

Crop Rotation/Cover Crop Status on PEI Potato Farms

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Crop Rotation on PEI Potato Farms

- Crop rotation on Prince Edward Island potato farms has changed a lot in the last few years.
- **Potatoes/Grain/Hay is no longer a dominant crop rotation** on most farms, and many more different crops are being grown.
- There isn't a recent report that captures the diversity of crop rotation and production practices.
- Having a good understanding of crop rotation dynamics is important!
 - Progress on Sustainability metrics / Research Priorities



Cover Crops on PEI Potato Farms

- Increasing interest in cover crops on potato farms.
- This includes both cover crops following potato harvest in the fall as well as cover crops ahead of potatoes to protect from soil erosion, build soil organic matter, and improve soil structure.
- Many growers are experimenting with different crops, different methods and timing of establishment. Still lots of learn.
- Is an upfront cost that may not be immediately paid back but is key for long term soil protection and soil health.



Crop Rotation Survey

- Online survey conducted in December 2019. Supplemental responses added by randomly selected telephone interviews in January 2020.
- Results included 75 farms with total of 42,253 acres, representing **49.4% of 2019 potato acreage.**
- Good representation of different farm sizes, regions of the province.
- Given this good response rate, we felt comfortable extrapolating to the whole PEI potato industry.



Crop Rotations in PEI
are featuring a more
diverse group of
crops, both cash
crops and soil-
building crops

Buckwheat



Brown Mustard



Alfalfa



Peas



Sorghum Sudangrass/Pearl Millet
underseeded with Alfalfa



Crop Rotation: Changing Dynamics

Table 1: Acres of crops grown in rotation with potatoes in Prince Edward Island in 2019.

Crop/Group of Crops	Reported Acres	Extrapolated Acres in All Potato Rotations
Small Grains (barley, wheat, oats, etc)	31,713	64,171
Pulse crops (peas, black beans)	1,893	3,830
Soybeans	2,915	5,899
Brown Mustard (all uses)	2,424	4,905
Buckwheat (all uses)	2,450	4,958
Sudangrass and/or Pearl Millet	6,949	14,061
Corn (all uses)	3,460	7,001
Red Clover	9,380	18,980
Alfalfa	4,120	8,337
Other grasses/pasture	4,254	8,608
Multi-species mixtures	4,779	9,670
Other soil building crops	1,100	2,226
Other cash crops (canola, hemp, etc)	810	1,639

Crop Rotation: Changing Dynamics

- Over 14,000 acres of Sudangrass/Pearl Millet
- Brown Mustard and Buckwheat similar acres (~ 5000 acres)
- 7000 acres of corn (upward trend)
- ~ 9700 acres of “multi-species mixtures”
- Increased acreage of alfalfa, decreased acreage of red clover
- A greater diversity of both cash crops as well as soil-building crops (forages, green manures) than seen in previous years

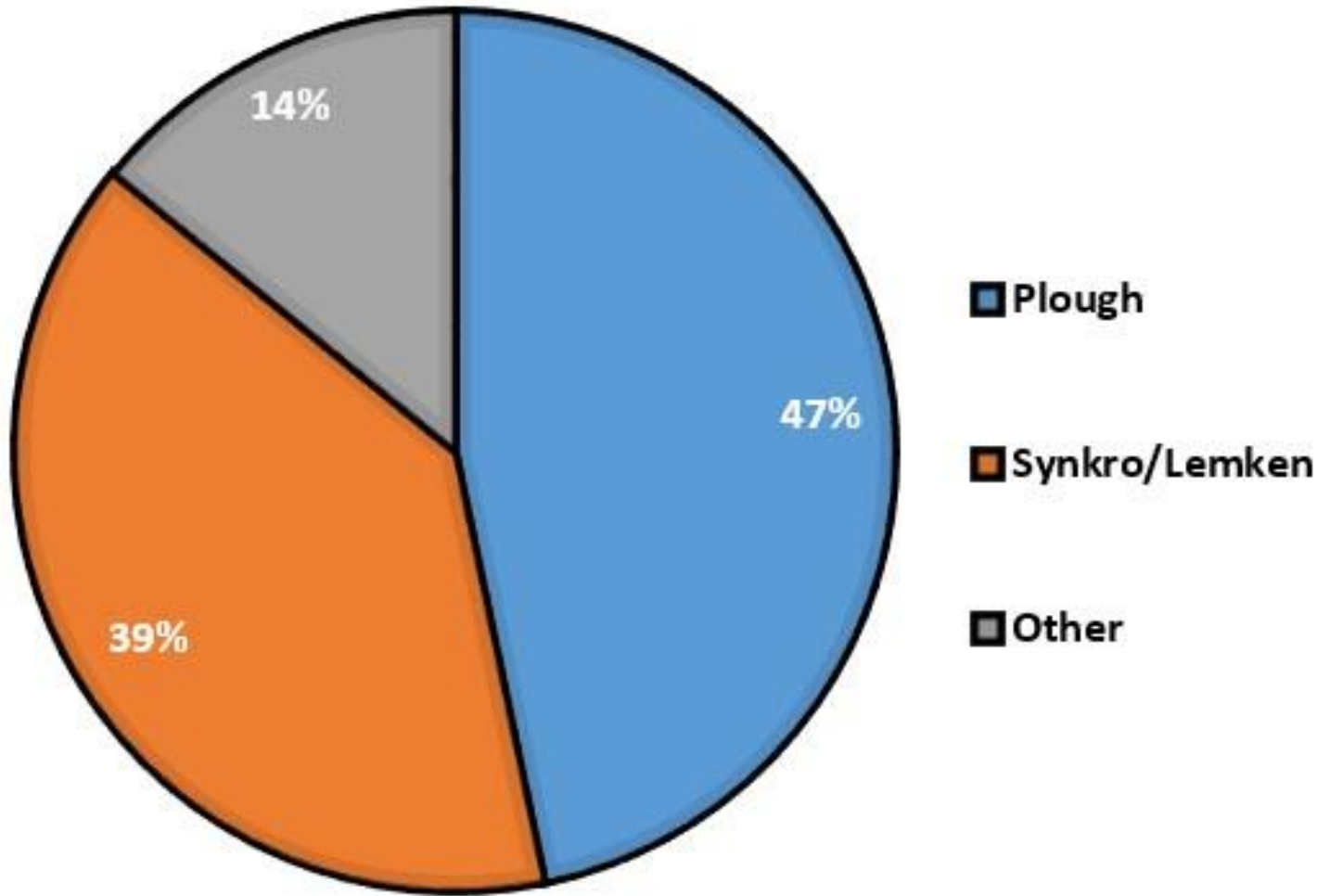


Cover Cropping

- Cover Crops after potato harvest: **37.4%**
 - Large diversity of responses from 0% to 100%
- Cover Crops after tillage in year before potatoes: **24.0%**
 - Higher level than expected
 - Mostly small grains/brassicas to protect soil in the fall/winter but does not impact land preparation in the spring
- **57% of respondents indicated they planted more cover crops in 2019** than the average of past three years



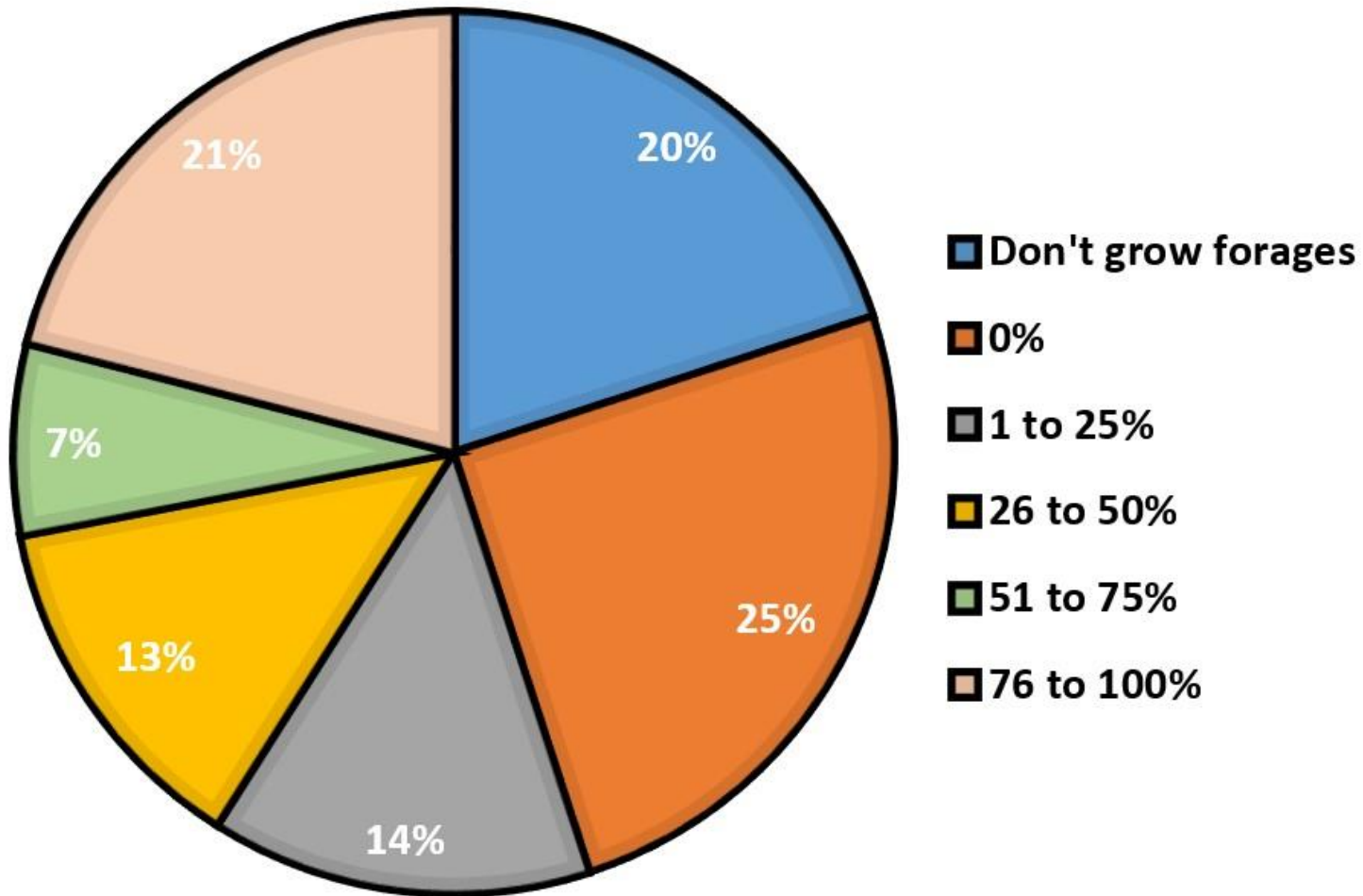
Tillage



Other Category included farmers that do both Ploughing and PRT, chisel plow, other equipment

Approximately half of respondents indicated that they use Synkro/Lemken type equipment on some of their acreage.

Percentage of forage acres being fed to livestock as hay/silage

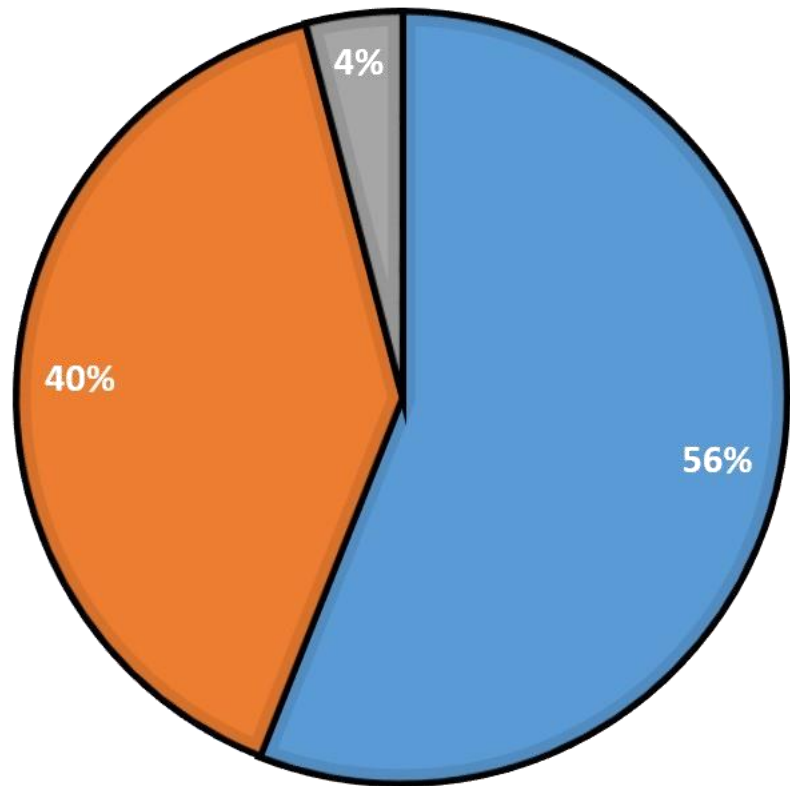


Only 28% of farms harvest half or more of their forage crops for hay/silage

Forages not being made into hay/silage mostly being mulched to build soil organic matter and return nutrients to the soil.

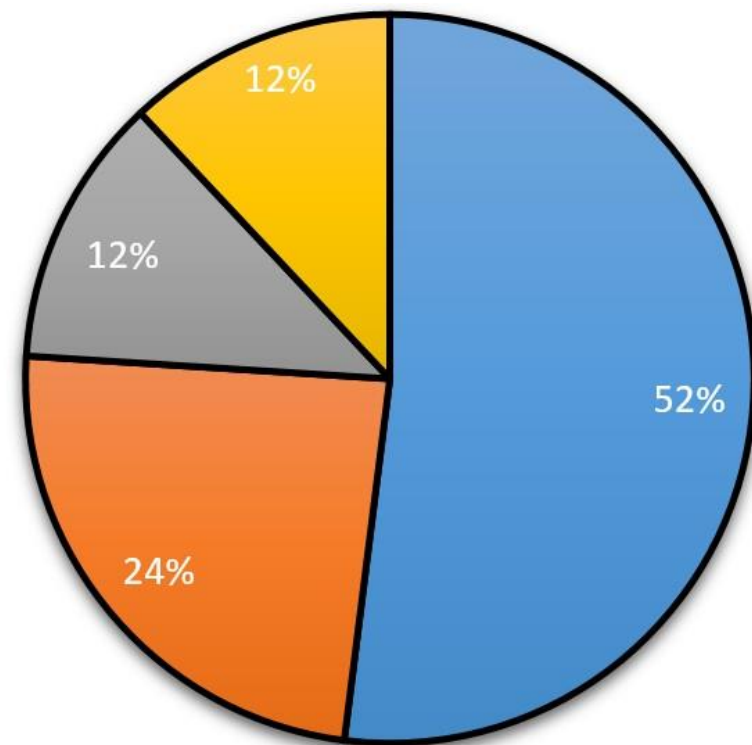
Use of Manure/Compost

Is manure/compost applied on any of your acres in potato rotation?



■ Yes
■ No
■ No Answer

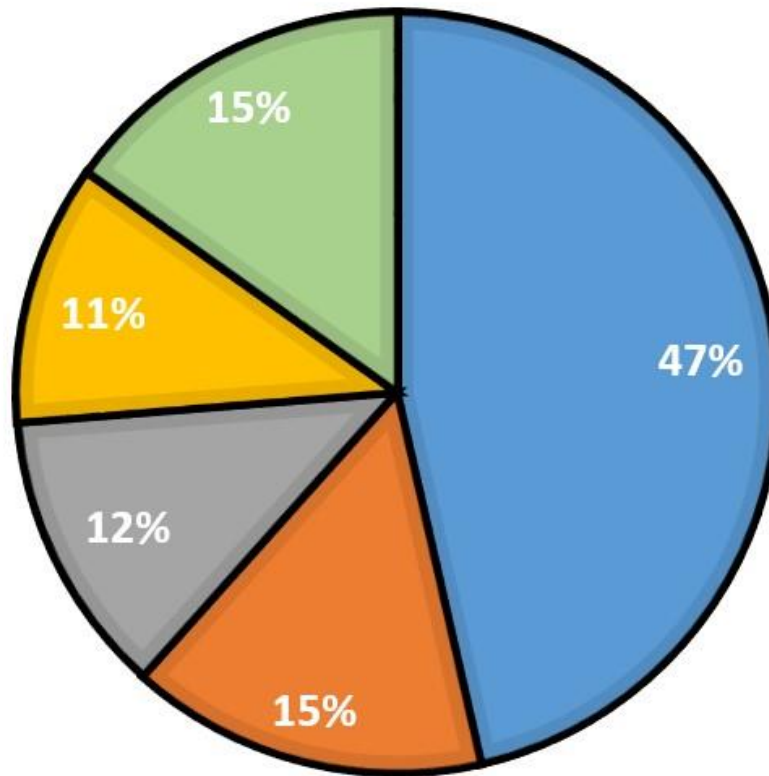
When is manure/compost applied in your rotation?



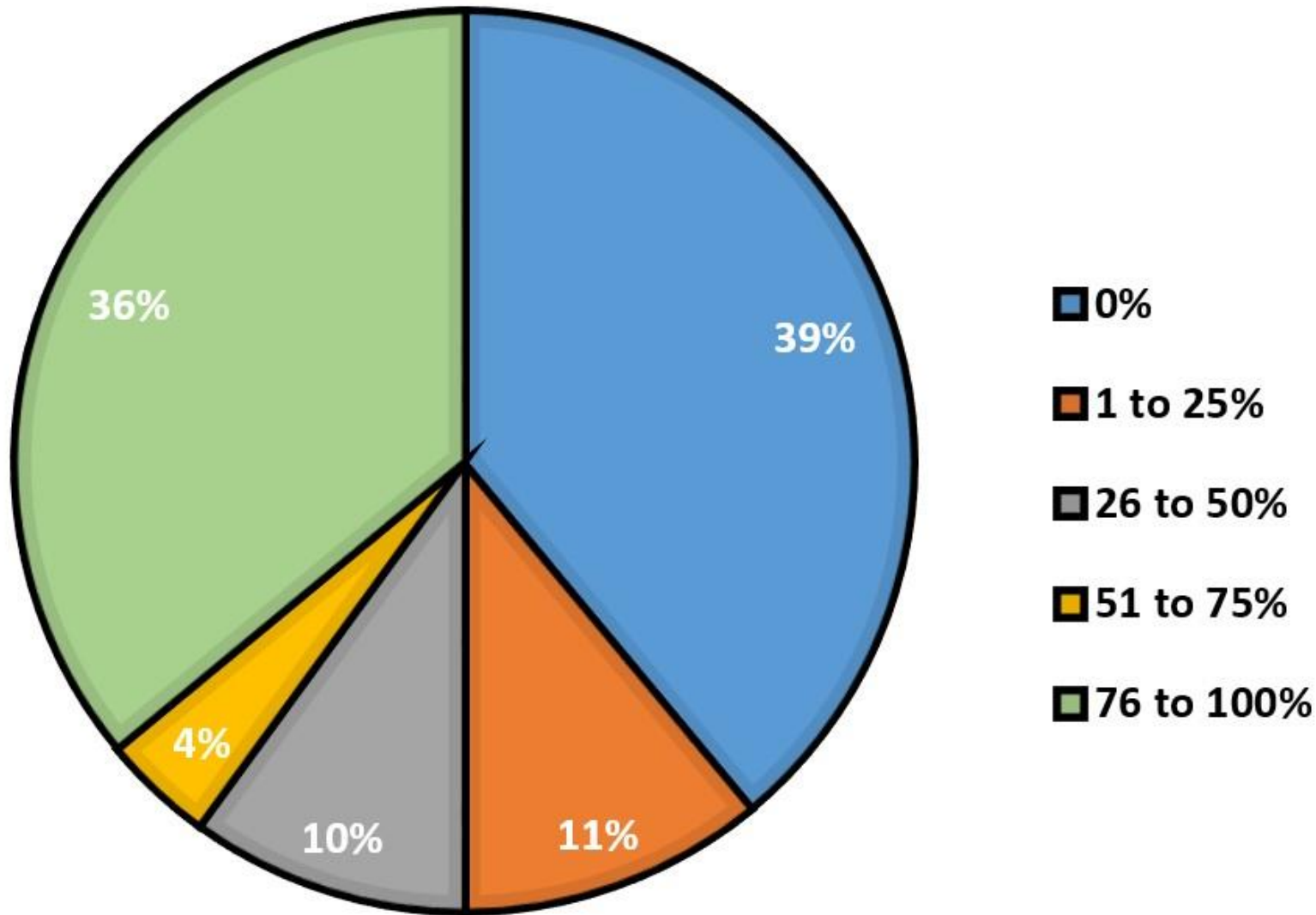
■ Fall ahead of potato planting next year ■ Another time in crop rotation
■ Spring directly before potato planting ■ Spring or summer year before potatoes

How do you treat straw on grain fields?

- 100% Sold
- Majority sold, some left on field
- About half sold, half left on field
- Majority left on field, some sold
- 100% chopped and left on field



Supplemental Fertilization of Forage Acres



50% of farmers indicated that they fertilize 0% to 25% of their forage/green manure acres.

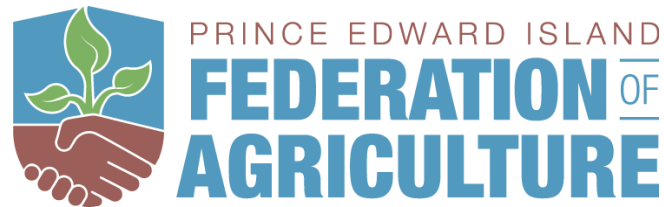
This may limit the value of these crops to build soil organic matter.
Opportunity for extension.

A Couple More Things...



PEI Agri-Watershed Partnership

- Partnership between the PEI Watershed Alliance, PEI Federation of Agriculture, PEI Potato Board, and Province of PEI
- Focus on collaboration to keep soil on fields and out of waterways
- Develop code of practice on most sensitive fields to demonstrate due diligence and prevent waterway degradation/fish mortality events
- Partnership will be having farmer engagement sessions in the near future. All farmers are encouraged to attend and provide feedback on proposed code of practice.



Upcoming Meetings

- **Cereals & Oilseeds/PEI Soil & Crop Conference** – March 4-5th
 - Credit Union Place, Summerside
- **AIM Local Workshops on Soil Compaction/Tillage** – March 12-13th
 - With Peter “Wheat Pete” Johnson
 - Emerald and Mill River on March 12, Montague on March 13th
- **Wireworm Seminar** – March 24th
 - Red Shores, Charlottetown
 - Update on latest wireworm research, product updates, BMPs for control



Any Questions?

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www.peipotatoagronomy.com

