Breaking Ground
(in Northeastern Ontario) Summer 2015

A Publication of the North Eastern Ontario Soil & Crop Improvement Association (NEOSCIA)

OSCIA Tier Two Grant in Cochrane/Temiskaming

By Stephanie Vanthof, Project Manager

The Temiskaming Crops Coalition and the Cochrane District Soil and Crop Improvement Association have been awarded $77,400 by the Ontario Soil and Crop Improvement Association to complete a 3 year study on the 'Rapid Development of Farmland from Boreal Forest and an Evaluation Relative to Traditional Clearing Methods'. The study will assess the soil impacts and crop growth potential of land after clear-

ing using surface and subsurface mulching and traditional methods. A business case will also be developed to assess the

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Funding for this project was provided through a Tier Two grant supported by the Ontario Ministry of Agriculture, Food and Rural Affairs and the Ontario Soil and Crop Improvement Association.

This newsletter is published 4 times per year. Articles can be submitted in either English or French and should be submitted to the Communication Coordinator (see below). Please supply translation, if available. Material in this newsletter is based upon factual information believed to be accurate.

Action taken as a result of this information is solely the responsibility of the user. We reserve the right to edit articles.

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Go to GeoVisage, http://geovisage.nipissingu.ca for Current and Historical Weather Data Farmnorth.com, September 1st 2015

COMING EVENTS

"Cochrane's Farmers Picnic will be held sometime in the beginning of July and will include a demonstration of the mulching by GB Equipment.

The Algoma Soil & Crop Improvement Association farm tour is scheduled for Thursday Aug 6th with a focus on soil health and rejuvenation. We don't have a start time or locations confirmed just yet. For more info, they can call Murray Cochrane 705-842-5622.

The Temiskaming Crops Coalition Summer Tour is on July 23, 2015. The schedule is as follows:

12pm BBQ lunch at Koch Elevators

1:00 – 5:00 pm Local bus tour of the Earlton/New Liskeard area: highlights include beans under plastic; faba beans; nitrogen trials and haskap berries

5:00 – 7:00 pm BBQ supper at Koch Elevators

7:00 Bus tour to NLARS for a crop tour led by John Kobler, showcasing new and interesting crops as well as new ways to handle existing crops"

OSCIA Tier Two Grant in Cochrane/Temiskaming

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economics, such as return on investment, of various methods of land clearing.

A site in the Temiskaming District and a site in the Cochrane District will undergo mulching during July 2015. The woody debris, amendments and stumps will be incorporated into the soil during the fall of 2015 using a subsurface mulcher. A cover crop will be planted in 2016, followed by cash crops in 2017. Assessments include soil and leaf tissue tests and yield measurements. During 2016 and 2017 the business case will be developed based on input from producers and contractors across Northern Ontario. To broaden the scope of the project, an additional site in Matheson may be incorporated to feed cattle of freshly mulched and sheared land to promote grass growth and rot out wood and stumps with nitrogen from concentrated manure.

The TCC and CSCIA would like to thank the project partners: GB Equipment has generously donated the labour and equipment required to mulch the sites, both in early summer and late fall. A&L Canada Laboratories will provide at cost consultation over the course of the project. Numerous producers will volunteer on the steering committee to provide direction and expertise and two cooperators will be donating their time, land, equipment and additional cleared acreage. The TCC and CSCIA has hired the Northern Ontario Farm Innovation Alliance to manage the project during its duration.

A final thanks goes to Graham Gambles, who put in many volunteer hours building this project and finding many of the project partners, including GB Equipment.

RCC Partnership between NEOSCIA and NOFIA

The NEOSCIA has hired NOFIA to as its new Regional Communication Coordinator. This innovative partnership will capitalize on the strengths and synergies of both organizations. The NEOSCIA works to promote and provide a means for networking between District Associations and assist in coordinating projects to allow for sharing of information and resources. The Northern Ontario Farm Innovation Alliance is a non-profit organizations with a focus on advancing agriculture in Northern Ontario through applied research and technology transfer.

NOFIA is currently developing an agricultural information hub for all districts in Northern Ontario. This hub will provide an 'umbrella' through which Breaking Ground and other agricultural information can be shared on a broader basis. The hub will also provide a mechanism for partners, such as the NEOSCIA, to archive historical information to ensure it is available for future generations.

Brittany Roka, NOFIA's Marketing/Public Outreach Coordinator, will be the point person for the RCC position. Brittany's currently coordinating and developing the agricultural information hub, and has the unique opportunity to expand the scope of the RCC through this work.

Brittany grew up in Pontypool, Ontario (located 30 minutes outside Peterborough). She has worked on her uncle's mushroom farm and at Roka Timber-Mart, the family business. She attended Canadore College, where she focused her studies in the communication field. Upon graduation, she worked as a Creative Director at CJKL.FM in Kirkland Lake. After two years of writing scripts and developing commercials for clients, she moved down south to help launch a Talk Sports Radio Station, which would become the first Talk Sports Radio Station on the FM dial in Canada. In March 2015, she joined NOFIA in her current capacity. She has been to many of the districts in Northeastern Ontario in this role and will continue to be a presence in the agricultural community!

NOFIA looks forward to the RCC role for Northeastern Ontario and would like to thank the NEOSCIA for the opportunity. Finally, NOFIA would like to thank Graham Gambles for his many years of service and dedication in producing Breaking Ground. We wish you the best of luck in your future endeavors!

Regional Communication Coordinator for Northeastern Ontario

By: Brittany Roka, RCC, NEOSCIA

Brittany Roka, RCC, NEOSCIA

I'm a small town country girl who grew up in Pontypool Ontario, which is located 30 minutes outside Peterborough. Growing up, I worked on my uncle's mushroom farm and helped my father at the family business (Roka Timber-Mart).

At the age of 17 I developed an interest in Marketing and Advertising while attending a co-op position at a local radio station in Lindsay, Ontario. After completing my co-op placement I went on to pursue my interest in the communication field at Canadore College in North Bay.

After completing my studies I then moved further north and got hired as a Creative Director in Kirkland Lake. After 2 years of writing scripts and developing commercials for clients, I moved back down south to help launch a Talk Sports Radio Station, which would soon become the first Talk Sports Radio Station on the FM dial in Canada.

As of March 2015 I became the Marketing/Public Outreach Coordinator for Northern Ontario Farm Innovation Alliance (NOFIA) in Temiskaming Shores. I coordinate online outreach activities and handle production & distribution of promotional materials, including social media, website updates and newsletters as well as developing and maintaining an online Agricultural Information Hub.

I am excited to take on the role as the new RCC for Northeastern Ontario and would like to thank Graham J. Gambles for his many years of service and dedication in producing Breaking Ground. I wish you the best of luck in your future endeavors.

CROP TALK

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What Is The Impact Of Manure On Soil Organic Matter?

Christine Brown, Nutrient Management Lead, OMAFRA

Regular manure applications combined with forage-based rotations are the envy of crop producers when soil organic matter (SOM) levels and soil resilience are considered.

What is the actual organic matter benefit from manure to the soil, and how does that vary with different types of manure and organic amendments?

Livestock manure is an excellent source of nutrients and organic matter for the soil. However manure composition, soil characteristics and application management will impact the nutrient and organic matter value.

Factors Impacting Nutrient & Organic Matter Benefits

Manure composition varies with animal type, age, feed ration and the environment.

- Ruminants usually have forage based diets, while monogastrics (i.e. hogs) are fed grain-based rations.

Beef and dairy manure contain undigested forages and often contains bedding materials. These materials are high in cellulose and lignin and take longer to decompose in soil when compared to the less complex sugars from undigested corn.

- Animal stage / age will influence the amount of feed consumed, but also dictate the protein and mineral content.
- Ration formulations vary. High production phases require more concentrated diets, including phosphorus, potassium and trace elements such as calcium. Regular and high application rates of manure will build up phosphorus and potassium levels, pH (in acidic soils). Micro-nutrients deficiencies, including zinc and sulphur, are rare with regular applications.

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What Is The Impact Of Manure On Soil Organic Matter?

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- The animal environment (housing) determines the amount and type of bedding. The storage method and additional materials or wastewater determine the manure dry matter content. The carbon-to-nitrogen (C:N) ratio of wood chips (200+) will be much higher than straw (50 – 80).
- The C:N ratio is the proportion of organic carbon to total nitrogen of manure or organic material. The nitrogen is a food source for the soil micro-organisms while they break down the carbon material. When that process is complete, the soil microbes die and decompose. The microbial nitrogen is then returned to the soil and becomes available to the plants. This is considered the "organic nitrogen" component. How long this process takes depends on the ratio of carbon to nitrogen in the material.
- Manure or organic material with C:N ratio under 20:1 is considered ideal for crop production. When there is not enough nitrogen in the organic material to break down the carbon, the micro-organisms utilize nitrogen from the soil. When C:N ratios are higher than 25 to 30:1, it could result in a nitrogen deficiency of a crop that relies on soil nitrogen, such as corn.

Manure will add organic matter but also adds nutrients. Over-application of nutrients could lead to crop damage or nutrient losses into the environment. In addition, any benefits from soil organic matter are easily negated if soil compaction results from application on unfit soils.

Building Soil Organic Matter With Manure

Applying manure to the soil will provide other benefits, such as a greater diversity and activity of organisms and better soil structure. Table 1, Effects of 11 Years of Manure Additions on Organic Matter Levels, shows the increase in soil organic matter (SOM) over time. This suggests that at an application rate of 20 tons / acre / year, the SOM level was maintained, while at lower rates and without other additions such as residue or cover crops, the organic matter level gradually decreased.

Maintaining Soil Organic Matter Example

The question often comes up, "How much organic matter am I adding to the soil?" The answer is complicated, depending on soil texture, existing SOM, cropping practices such as rotation and use of cover crops, tillage, residue management, etc. Figure 1 illustrates how to estimate application rates required to maintain current soil organic matter levels. Assumptions include:

- the weight of 6 inches of soil in an acre is 2 million lbs;
- on average 3 % of the organic matter decomposes each year, and
- only 20% of the manure solids (mostly organic carbon) provide stable carbon to the soil, while the 80% provides food for soil micro-organisms.

The chart shows the required application rate to match the annual soil decomposition for 2.7% organic matter using typical livestock analysis data. The application rate required to match annual SOM decomposition should consider nutrients added. Solid and liquid cattle manure applied at SOM decomposition rates align nicely with nutrient additions, while liquid hog and broiler manure to meet SOM decomposition rates would apply up to 6 times the nutrients removed from a crop of grain corn.

Figure 1 - Example of Application rates required to maintain SOM levels

Table 1. Effects of 11 Years of Manure Additions on Organic Matter Levels

	Application Rate (tons/acre/year)			
	None	**10 Tons**	**20 Tons**	**30 Tons**
Organic Matter (%)	4.3	4.8	5.2	5.5
pH	6.0	6.2	6.3	6.4
P (% increase)*	---	3.2	57	
65				
K (ppm)	121	159	191	232
Total pore space (%)	44	45	47	50

Source: *Building Soils for Better Crops, (Magdoff) SARE Outreach, www.sare.org*

Note: The original organic matter level was 5.2%. The study was conducted on continuous corn silage on a clay soil adding dairy manure. The manure application also improved soil aggregation and the amount of pore space.
* P ppm (Bray) was converted to % change

What Is The Impact Of Manure On Soil Organic Matter?

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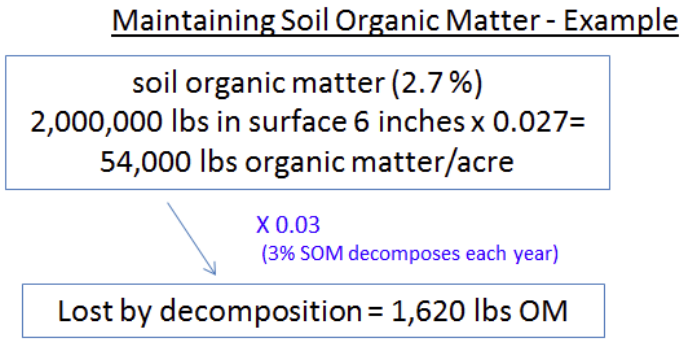

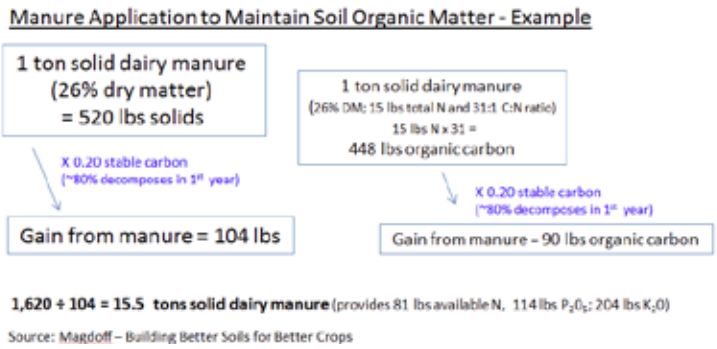

Approximate Application Rates of Various Organic Amendments Required to Maintain Soil Organic Matter

Material (as applied basis)	Solid Dairy	Liquid Dairy	Liquid Hog	Solid Broiler	Leaf/yard compost
Dry Matter %	26	8.5	3.5	66	50
Total N %	0.72	0.40	0.40	3.12	0.9
NH4-N ppm	1500	1600	2645	6550	15
C:N ratio	31 : 1	14 : 1	3.7 : 1	8 : 1	17 : 1
P %	0.20	0.09	0.12	1.4	0.24
K %	0.61	0.25	0.19	1.8	0.46
Stable solids added	104 lbs/ton	172 lbs/1000 gal	70 lbs/1000 gal	264 lbs/ton	200 lbs/ton
Stable carbon added	90 lbs/ton	112 lbs/1000 gal	30 lbs/1000 gal	100 lbs/ton	61 lbs/ton
Rate to maintain SOM decomposition	15.5 tons/ac	9,400 gal/ac	23,000 gal/ac	6.1 tons/ac	8.1 tons/ac
Available N-P-K applied/ac (SOM maintenance rate)	80 -115 - 205	120 – 155 - 255	470 – 505 - 470	230 – 315 - 235	15 – 70 - 80

Note: 1 gallon of liquid manure weighs approximately 10 lbs. Assuption: 1000 gallons is equivalent to 5 tons

Welcome to the March 2015 Crop Talk newsletter.

Please click on the attached file to access a pdf version of the newsletter. As always we welcome your comments. Feel free to share with colleagues.

This newsletter will be posted as soon as possible on the OMAFRA website at:
http://www.omafra.gov.on.ca/english/crops/field/news/news_croptalk.html

Please note that the French version will be posted at
http://www.omafra.gov.on.ca/french/crops/field/news/news_croptalk.html once translation is complete.

To subscribe to this newsletter, please visit this webpage http://www.omafra.gov.on.ca/english/subscribe/index.html#croptalk

Precision Ag Site Specific Management

Ian McDonald, Applied Research Co-ordinator, OMAFRA

Precision agriculture has great potential to enhance both economic returns and reduce the environmental impacts of agriculture. A large site specific management project, sponsored by the Grain Farmers of Ontario through Growing Forward 2, is moving ahead with help from OMAFRA, Niagara College and other partners. The goal is to create simple systems for developing management zones within fields.

Creating management zones is not well understood. Management zone creation and site specific input management will enable farmers to target inputs for optimum economic returns. Under current management systems of blanket application rates, some areas are getting too much input, while others might not be getting enough. This reduces input use efficiency, increases costs of production, and leaves more inputs in the environment that are not contributing to production. Low productive areas of a field are the most problematic with blanket field management. In order to meet the needs of the medium and high responsive areas, these low productive areas are getting too much input.

Developing Management Zones

Management zones are created using one or more site specific "layers" of data. Management zones bring together what you see, measure and achieve to provide data layers that are identified by time and location (Figure 1).

- **"What you See"** is the topography, with its knolls, depressions, slopes and curvatures that impact crop yields. This includes RTK elevation data, satellite and other imagery.
- **"What you Measure"** are the soil chemistry and biology characteristics measured by nutrients, organic matter, texture, CEC, electrical conductivity, etc. Soil sampling, soil and plant sensors, and lab analysis are used.
- **"What you Achieve"** is the crop yield. This requires the combine to be RTK equipped.

The layered data is fed through commercially available or research integrated processing tools to produce management zone maps. A challenge is determining what layers are needed and what do you do if you don't have key layers, such as multiyear yield maps?

Figure 1.

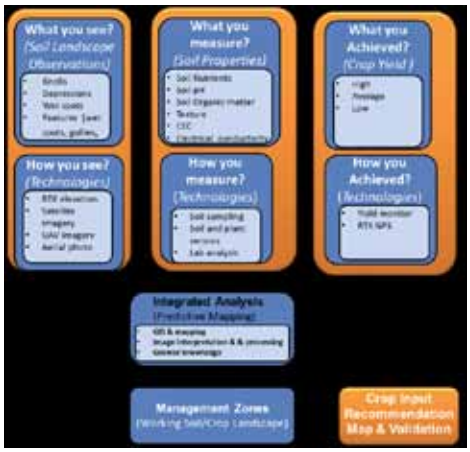

Figure 1. Logic Model of the development of management zones (adapted from Aspinall and Sweeny, OMAFRA, 2014

Research Project

For the 3 year project, data layers will be collected for yield, topography, soil texture, soil chemistry, imagery, CEC, and electrical conductivity across 30 fields. The various data layers will be run through the processing system and then tested for accuracy and stability of the management zones produced. This will determine what variables work best for defining management zones and whether the chosen variables are consistent across sites or vary depending on site specific conditions (Figure 2).

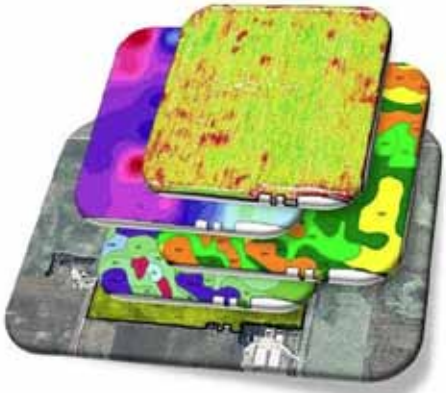

Figure 2. An example of various data layers that are overlapped in the generation of management zones. Top to bottom - yield, water, soil type, soil chemistry

Variable Rate Application Outcomes

Extensive research by Dr. Raj Khosla (Colorado State University) has found that the site specific management response can vary significantly. Figure 3 identifies possible outcomes from implementing variable rate applications (VRA) of nitrogen. The first bars of the graph illustrate a blanket input application at a field scale where that level of input achieves a given level of yield. From left to right, various results can occur when VRA is implemented.

1. VRA could end up with exactly the same response as a blanket application.
2. Inputs may stay the same and yield increases.
3. Inputs may be lower and yields stay the same.
4. Both inputs and yields may be greater.
5. Input levels declines and yield increases. This is the best scenario.
6. Inputs and yield both decline. Occurring about 10% of the time, you are no further ahead than with blanket field applications. This is the worst case scenario.

The response to site specific management and VRA generally fit into senarios 2-5.

Learn More

The Grain Farmer magazine is publishing a series of OMAFRA prepared precision ag articles, beginning with the February issue. (http://www.gfo.ca/Research/PrecisionAg.aspx). While precision ag and site specific management have been around for 10-20 years, the technology is rapidly evolving so that the average person can become engaged. If you have a keen interest in precision ag, attend or review InfoAg Conference presentations held in southern Illinois each summer. (http://www.infoag.org/). Follow the progress of the GFO-GF2 project at http://www.gfo.ca/Research.aspx .

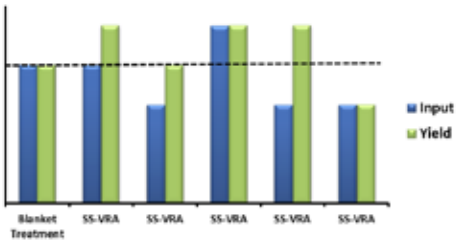

Figure 3. Responses with a site specific management variable rate application (SS-VRA) system. (Adapted from Raj Khosla, Colorado State U, SW Ag Conferene, 2015)

BULLETIN GRANDES CULTURES

15ième vol. 2ième édition | MAAARO - des spécialistes en grandes cultures | juin 2015

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Préparé par:

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Compilation: Julie Gamache

Réglage des apports d'azote dans le maïs

Ian McDonald, coordonnateur de la recherche appliquée, MAAARO

La gestion de l'azote (N) dans les cultures de maïs en Ontario a tendance à reposer sur des applications en pleine surface sur des sols travaillés de N en présemis avec incorporation. Même si cette pratique atteint le but visé, elle pose problème sur le plan d'une utilisation efficiente du N et n'offre pas tellement de souplesse dans la gestion des besoins en N. Quand tout le N est appliqué en début de saison, le choix du taux dépend des expériences passées relatives au champ visé. Cette façon de faire n'offre pas la possibilité d'adapter les taux aux conditions propres à la saison de croissance en cours.

Certains producteurs de maïs ont l'habitude de fractionner les apports de N. Ils en appliquent une petite partie avant les semis ou au moment des semis, puis appliquent le reste en bandes latérales au stade 4-10 feuilles du maïs. Ce fractionnement permet à la dose de « démarrage » de donner un coup de pouce à la culture jusqu'en juin, moment où il est possible de déterminer les besoins de la culture pour le reste de la saison de croissance d'après le temps qu'il a fait au printemps, les conditions qui ont caractérisé les semis, les prévisions pour le reste de la saison de croissance et les rendements attendus. Cette méthode offre la possibilité d'optimiser les apports de N comparativement aux apports faits uniquement en début de saison.

Pour l'épandage en bandes latérales, même si bien des producteurs se fient à l'aspect de la culture et aux conditions météorologiques, certains utilisent d'autres outils pour juger des doses à apporter en cours de saison de croissance. Ces outils comprennent :

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Réglage des apports d'azote dans le maïs

Continued from page 8

- le dosage de l'azote avant la fertilisation en bandes latérales (Pre Side-Dress Nitrogen Test ou PSNT) et
- plus récemment, des capteurs optiques.

Le PSNT

Le PSNT fournit une estimation de la quantité d'azote biodisponible à partir d'un échantillon de sol composite de 30 cm (12 po) prélevé entre le début et le milieu de juin. Selon le temps qu'il a fait au printemps, différentes quantités d'azote biodisponible seront minéralisées à partir de la réserve d'azote organique présente. La quantité d'azote qu'on trouve au cours d'une année est fonction du type de sol, des antécédents culturaux, du travail du sol, des températures au cours de la saison et de l'humidité. Les limites du PSNT tiennent à la variabilité du dosage à l'intérieur d'un même champ et d'un champ à l'autre. Des recherches sont en cours pour déterminer quand et comment le N se minéralise et quelles conditions (pluie) influencent sa biodisponibilité. Le nouveau projet de surveillance sentinelle de l'azote financé par des organismes agricoles généraux permet de suivre les taux d'azote des nitrates dans huit parcelles d'essais de rendement du maïs en Ontario (http://weathercentral.ca/).

Capteurs optiques

Il existe depuis un certain temps des capteurs permettant de connaître la teneur en azote des végétaux. Le problème avec ces capteurs est qu'ils mesurent seulement l'azote contenu dans les végétaux sans tenir compte de l'azote présent dans le sol. Or, la teneur d'un plant en azote à un moment donné ne reflète pas nécessairement la quantité d'azote qui est déjà ou qui deviendra sous peu minéralisé et biodisponible dans le sol. Le fait que le maïs semble carencé en azote ne signifie pas que le sol est pauvre en azote. D'autres facteurs peuvent limiter la capacité des plants à prélever l'azote. Il se peut aussi que l'azote organique ne soit pas encore minéralisé et ne soit pas biodisponible. L'utilisation, pour le dosage, d'une bande riche en azote où la culture a été installée tôt ne fournit aucune indication quant à l'azote organique minéralisé à partir de la réserve d'azote.

L'autre limite tient au fait que le capteur optique part de la lecture de la réflexion de la lumière par les végétaux pour ensuite l'interpréter. Afin qu'il y ait suffisamment de matière végétale dans le champ pour produire une réflexion, il faut que la lecture se fasse relativement tard. Les capteurs ne recueillent pas des données de la réflexion de la lumière produite par le sol nu. L'utilisation des capteurs est habituellement optimale passé le stade de croissance du maïs à partir duquel un apport supplémentaire de N peut être fait sans endommager la culture. (Pour plus de détails, voir http://www.nue.okstate.edu/). L'introduction de technologies comme Y-Drops et les applicateurs à fort dégagement munis de pals injecteurs atténuent ce problème. Il reste que la recherche appuyant cette pratique demeure rare. M. Peter Scharf, University of Missouri, suggère que la réaction de la culture à un apport tardif de N serait fonction du stress global lié à l'azote (http://bit.ly/1KwUeyG et http://bit.ly/1HHNkG7). Ses recherches suggèrent que si les apports d'azote en début de saison ont suffi aux besoins de la culture, la réaction à un apport d'azote plus tard sera négligeable et que ce serait la dose normale d'azote prévue pour l'épandage en bandes latérales qui procurerait les rendements les meilleurs.

Greg Stewart et Ben Rosser ont écrit un bon article sur l'utilisation des capteurs optiques, dont le GreenSeeker (http://bit.ly/1KjQPQt). D'autres articles intéressants peuvent être glanés sur le Web.

Utilisation en agriculture de précision

M. Raj Khosla (Colorado State University) est bien connu pour ses recherches relatives à l'agriculture de précision. Au congrès South-West Agriculture Conference, il a abordé la question de l'intégration des capteurs optiques dans la gestion spatiale des cultures (http://bit.ly/1GybwJk). Même si ses recherches sur la gestion spatiale présentent de l'intérêt, l'utilisation des zones de gestion ne donne qu'une partie du portrait.

La gestion spatiale de la culture à l'intérieur de zones s'intéresse avant tout au sol. Or, la collecte de données et la prise de décisions doivent tenir tout autant de la culture que du sol. À l'heure actuelle, le facteur « sol » n'est pas pris en compte dans l'utilisation des capteurs optiques en Ontario. Il faut des données sur la culture et sur le sol pour déterminer les doses d'intrants permettant d'optimiser le système sur le plan économique.

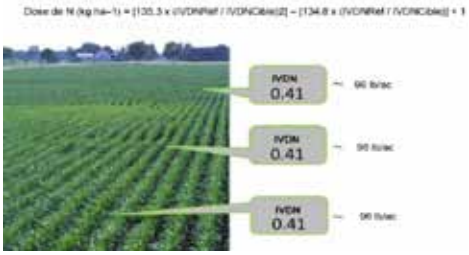

Figure 1. Cette méthodologie trouve sa justification dans le fait que les indices de végétation par différence normalisée ou IVDN sont fournis par les lectures d'un capteur optique de biomasse qu'on fait circuler sur un champ et par le fait que les doses d'azote sont choisies en fonction des décisions de gestion faites pour l'ensemble d'un champ (Raj Khosla, Colorado State University, SW Ag Conference, 2015).

Dans la figure 1, la lecture de l'indice de végétation par différence normalisée (IVDN), l'unité de mesure utilisée actuellement par les capteurs de biomasse, a été la même en trois points du champ. Les lectures de l'IVDN indiquées à partir du bas de l'illustration proviennent de positions élevées, moyennes et basses du champ. Si l'on fonde les décisions relatives aux apports de N sur les données pour l'ensemble du champ, la dose qui serait normalement calculée à l'aide de l'équation suggère qu'un apport de 96 lb d'azote/ac sur le champ serait optimal.

Si nous prenons en considération la variabilité du champ, la décision prise quant à la dose de N est passablement différente. La figure 2 superpose la carte des zones de gestion de ce champ. Malgré le fait que la lecture de l'IVDN soit la même aux trois endroits dans le champ, ces endroits se situent à l'intérieur de trois zones de gestion du champ différentes.

- La zone où la réaction a été « faible » se situe dans une zone plus élevée et sur un terrain en pente. Cette zone s'assèchera probablement plus vite que d'autres parties du champ. Le potentiel de rendement y étant plus faible, l'habileté de la zone à utiliser un surplus de N n'est pas aussi grande. Par conséquent, la dose optimale de N n'est que de 37 lb/ac.
- La zone où la réaction a été « moyenne » au bas de la pente se trouve là où l'eau s'écoule et où la teneur en matière or-

Continued on page 10

Réglage des apports d'azote dans le maïs

Continued from page 9

ganique risque d'être plus grande, ce qui procure davantage d'azote naturel minéralisé à la culture. Même si le potentiel de rendement est élevé dans cette zone-ci, la réaction à l'apport est plus faible étant donné que la zone possède déjà la capacité de répondre aux besoins de la culture. La dose de N dans cette zone est optimale à 92 lb/ac, étant donné que le sol dans cette zone fournit une part importante de l'azote à partir des réserves naturelles du sol et de la matière organique.

- La zone de gestion marquée « forte » se situe là où le potentiel est le plus grand de voir la culture réagir favorablement à un apport supplémentaire d'azote. Cette zone ne reçoit pas autant d'eau et ne possède pas autant d'azote naturellement que la zone de réaction moyenne, si bien que les besoins d'azote y sont plus grands. Une dose de 144 lb/ac est ici suggérée.

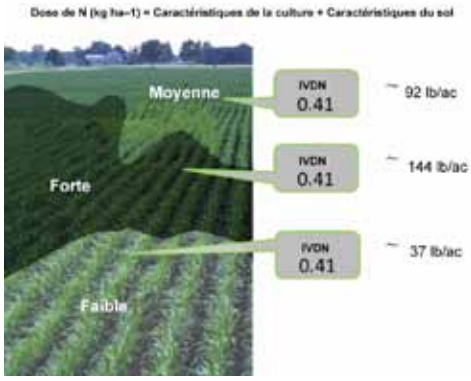

Figure 2. Identification des zones de gestion en fonction du potentiel de réaction de la culture à un apport d'azote et dose d'azote par zone pour les mêmes IVDN mais avec une gestion tenant compte de la spécificité de l'emplacement (d'après Raj Khosla, Colorado State University, SW Ag Conference, 2015).

La figure 2 illustre comment on peut optimiser les doses d'azote en tenant compte à la fois des lectures des capteurs optiques et des données sur le sol (zones de gestion spatiale en agriculture de précision). Les zones qui affichent une réaction forte aux apports supplémentaires d'azote reçoivent davantage d'azote. Celles pour lesquelles les apports ont moins de chances d'être profitables en reçoivent moins.

Possibilités de cultures fourragères à la suite du blé

Joel Bagg, spécialiste de la culture des fourrages, MAAARO

Les coûts accrus des terres et la demande de fourrage qui s'intensifie dans certaines parties de l'Ontario font en sorte que les cultures fourragères succédant à du blé d'automne et à d'autres céréales présentent de plus en plus d'intérêt. Non seulement cette pratique peut-elle procurer un supplément d'aliments pour animaux, mais elle présente les avantages liés à d'excellentes cultures de couverture d'automne. Il existe quelques cultures fourragères qui permettent d'obtenir deux récoltes et un fourrage de bonne qualité à peu de frais. Là où la destruction par l'hiver est à craindre avec le raygrass ou des céréales d'automne, se dire que les pertes sont minimes en raison des avantages que procurent les cultures de couverture et parce que ces cultures n'empêchent pas de semer une culture de remplacement dans le même champ le printemps suivant. Le fait de semer des mélanges de luzerne l'été plutôt qu'attendre le printemps suivant peut procurer l'avantage d'un plein rendement l'année suivante sans les pertes de rendement habituelles durant l'année d'établissement. Chaque solution comporte ses avantages et ses inconvénients, et chaque situation est différente.

Le défi consiste à faire en sorte que la récolte du blé, la maîtrise de la repousse et le semis de la culture suivante se fassent à point nommé. La concurrence exercée par le blé spontané peut constituer un problème de taille. Sans vernalisation, le blé d'automne ne forme pas à l'automne de tige permettant une croissance suffisante, si bien que les rendements sont très limités. Il peut s'ensuivre une repousse abondante de blé spontané si des grains légers passent à travers la moissonneuse-batteuse, comme dans les cas d'infections causées par Fusarium. Une façon d'atténuer le problème consiste à travailler légèrement le sol (au moins derrière la moissonneuse-batteuse), afin d'encourager la germination des graines. L'application de glyphosate pour la destruction chimique de la végétation de 7 à 10 jours plus tard fera disparaître le gros de la repousse. Évidemment, cette solution demande du temps, ce qui fait rater certaines occasions plus le temps avance. La sécheresse estivale après les semis peut retarder la germination et la croissance.

Semis d'été d'avoine fourrager

http://fieldcropnews.com/2013/07/summer-seeding-oats-for-forage/

- qualité fourragère de moyenne à élevée selon le stade à la coupe
- possibilité d'ajouter des pois pour un fourrage de meilleure qualité
- quand la coupe se fait à l'automne, le préfanage et la récolte peuvent occasionner des problèmes
- faire suivre ces cultures annuelles d'une autre culture Raygrass d'Italie http://fieldcropnews.com/2014/06/italian-ryegrass/
- qualité fourragère pour troupeaux laitiers d'élevée à très élevée
- une coupe à l'automne et une autre en mai peuvent être suivies de maïs à ensilage, de soya, de sorgho, etc.
- si le peuplement est bon à la première coupe, possibilité de continuer à couper toutes les quatre semaines
- attention au risque de destruction par l'hiver

Récoltes successives de céréales d'automne pour plus de fourrage

http://fieldcropnews.com/2013/08/double-cropping-fall-rye-for-extra-forage/

- seigle d'automne ou triticale d'automne
- qualité fourragère de moyenne à élevée selon le stade à la coupe au mois de mai suivant (cibler le stade de la sortie de la feuille de l'épi)
- une part de risques liés à la destruction par l'hiver
- potentiel de rendement élevé
- possibilité de faire suivre ces cultures de maïs à ensilage, de soya, de sorgho

Semis d'été de luzerne

http://fieldcropnews.com/2012/05/summer-seeding-forages/

- plein potentiel de rendement l'année suivante sans les pertes de rendement habituelles liées à l'établissement d'une culture semée le printemps.

Fertilisation des pâturages

Jack Kyle, spécialiste des animaux de pâturage, MAAARO

La fertilisation azotée est l'un des moyens les plus faciles d'accroître la productivité d'un pâturage. Voici néanmoins quelques questions à se poser avant d'acheter un engrais azoté.

Est-on prêt à gérer davantage d'herbe?

Avec le temps doux, il faut s'attendre à une croissance rapide qui devra être gérée. Les clôtures et le nombre d'animaux permettent-ils de gérer cette croissance? Pouvoir pratiquer la rotation des pâturages est la principale exigence pour tirer le meilleur parti possible de la croissance des graminées et d'en optimiser l'utilisation.

Les légumineuses produisent de l'azote

Si le pâturage comporte plus de 35 % de légumineuses, la quantité d'azote produite par celles-ci sera vraisemblablement suffisante pour répondre aux besoins des graminées. Au moment d'évaluer le pourcentage de légumineuses, il faut garder à l'esprit que celles-ci doivent être réparties uniformément à la grandeur des pâturages. Dans un peuplement, les plants de légumineuses sont souvent plus visibles que les plants de graminées. En tant que producteurs, nous surestimons souvent la quantité de légumineuses présentes. Y regarder à deux fois. On peut même récolter manuellement un petit carré d'échantillonnage, puis séparer les graminées des légumineuses pour évaluer la quantité de chacune.

Épandage d'azote – Taux et moment

Les graminées réagissent très bien à la fertilisation azotée, pourvu qu'il y ait des concentrations suffisantes de phosphore et de potassium dans le sol. La réaction à l'azote suivra d'environ deux semaines l'application. Le regain de croissance durera de 5 à 6 semaines.

Pour que l'apport d'azote soit rentable, il faut épandre au moins 40 lb d'azote élémentaire/ac. Vu la grande solubilité de l'azote, il est suggéré de ne pas dépasser 75 lb/ac. Si l'on veut accroître la fertilisation azotée d'un pâturage très productif, il est conseillé d'accroître le nombre d'applications.

Le moment des applications dépend d'un certain nombre de facteurs. Il reste que la mi-juin donne généralement un maximum de résultats. À la mi-juin, la poussée de croissance printanière a ralenti, et l'azote vient stimuler à nouveau la croissance. À partir de juillet, le risque de ne pas avoir suffisamment de pluie pour transporter l'azote dans la zone racinaire est à craindre. Le ralentissement de la croissance des graminées durant les grandes chaleurs de l'été est l'autre point à considérer, surtout si l'humidité se fait rare.

Des fongicides liquides appliqués dans la raie des semis du soya?

Horst Bohner, spécialiste de la culture du soya, MAAARO

Les applications de fongicides foliaires sont devenues plus courantes dans les cultures de soya, surtout les années où la pression exercée par la pourriture à sclérotes (sclérotiniose) est forte. Les applications de fongicides liquides dans la raie de semis sont aussi utilisées actuellement dans certains États américains. Ce traitement fongicide supplémentaire vise à protéger les plantules d'infections causées entre autres par Rhizoctonia.

Des essais sont en cours en 2015 pour évaluer la pertinence d'ajouter des produits comme Priaxor dans la raie de semis avec la semence de soya. En 2014, nous avons ensemencé trois parcelles d'essais de deux cultivars, afin de déterminer le meilleur moment pour appliquer Priaxor sur le soya, y compris comme traitement dans la raie de semis. L'application du fongicide dans la raie de semis s'est faite à l'aide de languettes Keaton fixées à un semoir Kearney 15 po. Des applications de fongicides foliaires ont aussi été faites à l'aide d'un pulvérisateur Hardi de 40 pi aux différents stades de croissance indiqués dans le tableau 1. KP Plus (0-51-33) a été mélangé en cuve et appliqué avec le fongicide lors des traitements indiqués.

Résultats

Dans la plupart des régions de l'Ontario, l'année 2014 fut marquée par du temps pluvieux qui a persisté pendant toute la saison de croissance. Les températures ont été légèrement inférieures à la moyenne. Ces conditions ont été idéales pour la prolifération de la pourriture à sclérotes. La pourriture à sclérotes a été observée à la fois dans les parcelles de St. Thomas et de Perth, mais ne l'a pas été dans la parcelle située à Lucan.

Figure 1 - Pourriture à sclérotes présente dans deux des trois parcelles de recherche.

Tableau 1. Réaction moyenne du soya en termes de rendement à des applications de fongicides en 2014 (toutes les parcelles et tous les cultivars)

N° Traitement et stade de croissance Rend.	(boisseaux/ac)
Parcelle témoin non traitée	49,1 de
Priaxor raie de semis	48,6 de
Priaxor V6	47,8 e
Priaxor R2	50,9 bc
Priaxor R4	50,9 bc
Priaxor R2 + KP Plus	49,4 cde
Priaxor R4 + KP Plus	51,8 b
Priaxor raie de semis + Priaxor R2	49,5 cd
Priaxor raie de semis + Priaxor R2 + Acapela R4	54,3 a

Dans le tableau 1, les rendements assortis des mêmes lettres ne sont pas statistiquement différents. Sur le plan statistique, aucune différence de rendement n'a été observée quand le fongicide a été appli-

Continued on page 12

Des fongicides liquides appliqués dans la raie des semis du soya?

Continued from page 11

qué seulement dans la raie de semis ou au stade V6, ce qui indique que l'application de fongicides foliaires dans la raie de semis ou en combinaison avec des herbicides ne procure aucun bénéfice.

Un gain de rendement de 1,8 boisseau/ac a été observé quand Priaxor a été appliqué au stade de croissance du soya R2 ou R4. L'ajout de KP Plus foliaire ne s'est traduit par aucun avantage sur le plan statistique. Ces résultats concordent avec une recherche menée antérieurement en Ontario dans laquelle une application de fongicides foliaires avait procuré un gain de rendement moyen de 2 boisseaux/ac.

Le gain de rendement le plus important a été observé avec le traitement le plus intensif, à savoir l'application de Priaxor dans la raie de semis suivie d'une application foliaire de Priaxor au stade R2 et d'un traitement foliaire supplémentaire avec Acapela au stade R4. Le gain de rendement moyen observé pour l'ensemble des parcelles d'essai et des cultivars a été de 5,2 boisseaux/ac. Ces résultats sont principalement attribuables à la maîtrise partielle de la pourriture à sclérotes et viennent confirmer que l'utilisation d'un fongicide foliaire peut procurer des gains de rendements importants si la pourriture à sclérotes est présente à des niveaux modérés. Selon toute vraisemblance, la partie du traitement constituée de l'application dans la raie de semis a eu peu d'effet sur le rendement étant donné que ce traitement pris isolément (traitement n° 2) n'a pas donné de rendement supérieur à celui obtenu dans la parcelle non traitée.

Cultures de couverture envisageables en 2015

Adam Hayes, spécialiste de la gestion du sol—Grandes cultures, MAAARO

Les possibilités d'inclure des cultures de couverture dans la rotation sont nombreuses. L'objectif est de garder au moins 30 % de la superficie du sol recouverte d'une culture, d'une culture de couverture ou de résidus de culture et ce, 100 % du temps. Un second objectif est d'avoir dans le sol le plus possible de racines vivantes. Les recherches menées au campus de Ridgetown de l'Université de Guelph montrent que l'installation d'une culture de couverture procure un avantage même si la croissance est limitée. Il est donc judicieux d'étudier les possibilités suivantes et de trouver un moyen de tirer parti des cultures de couverture.

Ensemencement sous couvert de maïs

Les semis de cultures de couverture dans du maïs sur pied suscitent un certain intérêt. Différentes périodes de semis ont fait l'objet d'essais, que ce soit entre le stade 5-6 feuilles du maïs et celui de la formation de la panicule ou au stade où le feuillage commence à s'éclaircir vers la fin de l'été ou le début de l'automne.

Il est important de garder à l'esprit le programme de lutte contre les mauvaises herbes au moment de planifier l'ensemencement sous couvert de maïs. Le tableau 1 présente une liste des herbicides qui peuvent compromettre le succès d'une culture de couverture.

Certains producteurs sèment du seigle à raison de 60 lb/ac sous couvert de maïs au moment où la culture commence à atteindre la maturité ou même après la récolte. Ils obtiennent une croissance suffisante à la fin de l'automne et au début du printemps pour y trouver un profit.

Cultures de couverture à la suite de céréales et de cultures récoltées à la fin de l'été

L'article « Cover Crops Following Cereals and Late Summer Harvested Crops » fournit plus d'information sur les cultures de couverture envisageables à cette période de l'année; voir http://fieldcropnews.com/2014/07/cover-crops-following-cereals-and-late-summer-harvested-crops/.

Cultures de couverture envisageables dans le soya

Quand on ne peut opter pour le blé d'automne comme culture à la suite du soya, il est possible d'envisager de semer une céréale d'automne comme culture de couverture. Le seigle est le choix le plus courant, mais toute céréale d'automne peut convenir, comme le blé, l'orge ou le triticale. Les semis se font en pleine surface à raison de 60 lb/ac lorsque 10 % des feuilles sont tombées ou immédiatement après la récolte.

Tableau 1 : Risques de dommages aux cultures de couverture de raygrass et de trèfle semées sous couvert de maïs

Herbicide	Raygrass annuel	Trèfle
Converge XT	Sûr	Dommages
Callisto	Certains dommages; certaine réduction du peuplement	Dommages**
Engarde	Certains dommages; certaine réduction du peuplement	Dommages**
Integrity – dose de début de saison	Sûr	Aucun dommage
Integrity – pleine dose	Dommages – réduction du peuplement	Certains dommages
Primextra	Dommages – réduction du peuplement	Certains dommages
Lumax	Dommages – réduction du peuplement**	Dommages**
Treflan/Prowl	Dommages; certaine réduction du peuple-ment*	Certains dommages
Focus	Dommages – réduction du peuplement**	Légers dommages
Frontier Marksman	Certains dommages; certaine réduction du peuplement**	Certains dommages

Le nombre d'astérisques (*) est proportionnel à la gravité des dommages.

Source : Darren Robinson, campus de Ridgetown de l'Université de Guelph, projet financé dans le cadre de Cultivons l'avenir 2.

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⇒ Industrial Hemp Variety Development for Northern Ontario

NOFIA is also managing the Temiskaming Crops Coalition/Cochrane Soil and Crop Improvement Association three year land development project entitled 'Rapid Development of Farmland from Boreal Forest and an Evaluation Relative to Traditional Clearing Methods'.

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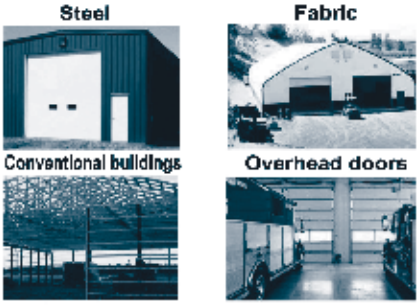

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OSCIA NEWS

A NEWSLETTER TO UPDATE OSCIA MEMBERS, PRESIDENTS, SECRETARIES, TREASURERS, DIRECTORS, AND OMAFRA AGRICULTURE DEVELOPMENT CONTACTS

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Message from the President - Alan Kruszel

Hi Folks,

As I sit and write this message, we are expecting a low of 4 degrees celsius with clear skies and no wind, which in my world means a risk of frost! I hope that not too many others are facing the same issue in the beginning of June!! I've heard reports from across the province on the whacky spring weather we've been having and its impact on planting. It appears that most areas are done planting with a few folks in the north still battling wet conditions trying to get finished.

The Board held a very good Strategic Planning session at the beginning of April with some excellent discussion and suggestions brought forward. The Plan is being refined/ tweaked and we hope to have it complete by the conclusion of the summer meeting in August.

In the middle of April we were able to officially launch the 3rd year of *Growing Forward 2*. There are substantial funding opportunities associated with this program. There have been some changes to the program, so make sure to get the latest version of the Program Guide for Producers and read it thoroughly, before making a project application. Don't move ahead until your project has been approved.

The Executive was very pleased to receive seven applications for Tier Two Funding for multi-year research projects. All the applications were well thought out and really great project ideas. We had a very hard time narrowing them down; however, in the end we were able to select four outstanding projects that were allocated funding. Congratulations to St. Clair Region, Thames Valley Region, North Eastern Region as well as Ottawa Carleton on their approvals. We look forward to some great work being done with these projects and some great information to be learned and shared.

As summer sets in, so do all the Soil and Crop demonstrations, car tours, bus trips and of course barbecues! There is a huge amount of information to be gathered from all these activities taking place within your county or region.

2015 International Year of Soils

Spend a little time attending some of these events. I'm convinced you'll come away considering how to try some of the things you see.

All the best, and let's hope for a great growing season!

Alan Kruszel
akruszel@ontariosoilcrop.org

On-farm Corn & Soybean Trials 2015

neonicotinoid seed treatment efficacy study

Have you planted your strip trials?

We are looking for follow-up!

Please email onneonicstudy@gmail.com ASAP!

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"THERE IS NO MORE UNDISTURBED SOIL ON EARTH" - Odette Ménard

So said Ms Ménard at the OSCIA AGM in London, this past February. Ménard is an Agricultural Engineer who works for the Quebec Ministry of Agriculture, Fisheries, and Food, and is based at St. Hyacinthe. Her passion is to help producers discover the value of low-disturbance farming practices. Her theme for this event was an evaluation of "soil life" on the farm.

Soil is life – or should be! In Costa Rica, there is a huge divergence of soil life. This is not so on the average Ontario farm. Corn and soy yields are still growing elsewhere in N. America, but in Ontario many crop yields have plateaued or are falling. Can we change this trend by changing our point of view?

We need to develop a 3-D view of the soil. Look at the soil components themselves, the soil fauna, as well as the Best Management Practices to evaluate the soil. Is water erosion caused by poor infiltration or soil compaction, and what is the relationship? Is wind erosion caused by broken soil structure or lack of residue? We need to do more than just provide nutrients to the soil. We need to understand the physical, chemical, and biological components of the soil on every farm.

Do you know if you have compacted soil? First, identify where the surface water is ponding. Then start to dig. You should make a point of digging small soil pits on an annual basis. This is an ESSENTIAL component to increasing crop yields! Take a soil clod and immerse it in water. It should break down almost instantly. If it does not, it is compacted.

The average mineral soil contains 1 to 5% organic matter, 20 to 30% air, (mainly oxygen and nitrogen) and a similar range for water. These are the ideal conditions for soil life, such as myccorhizae, that feed plants as they break down large soil particles. Earthworms themselves account for 20% of soil biomass in the top 16 inches. Charles Darwin recognized them as the "original plow". Look for evidence of their presence – you should find about a dozen "middens" on the surface, per square FOOT!

We can feed standard nutrients to the soil, but it is the soil biological activity that breaks down those nutrients and makes them available for plant uptake. A low level of soil biological life will equate to low yields. As a soil becomes healthier from the biological standpoint, the more productive the farm can be.

No-Till practices are essential to the Ontario farming system. It could take 8 years of well managed cover crops to rebuild soil microbiology. The cover allows for consistent soil temperatures that encourage soil micro fauna. The soil organisms break down the organic debris to feed our chosen crops.

This year, plant cover crops, (including CLOVER) into your grain corn. The stalk will be shorter, but the yield should remain the same. Do what it takes to develop a 7 year rotation. Plant radish and grasses in alternate rows after any grain crop is removed. And dig soil pits. EVERY year!

Graham J. Gambles, RCC, NEOSCIA

Special Note:

Graham Gambles has stepped down as NEOSCIA RCC as of May 31, 2015 and we would like to take this opportunity to thank him for his many years of service to OSCIA.

We would also like to welcome Brittany Roka to the RCC team, stepping into Mr. Gambles shoes as of June 1, 2015.

Keeping an eye on Entry Points to your Property - Be Vigilant

A recent story in the Waterloo Region Record is a reminder of the importance of keeping an eye on all entry points to the farm property and having them appropriately secure to prevent undesirable activities.

Recently, a grower there faced costs estimated at up to $12,000 to have 24 rusty barrels of hazardous waste removed from their sugarbush that were indiscriminately and illegally dumped by someone.

When items are dumped onto private property it becomes the responsibility of the landowner to clean it up.

Fortunately, a local used oil recycling business stepped in to safely remove the barrels. We should all remain vigilant.

2015 International Year of Soils

Seed Bytes - *"BeeConnected App for Pollinator Protection"*

A new tool to help encourage communication between beekeepers and farmers is now available. CropLife Canada and the Canadian Honey Council partnered on this project. The app was originally developed by CropLife Australia and the Australian Honey Bee Industry Council.

BeeConnected allows farmers, beekeepers, and pesticide applicators to collaborate anonymously to facilitate best practices to protect pollinators. The app will be available for iPhone and Android devices, as well as a web platform, at no cost to users. Users simply download the free app, and register as a beekeeper, farmer or commercial applicator.

The app allows users to indicate any planned agricultural activities or to specify bee hive locations. Registered information is only disseminated to relevant users in their area. The app enables instant messaging between users, while maintaining their privacy, to improve overall communication and allow the exchange of important information.

For more information about the launch of this new tool please visit: http://www.croplife.ca/protecting-pollinators/pollinator-projects

(Forwarded by Canadian Seed Growers' Association)

Harold Rudy, Executive Officer, Research and Business Development

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Soil Health - OSCIA's Top Research Priority

Since the drought of 2012, questions have been raised about what could be measured to describe the differences of one field versus the next or even differences within fields. On the same soil type, some crops thrived with top yields, others did poorly. Could there be better ways to quantify the conditions or health of the soil, assuming that healthy soils were more resilient during periods of drought stress? Developing practical tools for farmers and extension staff to measure the condition of soil health is one of OSCIA's top research priorities.

Beginning with Ontario government funding through the Water Resource and Adaptation Management Initiative in 2013, OSCIA partnered with Dr. Dan Reynolds, a soil scientist with Agriculture and Agri-Food Canada in Harrow, to compare physical soil conditions of high quality soil with adjacent poorer conditions. In 2014, additional field data was collected under the Farm Innovation Program of *Growing Forward 2 (GF2)*, delivered by the Agriculture Adaptation Council. This report is available under 'Publications' on OSCIA's website.

Questions being posed include:

- What physical characteristics (e.g. Aggregate Stability) are most useful?
- What readings within the traditional soil testing laboratory reports (e.g. Organic Matter) are useful indicators?
- Can the complexity of microbes and biological parameters be efficiently documented?
- What is the role of precision agriculture which promotes the use of mapping analysis to determine management zones for more efficient use of crop inputs?

OSCIA and partners are on the cusp of leading edge research on soil health. We look forward to communicating tips and tools in the months and years ahead.

A working group has been established with representatives from the Ontario Ministry of Agriculture, Food and Rural Affairs, University of Guelph, Grain Farmers of Ontario, and OSCIA. Further consultation is continuing with industry.

This research was funded in part through *Growing Forward 2* (*GF2*), a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of *GF2* in Ontario.

Harold Rudy, Executive Officer, Research and Business Development

2014 CROP ADVANCES

Premier Website for Applied Research on Soil & Crop management

2014 Crop Advances available on the OSCIA website:

http://www.ontariosoilcrop.org/cropadvvol11.htm.htm

Great Lakes Agricultural Stewardship Initiative (GLASI) Update

Farm businesses in the Lake Erie and Lake St. Clair watersheds, and the Lake Huron southeast shores watershed, now have the opportunity to work with a Certified Crop Advisor to complete a Farmland Health Check-Up. The Check-Up represents a $300 value but the service is provided to the farm business at no charge thanks to the Great Lakes Agricultural Stewardship Initiative (GLASI). Cost-share funding may be available soon to implement best management practices identified in the assessment by the Certified Crop Advisor. The coupon is valid as annual program budgets allow, May 2015 through January 2018. GLASI is supported through *Growing Forward 2*, a federal, provincial, territorial initiative. For more information, visit www.ontariosoilcrop.org or email GLASI@ontariosoilcrop.org

Species At Risk Farm Incentive Program (SARFIP) Update

Back by popular demand, the Species At Risk Farm Incentive Program (SARFIP) is now available for 2015. With continued support from Environment Canada and the Ontario Ministry of Natural Resources and Forestry, the program builds upon the success of past years, and continues to support agricultural management practices that benefit species at risk in Ontario. SARFIP is available to all agricultural landowners and offers tiered funding to provide enhanced support. Applications are now being accepted, and funding will be allocated on a first-come, first served basis. To participate, start by consulting the 2015 SARFIP brochure available at: www.ontariosoilcrop.org

'Foliar fungicides can increase soybean yields when facing disease pressure' - Excerpt from Spotlight on Crop Advances

Applying foliar fungicides to soybeans can have a positive impact on yield. Field trials completed in Ontario show an average increase of 2.3 bushels per acre in response to foliar fungicide application – and an even higher response in fields where white mould was present.

The economic return of fungicide application, however, depends on the specific situations on individual farms, and doesn't make sense for all growers.

"Overall, we found a yield benefit to applying foliar fungicides to soybeans, although not enough of a benefit to make economic sense in the absence of significant disease pressure," explains Horst Bohner, Soybean Specialist with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). "But when white mould is present even in a moderate level, new fungicides do bring significant yield benefit to the table."

How was the Research conducted?
Field scale trials were conducted in Perth, Middlesex ad Elgin Counties. Treatments were tested on two varieties at each study location.

What has the project found?
On the 2014 trials specifically, a positive yield response of approximately 1.8 bushels per acre was observed when Priaxor was applied at the R2 or R4 soybean growth stage, which is in line with previously completed research in Ontario that showed about a two bushel per acre average yield gain when using one application of foliar fungicides.

"As a general statement, for an average grower in an average year, the economics don't make sense to spray fungicide in the absence of significant disease pressure," he says. "But the story changes very quickly if you have white mould or another disease, and even though the five bushels per acre is not a big economic win, it is reasonable."

Where can I get more information?
More information on this project can be found in the Crop Advances section of the OSCIA website at: http://www.ontariosoilcrop.org/cropadvvol11.htm.htm

How was the research funded?
The project, conducted in conjunction with Dr. Dave Hooker at University of Guelph Ridgetown Campus, was funded by an OSCIA major partner grant. Material support was provided by Pioneer, Dekalb, BASF, and John Deere. OSCIA assisted with communication of research results.

Written by: Lilian Schaer

SYLVITE to sponsor the FREE breakfast at CANADA'S OUTDOOR FARM SHOW again this year - September 15-17, 2015

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Growing Connections

On Monday May 11th, 2015, the Rural Agri-Innovation Network (RAIN) hosted the first "Growing Connections Farmer/ Chef Speed Dating" event for Algoma and Sault Ste. Marie, took place in the Willow Teaching Restaurant at Sault College. Invites were sent to farmers and producers, breweries, aqua-culture through-out the Algoma region, as well as to restaurants, chefs, retailers, wholesalers, food buyers, distributors, processors, private and public sector institutions and economic development agencies. The goal for the event was to "Stimulate connections between farmers/producers and purchasers in the Algoma District to increase market opportunities and thereby strengthen the local food economy."

On the agenda, was a Business to Business trade show, whereby farms and producers could set up their business information and products and food samples at a table and chefs and food buyers could go from table to table, meet and mingle with those in the business of growing and selling local food and learn who had what food products are available in the region.

Two speakers made presentations; Sandra Trainor talked directed to farmers/producers called "Farmer's Guide to working with the food services industry" and presentation directed to chef and food buyers called "Chef's Guide to Procuring Local Food". David Thompson did a presentation on "Web-based tools that farmers and chefs/food buyers can utilize, to sell and locate local food." At the event, David announced that RAIN will be launching an online marketing business to business platform for connecting Algoma food buyers and farmers. The Algoma Table platform will be launched this summer at www.buyalgoma.ca, and will enable the ability to coordinate marketing, delivery and transactions.

In total, 35 – 40 farmers and chefs/food buyers attended the event. Most indicated it was a productive afternoon and made some good connections and anticipate further connections after the event.

RAIN Research Brief

RAIN will again be busy in 2015 hiring two additional staff to complete their multi-year farmer cooperator research projects. Many new project partners have joined RAIN bringing a wide range of expertise including NorthStar Genetics, Bayer CropScience, Total Precision Surveying and the Ontario Sheep Marketing Agency. We continue to work closely with our existing partners, the Agriculture Adaptation Council, Ontario Ministry of Agriculture and Food, Algoma Soil and Crop Improvement Association and Boreal AgroMinerals. This year's active field research projects include:

- Algoma Pasture Improvement Demonstration and Assessment
- Keyline Plowing for Improved Forage Production and Climate Change Resilience
- Nutritional Value and Integration of Hybrid Willow and Poplar as Fodder for Sheep
- Grazing Season Extension Growth and Yield
- Short Season, Cold Tolerant Soybean Variety Trial
- Cost-Benefit of Canola Production Trial
- Determining Forage Nutrient Content by Date of Cutting – Bobolink Hay Project
- Market Garden Assessment of Two Organic Fertilizers

RAIN would like to recognize the many farms participating in this year's research programs including Collholm Farms, Collverbrook Farms, Gawas Farms, Sunnynook Farms, McFadden Acres, Jim Withers, Peter Lambert, Suzanne Lefebvre, and Dawn Kucher. Without their participation, these projects would not be possible.

For summaries about RAIN's research, visit www.rainalgoma.ca/research

Northern Partners wrap up SNAP

The Sustainable New Agri-Food Products (SNAP) Program was a pilot micro-grant initiative to assist local food and agricultural producers in Northern Ontario purchase equipment for new products and value-added processing. The goal of the program was to support Northern Ontario producers and create more agricultural and food products being produced in the north. The program was funded by FedNor and administered by the Rural Agri-Innovation Network (RAIN), Clover Valley Farmer's Market, Eat Local Sudbury Co-op and Northeast Community Network. Funds were allocated across the North to ensure projects were approved over a wide geographical range.

The SNAP program succeeded in attracting many producers and new projects. A total of 112 applications were received over six and a half months, and 46 of those projects were approved for grants between 5,000 and 15,000. Ten new start-up businesses received SNAP grants.

Businesses have demonstrated positive results and to date, 22 new products have been created, five new businesses were established, and 17 were expanded. A total of four new full-time jobs and two new part-time jobs have been created since the summer of 2014, and four full-time jobs were retained. More products through SNAP will be rolling out during the 2015 season.

For a number of producers, purchasing equipment and producing new products will allow them to market more locally. Through the SNAP program, nine greenhouses were approved, which will increase the amount of local vegetable production in Northern Ontario. This will also help value-added processors access local produce from Northern Ontario, as opposed to purchasing it from farther south.

The SNAP grant helped to further many innovative products, including:

- Seed cleaner for helping to develop the first commercially viable quinoa seed to be grown and processed in Northern Ontario
- Bitters and botanicals made from locally grown and wild crafted sources
- Equipment to produce beef bacon and beef sausage (new value-added options) for an abattoir that serves over 200 beef farmers

Reviewers, coordinators and several applicants suggested changes to the SNAP program that would help clarify the process and expand the impact so that a greater variety of needs would be addressed. There was a need for basic equipment to help increase production or meet changing regulation requirements. The SNAP pilot was successful in assisting diverse food and farming businesses across northern Ontario with creating new and innovative products. The partners involved thank FedNor for their contribution to these exciting projects and are looking forward to seeing SNAP continue into the future.

N.E.O.S.C.I.A.

North Eastern Ontario Soil and Crop Improvement Association
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Ag Snapshot in Northwestern Ontario

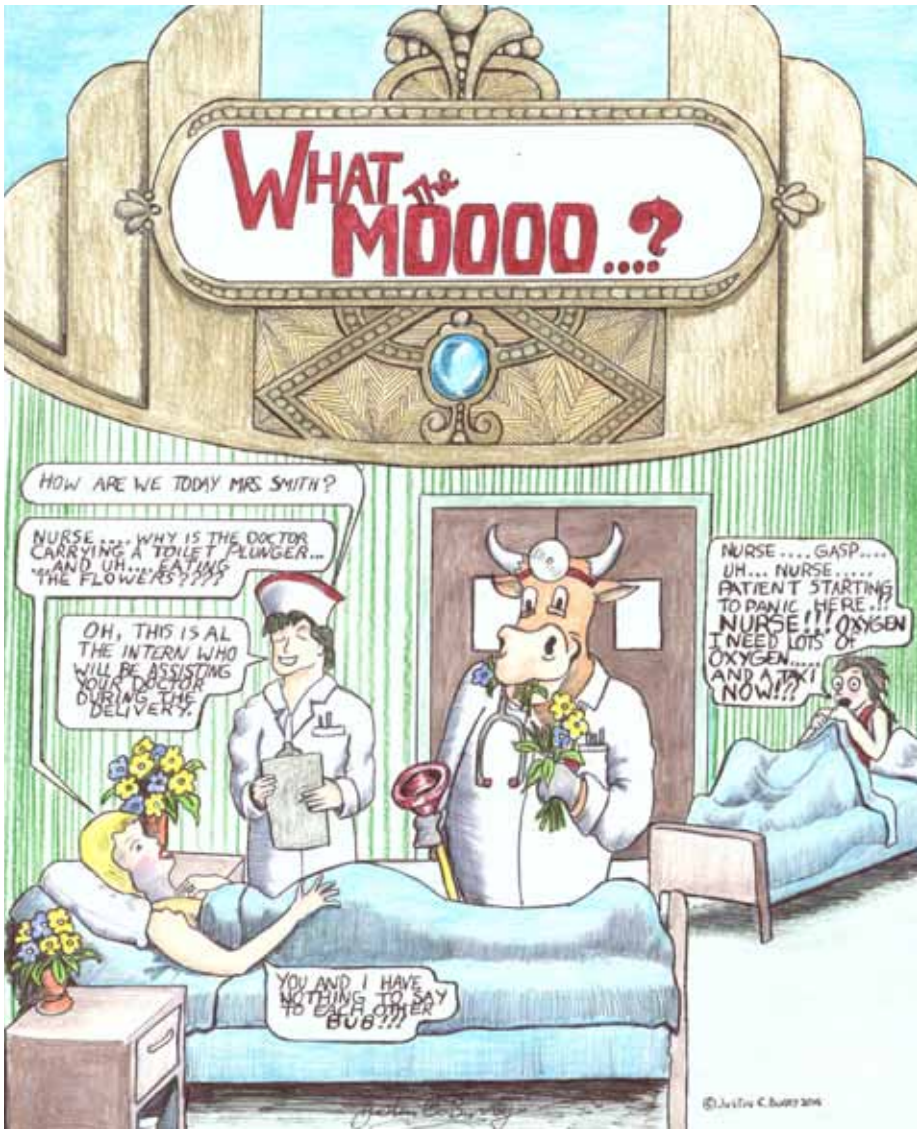
Compiled with notes from Tarlok Sahota of the Thunder Bay Agricultural Research Station and Kim Jo Bliss of the Emo Agricultural Research Station.

May in Rainy River was wetter and colder than last year, with 151.5 mm of rainfall. The Emo Agricultural Research Station has a forage focus as well as research on adapted crop species. EARS currently has an MOU with the University of Minnesota for canola research. An additional on-farm canola experiment is underway at North End Farms, which consists of 2 row spacing's, 2 seeding rates and 3 varieties. Results from trials at EARS from 2010-2013, including kura clover yields, can be found at www.nofia-agri.com.

Agricultural research underway at the Thunder Bay Agricultural Research Station includes testing a new fertilizer NK21 (21-0-21) on alfalfa, evaluating new green pea and yellow pea varieties, brown and yellow flax, and malting barley varieties. Specialty/new crops include Sainfoin, Blue Tinge Ethiopian Wheat, Gold Harvest Bush Pea, Black barley and Painted Mountain Flour Corn. Within the region, the number of canola growers and acres under production are increasing, with a single producer planting 295 acres. Further research results can be found at www.tbars.net.

To further connect with agriculture in Northwestern Ontario,

Further information can be found at the Northwest Link; research results can be found at www.tbars.net or www.nofia-agri.com.



This month's artwork comes from Justin Burry of Englehart. View more of his work at http://justin-burry.tripod.com

Kura clover stand at the EARS, established in 2000