

Soil Health Report Card

Principle: Mario Tenuta

SOIL HEALTH REPORT CARD

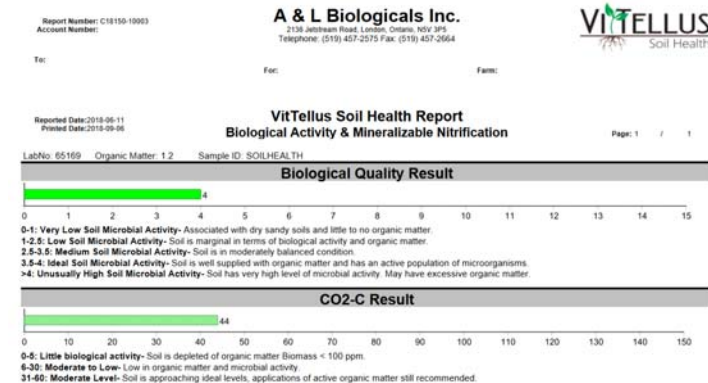
To the Citizen Guardians of
Canada
House of Commons
Ottawa, Ontario
Canada
K1A 0A6

Name	Canada	ID	18670701
Grade	152 years	Home Room	Teacher
		Ottawa	J. Trudeau
Report Year	2019	Report Date	
		Oct 2	

Indicator	West	East	Final Grade	Comments
Soil Health Aware. SHA1000	B+	A	B+	Excellent recent improvement in familiarity with the subject / work required for practical application of the subject
Organ. Carb. Matters SOM2000	A	C-	C+	Needs to work towards a more consistent application of the subject matter
Biol. Divers. & You BDY2010	B+	B-	B	Clear potential for an A but recent shorter rotations in West and lack of crop alternatives to corn & soy problematic in East
Cover Crop. New Millenn. CCNM3030	D	B	C	Lack of comprehension of subject matter in West / excellent progress in East in practical application of the subject
4R Nutr. Manag. Today NMT3040	B+	C	C+	Recent poor performance in West with broadcast application of N and East needs to try harder to band N
Soils & Crop Diseases SCD3050	C+	A	B	West's grain export industry and broad acreage of some grains makes for vulnerability on international markets / East

Soil Health Awareness

SHA1000

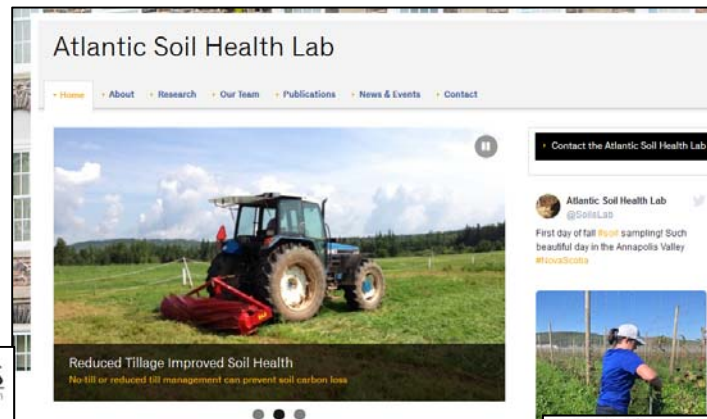


We can do much more to improve soil health in Canada

Sarah Rotz, Rod MacRae and Ralph C. Martin

Earlier this year, Ontario released its **Agricultural Soil Health and Conservation Strategy**. This is a timely strategy as **soil health declines** are clear: soil organic matter (SOM) is now decreasing on 82% of Ontario farmland. For instance, in Essex county, mean SOM has fallen to an average of 3.47%, while in 1948, 70% of farms in this same county tested above 6%. Meanwhile, 54% of Ontario cropland now has high ongoing levels of erosion risk, while only 20% percent of cropland has high or very high levels of soil vegetation cover. Unfortunately, these **trends of rising degradation are present across Canada**, and aren't expected to let up anytime soon.

Maintaining soil health is foundational to a regenerative and sustainable agri-food system. **Healthy soils** have the capacity to maintain their structure and transform carbon through organic matter decomposition and nutrient



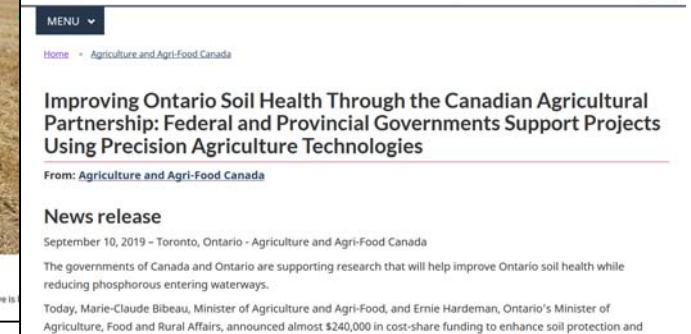
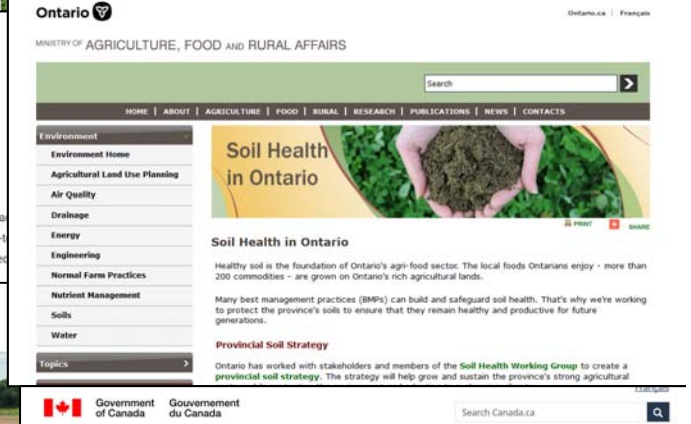
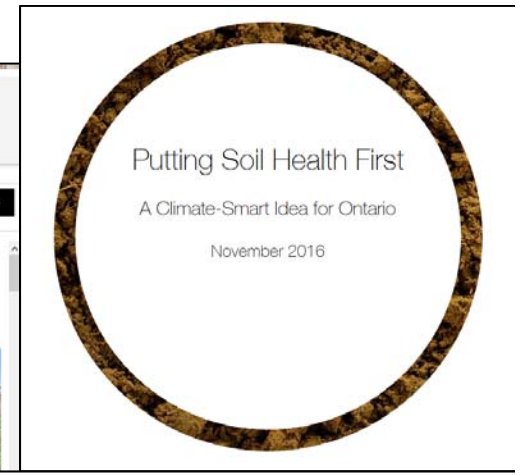
Spotlight on Soil Health

August 08, 2019 / By Carol Danon / News / Comments: 0



This year, Canada's Outdoor Farm Show is excited to announce the presence of the new Soils at Guelph initiative.

Soils at Guelph is an outreach initiative that aims to bridge gaps between farmers and soil researchers across Ontario. The initiative is led by professors Karl Dunfield, Laura Van Eerd and Claudia Wagner Riddle, all from the School of Environmental Sciences.

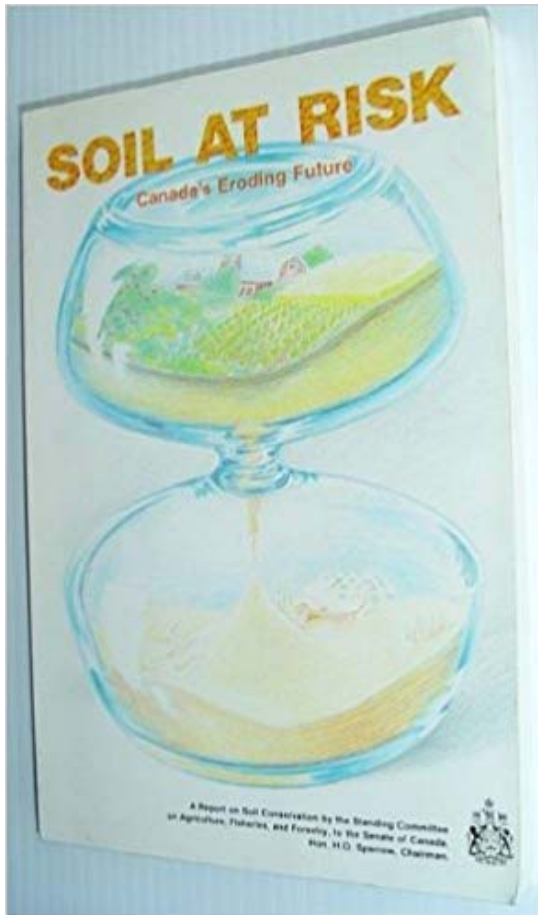


Soil Health Awareness Recommendations

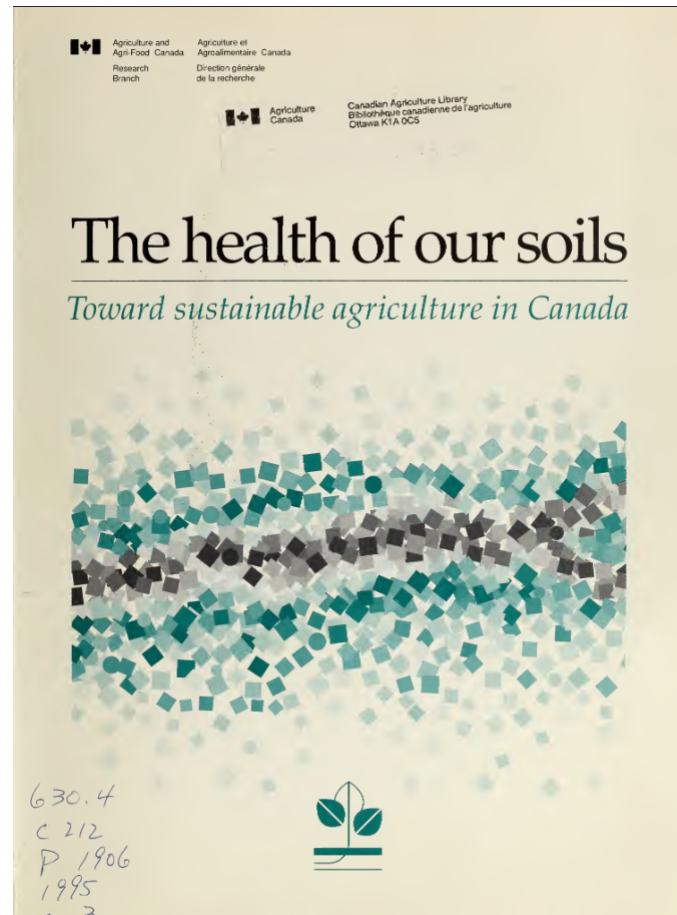
- Initiate frequent national farm surveys on
 - Understanding of soil health principals
 - Impact of soil health to farm profitability
 - Use of soil health practices
- Continue the AAFC Agri-Environmental Indicators Program
- Develop a NSERC/CIHR/SSHRC Network of Centre of Excellence (NCE) in Soil Health

Soil Health Awareness Recommendations

1984



1995



2021?

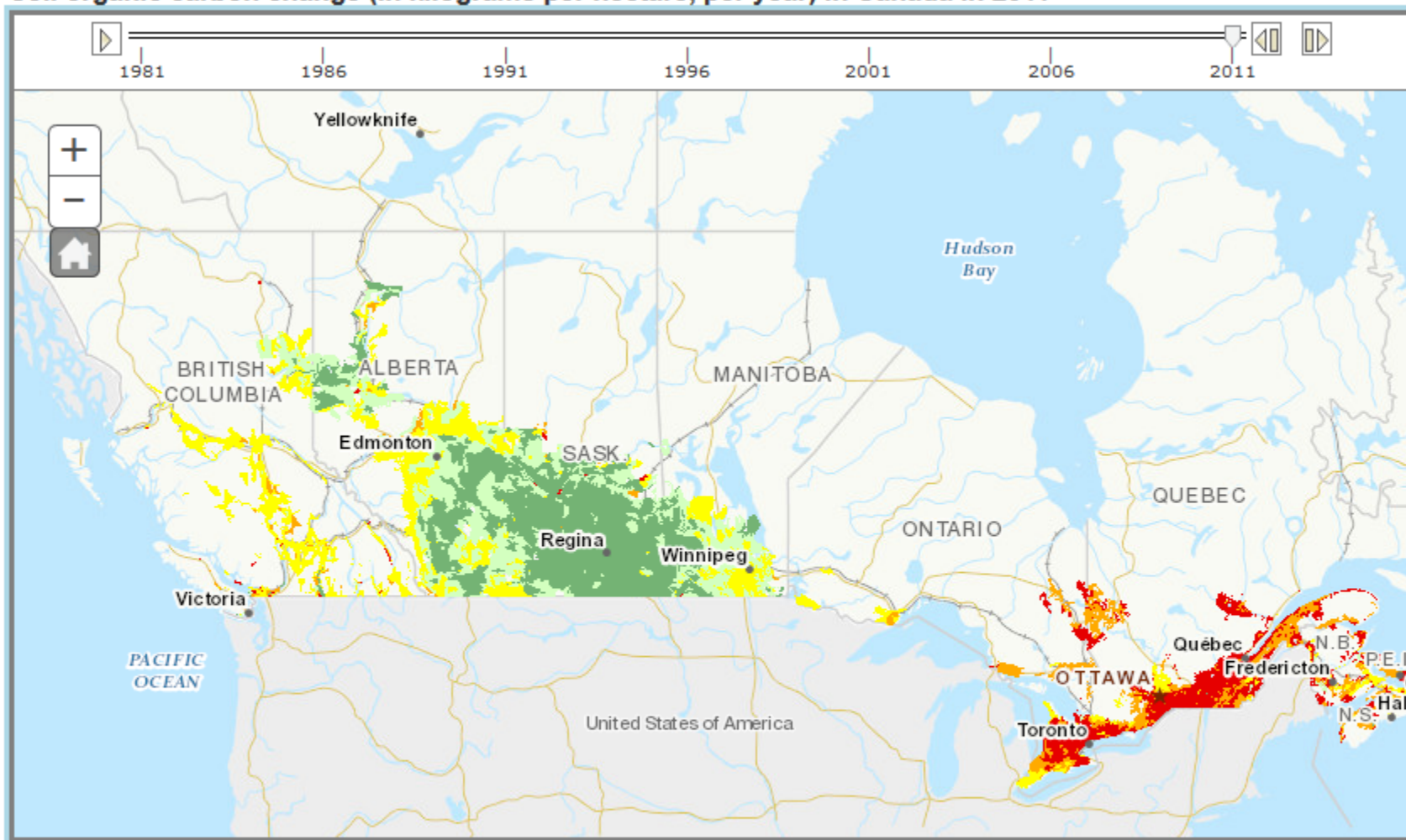
Canada's Soil Health Status?

Organic Carbon Matters

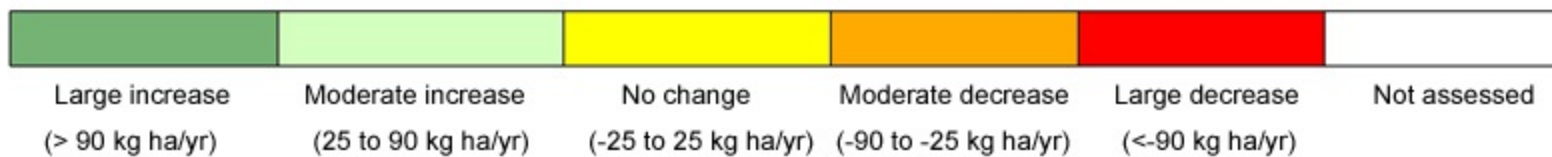
SOM2000

- Critical West / East divide in Canada
- Preventing initiatives to obtain offset credits for GHG in agriculture

Soil organic carbon change (in kilograms per hectare, per year) in Canada in 2011



Legend:



Organic Carbon Matters

Recommendations

- Understand high risk of greater loss in perennial forage lands with change consumer choices
- Intensify research to reduced tillage on clay soils

4R Nutrient Management Today

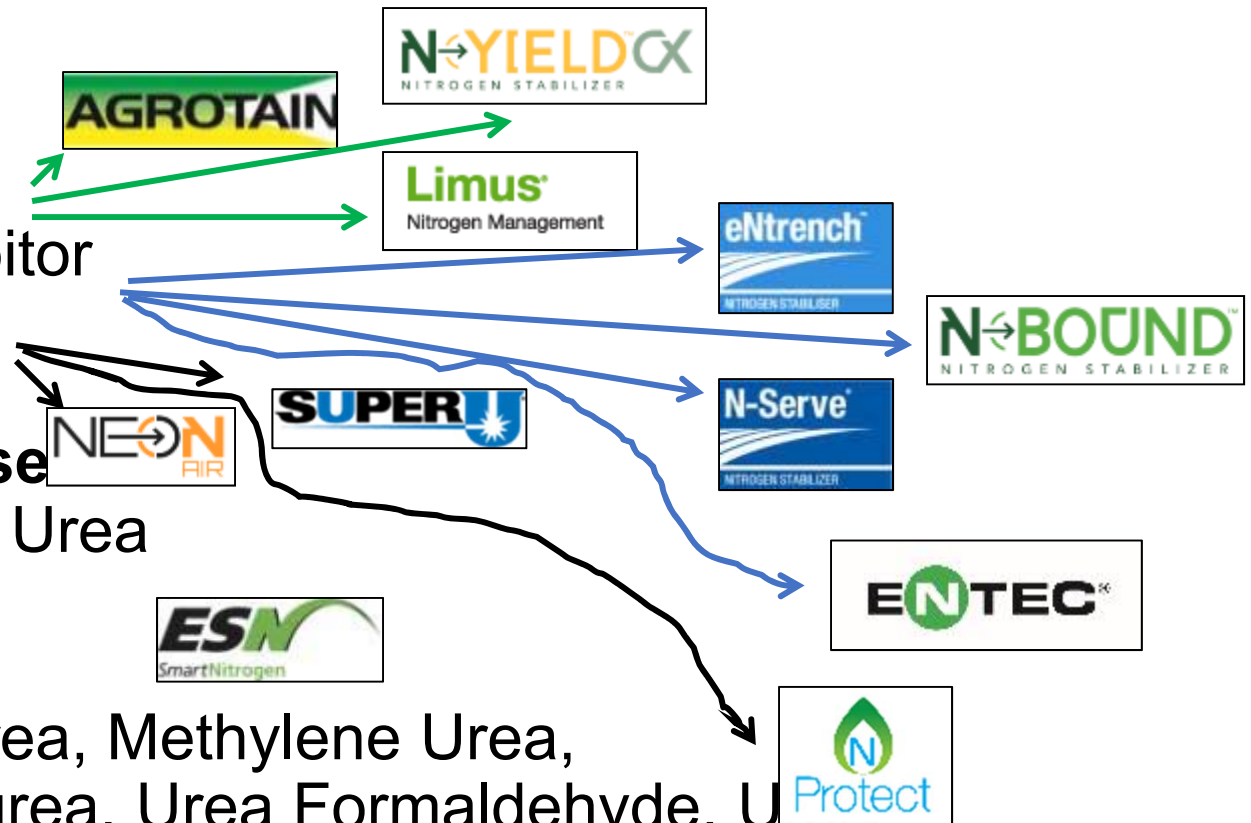
NMT3040

- Not enough importance given to nutrient management in soil health
- Nutrient loss is an indicator of unhealthy soil & management
- Low nutrient use efficiency is an indicator of unhealthy soil & management
- N_2O emissions are an indicator of unhealthy soil & management
- NH_3 emissions are an indicator of unhealthy soil & management
- Nitrate leaching is an indicator of unhealthy soil & management

Enhanced Efficiency N Fertilizers

- **Stabilized N**

- Urease inhibitor
- Nitrification inhibitor
- Double inhibitor



- **Controlled Release**

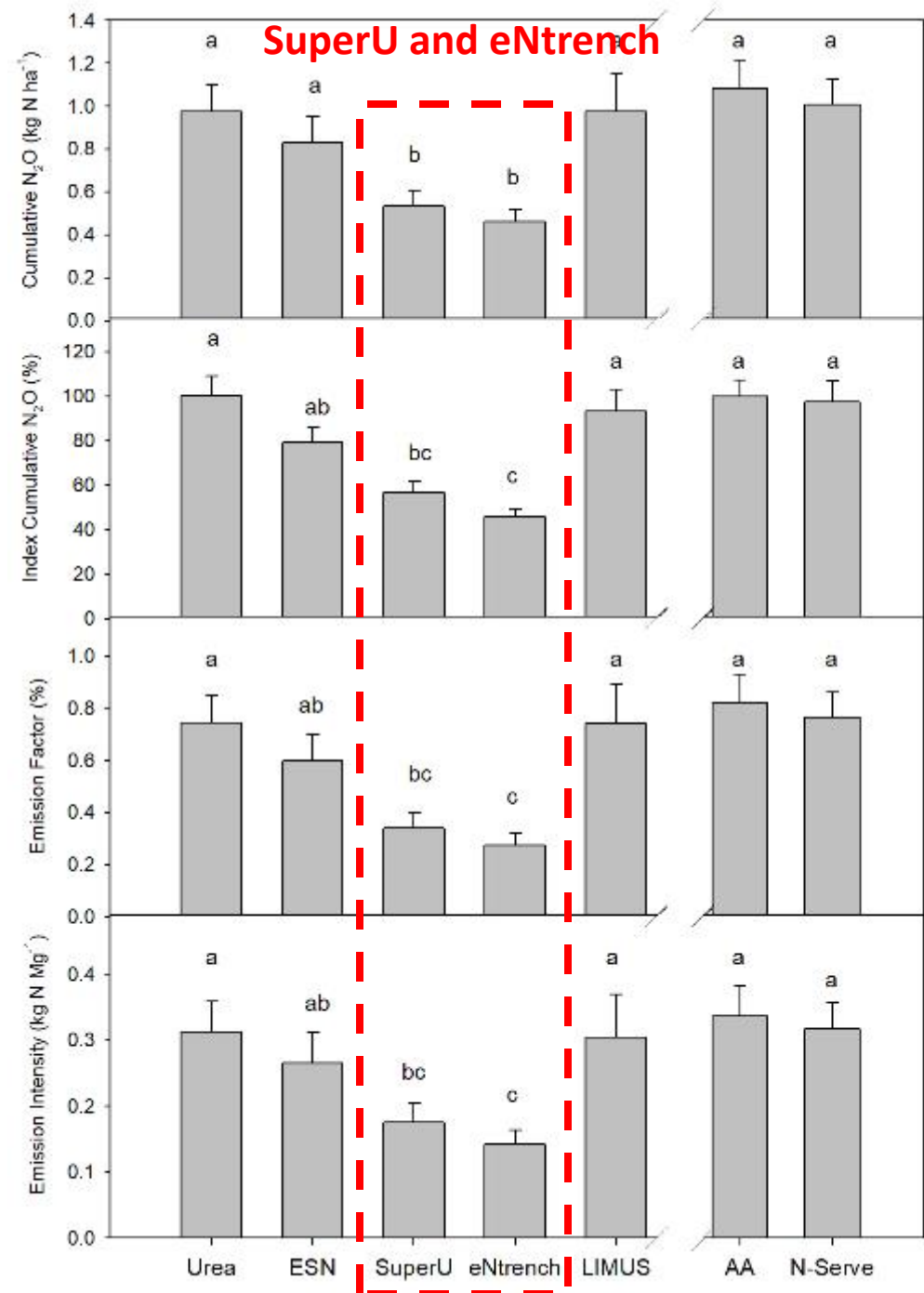
- Polymer Coated Urea

- **Slow Release**

- Sulfur-coated Urea, Methylene Urea, Isobuylidene Diurea, Urea Formaldehyde, Urea Triazone

4R N Management Can Reduce N₂O Emissions

- Nitrification inhibitors reduce emissions



Changes in N Practices to Reach Reduction Target in MB

