



New Brunswick Soil & Crop Newsletter



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Editor: Zoshia Fraser

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Message from the General Manager Ray Carmichael

The 2020 season was certainly one for the record books, hot, dry and COVID-19. The weather impact on crops will be outlined elsewhere in this newsletter and Public Safety Guidelines for COVID -19 prevented many social gatherings throughout the summer and everyone has become a Zoom expert. Kings County Soil and Crop managed to slip in a couple of events at the new forage site and a field day. The traditional Provincial Farmer of the Year recognition was cancelled for 2020 as it became impossible to undertake the usual process for travel and judging. Any Local nominees that have been identified will be moved to the 2021 competition. The NBSCIA Board of Directors has agreed to a virtual AGM for a date in February yet to be determined.

The Local Associations are preparing for their annual meetings one way or another, hopefully Public Health guidelines will be such that when the time comes these can be face to face. NBSCIA has two Zoom host accounts so will be able to support a virtual session if that becomes necessary.

Dave Walker, NBSCIA Research Coordinator is organizing a series of Zoom meetings in which project staff and NBDAAF Specialists can make presentations or reports that would normally be presented at annual or local meetings. Presentations will be scheduled in conjunction with our regular Monday staff Zoom meeting. The schedule and topics will be finalized for a January start and invitations to participate will be posted on our social media platforms. The live sessions give a chance to ask the presenters questions.

The topic list will focus on our projects and scheduled as reports become available:

- NB Forage Variety Evaluation and Management Trials
- Soil Health Benchmarking Reference
- Demonstrate Biofumigant as Control of Nematode & Verticillium
- NB Crop Production Optimization
- 2020 Industrial Hemp Soil Health & Variety Trial
- Cereal & Oilseed Cultivar Development
- Commercialization Assessment of *Rhodiola rosea*

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Message From our General Manager cont. - Ray Carmichael

NB Weather Mapping for Intensive Crop Management
NB Forage 4R Nutrient Stewardship
Validate Tantramar Community Pasture Improved Management
Apple Growth and Integrated Pest Management Demonstration
Municipal Watershed Runoff Control
Sugar Bush Carbon Sequestration

NBSCIA is leading an effort to establish an advisory group representing organizations interested in crop production and environmentally sustainable soil management. The initial Terms of Reference for this advisory committee or working group are to:

- Advise and support both DAAF and NBSCIA on research matters affecting the NB agriculture crop sector (for existing and future projects)
- Discuss research priorities for both groups and identify potential research partnership opportunities
- Identification of the roles and responsibilities of NBDAAF and NBSCIA on existing and future projects
- Discuss solutions to improve technology transfer to producers

The NBSCIA Executive Committee recently met via conference call with the new NBDAAF Minister Hon Margaret Johnson. We introduced the Association and discussed current and future programming to improve soil management and crop production in New Brunswick.

In closing, I remind everyone to respect the latest Emergency Measures for public safety applicable to your region. Our staff of coordinators will continue to provide the best and most timely services within these guidelines. We are only a phone call, text or email away.

Stay safe and have a very happy holiday,

Ray Carmichael



Reminders

Renew your Membership for 2021

2021 membership invoices will be coming your way in January. We hope you'll all be joining us for the 2021 season!

Environmental Farm Plans

Winter is a great time to get in touch with your coordinator about updating and creating environmental farm plans. We can also get you set with a complete environmental mapping set including soil series, slope and buffer zones.

Nutrient Recommendations

Make sure you get the most from your 2020 soil samples by reaching out to your coordinator for balanced nutrient recommendations. Plans can range from complete three year nutrient management plans to one season fertilizer recommendations.



NBSCIA 2020 Research

Industrial Hemp Research

Nada Hammami, Kevin Cain, Gaétan Moreau, Jean-Pierre Privé



Marijuana, hemp and cannabis are common names for plants of the genus *Cannabis*. The term "hemp" is used for cannabis plants that are grown for nondrug use, such as *Cannabis sativa* L. and is made up of varieties that contain less than 0.3% Δ^9 -Tetrahydrocannabinol (THC).



Its fatty and amino acid profiles are aligned with human DNA, so as a food source, it offers protein, omegas and dietary fibre in perfect proportions to our nutritional needs. Hemp is naturally gluten free, non GMO, free of trypsin inhibitors, dairy free and virtually free of any form of residual chemicals. Hemp protein is highly nutritious and easily digested and hemp seed oil is a perfect balance of Omega 3-6-9, ideally suited for optimal human nutrition. Hemp seed/grain is also an excellent source of digestible fibre and a wide array of minerals and vitamins.

Beyond nutrition, the hemp plant provides the strongest, most durable, longest lasting, natural, soft bast fibres compared to alternative sources. Its flexible characteristics provide durable clothing, shelter, building materials and an endless number of diverse products to satisfy human needs and wants. For the fibre industry, hemp has proven to be an excellent natural insulator. It has applications as a high-quality press-board material, hempcrete, composite and plastic substrate product. Hemp is also being developed as a superior alternative to graphene, a supercapacitor energy storage technology used to power electronic devices. Its high biomass is also associated with the ability to sequester very high amounts of carbon so the processing of the fibre will tie up carbon in manufactured products.

Equally important are the agronomic advantages of industrial hemp as it has a large tap root that is capable of penetrating deep into the soil profile to pick up required water and nutrients for plant development. In addition, the deep root opens up the soil and enhances the tilth of the soil for future crops and thus is an excellent choice for crop rotations.

So as you can see, hemp is a crop that has the potential to create an economic, environmental and social impact on farming in the Atlantic Region. The industry has already been established from Quebec westward but is making slow but considerable gains in our eastern/Atlantic region. The industry has established four pillars/sectors of hemp products which are Food, Feed, Fibre and Fractions. The industry's primary source of revenue/markets since its inception in 1998 have been in the hemp Food Sector for human consumption; dehulled hemp seed, hemp seed oil, roasted hemp seed and hemp seed protein. The potential for growth is expected to expand with more attention being paid to the three other sectors identified.

Modern Hemp Innovations (MHI) Inc. is a socially and environmentally responsible hemp company that is establishing a Cooperative for farmers/producers in NB who want to be involved in the Industrial Hemp sector. Through their membership in the Canadian Hemp Trade Alliance (CHTA),



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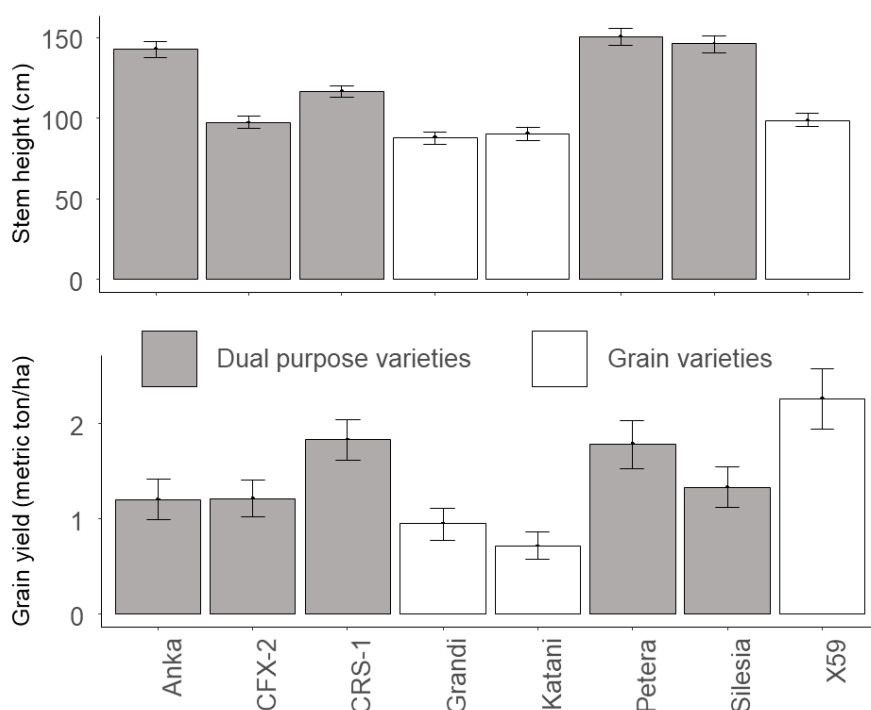
NBSCIA Research Continued

they have been granted sole access to the National Hemp Variety Trials in the Maritimes. Funding by the federal/provincial (CAP/EARI) programs and the sponsorship by NBSCIA has allowed this research to flourish. Every year, promising industrial hemp varieties have been evaluated for their food, fibre and fractions (mostly CBD). In 2019, the addition of a M.Sc. student, Nada Hammami and her Université de Moncton supervisor, Gaétan Moreau, has aided greatly to further understand the cumulative results from our hemp trials over the years.

Hemp varieties are classified as either grain (G, open bars in graph below) and dual purpose varieties (DP, shaded bars below). Grain varieties are shorter and are grown for their seed (food, feed) and/or for their fractions (oil, protein, cannabinoids, etc.) whereas DP varieties also produce the same products as the G varieties but also include fibre production due to their larger stem biomass.

The specific results for each of the varieties tested over the years are available upon request from Dr. Privé (plantmedic.jp@gmail.com) but for brevity, only the summary statistics for grain and fibre (plant height) yield are provided in this report.

The figure below summarizes the results for hemp growth and grain production for the four years of the National Hemp Variety Trials in the Maritimes. For height, the dual purpose varieties (shaded bars) Petera and Silesia had the best performance and this was consistent over the four years of the study. For grain production (open bars), the X59, Petera and CRS-1 varieties were the most productive and although yield varied greatly between years, the differences between varieties were generally the same from year to year, except for Petera. Although second in average grain production, this latter variety was actually the most productive in the last three years of the study.



The goal of this research is to facilitate the development of an economically sustainable hemp industry in New Brunswick by increasing production and potential revenues while also being respectful of the environment. This will strengthen New Brunswick's role as a leader in Cannabis research and development for the future.

Carleton County Roundup - Ray Carmichael

The 2020 weather was almost the direct opposite to 2019, for most of the season rainfall was almost half and heat accumulation double. Comparative maps can be found on the NBSCIA website (<https://www.nbscia.ca/weather-maps/> or <https://www.nbscia.ca/fr/accueil/>). No crop escaped the hot dry weather of 2020 unscathed.



Overall disease and insect issues were not a significant factor. At their best forage yields were 70% of normal with limited second cut and in most cases no third cut. Generally, corn for silage or grain performed well with earlier than normal maturity. Some cash crop grain was sold to livestock producers for silage to replace the forage shortage. Wheat and barley growth was stunted and yields reduced but test weights were good. Straw was in short supply with little available to help as a forage roughage for cattle or bedding. Soybean yields were not impressive. Potato yields and tuber size profiles were below average but specific gravity was good to excellent.

The production of farm maps to support the preparation of Environmental Farm Plans and Canada GAP pre-audit preparations continues. Requests are coming from dairy producers in anticipation for their Pro-Action audits.

Work on the following NBSCIA projects continued:

Project C1920-0035-Y2 NB Crop Production Optimization

Objectives for the project are: 1) to accelerate the adoption and utilization of “Precision Farming” tools for forage, cereal, corn, soybean and potato crop management in New Brunswick; 2) to quantify the potential yield improvement for forages, grains, oilseeds and potatoes in New Brunswick and 3) to identify primary soil chemical and physical characteristics limiting crop yield that may contribute to in-field yield variability. An algorithm has been developed to interpolate soil texture maps from SoilOptix data. SoilOptix and grid soil sampling has been undertaken in the Kings, Moncton and Chignecto regions for the first time. Yield data from forage harvesters, combines and potato harvesters from the 2019 participants will be analyzed and compared to 2020. A report will be available in early 2021. For more information on this project and to register for participation contact your local NBSCIA Coordinator.

Project C1920-0201-Y2- Demonstrate Biofumigant as a Control of Root Lesion Nematode



The objective of this project is to demonstrate the use of mustard species as a biofumigant and cover crops to control or suppress Root lesion nematodes and Verticillium wilt in subsequent potato and strawberry crops. Demonstrations were established in one strawberry and one potato field with spring and fall samples collected. Spring and fall samples were also collected from the 2019 field site. For comparison, samples were also collected from one strawberry field before and after chemical fumigation. A report will be available in early 2021. For more information on this project and to register for participation contact your local NBSCIA Coordinator.

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Carleton County Roundup Continued

Project C1819-0977-Y3 NB Weather Mapping for Intensive Crop Management

Although delivery was delayed by COVID-19 restrictions, NBSCIA added eight stations this season. The NB Agricultural Weather Network now consists of sixty stations managed between NBDAAF and NBSCIA and will provide more complete coverage of the Province in 2021. Month end accumulations for rainfall, CHU and GDD are now posted on the NBSCIA website. The maps are presented in a large scale format to cover the entire Province and provide accumulation data from May 1. If you would like a smaller scale to identify a particular field location or a summary from a particular planting date contact your local NBSCIA Coordinator.



Project C1920-0036-Y2 Soil Health Benchmarking Reference

The primary objective of this project activity is to undertake an initial survey of the range of values in measurable soil health parameters across a range of soil types and/or commodities and related management practices common to New Brunswick farm systems.

In 2020 the decision was made to move to the commercially available Soil Health Service provided by PEI Analytical Laboratories which includes the following detailed soil sample analysis: pH, OM, P₂O₅, K₂O, Ca, Mg, Cu, Zn, Fe, Mn, S, B, Na, Al, Lime Index, CEC, % Base Saturation, in addition to Soil Respiration, Aggregate Stability, Active Carbon, Biological Nitrogen Availability, and Soil Texture.

When combined with 2019 this data will serve as a benchmark or reference for subsequent testing and provide producers with an initial definition of soil health values for specific agricultural systems or management practices in New Brunswick's major commodities. A report will be available in early 2021. For more information on this project contact your local NBSCIA Coordinator

Moncton/Chignecto News - Zoshia Fraser

2020 has certainly been one long wild year. From new presidents both provincially and in Chignecto, to a season long drought, to the never ending daily challenges COVID-19 brought not only to our industry but to our daily lives. For me, I'll remember 2020 as they year I joined the management team at NBSCIA. I won't lie, it wasn't always pretty and somedays I still have more work then I know what to do with, but that's just a part of working in Agriculture. I just want to take a second to thank all my members and the rest of the NBSCIA staff for sticking with me while I figure this out!



Even though we couldn't have our regular field days this year we did still sneak in one guest speaker way back in February before COVID-19 shut us down for the year. Steve Kenyon joined us in Sackville to talk about the grazing management techniques he uses at home in Alberta. February was also when our very own Bellevue Orchard was named the 2019 Farm of the year. With no 2020 competition, it looks like they'll get to hang onto the trophy for a little while longer! After COVID-19 restrictions lead to two

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Moncton/Chignecto News continued - Zoshia Fraser

failed attempts to bring you together for a field day at the Tantramar pasture, the project team is looking forward to bringing you a virtual update in 2021.

Huge shout out to the 25+ members across the south east who participated in eight projects this year! Research and Demonstrations at NBSCIA wouldn't be possible without your cooperation and support. Results will be

coming out in 2021. Some of these projects include demonstrations of the Davis Weather stations ability to monitor pest and disease pressure in apple orchards, forage fertility management and soil health. We also took the first step toward variable rate fertility programs with both grid sampling and SoilOptix being completed as part of the Crop Optimization project.



It wouldn't be a year in review if we didn't take a look at the hot DRY summer! With roughly 50% of our normal rainfall to call this year dry is an understatement. This lack of rainfall really hampered forage growth and exposed any fields with moderate to low fertility. Without adequate fertility crops can't develop the strong root systems needed to chase the water they so desperately needed this summer. With the low forage supply there are several fall rye fields destined for spring emergency forage. On the brighter side the heat this summer enable corn and some fruit crops to mature rapidly, making for an early har-

vest. Across the south east CHU were 250-400 higher compared to 2019. All that heat lead to high sugar content in fruits and excellent corn yields.

In and amongst all the loss and hardship, 2020 also brought many stories of success and resilience. Whether that be the stellar apple harvest, one grower's best field of wheat ever or brand new farmers making their dreams come true as they planted the first block of their new berry orchard along the banks of the Petitcodiac. We had new members join us and some old members add new faces to their families. I hope each and every one of you have a safe and happy holiday season and I can't wait to help you all tackle whatever mess comes our way in 2021.

As always if you need anything get in touch,

Zoshia



Kings County Happenings - Joseph Graham

Kings County has been keeping busy with fall soil sampling, mapping, and EFP work. Project work has also continued despite some delays. Grid sampling, alfalfa/4R, SoilOptix, soil health, apple IPM, weather mapping and the forage plots are a few of the projects Kings county members took part in. The forage management plots have been successfully harvested and data has been collected for yearend reporting. We look forward to providing updates on all our projects once the final results come back.



Kings Events

Despite Covid-19, we were fortunate enough to host a socially distanced forage plot tour for local farmers. A big thanks to Jason Wells, the NBDAF Livestock Feed Specialist, who answered questions and provided a tour of the forage and corn trial sites. The crops were struggling a bit with all the dry weather, but overall there was some good discussion. The tour included, emergency forage crops, alfalfa nurse crop, and corn variety trials. Thanks to Frank and Alex Jopp for cooperating and allowing us to host such events. We were very happy with the turnout and look forward to future tours. Kings County was also able to continue with our yearly field day. At Lonsview farm on Oct 13 we hosted a tillage day event. Green Diamond, Lemken, Hall Bro's, and Millstream Agriculture were all present to demo and discuss their equipment. It turned out to be a beautiful day with equipment demos ending around 3:30pm. There was no lunch this year, but Mrs. Dunster's supplied coffee and donuts for the 50+ attendees. A big thanks goes to Eric and Daryl Walker for hosting, and to the dealers who setup early and entertained questions all day. Overall it was a great event, thanks to all the NBSCIA members who attended.



Other happenings in Kings County

Kings County weather data has been updated and put on the NBSCIA website. As mentioned in the past we now have 7 locations recording live data. This data was very useful when drawing comparisons to previous year's corn heat units (CHU). All this data is available for free at nbscia.ca. In the future we hope to continue to monitor rain, growing degree days and CHUs at a local level. The new weather station placed in Knightville next to our forage trial site will be a great addition.



North Shore Headlines - Nadler Simon

The North Shore area of New Brunswick Soil & Crop Improvement Association is proud to say it has taken up the challenge this year. COVID-19, drought and frost damage rendered this agricultural season particularly tough for small fruits and forage production (50-80% loss), except for corn silage that tended to benefit from the heat, achieving average to above-average yield. Nevertheless, we got through this period with members by continuing to provide them with basic agronomy services.

According to the COVID-19 regulations (wearing masks, practicing social distancing, etc.), we kept contact with members through e-mails, phone calls, text messages, meetings and frequent visits to their fields.



This year, our efforts have enabled us to: count 36 members (22 small fruit and 14 forage producers), perform at least 115 samples (soil and plant tissue), install 2 weather stations (Charlo and Miramichi), diagnose fields from Restigouche-East to Kent-North (weeds, insects, diseases, fertilization, pollination, soil compaction, crop nutrient needs, soil pH correction, etc.), formulate appropriate recommendations to farmers, be involved in 5 field projects (forage 4R nutrient stewardship, alfalfa tissue survey, weather station installation, soil health benchmarking-reference and controversial practices in wild blueberry production), give assistance/thoughts for environmental farm plans (EFP) update and field maps, as well as share relevant information on new developments in the local agricultural industry, towards sustainable agriculture.

During 2020, small changes were made within the board of directors of CCNE (French-speaking branch of our local). Michel Ross has stepped down as secretary-treasurer. He has been replaced by Alain Lepage to whom we welcome.

Planning of two separate AGMs (small fruits and forage meetings, respectively) that should be held in late January is now underway (virtual or in-person meeting, meeting rooms reservation, events dates, topics to be addressed, speakers, agenda content, etc.). Meanwhile, I'm looking forward to saying goodbye to this particular year and to see you all soon. We wish you a Merry Christmas and hopefully a happy new year!

Up Coming Events

Grey Bruce Farmers Week 2021 - Jan 5-12, 2021

For 55 years, the Grey Bruce Farmers' Week Conference has been educating producers every January
Schedule: Jan 5– Tradeshow Day, Jan 6 – Beef Day, Jan 7 - Dairy Day, Jan 8- Goat Day, Jan 9 – Sheep Day, Jan 10 – Horse Day, Jan 11 – Ecological Day, Jan 12 – Crops Day

New Brunswick Agricultural Update Sessions - Jan. 11, 2021

Join us as we partner with the Staff of NBDAAF for virtual information sessions from our provincial specialists and other NBSCIA partners on a wide range of topics. The presentation schedule will be made available in January and meeting invitations will be posted weekly to our website www.nbscia.ca

Provincial AGM - Feb TBA, 2021

Due to COVID-19 our AGM will be shifting to an online format. We will host our annual business meeting however farm of the year has been cancelled for the 2020 season.

North West Press - Jean-Mars Jean-François

What lesson learned from NWN activities in 2020?

The 2020 agricultural season was not encouraging. The first hay cut was relatively good in northwestern New Brunswick. However, the persistent drought severely hampered the second cut. Some beef growers intend to reduce their herds because the low amount of hay stored may not be enough to meet the feed requirements of livestock during winter. For potatoes, harvest was delayed a bit due to the fall rains. Despite some satisfaction expressed by farmers in terms of quality, yields were relatively poor. On the grain side, yields barely came close to average. Overall the season has not been great. Farmers would like the crop insurance program to be better adapted to the realities, since year after year it becomes more and more difficult to circumvent the adverse situations that only worsen with climate change.



On the other hand, despite the health restrictions due to Covid19, a lot of activities were carried out in the fields. Early in the spring, we made several fertilization plans for the members. Part of the time was also devoted to the benefit of the members having to use wood ash in the Edmundston area. To this end, we worked with the City of Edmundston and Twin River Paper, the ash producer company. Patrick Toner and I made a presentation to the City to explain the importance of ash in agriculture and to dispel the obvious concerns about this product. However, the Twin River Company decided that this initiative to deliver the ash to a designated basin costs them too much human resources and negotiation. In the end, they decided to no longer deliver ash in the Iroquois-Blanchette basin. It is disappointing the efforts made didn't deliver the desired results.



On the other hand, the Club has carried out three projects. The first deals with the analysis of carbon sequestration in sugar bushes. The second focuses on studying the impact of wood ash and charcoal on the performance of Christmas trees in Saint-Quentin. The last one funded by the City of Edmundston consisted of the application of good management practice by Club members to protect the municipal water intake. Overall, everything went well, despite various constraints encountered. At the same time, the Club participated in other projects with NBSCIA relating to soil health and alfalfa. During the fall, we proceeded to collect soil samples for the members in order to have valuable information to prepare for the next farming season. All in all, the season can be described as below average for farmers. The two levels of Government would need to take strong action in order to better support farmers and agriculture in the north-west of the Province.

Central Review - Andrew Sytsma

Although this has been a challenging year for us all in many different ways, it hardly put a damper on the Central region's progress in improving soil and crop management and sustainability. Although we were not able to have a field day this year, the Central region was still actively involved in numerous research projects and lots of fieldwork like soil sampling, tissue sampling and GPS field mapping. On the research project side, there was strong participation and interest in the Alfalfa Tissue Survey and Soil Health Benchmarking projects. The weather stations and sensors involved with the Apple Growth and IPM project are up and running and although a full season of data wasn't able to be collected, we got promising results that the technology could be a great addition to apple operations. Keeping with the topic of weather stations, we expanded our weather network to the St Stephen area which for the most part was unrepresented in the NBSCIA weather maps. The Central region got new members throughout the year representing both livestock and horticulture commodities and the no-till seeder available for members to rent was well utilized.



On a personal note, my rookie year as the Central region coordinator could hardly have gone better and I got to meet and work with an incredible group of people. The warm welcome I got from everyone means a lot to me and I look forward to what the new year will bring!

Merry Christmas and Happy New Year!

Andrew



"Who let Bessie substitute for Rudolf? I wasted half the night jumping over the moon!"

Provincial Board of Directors

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Vice President: Tyler Coburn - Central

Secretary/Treasurer: David Waddy - Moncton

Past President: John Best

Moncton

Ryan Van de Brand

North West

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Alain Lepage

North Shore

John Riordon

Ellen Gammon

Kings

Sheldon Moore

Brian Walker

Chignecto

Fred Anderson

Dean Acton

Member Service Description

Geomatic packages

- Includes a basic set of farm maps. These maps are georeferenced and illustrate watercourses and other buffers
- Custom mapping packages include Soil Status maps, Target Balance Maps, Variable Rate Application Maps

GPS work

- Perimeter mapping, area determination, crop yields

Soil Sampling package

- Includes sampling, sample preparation, completion of soil form and submission of samples, and interpretation of results as well as recommendations (does not include cost of soil analysis)

Environmental Farm Plan

- Can create field and farm maps, emergency response plans, as part of your environmental farm plan

Equipment calibration

- Calibrations on sprayers, seeders and manure spreaders

Emergency Response Plan

- A written emergency response plan for compliance with regulatory bodies

Nutrient Management Plan

- Whole farm nutrient management plans, including plans compliant with the Livestock Operations Act

Intensive Crop Management Planning

- Integrated Pest Management
- Scouting fields for insect pests and weeds
- Plant population counts and plant emergence counts

Canada GAP Pre-Audit Assessment

Cost of Production Analysis

Crop Monitoring

Contact Us

If you are in need of any services, or have any questions, please contact your local Coordinator.

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