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Research Highlights:

- Potato Variety Trials
- AIM On-Farm Research
- Minister Visits PEI



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Prince Edward Island POTATO NEWS

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Cover: Project Manager with the Souris and Area Branch of the PEI Wildlife Federation, Jake MacKinnon and Visiting Field Technician from the Canadian Conservation Corps, Jenna Shemmans cleaning out splash pans as part of the evaluation to assess the use of fall-seeded cover crops to reduce soil erosion; a project done in cooperation with the PEI Potato Board. Photo: Morgan McNeil.



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Chairman's Comments

C.E.

by John Visser, PEI Potato Board Chairman

Those of us in the PEI potato industry are feeling a mix of relief and frustration. We are very pleased to see the science behind the risk mitigation measures recognized by both CFIA and then by USDA's respective Pest Risk Assessments and learn that our fresh potatoes once again will be moving into the United States. However, frustration continues that CFIA officials did not exhibit faith in our management plan from day one.

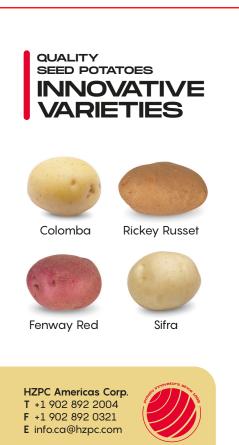
On March 24, 2022, the Potato Board was informed by the Canadian Minister of Agriculture's office that fresh potato shipments would resume to the United States. The 2015 US Federal Order would be amended with the following conditions :

- imported table stock potatoes from PEI and the seed potatoes used to produce them must originate from fields not infested with potato wart or associated with infestations.
- the potatoes must be washed in PEI to remove soil, treated with a sprout inhibitor, and graded to meet the U.S. No 1 standard.
- shipments must be officially inspected by the NPPO of Canada and certified as meeting USDA requirements.

As of press time the full details of the Federal Order are not known.

This will provide some reassurance to growers going into the 2022 planting season but many questions still remain:

- Following the initial detection of potato wart in 2000, activities were carried out in 2001-2003 to establish a pest free area in PEI based on international guidelines. These activities included:
 - For these three years every potato field was visually inspected at harvest for potato wart.
 - For these three years, every seed lot had a soil sample collected and tested for potato wart.



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That pest free area has been maintained every year since through extensive CFIA soil testing and visual surveillance activities and industry partner visual surveillance. With this information in hand, should the Ministerial Order that covers all of our province be scaled back to regulated/ restricted fields.?

2. PCN and potato wart are both long lived, soil borne quarantine pests. Should we be opening both management plans for change and looking to treat both pests in similar manner – confirmation testing to declare a positive, and requiring similar procedures to contain the organisms and deregulate both PCN and Potato Wart infested and related fields?

The Prince Edward Island Potato Board offers its heartfelt thanks to Minister Bibeau, federal MP's, Premier King, Minister Thompson (and their teams), and most especially to all Islanders for their support during this trying time.

Your efforts and support has been essential throughout this ordeal.

We do however still have very critical issues that need to be addressed in the short term:

• compensation, especially for our seed growers;

• continuing to review science based evidence that will help us to adjust our Long Term Management Plan going forward so that if there is another detection of potato wart some time in the future, it would not cause the trade disruptions we have experienced this season.

We will continue to involve growers in discussions going forward and wish you the best in the upcoming planting season.

John Visi

4 Prince Edward Island Potato News

PEI Potato Board News

Canadian Minister of Agriculture, the Honourable Marie-Claude Bibeau, Visits PEI

On March 26 and 27, 2022, Canadian Minister of Agriculture, the Honourable Marie-Claude Bibeau traveled to PEI for the first time since the border to the US was closed on November 21, 2021 and the Ministerial Order was put in to effect restricting shipments to the rest of Canada. Immediately prior to her visit, USDA/APHIS announced the resumption of movement of fresh PEI potatoes to the United States. The industry is still awaiting details and implementation data, but it is hoping everything will be in place and potatoes moving by early April.

After meeting with PEI Minister of Agriculture and Land Bloyce Thompson and staff, local CFIA personnel, and producers Alvin and Ray Keenan of Rollo Bay Holdings from eastern PEI, she traveled to several potato farms to speak to small groups of farmers in central and western PEI.

Ministr Bibeau first travelled to Victoria to visit at Victoria Potato Farm and Thompson Potato Company. She received comments from seed potato growers who have been severely impacted by the Ministerial Order and the loss of seed markets. Others commented on the need for better two way communication with CFIA officials in



Ottawa. Farmers noted to the Minister that they do work well with local CFIA inspectors, but the centralization of decision making in Ottawa has led to problems in a number of areas.

The group then travelled to Urbainville Farms in Wellington, PEI. There the farmers were able to give the Minister an understanding of the scale of the volume of potatoes that were destroyed on PEI in recent weeks.

The final grower visit was to the farm of Jeff and Morgan Smallman in the O'Leary area. The discussion focused on the chip potato sector and the impact the Ministerial Order restrictions have on the shipment of processing potatoes to locations off Island.

These visits helped to provide growers an opportunity to speak to the Minister directly and increase her awareness of the impact this situation has had on the farm.

Board directors met with the Minister and her staff at 8 AM on Sunday morning. The Board outlined the importance of compensation; the need to, based on international guidelines, shrink the areas covered by the Ministerial Order; the need to implement a revised confirmatory testing process and to work on several other science issues relating to potato wart.

The industry was pleased to see the Minister visit the province and get a first hand view of how this issue is impacting potato farmers and related businesses in PEI.



Above left: Minister Bibeau speaks with farmer and Board Chairman John Visser (left) and farmer Andrew Smith (center) during a visit to Victoria Potato Farms in Victoria PEI. Above right: Minister Bibeau concluded her visit to PEI with a discussion with the directors of the PEI Potato Board on Sunday morning. Photos: Mary Scott Greenwood and Mary Kay Sonier.

The Island Way

Community support has meant a lot to Island potato farmers during the difficult winter. When news came out that shipments to Puerto Rico could resume with the additions of stickers carrying additional information on hundreds of thousands of 5 pound bags - community groups and individuals were eager to help.

Environment Canada Loses Appeal in SkyeView Farms Case

As you know, Skye View Farms and the Docherty family had to go to court to fight charges that Environment and Climate Change Canada laid against them after torrential rains several years ago. Judge Orr found them not guilty of the charges, but the federal government has chosen to appeal that decision to higher and higher levels of the court. To date, Alex and his family have fought and won the appeals as well as the original case.

Tuesday, February 22, 2022, the PEI Court of Appeals dismissed the most recent appeal filed by the federal government. In other words, Skye View Farms and the Docherty's won again. This latest appeal was at the highest court in PEI, and the appeal was heard by a tribunal of three



Members of the Knights of Columbus from St. Joachim's parish in Vernon River help put labels on potato bags for Puerto Rico at Gerrit Visser and Sons in Orwell.

judges.

The federal government has 60 days from February 22 to file yet another appeal. We understand that if the federal government chooses to appeal yet again, this time the appeal will be to the highest court in Canada, the Supreme Court of Canada. We hope the federal government will

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decide to accept the rulings of all the previous judges that have heard this case. We welcome the news that Alex has shared with us.

Chlorothalonil Review

On May 10, 2018 the PMRA published the following conclusion:

"The PMRA has completed the re-evaluation of chlorothalonil. Under the authority of the Pest Control Products Act, the PMRA has determined that continued registration of products containing chlorothalonil is acceptable. An evaluation of available scientific information found that most uses of chlorothalonil products meet current standards for protection of human health or the environment when used according to the conditions of registration, which include required amendments to label directions."

The PMRA subsequently initiated an unannounced Special Review of chlorothalonil (BRAVO/Echo) based on the aspects of concern identified in the EU decision to discontinue use for human health (exposure to metabolites in groundwater, dietary exposure, genotoxicity of metabolites) and environment (risk to amphibians and fish).

On February 10, 2022, the PMRA published the Proposed Special Review Decision for chlorothalonil fungicide. The proposed decision is to cancel all food and outdoor uses of chlorothalonil, including potatoes. Dietary risks (food alone and food plus water) were not shown to be acceptable for food uses when chlorothalonil is used according to current conditions of registration. Based on this, all food uses of chlorothalonil are proposed for cancellation and all maximum residue limits (MRLs) are proposed for revocation. Environmental risks to aquatic organisms were not shown to be acceptable for all outdoor uses when chlorothalonil is used according to current conditions of registration.

There is a 90-day public comment period for this proposed decision which ends May 11, 2022. The Canadian Potato Council is responding to the consultation for this completely unexpected and stunning proposed decision and including input gathered from potato growers across the country. Further information from PMRA will be forwarded as soon as it is released. Stay tuned for a survey on your farm's use of Bravo/Echo. In previous reviews, usage data directly from farmers has been instrumental in PMRA reversing or changing decisions that would have eliminated tools from the crop protection tool box.

John Barlow, Conservative Agriculture Critic and MP for FootHills, Visits PEI Potato Producers

John Barlow, Conservative MP Foothills, has been a vocal supporter of PEI potato farmers during the current crisis. He has asked questions on the issue several times during Question Period in the House. He visited the Island on March 19, 2022 and spent time with Island potato farmers to better understand the issue and followed this up with several

pointed questions to the Minister of Agriculture and CFIA staff during the Standing Committee on Agriculture meeting the following week. In the photo to the right he is seen discussing the disposal of quality potatoes seed with grower Alex Docherty.





March/April 2022

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A huge thank you and congratulations to the five farms that organized and participated in the Fill Your Boots potato give-away on February 26, 2022. Across the five farms they had well over 5,000 visitors, gave away more than 150,000 lbs of potatoes, and collected \$8,350 in donations to food banks.







2021 Research and Agronomy Trials

Ryan Barrett, Research & Agronomy Specialist

2021 was the busiest year yet for potato research and agronomy trials under our supervision. This includes trials as part the Agronomy Initiative for Marketable Yield (AIM), the National Potato Cluster, and some other provinciallyfunded research projects.

In this issue of the Potato News as well the next issue, we will be sharing the results of some of our 2021 trials. Some of these trials are one-year stand alone trials, while other are multi-year trials or part of a larger, national research project.

Within AIM, we've had a great diversity of trials over the years, including in 2021. Trials completed last year covered topics such as fall hilling, cover crops before and after potatoes, soil-building and disease-suppressive crops, fungicide and foliar fertilizer efficacy, compaction mitigation, seed piece size, physiological age of seed, and more. Full trial reports are available on the PEI Potato Agronomy site at www.peipotatoagronomy.com. As part of the National Potato Cluster, the Potato Board has been conducting trials as part of the Canadian Potato Early Dying Network (CanPEDNet) project, doing surveys and follow up in a number of fields for Verticillium and root lesion nematodes. In addition, we partner with AAFC to support their wireworm project each year.

Also in 2021, we completed projects supported by the Applied Research and Innovation Program from the PEI Department of Agriculture & Land (under CAP funding) investigating crop diversity in a long-term potato rotation as well as the use of the Spornado spore trapping program.

A very special thank you to the producers who have partnered with us for these trials. In 2021, we had one or more trials with potato samples harvested at 24 farms across the provinces. Additional farms provided fields for survey testing or will be in potatoes in 2022. Without the involvement and commitment from producers, we would not be able to do these trials, so thank you very much for your partnership and your support!

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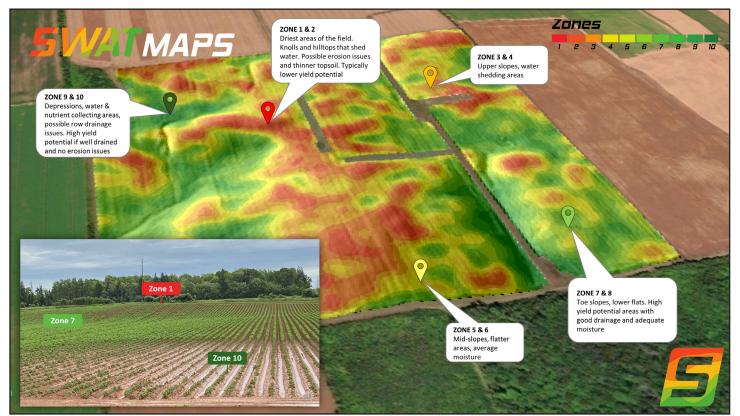
Investing in Soil Mapping Can Mitigate Rising Fertilizer Costs

by Evan MacDonald

Fertilizer prices for 2022 are looking sky high. Farmers will be looking to cut costs in other areas to offset the projected rise in fertilizer prices. One area that farmers should consider investing in, rather than cost-cutting, is soil mapping and sampling. Now, more than ever, is the time to try and gain a better understanding of fertilizer response variability throughout the field. Many farms may look at cutting fertilizer inputs by 10-20 percent. Rather than cutting rates across the board, it would make sense to invest some of that money into soil mapping and understand where they should be cutting rates, to improve their return on investment for costly inputs.

Farmers know the areas of their fields that typically yield better than others from year to year, or areas that have drainage issues and cause problems in the spring or fall due to excess moisture. Translating that knowledge into a shapefile that controls how much fertilizer is applied across the field is a difficult task. SWAT (Soil, Water and Topography) MAPS aim to identify the differences in the field that do not change from year to year. SWAT combines two fundamental data layers to map out those differences: electrical conductivity (EC) which measures differences in soil texture and soil water holding capacity, as well as accurate elevation information, which is used to identify where water sheds and where it collects. Every farmer knows that water has a huge impact on yield at the end of the season, and its availability (too little, just right, or too much) often dictates whether plants will be able to take up nutrients from the soil. Understanding which areas of the field are likely to have higher soil organic matter and higher soil moisture can help us build better fertilizer prescriptions.

SWAT MAPS involves identifying variability in the field, and then soil sampling according to zones which have similar fertilizer response characteristics. The driest areas of the field are sampled together, mid slopes are sampled together, and the wettest areas of the field are sampled together. After soil results from the lab are available, we can apply local agronomy knowledge and create variable rate fertilizer prescriptions for products such as lime, potash, KMag, and Urea. Technology for variable rate application



Example of a SWAT Map that identifies different zones in the field. These zones can be used to develop a variable rate fertilizer prescription for products such as lime, potash, KMag and Urea.

with granular fertilizer spreaders is commonly available and practical for these products that are put on pre-plant.

After observing thousands of soil samples over the past two years, patterns we typically see in PEI are higher phosphorous (P), lower pH, and lower organic matter (OM) values on our hilltops. We generally see higher potash (K2O) and higher OM in lower landscape areas. With these trends in mind, we can begin to understand what a more targeted fertilizer application may look like. Many fields have ample P levels showing up on soil tests, but that P may not always be available due to factors such as pH. Since most P is applied at planting, there are limitations in doing variable rate. One way to resolve this may be by cutting P rates back and adding some extra lime to the hilltops, which generally have a lower pH, as this may help unlock some of that tied up P in the soil.

Building realistic yield goals by understanding the impacts soil types and topography have had over time can also help influence K2O and N recommendations. K2O levels are typically highest in lower areas of the field, so cutting rates in depression areas may make sense. Some hilltops will never reach 400 cwt/ac, even with adequate rainfall or irrigation. Fertilizing for a 400 cwt/ac crop when certain areas of the field have never come close to that does not make sense, especially with today's fertilizer prices. Erosion

history plays a factor and results in thinner topsoil, more rocks at the surface, along with lower yields and smaller tubers at harvest. Farmers are doing an excellent job to mitigate future erosion, but it's hard to reverse the impacts of past erosion, and in many cases, it would be better to try and manage it. Cutting rates where these issues are visible year after year may generate a more positive economic benefit for the farmer than trying to fix them.

Predicting yield at the start of the season is a superpower many agronomists and farmers wish they had. Building realistic yield goals based on a solid soil foundation map and an understanding of field history can help inform better N, P and K recommendations. Everything is tied to water - and considering soil moisture variability throughout the field will result in more optimal fertilizer applications. As planters become more capable, applying variable rates of N and P down the tubes at planting will be possible, increasing efficient use of this valuable input.

In addition to working as a Precision Agronomist with Croptimistic Technology Inc. (the company behind SWAT MAPS), Evan is working on a PhD project at UPEI focused on variable rate seeding of Potatoes. Results after year one have shown promise in increasing profitability for potato farmers by using an optimal seeding rate strategy. The project will continue with seed spacing trials in 2022.

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Potato Variety Trials

by Mary Kay Sonier, Seed Coordinator and Dave Main, AAFC Biologist

Each year potato variety trials are conducted at the Harrington Research Farm of Agriculture and Agri-Food Canada as part of five-year, Agri-Science Research Cluster Projects funded through the Canadian Agricultural Partnership Program. The objectives of the trials are to evaluate the performance of recently released varieties and advanced breeding selections in comparison to standard varieties for yield and quality under Prince Edward Island growing conditions and to provide growers with valuable information on the suitability of these varieties or production in PEI.

The focus on the PEI trial continues to be varieties suited for the fresh market and chipping industries. Standard varieties used as checks included Russet Burbank for the long/russet category, Norland and Satina for coloured skin and flesh category and Lamoka and Superior for the round white/chipping category. Industry partners sponsoring entries in the trial in 2021 included Parkland Seed Potatoes Ltd., the PEI Potato Board, Pommes de terre Laurentiennes Inc., Real Potatoes Ltd. and W.P. Griffin Inc.

Editor's Note: Long time Agriculture and Agri-Food Canada employee David Main will be retiring in the spring of 2022. Dave started out working as a weed science technician with Dr. Jerry Ivany and later moved into the Biologist role conducting all the variety evaluation work at the Charlottetown station. He carried out the AAFC breeding line trials, scab evaluation work, evaluation of varieties under an organic production regime as well as special contract variety evaluation under contract for various industry partners including the Potato Board. He was a member of the AIM Seed Working Group in recent years. Dave's professionalism and thoroughness in carrying out the trials has always been appreciated and we wish him well in his retirement.

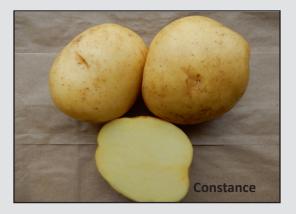
Variety	Stand (%)	Flesh Colour	Tuber Appearance	
Long Type	(70)	coloui		
Excellency	94	yellow	Very attractive, bright yellow tubers with smooth skin.	
Goldrush	100	white	Clean, russet skin tubers with uniform shape.	
Griffin Russet	100	yellow	Clean, nice russet skin tubers with uniform shape.	
La Belle	88	white	Attractive, uniform tubers with nice russet finish.	
Pomerelle	92	white	Attractive, uniform tubers with nice russet finish.	
Russet Burbank	100	white	Relatively uniform shaped tubers with russet finish.	
Coloured Skin				
AAC Red Fox	95	cream	Clean, medium sized red tubers with uniform shape.	
Constance	90	yellow	Very attractive, bright yellow uniform tubers, smooth skin.	
Huckleberry Gold	97	yellow	Nice, clean purple tubers with smooth skin.	
Norland	98	white	Pale to dark red tubers with smooth skin.	
Red Magic	99	cream	Clean, very uniform red tubers with smooth skin.	
Satina	100	yellow	Clean, bright smooth tubers with slightly visible lenticels.	
Chipping				
Dakota Pearl	100	white	Clean, light yellow tubers with smooth skin, uniform shape.	
Lamoka	100	cream	Smooth to lightly netted tubers with uniform shape.	
Mackinaw	99	white	Clean tubers with somewhat flattened shape.	
Manistee	100	cream	Lightly netted tubers with flattened shape.	
Niagara	99	cream	Uniform tubers with somewhat noticeable lenticels.	
RP-2019-13	100	cream	Relatively clean tubers with a somewhat bumpy shape.	
Superior	100	cream	Clean tubers with a somewhat bumpy shape.	

Table 1.Plant stand, flesh colour and tuber appearance for three market-typesof potatoes grown at AAFC, Harrington in 2021.

Table 2.

Tuber yield by size class, specific gravity and % hollow heart for Fresh-Market Russet potatoes grown at AAFC, Harrington in 2021.

Variety	Total	< 1 ½"	Small 1 ½" - 2"	No. 1 2" - 3 ½"	Cull	Mkt*	Specific Gravity
	(Metric ton	/ Ha)					
Excellency	61.4	1.96	11.87	44.9	2.62	56.8	1.082
Goldrush	48.2	1.39	5.79	40.1	0.9	45.9	1.083
Griffin Russet	52.6	1.24	8.48	41.8	1.01	50.3	1.084
La Belle	41.1	1.25	8.05	30.7	1.08	38.7	1.086
Pomerelle	37.1	2.09	4.96	29.8	0.24	34.8	1.076
Russet Burbank	63	1.78	9.69	47.1	4.38	56.8	1.094
* Mkt=Ma	* Mkt=Marketable (1½" to 3½"; no tubers >3½")						





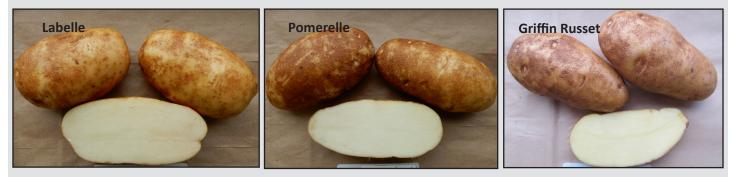


Table 3.

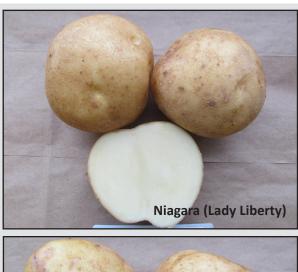
Tuber count and yield by size class, specific gravity and % hollow heart for Fresh-Market Round potatoes grown at AAFC, Harrington in 2021.

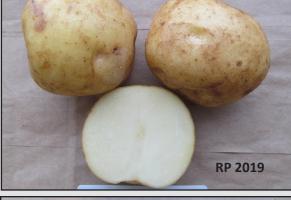
			1 ½" to	2" to	3 ½" to		
Variety	Total	< 1 ½"	2 "	3 ½" *	4 1⁄2"	Cull	Mkt **
			(m	netric ton / H	la)		
AAC Red Fox	42.3	2.52	10.2	29.1	0	0.41	39.3
Constance	58.8	1.81	9.61	44.1	1.9	1.32	55.6
Huckleberry Gold	46.5	0.29	3.08	40.5	2.3	0.32	45.8
Norland	43.3	1.76	8.61	32.6	0	0.29	41.2
Red Magic	55.8	0.8	4.42	49.5	0.3	0.67	54.3
Satina	64.3	2.01	7.71	54.2	0	0.42	61.9
* 60% by weight > 2	4" in diame	ter					
** Mkt = Marketable	e (1 ½" to 4	1⁄2")					

Table 4.

Tuber yield and count by size class, specific gravity and % hollow heart for chipping potatoes grown at AAFC, Harrington in 2021.

			1 ½" to	1 ¾" to	3 ½" to		
Variety	Total	< 1 ½"	1 1⁄8"	3 ½"	4 ½"	Cull	Mkt*
			(m	netric ton/ H	a)		
Dakota Pearl	39	0.62	2.52	34.1	0.7	1.02	37.4
Lamoka	43.9	0.43	1.24	41.3	0.4	0.52	43
Mackinaw	50.8	0.49	1.7	47.7	0.4	0.55	49.7
Manistee	50.1	0.69	2.55	43.3	1.1	2.43	47
Niagara	62.3	1.68	4.5	52.6	0.4	3.17	57.5
RP-2019-13	59	0.9	3.46	52.9	0.8	0.94	57.2
Superior	55.1	0.44	2.58	50.4	0.4	1.29	53.4
* Mkt = Marketable	(1 ½" to 4 ½	<u>2")</u>					













Operation Pollinator Returns in 2022

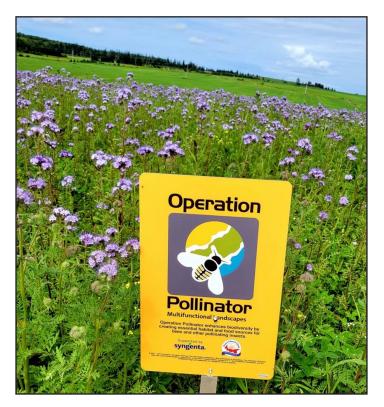
Last spring, the PEI Potato Board introduced the Operation Pollinator program, inviting participating farmers to set aside one to two acres of lower productivity land to be planted with a pollinator-friendly seed mix. Participants receive a provision of high-quality, commercial seed, agronomic advice, and financial assistance to help offset site establishment costs.

Operation Pollinator is one example of how Syngenta is helping enhance biodiversity on farms. It is an international initiative focused on research and partnerships to promote the health and well-being of bees and other pollinating insects given their essential role in agriculture and nature.

"We are pleased with the positive reception PEI growers have given Operation Pollinator and the hands-on support from the PEI Potato Board," shares Erin McGregor, stewardship and policy manager with Syngenta Canada. "We know the success of the on-farm Operation Pollinator program is due to our partnerships with organizations and farmers that take up these opportunities to support and enhance biodiversity and bring their energy and commitment to supporting best management practices."

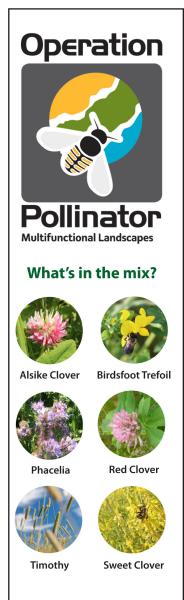
She adds that the PEI Potato Board has a strong history of supporting growers on matters related to agronomy and environmental stewardship and sustainability.

In 2021, sixteen farms participated in the program,



and the Board is looking for another 18-20 farms interested in participating 2022. Growers can in speak for up to two acres per project. Ideally, these should be land acres that is already being setaside (grassed waterways, extended buffer zones, grassed headlands) and will serve as a long-term pollinator refuge. Forage species in the mixture include phacelia, red clover, alsike clover. birdsfoot trefoil, yellow sweet clover, and timothy. These species flower at different times throughout the growing season.

"We were very pleased to have such strong uptake in the first year of the program, and we look forward to having even more participation in 2022," said Ryan Barrett, Research and Agronomy Specialist with the PEI Potato Board. "In addition to considerable interest from potato growers, we



also had significant interest from the public in land being set aside as long-term pollinator refuges."

The photos of 2021 cooperator sites illustrate some of the successes experienced in establishing pollinator habitats on farm. "We understand the interest and uptake in the program was enthusiastic and we are very pleased to be able to again support the Board in offering Operation Pollinator to PEI potato farmers and other members of the agricultural community this year," noted McGregor.

To enroll, simply contact Ryan Barrett at the Board office at (902) 892-6551 or ryan@peipotato.org. We will then arrange for seed delivery prior to spring planting. Morgan McNeil or Ryan will then arrange a visit after planting to take photos and complete site identification.

AIM Trial: Effect of Different Legume Species on Potato Yield and Quality

Ryan Barrett, Research and Agronomy Specialist

There have been many questions from potato producers regarding how different species of forage legumes may differentially host Verticillium dahliae and root lesion nematodes, causal agents of potato early dying (PED) complex. Past research in PEI has indicated that red clover is a preferred host for both of these pathogens. However, there is little research on other forage legumes like alfalfa and white clover in comparison with grass species.

In the spring of 2019, two fields in Western Prince Edward Island were planted with strips of the following forage species: double cut red clover (RC), alfalfa and timothy (ALF), white clover and festolium grass (WC), birdfoot trefoil (TR), and grass as a non-legume check. Festolium grass was planted at both sites, but did not establish well at the Alma field, so the comparison was done using Italian ryegrass which was planted in the same field directly next to the festolium strip. Birdsfoot trefoil did not establish well at either site so was excluded from further testing and analysis.

Both fields were planted on the same day in May 2019 using the same seeding rates and the same equipment.

Each legume strip was four widths of the grain drill and was planted with barley at approximately 40 lbs per acres as a nurse crop. Soil chemical, Verticillium and nematode testing was completed spring and fall of 2019, spring and fall of 2020, and spring 2021 before potato planting. Both fields were planted to potatoes in 2021. Mountain Gem Russets were planted at the Alma field, while Prospect was planted at the Huntley field.

Over the three years of testing, we saw very little change in soil organic matter, pH, or soil nutrients between treatments in either field. There was some variability within the field for these variables, but not at levels likely to impact trial results. Both fields had pH high enough to grow good legume crops, but both fields would be described as lower for organic matter.

We were only able to do compaction testing on the Alma field, but we did observe reduced levels of compaction (measured with a penetrometer) at 9 and 12 inches soil depth in the alfalfa/timothy treatment compared to the other crops, particularly the red clover which was the next treatment over.



Alfalfa/timothy treatment on the left, double cut red clover on the right in the Wallace Properties field in June 2020. Photo by Ryan Barrett

Looking at soil health metrics, we didn't see much clear difference between the treatments in either field. In the Huntley field, the white clover/festolium treatment has the lowest biological N availability, while it performed best for this metric in the Alma field.

For Verticillium dahliae (Vd), counts started out high in both fields. By the spring of 2021, Vd had decreased 66 to 85% in the Huntley field and 52 to 85% in the Alma field. Vd counts were slightly higher in the alfalfa/timothy treatment in both fields, but was still within the margin of error.

For root lesion nematodes (RLN), there was a considerable difference between the two fields. In the Huntley field, RLN counts were high at the start of the trial and were generally even higher by the spring of 2021. RLN counts were highest in the red clover until the spring of 2021, when they were higher in the alfalfa and festolium treatments. There can be a great deal of variability in RLN counts from test to test, but we can show that RLN counts did not appear to decrease significantly across the three year. In the Alma field, RLN counts started out quite low. They spiked upward multiple times in the red clover and ryegrass treatments and stayed consistently higher in the white clover treatment. RLN counts remained consistently low in the alfalfa/timothy treatment in this field.

When we looked at the yield and tuber quality metrics, we saw very much the same trend in both fields. The alfalfa/ timothy treatment had the highest total yield, marketable yield and crop value in both fields when compared to the other treatment. These differences were statistically significant in one field and borderline significant in the other. In the Huntley field, the alfalfa treatment had a marketable yield of 337 cwt/ac, 27 cwt/ac higher than red clover and 52 cwt/ac higher than festolium grass. In the Alma field, the alfalfa treatment also had a marketable yield of 337 cwt/ac, 58 cwt/ac higher than the red clover and 61 cwt/ac higher than the ryegrass. There was not much difference in size, defects or gravity observed between the treatments.

From our results, it's hard to tell whether the alfalfa/ timothy treatment actually suppressed potato early dying, particularly as the two varieties planted are a bit more resistant to PED. Nonetheless, we did see a similar bump in marketable yield and crop value following alfalfa/timothy in both fields compared with the other treatments. This could be due to a combination of multiple factors, such as increased nitrogen fixation and reduced soil compaction.

A big thank you to Wallace Properties and Dock Corner Farms for partnering with us on this three-year project. We really appreciate your efforts and collaboration!



March/April 2022

AIM: 2021 Seed Management Trials

Ryan Barrett, Research & Agronomy Specialist

In 2021, we organized three trials under the AIM Seed Management Working Group. All three were done in partnership with outside research teams.

Physiological Age of Seed:

For the second year in a row, we engaged with Genesis Crop Systems to do a plot trial at two farm sites to investigate the effect on yield and quality from manipulation of the physiological age of seed. For five varieties (Clearwater, Dakota Russet, Mountain Gem, Payette Russet and Prospect), we added an additional 191 degree-days of aging onto seed by removing from cold storage in January, warming up to 16-18 degrees C, and then putting back into cold storage. For three varieties (Russet Burbank, Alverstone Russet, and Clearwater), a subset of seed was kept cold (4C) longer into the storage season compared to conventional seed storage, thereby accumulating 399 fewer degree-days.

Sites were planted in late May. The West Prince site had lower yields than the Kings County site, due in part to lower total rainfall (and less advantageous timing of rain), lighter soil texture, and significant weed pressure.

At both sites in 2021, the Dakota Russet appeared to react positively to the winter warming treatment, with higher marketable yield (+28 & 47 cwt/ac) and crop value (+\$629 & \$732/ac). The other varieties did not show as much response to additional degree-days.

Alverstone Russet appeared to show some response to the refrigeration treatment compared to control, with higher marketable yields (+16 & +90 cwt/ac) and higher crop value (+\$193 and +\$635/ac). One of the two sites had statistically higher yields for the refrigerated Russet Burbank as well, consistent with trends we've observed in previous trials. For Clearwater, we had inconsistent results in 2021 between the two sites. This may need to be further investigated in future years.

Effect of Growth Regulators:

Side-by-side with the seed piece size trial, David Main also conducted a small plot trial investigating the use of growth regulators on two varieties that generally struggle with emergence: Dakota Russet and Payette Russet. By using different rates of gibberellic acid (GA), as well as a newer product called Stimulate that includes GA and two other growth regulators, we wanted to see if these treatments would have any impact on emergence and marketable yield.

For Dakota Russet, the treatments were no GA (check), 100% of the label rate of GA, 150% of the label rate of GA, and the label rate of Stimulate. Both of the GA rates showed a slight improvement in emergence rate (approx. 2-3 days) over the check and Stimulate treatments. The 150% GA rate also resulted in a significantly higher number of stems per plant (2.54 versus 1.98). Nonetheless, we did not observe



Row on left side (351) is Payette with zero GA applied. Row in the middle (352) is Payette with 100% label rate of GA applied. Row on the right is a guard row. Photo:

any difference in total or marketable yield between the four treatments. The two GA treatments did have statistically higher levels of small potatoes (less than 1.875 inch diameter) than the check.

Payette Russet, the For treatments were no GA (check), 50% of the label rate of GA, 100% of the label rate of GA, and the label rate of Stimulate. Once again, we did see a slightly improved rate of emergence for the two GA rates (2-3 days). Both of the GA treatments again produced higher numbers of stems per plant, but without much difference between the 50% and 100% GA rates. We also saw no difference in total or marketable yield between the four treatments for Payette; however,

tuber numbers were higher for both of the GA treatments (310 and 314 per row) compared with the check (277 per row). These additional tubers were largely in the "smalls" category, which explains why marketable yield was not increased for those treatments.

In summary, the GA treatments did not appear to increase marketable yield when graded for a French fry processing contract; however, tuber numbers did increase by approximately 10% in the GA treatment plots. This emphasizes the value that GA may have for seed producers who want to increase tuber numbers (and decrease average tuber size) without compromising yield.

Seed Piece Size:

David Main with AAFC Charlottetown agreed to host a trial for us at Harrington in 2021 looking at the effect of different seed piece sizes on yield and quality. Lots of growers are already cutting their

seed larger in recent years, so we wanted to try and look at the difference in yield and emergence from four different seed piece sizes (1.5, 2.0, 2.5 and 3.0 oz). Each seed piece was cut and weighed and planted in a split-block trial in May 2021. Two varieties were used: Dakota Russet and Mountain Gem Russet.

For both varieties, we saw a predictable (and statistically significant) increase in stem number as seed piece size increased. We also saw slightly faster emergence in the large seed piece sizes for Mountain Gem, but not for the Dakota Russets.

When looking at yields, the best marketable yield for both varieties was found in the 2.5 oz. treatment. While



total yields were comparable between the 2.5 and 3.0 oz., the 3.0 oz. treatment generally had more smalls and lower percent greater than 10 oz., resulting in comparatively lower marketable yields. This isn't surprising when you note that the 3.0 oz. treatment had more stems per plant and tubers per plant and in-row seed spacing was not adjusted. Therefore, growers would be recommended to slightly increase seed spacing as seed piece size increases. The 1.5 oz. treatment had the lowest marketable yield (though not statistically significant) for Dakota Russets, but no different for Mountain Gem. Seed pieces less than 1.5 oz. were not part of the trial, but multiple trial over multiple years in other areas have repeatedly shown that those small slivers have much lower yield potential and should be excluded from planting as much as possible.

Seed Size	Dakota Stems/Plant	M. Gem Stems/Plant
1.5 oz	1.46	2.54
2.0 oz	1.68	3.07
2.5 oz	1.87	3.58
3.0 oz	2.42	3.98

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An Update From the: PEI Department of Agriculture and Land

by Lorraine MacKinnon, Potato Industry Coordinator

PEI launches new service for producers:

Soil Health Improvement Plans

What is a Soil Health Improvement Plan (SHIP)?

A Soil Health Improvement Plan (SHIP) is a new advisory service developed to help producers understand their current soil health status and set actions to support soil health. Soil and Water Specialists will work with agricultural producers to develop a plan that outlines beneficial management practices on farm. The overarching goal of Soil Health Improvement Planning is to preserve and improve the health and quality of Island soils.

Soil Health Principles:

- Keep soil in its place
- Maximize soil cover
- Maintain living roots
- Use crops with increased residue
- Minimize tillage
- Add manure and soil amendments

Soil Health Testing results, along with other farm information, will be collected to get started on SHIP development.

Soil Health Improvement Plans will be required for irrigated fields in 2022 before you will be issued a Water Withdrawal Permit for any of the following:

- New high capacity wells (including research wells)
- New medium capacity wells with a permit under the Water Act.

How do I collect a soil sample for Soil Health Testing?

There is a slightly different method compared to traditional soil samples. Twice as much soil is needed and using a spade is recommended. Soil Health Tests are available at no additional cost beyond traditional soil tests.

For further instructions on Soil Health Test sampling, visit the PEI Analytical Laboratories website.

For more information on SHIP contact one of the PEI Department of Agriculture and Land's Soil & Water Specialists:

Tobin Stetsontrstetson@gov.pe.ca(902)314-0783Tyler Wrighttmwright@gov.pe.ca(902)314-0789

2022 Click Beetle Survey – trapping begins in 85 PEI fields this May!

Every three years, a collaboration between the PEI Department of Agriculture & Land and Agriculture & Agri-Food Canada allows for large-scale monitoring of click beetle populations across PEI. The click beetle is the adult form of the wireworm. Monitoring click beetle population dynamics is a key factor in the use of integrated pest management principles to reduce the wireworm population and its effect on various crops.



The last survey was carried out in 2019, and the results showed some promising trends – in many areas of the Island the populations of click beetles trapped had dramatically decreased, and the overall population had finally declined whereas each previous survey had shown



www.bdo.ca

population increases. Although the survey does not inform us of the reasons for this decline, the adoption of new cropping practices among PEI farmers (such as incorporating rotational crops like buckwheat and mustard) most likely had a positive effect over the course of a decade of monitoring. This is a tremendous accomplishment, and we owe thanks to local research led by Dr. Christine Noronha as well as the curiosity and cooperation of many farmers.

But even with these positive results, we must remain vigilant on the wireworm front, which has caused our industry serious financial losses over the last dozen years or so. We will once again conduct the Click Beetle Survey in May and June of 2022. In 85 fields spanning the province, three traps are set for three different species – *Agriotes sputator* (our most populous and aggressive species), *Agriotes lineatus* and *Agriotes obscurus*. The traps will be emptied weekly, and the specimens will be preserved for analysis in the winter of 2022-2023.

Thank you in advance to the growers who participate in this study. I look forward to sharing the results next winter!

Upcoming Events

Please call the Board at (902) 892-6551 for further information on any of these events.

April 2022

Apr 5-7 Canadian Produce and Marketing Association Convention and Trade Show. Montreal, Quebec.

May 2022

- May 31 **PEI Agricultural Crop Insurance** Deadline for Potato Crop Insurance.
- May 30-World Potato Congress.June2Dublin, Ireland.

June 2022

June 30 Seed Potato Certification Inspection Application deadline. Canadian Food Inspection Agency.

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Industry Updates

FarmFood360 in the Classroom

February 22, 2022 – (Guelph) A successful partnership between Farm & Food Care (FFC) and Agriculture in the Classroom Canada (AITC-C) has led to the completion of a national classroom online resource designed to give students and teachers across Canada the opportunity to dig deeper into the virtual farm tours available at FarmFood360.ca. It was released today in celebration of Canada's Agriculture Day.

FarmFood360° virtual reality farm tours allow Canadians to tour real, working farms and food processing facilities on tablets and desktop computers, as well as through mobile phones and VR (Virtual Reality) devices. These tours are a natural fit for thousands of teachers and students for use in online learning and for agricultural organizations seeking to connect with consumers virtually.

Since students across Canada turned to online learning at the start of the COVID-19 pandemic, there's been a growing number of requests from educators wanting to find ways to use the tours in their classrooms. In 2021, the site hosted more than a million visitors who viewed the 22 tours available.

The online resource that now accompanies the FarmFood360° VR tours was produced by AITC-C, working in collaboration with FFC. There are activities for all 22 tours – each encouraging students to watch the videos and take a virtual tour and then answer questions about what they saw. With the help of AITC-C's provincial agriculture in the classroom organizations, it will be distributed digitally to classrooms across Canada.

"We are pleased to bring the virtual tours at FarmFood360° into the hands of Canadian educators," said Johanne Ross, Executive Director of AITC-C. "We want students to be curious and excited about learning about Canada's agriculture and food story. Through this resource, we are providing teachers with a link to bring this story to life in the classroom."

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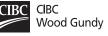








Dale Turner D iate Investment Advisor



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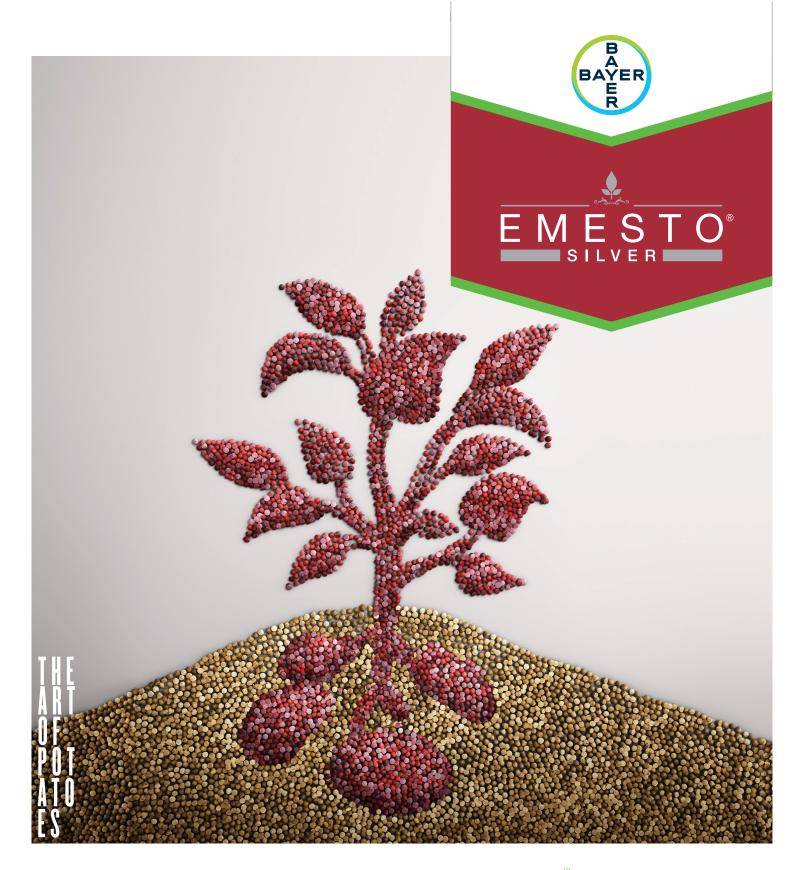
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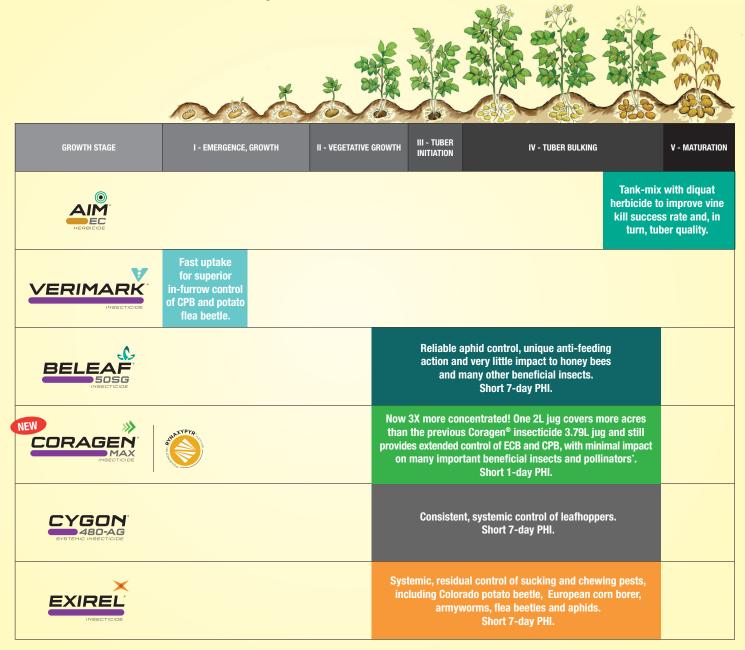
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