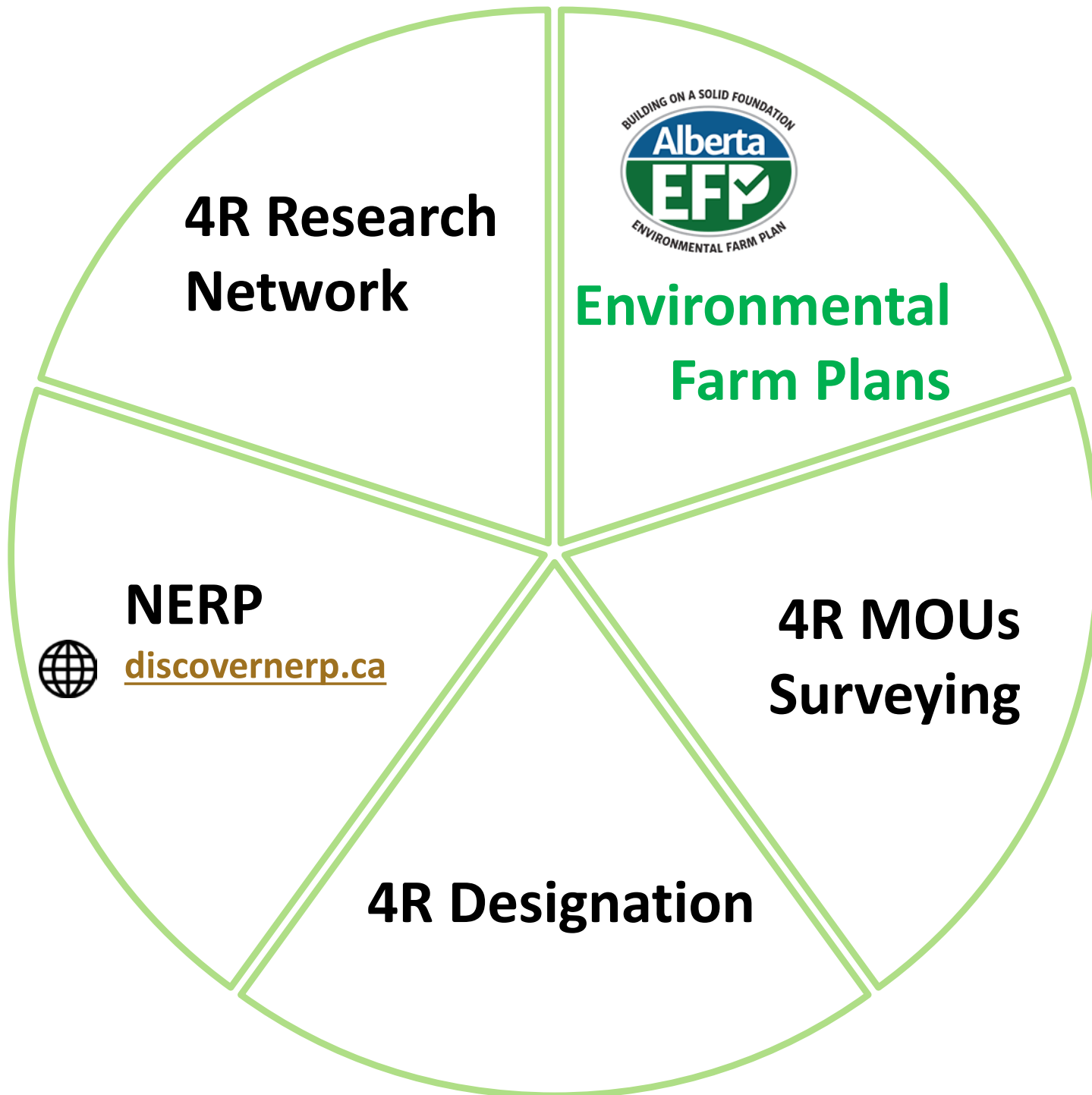
**COMMITTED TO  
CONSCIOUS SOURCING**

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**4R Nutrient Stewardship Initiatives:**

-  = 4R Memorandums of Understanding
-  = 4R Demonstration Farms
-  = 4R Research Network





# Integrating the 4Rs into the EFP: Saskatchewan

Chapter 14 Nutrient Management

## 14 Nutrient Management for Conventional Crop Production



4R Nutrient Stewardship

Why should you be concerned?

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Nutrients, either as commercial fertilizers or organic matter amendments, are an important input for crop production. Optimizing nutrient application should be a goal of every farmer. A nutrient management plan that adopts the industry lead **4R Nutrient Stewardship Principles**; the **Right Source** of nutrient applied at the **Right Rate**, **Right Time** and **Right Place** will:

- Optimize production with minimum cost; and
- Minimize nutrient losses from agricultural lands.

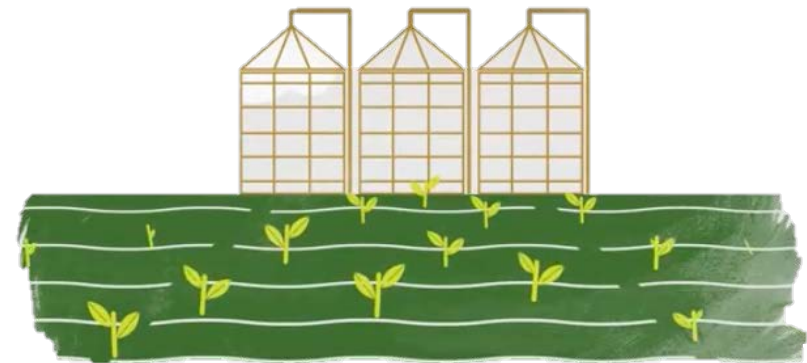
- Saskatchewan has included the 4R Nutrient Stewardship framework in their EFP in the Soil Management and Nutrient Management Chapters of their online interactive workbook
- Does not incorporate the 4R Designation program

# Integrating the 4Rs into the EFP – Alberta

EFP Question	Risk Levels in EFP (1-4)	4R Plan Compatibility	Addition Comments
<b>Time of Application</b>	<p>1. Nitrogen sources and other nutrients are applied in the spring at seeding, or as close as possible to the time crops use the nutrients for growth.</p> <p>2. Ammonia-based or urea nitrogen fertilizers applied in late fall, close to soil freezing. Other nutrients applied in the spring.</p> <p>3. Nitrate-nitrogen fertilizers applied in late fall.</p> <p>4. All nutrients are applied in early fall or on frozen ground.</p>	<p>Completing a 4R Plan and implementing BMPs following the suggested Basic, Intermediate or Advanced practice suites would place growers at Risk Level 1 or 2 for this Assessment.</p> <p>Right Time decisions are based on three main principles:</p> <ul style="list-style-type: none"> <li>• Assess Timing of Plant Uptake.</li> <li>• Assess Dynamics of Soil Supply</li> <li>• Recognize Dynamics of Soil Nutrients</li> </ul>	<p>Suggest EFP add a question as to Right Source to deal more explicitly with approaches like use of enhanced efficiency fertilizers to reduce environmental impacts. Also Right Source addresses the need for balanced supply meaning insuring all nutrients are sufficiently available to meet yield goals but only those likely to be yield limiting are added as fertilizer.</p> <p>Certain nutrients such as K are less sensitive to application timing and can be fall-applied with little reduction in efficiency or environmental risk.</p> <p>UAN is explicitly excluded from fall-application in 4R as it contains 25% nitrate N.</p>

# 4Rs can add value to Alberta's EFP

- Co-Benefits to the EFP and 4R programs:
  - 4Rs provide a reportable metric each year
  - Broaden audience by delivering 4R in the EFP
  - Engage with market based sustainability initiatives through national forums (ie: CRSC) to co-ordinate and collaborate across the value chain
  - Provide recognition and endorsement of science-based approaches
  - Shared objectives for economic and environmental performance with the nutrient stewardship programming developed by Canada's fertilizer industry
    - Research
    - Knowledge and capacity building
    - Extension activities





# 4Rs can add value to Alberta's EFP

- Co-Benefits to Growers:
  - 4Rs provide a framework to improve grower's efficiency and their bottom line
  - 4Rs include all nutrient inputs
  - 4R framework is flexible to Alberta's agricultural production systems and unique regional climatic, soil, and operational conditions to ensure that it is effective
  - Minimize the burden on producer, but meet end user or consumer requirements; 4Rs deliver a verifiable metric of sustainability
  - Zero cost to growers to do a 4R plan



# Steps...

- Memorandum of Understanding between Fertilizer Canada and the Agricultural Research Extension Council of Alberta (ARECA) to integrate 4R Nutrient Stewardship into Alberta's EFP as a nutrient management framework
- Conducting a benchmark assessment to determine equivalencies
- Preliminary indications that a 4R Plan in its current incarnation can slip easily into both the assessment and implementation of nutrient application in the EFP
- Some additional considerations:
  - Would need to address storage and handling aspects of nutrient use to cover off the current scope of the EFP.
  - Include a step to Review 4R Plan with 4R agronomist to support the implementation of 4R Designation in Alberta; the support of 4R trained agronomists helps farmers complete 4R Plans and provides 4R consistent agronomic advice.



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