

# Cover Crops as Tools

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# Who is this guy?





# Who is this guy?

- **Crop Consultant**
  - Scouting
  - Precision Ag
  - Soil sampling
- **No product sales**



# ND Climate

- **Planting** **Late April-June**
- **First frost** **Late Sept-Oct**
  - **Corn GDD** **~2200**
  - **Corn** **85-95 day**
  - **Soybean maturity** **0.3-1.4**
- **Avg. Rainfall** **40 cm (15.5")**



# Crops

- Soybean 53%
- Corn 25%
- Spring Wheat 16%
- Field Pea, Barley, Oats, Dry Bean (Pinto), Winter Rye, Winter wheat
- Sunflower, Durum, Canola, Alfalfa, Flax, Buckwheat, Sugar beet, Hemp



# Glacial Till Soil





# My Goals

- **Make you uncomfortable**
- **Get into your head**
- **Question what you are doing**
- **Challenge you to do the impossible**



# Earth Day 2015









# May 2017





# “Snirt”



# Fertility in Ditch

Prov/State	N (#/a)	P (ppm)	K (ppm)	OM (%)	Ton/a
Ontario		37	282	9.4	
Minnesota	57	23	124		9.2
North Dakota	45	25	399		



# Native vs farmed









# Salinity













# Kochia













# Our Goals

- Erosion
- Water
- Salinity
- Weed Control





# What I understand about PEI

- Potato primary crop
  - 3 yr rotation
- Soil
  - Sandy
  - Few irrigated acres
  - OM low 1.5 avg 2.5%
- Major pests
  - Verticillium wilt
  - Lesion nematode
  - Wireworm
  - Common scab
- Rotation crops
  - Barley, wheat, peas, hay
  - Rarely soybean, little corn





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# PEI POTATO AGRONOMY

working together





Language

English

Province

Prince Edward Island

Crop Type

Select Crop Type

County

Choose a County

Crop Family

Select a specific crop

Plant date

Harvest

### COVER CROP PLANTING WINDOW



### COVER CROP PERFORMANCE RATING



☐ Hide Crops that are not suitable for planting

Cover Crop

Soil

Goals / Benefits

For more info, click on cover crop name.

**Broadleaf, non-legume**

Buckwheat

**Grass**

Millet, Pearl

Sorghum-sudangrass

Oats

Barley, Spring

Wheat, Spring

Ryegrass, Annual

Rye, Winter Cereal

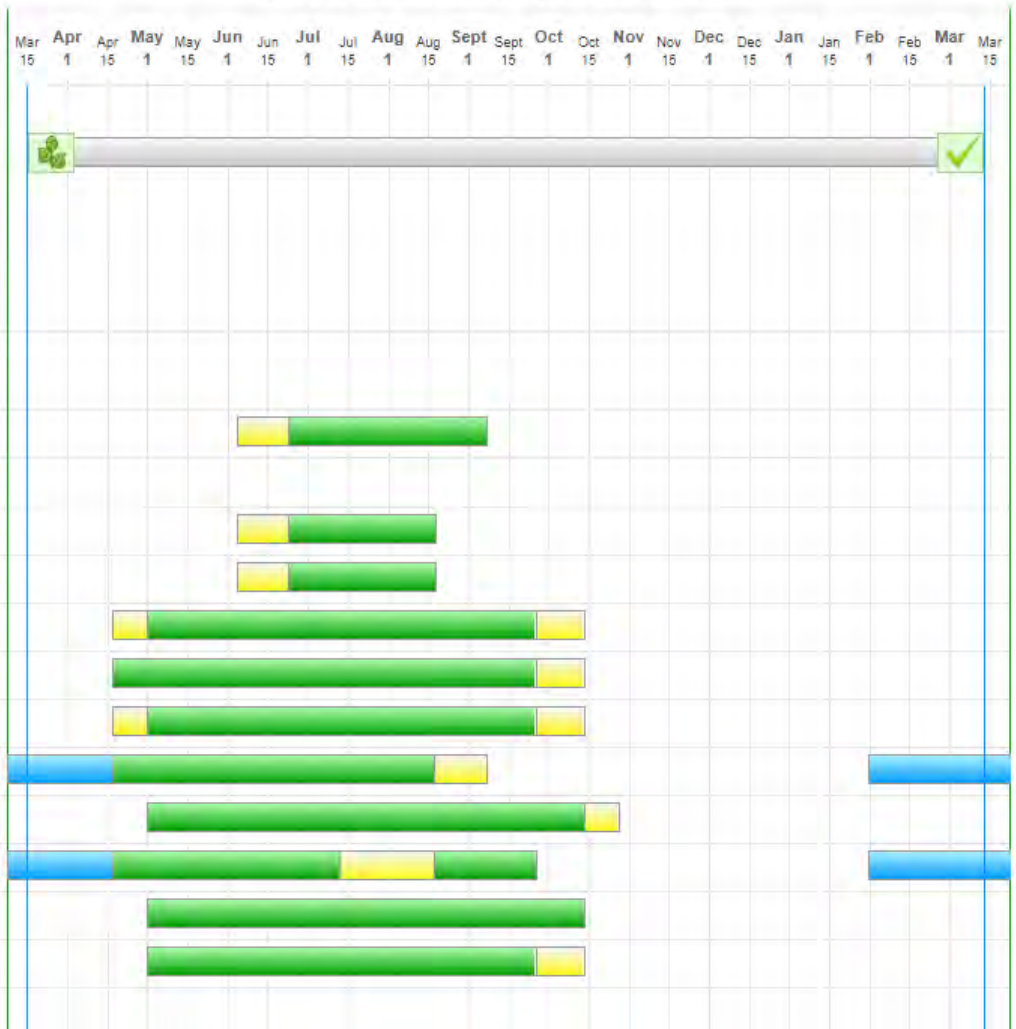
Timothy

Triticale, Winter

Wheat, Winter

**Brassica**

Main crop seeding dates with cover crop opportunities





# Identify **YOUR** challenges

- If you continue to do the same things in largely the same way, you should EXPECT your problems to get substantially worse.
- Rethink you system / Ask WHY do it this way?



# SEARS ROEBUCK AND CO.

CHEAPEST SUPPLY HOUSE

Could not supply  
over  
**ONE MILLION**  
Dollars

ON EARTH  
OUR TRADE REACHES AROUND

**THIS BOOK**

Tells just what your shopping  
at home pays for everything he  
needs and will prevent him from  
overbuying and so everything  
you buy from him.

## CONSUMERS GUIDE

FALL  
**1909**

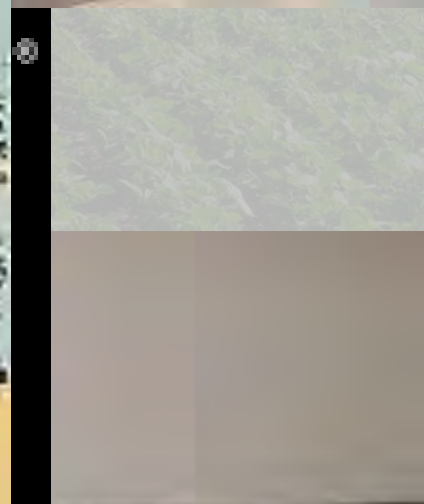


78 TO 96 FULTON  
73 TO 87 DESPLAINES  
AND 13 TO 31 WAYMAN STREETS  
CHICAGO, ILL., U.S.A.

SEA  
STORE

EVERYTHING  
MUST  
GO!

STORE  
CLOSING





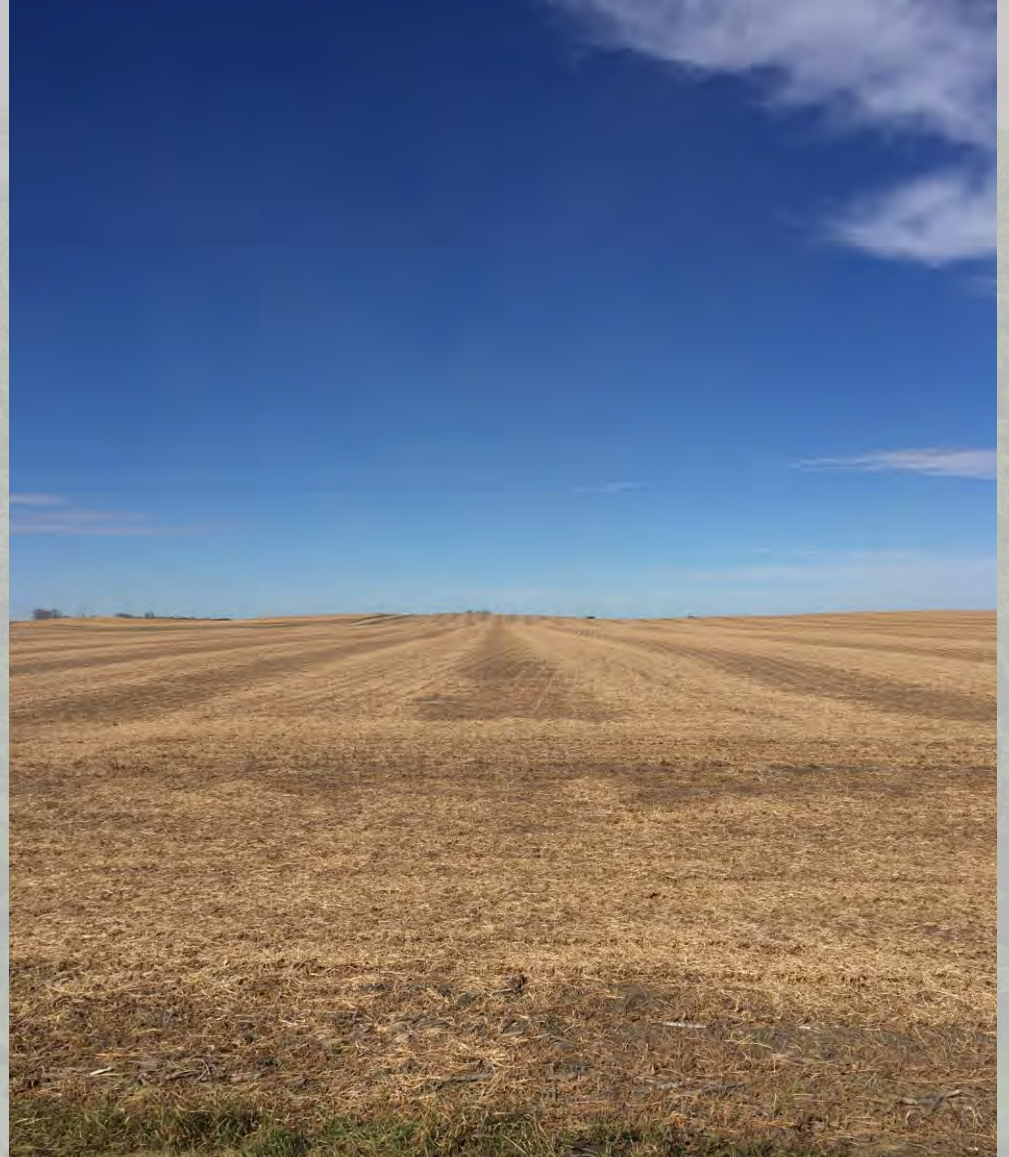
# What have researchers and neighbors found?

- ↑ Rotation
- ↑ Soil OM
- ↑ IPM
- ↑ Soil Health
- Biofumigation crops
  - Brown mustard, buckwheat
- Sorghum-sudan
  - Reduce Verticillium wilt
- Pearl millet
  - Helps reduce lesion nematode



# Challenge: Question your system

- New crops
- Longer rotation
- Reducing tillage
- Intercropping
- Interseeding
  - Covers
  - Trap crop
- No-till other crops





# Some Things We are Doing

- Reduced till
- Split fields
- Adding covers
- Use right species
- Carefully adjusting inputs
  - Weed control
  - Fertilizer































# Cereal Rye





# Cereal Rye





# “Planting Green”

























# Healthy Soil

- “continued capacity of the soil to function as a vital living ecosystem that sustains plants, animals and humans.”
- What does this look like?













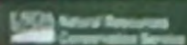












## Soil Structure Slake Test

Conventional Tillage

No-Till System

Soil Aggregate  
Stability

unlock the  
SECRETS  
of the  
SOIL





