

Approaches to Farmer-Led Research and Demonstration

Ryan Barrett, P. Ag., CCA

Research & Agronomy Specialist, PEI Potato Board

**SCCC Conference
November 17th, 2021**



A little about me...



- Research and Agronomy Specialist, PEI Potato Board
- On-farm trials and demonstrations with potato producers, coordination of research projects, agronomy extension
- Grew up on a dairy & beef farm near Summerside, PEI. Remain active in the dairy cattle industry and with the family farm. (Milking Shorthorns)
- We grew seed potatoes when I was a kid, so knew a bit about growing potatoes before working with the Board...but had learned a lot since!

Agriculture in Prince Edward Island

- Sandy, loam soil
- 1100 mm of annual precipitation (43 in)
- Largest acreage of potatoes in Canada
- Next largest crops are grains, oilseeds, forages
- Strong dairy industry but decline in hog and beef industries in last 25 years
- Highly regulated industry
 - Crop rotation legislation
 - Enhanced buffer zones, ALUS, slope regs
 - New Soil Health monitoring for water permits
- Most potatoes in 3 or 4 year rotation



Room for Improvement

- Growing potatoes requires tillage!
- Traditionally, potato rotations in PEI were potato – barley underseeded red clover – red clover (plowed in the fall). This was found to multiply other soil borne diseases and was not maintaining soil OM without significant manure use
- Decrease in livestock sector has reduced market for forages/less manure
- Long-term soil quality monitoring in PEI identified a reduction in soil OM over the past 20 years in potato rotations, though that has stabilized/increased in recent years.

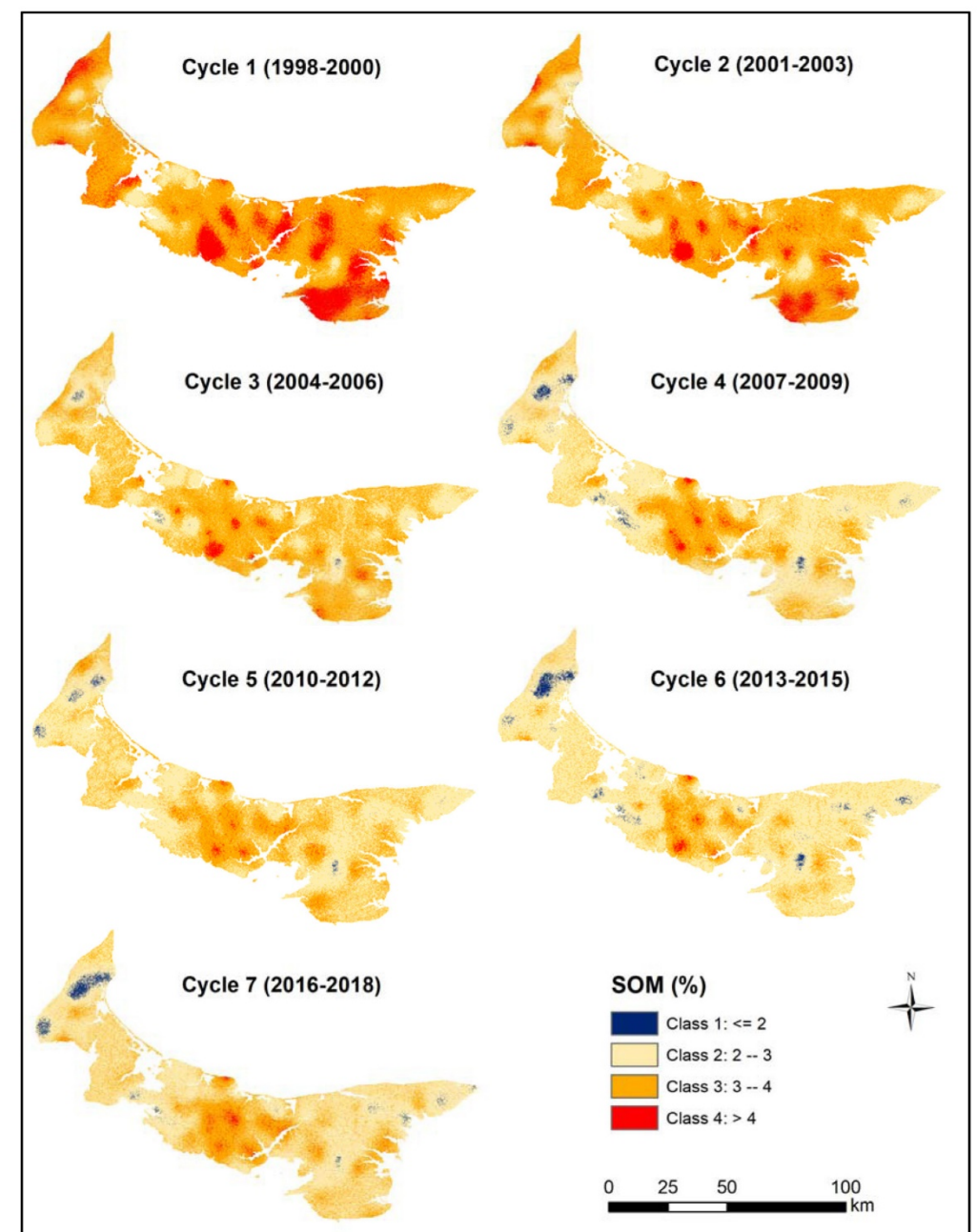


Figure 2. Soil organic matter (SOM) levels spatially distributed using a regression-kriging model from data acquired through the PEI Soil Quality Monitoring Project, up to and including until end of cycle 7 (Nyiraneza et al. 2017).

Producers at the heart of change!

- PEI producers have identified that soil health improvement needs to be a top priority.
- **Agronomy Initiative for Marketable yield** (AIM) – producer-driven program to strengthen local research and agronomy.
- AIM is a partnership between producers, processor, provincial and federal governments.
- **Soil Improvement Working Group**, with producers and industry partners
- Combination of plot scale trials, on-farm trials, local workshops, larger seminars, demo days, new extension tools



Agronomy
Initiative for
Marketable Yield



[Home](#) • [Topics](#) • [News](#) • [Podcast](#) • [Publications](#) • [Partners](#) + [Contact](#) • [Q](#)



Variety of Soil Health projects

- Living Labs Atlantic
- Nitrogen Management
- Manure Management
- Detecting/Mitigating Soil Compaction
- Reducing/Optimizing Tillage
- Disease Suppressive Crops



Agronomy
Initiative for
Marketable Yield



Translating Research into Practices

- Take practices that have shown merit in controlled research trials (small-scale) and implement them on a field scale with producers.
- Work with producers to identify trials that are manageable, relatively easy to set up.
- Focus on key indicators
 - Crop Yield/Quality
 - Soil Organic Matter
 - Soil Health Metrics
 - Soil Nitrates
 - Percent Cover/Erosion Control Metrics



Living Labs Atlantic

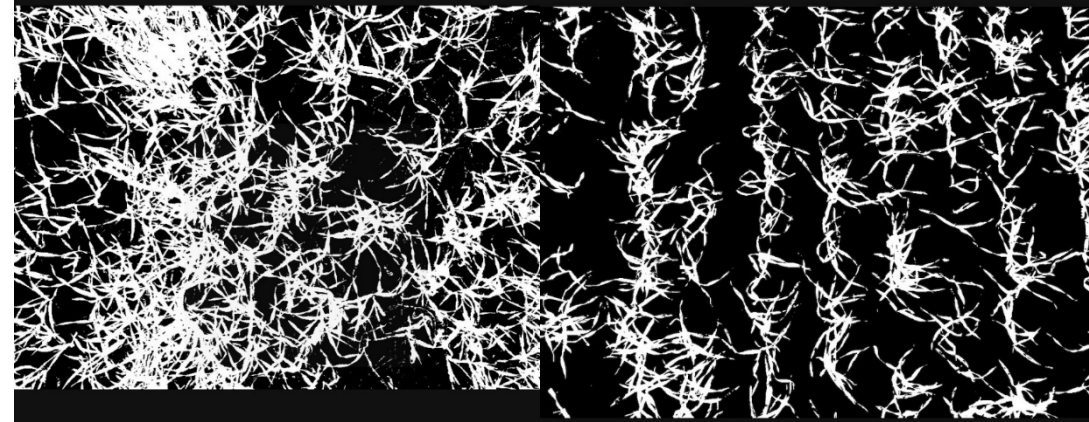
- Partnership between producers, producer organizations, federal departments/agencies, provincial departments, universities, watershed groups, and agronomists.
- Projects that focus on improving soil health and water quality.
- External component of project largely on-farm field trials directly with producers.

Canada



Fall Cover Cropping after Potato Harvest:

- Most potatoes are harvested in late September or October
- Working with growers to assess different cereals as **fall covers to prevent soil erosion and nitrate leaching.**
- Fall rye can usually establish up to October 15th (sometimes later)
- Worked with winter barley in 2020 for the first time.
- A lot more winter wheat now grown
- 45% of acres planted with post-harvest cover crop (up from 38% in 2019)



S. Barley
Planted Oct.1st
100lb/ac

43.65 %

S. Barley
Planted Oct.8th
100lb/ac

19.47 %

Fall Cover Cropping before Potatoes:

- Most producers historically do primary tillage in the fall before potatoes.
- Encouraging producers to not leave these fields open all fall and winter.
- Plant cover crops/mixes that will establish quickly in the fall but not hinder land prep in the spring.
- Spring cereals, brassicas, winter peas, etc.
- 2019/20 research showed a trend of **+25 cwt/acre in potato yield following cover crop** versus no cover check.
- Can be done at relatively low cost.
- 45% of fall-tilled acres had cover (up from 25%)



Soil-Building Cover Crops

- Potatoes are high value crop susceptible to several soil-borne pests/diseases.
- At the same time, want to identify crops associated with improvements to soil health.
- Research and adoption of disease suppressive crops which also build soil health:
 - Brown mustard
 - Buckwheat
 - Oilseed or Tillage Radish
 - Sorghum Sudangrass
 - Forage Pearl Millet
 - Alfalfa



How do we share results?



Field/Demo Days



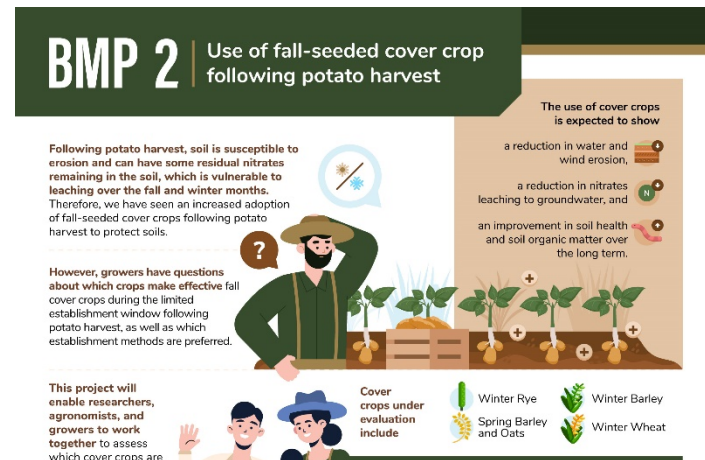
Industry Conferences



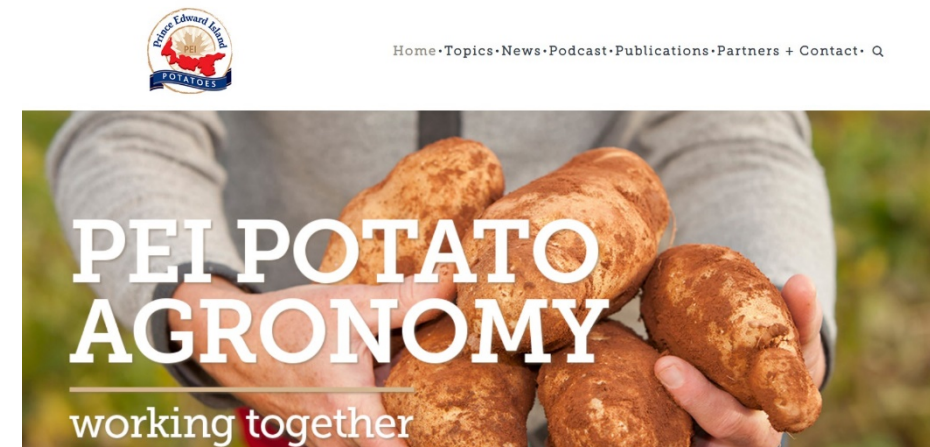
Podcast



Local Workshops



Factsheets/Infographics



Web Portal/Blog

How do we share results?

You Retweeted

 **PEI Potato Board** @PEIPotatoBoard · Oct 27

Agronomy Update - Oct 27. Great looking cover crops, soil health testing, looking ahead to "meeting season" and more.



peipotatoagronomy.com
Agronomy Update - October 27 - PEI Potato Agronomy
Good morning everyone, As of this morning, it sounds like harvest is more than 95% done, which is great. There are some farms still pickin...

  1  4 

Weekly Agronomy Updates

 **Ryan Barrett** @rbarrettPEI · Aug 14

Nice field of oilseed radish out in flower in Baltic Lot 18. We have a few fields with radish in rotation trials. [#agronomy](#)



 1   7  

Random Twitter Chat 😊



Strengths & Opportunities

- Engaged producers thirsty for solutions, interested in research
- ROI on cover crops easier to pencil out in short-term on high value crop like potatoes
- Increased market for winter cereals, pulse crops, oilseeds (ie. mustard) that allow for post-harvest cover cropping.
- Adoption of shorter-season potato varieties that allow for earlier harvest/cover crop establishment.
- Investment by provincial government in soil conservation structures, cover crop incentives, soil health testing.

The Power of Collaboration

SOIL FIRST FARMING

WHY SOIL MATTERS | SOIL FIRST PILLARS | PROFILED FARMERS | RESOURCE TEAM | SUPPORTS & PROGRAMS



SOIL FIRST FARMING



Thank You!

Ryan Barrett, P. Ag., CCA-AP

Research & Agronomy Specialist

PEI Potato Board

Tel: (902) 439-9386

Email: ryan@peipotato.org



@rbarrettPEI

www.peipotatoagronomy.com

**AIM
Funding
Partners**

