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Breaking Ground
(in Northeastern Ontario) *Spring 2015*

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

Haskap Research Complete

By: Graham J. Gambles, Regional Communication Coordinator, NEOSCIA

During the past 2 years, NEOSCIA has undertaken an extensive field research project that has included all 8 Districts in the north east region of Ontario. The primary goal was to determine the adaptability of this plant to northern Ontario weather and soil conditions. It would also provide some direction toward fertilization requirements of local soils, and evaluate the need for weed control with plastic (or other) mulch.

The project participants include the following growers:

Algoma: Trevor Lang (Wawa), Tom Murdoch (St. Joseph Island), Jeannie Pearce (Sault Ste.Marie)

Cochrane: Lars Hillderbrandt (Iroquois Falls), John Caron (Timmins), Greg Williams (Moose Factory)

Manitoulin: Marca Williamson (Tehkummah)

Muskoka: Ken & Katya Riley (Bracebridge)

Nipissing West: Gerald Beaudry (Verner)

Nipissing East: Bill & Linda Harman (South River)

Sudbury West: Mack Emiry (Massey), Claude Lajoie (Chelmsford)

Temiskaming: Dave Bowers (Lorraine Valley), Candy Keith (Haileybury), Julie Rivard (Earlton), Shelly Rahme (Englehart)

In short, the project was highly successful. The greatest risk is in shipping the plants long distance by Canada Post. Losses occurred when plants left the propagator on a Monday but did not reach their final destination by Friday. (Isolated communi-

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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

EARLTON FARM SHOW 2015

Friday, April 10TH, 10 am to 9 pm
Saturday 11TH, 7 am to 4 pm

Free Admission (Please bring a donation for local food banks)

Join us on **Friday** from 11:30 am to 1:30 pm for a **KICK OFF LUNCH** including a buffet of salads, sandwiches, soup, desserts, tea and coffee. **Only $5.00!** Lunch sponsored in part by **Pioneer** and **Bayer Crop Sciences**

SHOW SPONSORED IN PART BY AND TCC

Youth Ag Talk - Northeast Friday 6 pm

View the annual Forage and Seed Show - Students art show, and over 60 exhibits downstairs! Interactive grain display for children and small animal displays.

Two **live auctions** each day - come bid on farm equipment and supplies contributed by the exhibitors. Friday at 3 pm and 8 pm Saturday at 11 am and 3 pm

Come and listen to Agriculture Experts speak on a variety of topics, including

Friday 1 pm	Growers Mineral
Saturday 10 am	Beef Farmers
Saturday 11 am	OSMA
Saturday 12 pm	Young Farmer

Brian Schubert Memorial Breakfast Sat April 11th, 7:30 am to 9 am only $5.00.

Be an early bird and join us in memory of Brian Schubert

Brian was a passionate Cattleman and farmer in the fertile Clay Belt area who dedicated himself to the advancement of crop production and the future of the cattle industry in the North.

Breakfast sponsored by

Farm Credit Canada
Advancing the business of agriculture

Vendredi 10 Avril de 10 h à 21 h
Samedi 11 Avril de 7 h à 16 h

Entrée gratuite (svp faire un don pour les banques alimentaires locales)

Joignez-vous à nous le **vendredi** de 11 h 30 à 13 h 30 pour un **dîner**, comprenant un buffet de salades, fromages, sandwiches, soupes, desserts, thé et café pour 5,00$! Commandité en partie par **Pioneer** et **Bayer Crop Sciences**.

Show parrainé en partie par et TCC

Youth Ag Talk - Northeast Vendredi à 18 h

Venez voir les oeuvres d'art des enfants et l'exposition d'ensilage et de semences au 2e étage. Plus de 60 kiosques dans l'aréna incluant des animaux vivants!

Deux **ventes aux enchère**s (sur place) par jour Vendredi à 15 h et 20 h Samedi à 11 h et 15 h

Une variété d'experts en agriculture est prévue pour parler tout au long de la fin de semaine.

Vendredi 13 h	Growers Mineral
Samedi 10 h	Beef Farmers
Samedi 11 h	OSMA District 11
Samedi 12 h	Young Farmer

Petit déjeuner en mémoire de Brian Schubert Samedi 11 avril de 7 h 30 à 9 h au coût de 5,00$

Soyez un lève-tôt et joignez-vous à nous en mémoire de Brian

Brian était éleveur de boeuf et un fermier dans la région fertile du Clay Belt. Il s'est dévoué à l'avancement de la production agricole et à l'avenir de l'industrie de l'élevage de boeuf dans le Nord.

Petit déjeuner parrainé par

Farm Credit Canada
Advancing the business of agriculture

Haskap Research Complete

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ties might want to ask for shipping to be done by a private courier.) There were very few overwintering losses, even at Moose Factory. All soils tested (except the typical wild blueberry sandy Podzols) seem to provide adequate nutrition to keep the plants growing at least at a low level. Highest growth was obtained in calcareous soil that had a long history of heavy manure application (close to barns). Excess commercial fertilizer can reduce growth.

Mulch (preferably plastic) is essential in the spring as the Haskap are poor competitors in weedy and grassy areas. Without mulch, growers lost plants to mowing, and to over-productive unmowed hay in the aisles, while rototillers disturbed roots. With mulch, there are "indications" that it is possible to prepare the site in spring and summer, lay the mulch early to kill the weeds below, and plant in late August. Haskap grown in wet areas survived well, but did best if they were planted into raised beds in these areas.

You can obtain the full report via internet by Googling OSCIA Crop Advances, choosing 2014, and go to Haskap in the "General" category. For a paper version, contact Graham Gambles, at 705-672-3105.

Nuffield Canada
AGRICULTURAL SCHOLARSHIPS

www.nuffield.ca

News Release: *2016 Nuffield Farming Scholarship Applications Open*

(Innisfail, AB – March 05) The Canadian Nuffield Farming Scholarship Trust is accepting applications for their 2016 program. Applications are due by April 30, 2015 and forms can be downloaded from the Nuffield Canada website at http://www.nuffield.ca.

Three scholarships of $15,000 each are available for 2016.

Nuffield Farming Scholarships are awarded to enthusiastic individuals, with a passion for agriculture and a desire to expand their knowledge, pursue new ideas and to share their findings with others. Applicants should be in mid-career, be between the ages of 25 and 45 (recommended only) and must have a minimum of five years agricultural business or farming experience plus the management ability to step away from their current duties. The Scholar must travel for a minimum of ten weeks, with a leg of at least six consecutive weeks. Scholarships are not for those involved in full-time studies or for the purpose of furthering existing research projects.

"The Nuffield Farming Scholarship provides innovative Canadians with the funding to travel internationally to explore agricultural issues and opportunities in a global context," said Kelvin Meadows, Chair and 2011 Scholar. "Through allowing scholars to further develop their capabilities, we enable them to be better farmers, business managers and leaders and make a significant contribution to Canadian agriculture."

The scholarships are awarded to men and women who are judged to have the greatest potential to create value for themselves, their industries and their communities, through the doors which will be opened and the opportunities provided for life-long learning and improvement. The scholarships are awarded on the strength of the applicants' vision, enthusiasm and determination to pursue their goals.

A key part of the scholarship is the opportunity for winners to study a topic of interest to themselves through out their travels. Scholars must complete their project within two years of winning the award and are expected to produce a written report and present their findings.

Canadian Nuffield Scholars are also required to participate in the Contemporary Scholars Conference (CSC) where they will meet other current scholars from around the world. The 2016 Conference will be held in Ireland in early March.

Applications must be received by April 30, 2015. Application forms are available from the Nuffield website www.nuffield.ca.

For more information on Nuffield Canada, visit www.nuffield.ca or for questions about the international element, visit www.nuffieldinternational.org.

For more information:

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Executive Director, Nuffield Canada
alan@nuffield.ca TEL: (902) 940-4957

NEOSCIA Seeking New "RCC"

By Graham J. Gambles, RCC, NEOSCIA

It was 10 years ago that I began my term as the Regional Communication Coordinator for NEOSCIA. Over that period, I have represented NEOSCIA at innumerable events, written articles on these activities, and produced four issues of our "Breaking Ground Farm Newsletter" each year. In addition, I have assisted northern cooperators in the development of regional field trials, including Alternative Forages for Northern Farmers, Canola Management, Bedstraw Control with Milestone, SAMCO Corn Production, and Haskap Berry Production. However, the highlights had to be the International Plowing match 2009 at Earlton, and the Saguenay Bus Tour of 2012.

Every leadership role in an organization requires an orderly rotation of staff, and the RCC position is no different. Now is the time to groom the new employee while experienced staff are still around to provide mentoring. Note that the new employee can reside in any district of the NEOSCIA region.

The new RCC should be skilled in all forms of modern (read electronic) communication. There will be very little paper pushing in the future. Even the limited paper versions of Breaking Ground may be eliminated in the next few years (two thirds of all BG recipients currently receive their news by email). Beyond the newsletter, the RCC main role is to ensure that information flows back and forth between the provincial director and the local executives, as well as the Guelph head office. The RCC will assist in recruiting new members and manage all local membership lists. The RCC will organize events across the region, and cooperate with others who are staging regionally significant events. For both these activities and the continuation of BG, the RCC must be willing to actively search for commercial sponsorships. And of course, there will be reports to be developed!

This is not a volunteer position. There is a salary to be negotiated. Some travel costs can be reclaimed. For more information, contact Graham Gambles at 705-672-3105 (gamblesgraham@yahoo.ca). For application, contact NEOSCIA President, Dan Cook, at 705-272-3964 (dancook@puc.net). Work starts June 01.



CROP TALK

OMAFRA Field Crop Specialists – Your Crop Info Source

Ministry of Agrculture and Food, Ministry of Rural Affairs, Crop Technology Branch

Agricultural Information Contact Centre: 1-877-424-1300
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Northern Ontario Regional Office: 1-800-461-6132
OMAFRA Web Site: *www.omafra.gov.on.ca*

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Current field crop information as it happens!

@onfieldcrops

Brought to You by the Following OMAF and MRA Crop Specialists

Bonnie Ball, Soil Fertility Specialist
Scott Banks, Emerging Crops Specialist
Tracey Baute, Field Crop Entomologist
Horst Bohner, Soybean Specialist
Christine Brown, Nutrient Management Program Lead
Mike Cowbrough, Weed Management Program Lead
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Compiled by: Paula DeShane

A New and Improved Soil Nitrate Test For Corn!

Greg Stewart, Corn Specialist, OMAFRA and K. Janovicek, University of Guelph

What's New?

Measuring the amount of nitrate-nitrogen in the surface 30 cm (12.in.), usually in the first two weeks of June, has proven to be a reasonably good indicator of potential soil nitrogen (N) supply for a corn crop. This test is commonly referred to as the Pre-Sidedress Nitrogen Test or PSNT and was first introduced into Ontario in 1993.

Over the last twenty years we have examined the PSNT nitrogen fertilizer recommendations for corn and now, in 2015, we have arrived at a superior recommendation approach using this test. This new approach or calibration will be significantly more accurate than the older recommendation, especially in higher yielding corn fields.

What's Different?

The main difference in the new PSNT recommendation system is that sidedress fertilizer N rates will hinge not solely on the soil nitrate value (i.e. 15 PPM) but will also factor in the expected yield for the field or part of the field.

In the former PSNT approach this was always a concern and some of you have called over the years to express this concern. How could a 15 PPM soil nitrate test mean the same amount of recommended nitrogen regardless of whether it came from a field where the yield expectation was 135 bu/ acre or from a field that was going to yield 235 bu/acre? Thanks for those calls; they inspired us to keep working at improving the PSNT.

So now Table 1 illustrates the new recommendations for sidedress N application rates based on both the soil N test and yield expectations.

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Cropline 1-888-449-0937

Ministry of Agriculture and Food
Ministry of Rural Affairs

Ontario

A New and Improved Soil Nitrate Test For Corn!

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What's Not Different?

The actual testing procedure has not changed just the recommendation system. So all of the old rules still apply:

1. Samples must be from a depth 30 cm (12 in.).
2. It is important that all cores in a field be taken to the same depth.
3. It is very important to ensure that sampling avoids any previously broadcast nitrogen fertilizer or starter fertilizer bands.
4. Sampling should occur when corn is 6-12 inches (15 – 30 cm) tall, usually in the May 25 – June 15 window.
5. Soil nitrate samples tend to be less accurate when sampled after periods of significant rainfall. If possible allow a day or two for the soil to dry before taking PSNT samples.
6. Place soil cores in a clean plastic pail, crushed by hand and well mixed.
7. Microbial action in the sample can change the nitrate content quickly if it is not handled properly. Chill or freeze samples as soon as possible. For shipping, pack samples with insulating material to keep them cool and send them by courier to ensure quick delivery to the lab.

Other Considerations

Spilt applications of nitrogen are generally considered to offer environmental and profitability advantages over approaches where all the N is applied at planting. However, we are convinced that the real advantage to split applications comes when sidedress rate fine-tuning is accomplished. Measurement of soil nitrate-nitrogen concentrations is one tool for accomplishing this. Our research to date suggests that properly conducted PSNT testing combined with this new recommendation schedule can result in N recommendation improvements compared to the general N recommendations derived from the N Calculator.

The other exciting option that now exists with this tool is the potential for site specific variable rate N applications. A field that is divided into yield zones could then be PSNT sampled by those zones, a yield expectation applied to each zone, and then a variable rate prescription derived from Table 1. Something great to try in 2015!

Table 1. Pre-Sidedress Nitrogen Soil Test (PSNT) fertilizer N recommendations based on soil nitrate concentration (PPM) and expected yield (bu/acre).

Soil Nitrate (PPM)	Expected Yield (bu/ac)					
	120	143	167	191	215	239
	Sidedress Nitrogen Fertilizer Recommendation (lb N/acre)					
0	176	197	218	240	261	282
2.5	163	184	205	225	246	267
5	151	171	191	211	231	252
7.5	138	158	177	197	216	236
10	126	144	163	182	201	221
12.5	113	131	149	168	187	206
15	99	117	135	153	172	190
17.5	83	102	120	138	156	175
20	57	86	105	123	141	159
22.5	0	60	88	107	126	144
25	0	0	63	90	110	128
27.5	0	0	0	66	92	111
30	0	0	0	0	68	93
32.5	0	0	0	0	0	69
35	0	0	0	0	0	0

Permit – Guidelines For Use In Field Corn

Mike Cowbrough, Weed Specialist, OMAFRA

The 2014 registration of Permit (active ingredient: halosulfuron) in Ontario provides a nice tool for the management of yellow nutsedge in corn. Permit will also provide residual control of certain broadleaf weeds. For those two reasons, many growers will consider tank-mixing glyphosate and Permit for use in glyphosate tolerant corn. Here are 5 key points to consider when using this tank-mix.

1) When do I apply Permit?

When tank-mixed with glyphosate, it can be applied up to the 8-leaf stage of corn. (Permit can be applied on its own up to the 10-12 leaf stage of corn). Since Permit will often be tank-mixed to improve yellow nutsedge control, application timing should target yellow nutsedge when it is 8 to 30 cm (3-12") tall.

2) What rate of Permit should be used for yellow nutsedge?

The label provides two rate ranges depending on the size of yellow nutsedge.

- Nutsedge that is 8-15 cm (3-6") tall: 35 – 47 g/ha (14-19 g/ac)
- Nutsedge that is 8-31 cm (3-12") tall: 70 – 93 g/ha (28 – 37.7 g/ac)

When control of yellow nutsedge was evaluated at the Elora Research Station, the 47 g/ha (19 g/ac) rate provided very effective control More recently, Dr. Peter Sikkema has evaluated yellow nutsedge control at different rates and more consistent control was achieved at the highest labeled rate. I believe that different field populations of yellow nutsedge vary in their susceptibility to herbicides and therefore you will see a range in their level of control. Ultimately, you may choose to experiment with Permit rates on your farm to come up with a rate that works best. Ideally, you start with the highest rate and scale back the rate depending on

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Permit – Guidelines For Use In Field Corn

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the level of control achieved. Lastly, visual control of nutsedge top growth will occur slowly, so don't be surprised if the control is not impressive two or three weeks after application.

3) Is an adjuvant required?

The manufacturer (Gowan) is recommending that a non-ionic surfactant (i.e. Agral 90) be added at 0.25% v/v (2.5 L/1,000 L of water) even when tank-mixing with a glyphosate product.

Example: Visual control of yellow nutsedge at 2 weeks after an application of Permit (19 g/ac) + Agral 90 (0.25% v/v) (right) compared with the untreated control (left).

4) Does Permit provide residual weed control?

Yes, according to the label it will provide control of the following un-emerged species. (I have condensed the list to focus on species that are typically found in corn):

- pigweed species (not group 2 resistant biotypes)
- chickweed
- cocklebur
- hairy galinsoga
- Canada fleabane (not group 2 resistant biotypes)
- jimsonweed
- lady's-thumb
- lamb's-quarters
- flower-of-an-hour
- wild mustard
- yellow nutsedge (supression of un-emerged shoots)

5) Do I need to worry about crop safety?

2013 University of Guelph trials (Ridgetown campus) demonstrated acceptable levels of crop safety with a glyphosate + Permit + 0.25% v/v tank-mix. However, since Permit is a sulfonylurea herbicide (in the same family as Accent, Option, Peak, Ultim etc.) the potential for crop injury may be increased when applications are made:

- during periods of large swings in air temperatures (i.e. going from a low of 7° C to a high of 30° C).
- to sensitive hybrids (historically, certain seed corn companies published this information, but I have been unsuccessful in finding any specific guidelines, so ask your seed supplier).
- during very hot and humid conditions (above 28° C)
- if a soil or foliar applied organophosphate insecticide has been used (an unlikely scenario).

Do Soybeans Require Insects For Pollination?

Horst Bohner, Soybean Specialist, OMAFRA

Soybeans are considered to be a self-pollinating legume. This means that pollen produced within a flower fertilizes the ovary of the same flower on the same plant. Therefore insects are not required to pollinate a soybean crop. Since soybean flowers do not readily attract insects like the flowers of other legumes, crosses in nature between two soybean plants are rare. Field experiments have shown that cross pollination is usually less than 1% in soybeans.

Soybean flowers are often fertilized by the time the flower opens and may occur a full day before the flower fully opens.[1] Some cultivars are entirely "cleistogamous", which means that the flower buds do not open at all and fertilization takes place with self-pollen. With some cultivars, flowers only open under the right environmental conditions. In a study of 12 soybean cultivars where both honey bees and indigenous insect populations were present, cross-pollination varied from as low as 0.09% to as high as 1.63% based on a two year average.[2] Therefore insects including honey bees are not required to pollinate soybeans and the presence of insects would not be expected to significantly improve yields.

Does A Lack of Fertilization Cause Flower Abscission?

The soybean plant produces many more flowers than will actually develop into pods. Over 80% of the flowers may abscise (fall away) producing no yield. There has been speculation that soybean flowers abscise because they have not been fertilized. However, failure of fertilization is not the cause for floral abscission since almost all abscised flowers are already fertilized and contain proembryos that have undergone two or three cell divisions.[3]

Do Insecticide Seed Treatments Result In Contaminated Soybean Pollen?

If pollinators do happen to feed on soybean flowers does the insecticide placed on the seed contaminate the pollen? Research conducted to evaluate the potential exposure of pollinators to neonicotinoid insecticides used to treat seed analyzed 560 samples from various crops for concentrations of clothianidin, imidacloprid, thiamethoxam, and their metabolites. They concluded that "there was no detection of neonicotinoid insecticides in flowers collected from four soybean tests where neonicotinoid seed treatments were being evaluated.[4]

Is There Research That Shows Bees Can Increase Soybean Yields?

Anecdotal evidence has been reported that the presence of honey bees may increase soybean yields under certain conditions. These reports are difficult to verify. There have been a few trials that showed increased yields under specific circumstances.[5] A recent study from Brazil purported yield increases of 18% from

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Consider Seeding Red Clover In Spring Wheat

Scott Banks, Emerging Crop Specialist, OMAFRA

In recent research, red clover underseeded into spring wheat provided up to an extra $100/acre in grain corn yield the following year without reducing spring wheat yields!

A four year study (2009 – 2013) was initiated at the Winchester Research Station to look at the effect of under-seeding red clover into spring wheat and its impact on the spring wheat yield as well as the corn yield the following year. The red clover was broadcast seeded at four different times:

- At planting
- At herbicide application (Zadok's 26-30)
- Flag leaf emerged stage, (Zadok's 37-39) and
- After wheat harvest.

Single-cut and double-cut red clover was broadcast into the spring wheat at 7 lbs/acre. Nitrogen was applied to all treatments at 90 lbs/ac in the spring wheat crop and at 100 lbs/ac in the corn crop the following year.

Results

Table 1 summarizes 3 year average corn yield for each of the previous year's red clover treatment. Based on a corn value of $4.50/ bushel, red cover added $33 - $100 per acre as compared to where no clover was underseeded in the spring wheat. As expected, red clover underseeded at earlier spring wheat stages (at planting or at herbicide application) rather than at flag-leaf or after harvest, provided more yield benefit to the following corn crop.

Due to the high yield variability the 2013 corn yield, it is not included in the above table.) Single cut red clover appears to have greater yield advantage in corn than double cut red clover, however the difference was only statistically significant in 1 of the 3 years.

Spring wheat growers are often reluctant to underseed red clover in spring wheat due to concerns that the red clover will compete and suppress the spring wheat grain yield. Table 2 summarizes the average spring wheat yield of each treatment.

Although the yield numbers showed that the inclusion of red clover slightly increased wheat yield, statistically there was no difference in yield of the spring wheat with or with-out red clover.

Summary

1. Underseed red clover in spring wheat.
2. The best time to seed red clover is with the spring wheat.
3. Use either single cut or double cut red clover.

Table 1: Average Corn Yield (2010, 2011 & 2012) following red clover underseeded in previous year at various spring wheat stages.

Treatments (Timing of Red Clover Seeding)	3 Year Average Yield (bu/ac)	Yield Difference from No Clover (bu/ac)	Additional Value of Red Clover Per acre with Corn @ $4.50 per bushel
No clover	144		
Single Cut - @ planting	167	23	$102.47
Double Cut - @ planting	163	18	$80.64
Single Cut - with herbicide	160	15	$68.96
Double Cut - with herbicide	157	12	$53.60
Single Cut - flag leaf emerged stage	161	17	$74.90
Double Cut - flag leaf emerged stage	152	7	$33.71
Single Cut - post-harvest	154	9	$39.81
Double Cut - post-harvest	157	12	$54.14

Table 2: Spring Wheat Average Yield (2009, 2010, 2011 & 2012) with red clover underseeded at various spring wheat stages.

Treatments (Timing of Red Clover Seeding)	Average Yield (bu/ac)	Yield Difference to No Clover (bu/ac)
No clover	53.9	
Single Cut - @ planting	58.4	4.5
Double Cut - @ planting	55.5	1.6
Single Cut - with herbicide	58.4	4.6
Double Cut - with Herbicide	57.7	3.8
Single Cut - flag leaf emerged stage	57.5	3.6
Double Cut - flag leaf emerged stage	57.5	3.6
Single Cut - post-harvest	59.4	5.5
Double Cut - post-harvest	58.1	4.2

PROVINCIAL DIRECTOR CORNER

As I write this in early March we have seen the first above zero daytime temperature in 2015. January and February have delivered a prolonged cold spell. The fall of 2014 being the wettest in many years in most, if not all, of the Northeast resulted in difficult and often lost harvests. Much fall tillage was not done due to excessively wet soil and early arrival of winter. Perhars this can be an opportunity to see what works in the spring in preparing fields for planting.

The last 2 months have seen District Soil & Crop annual meetings as well as project planning and other information meetings. The NEOSCIA Annual Meting on April 10 is held on site at the Earlton Farm Show.This is a great opportunity for further information sharing and seeing the latest in equipment and technology.

The newly structured Tier 1 and Tier 2 OSCIA project grants are now receivijng applications for 2015 and beyond. These should generate some very innovative and worthwhile projects. Perhaps you will consider being a cooperator for a project your association will sponsor. Have a safe and productive cropping season in 2015.

Mack Emiry

Do Soybeans Require Insects For Pollination?

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the introduction of honeybee colonies to a soybean field.[6] However, this trial was only conducted one year with limited replication, a small experimental area with a tropical soybean variety. The benefits of either cross- or self-pollination appear to be highly depend on cultivar, temperature, moisture, and the number of insects present. Studies that have shown yield increases from bees have often employed "caged" bees, forcing them to forage on soybeans or excluding them from the crop. These limited trials with unique research circumstances should not be considered representative of what may happen in an Ontario soybean field. No link between soybean yields and the presence of bees has been demonstrated under Ontario growing conditions. If bee hives are placed next to soybean fields it is important to communicate with the soybean grower. A foliar insecticide application to control soybean aphids or spider mites will cause harm to bees.

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White Mould In Soybeans

Albert Tenuta, Field Crops Pathologist, OMAFRA

There was a lot of white mould in the Ontario soybean crop in 2014. Conditions that favour white mould growth and what can be done to reduce it is summarized below.

Factors Favoring White Mould

1. High yield potential crop / field
2. Field history of white mould
3. Susceptible variety
4. Short soybean rotation
5. Dense canopy - High plant population, narrow rows and early planting
6. Poor weed control (hosts)
7. In- season weather conditions – cool and moist are favourable for white mould

IPM for White Mould Management

- **Keep good field records of disease levels**
- Variety Selection
  - A. Best available level of tolerance
  - B. Appropriate maturity
  - C. Upright, non-bushy with good lodging tolerance
- **Cultural practices such as:**
  - a. Reduce plant populations and increase row width
  - b. Rotate with non-host crops (2 to 3 years non-host such as corn and wheat)
  - c. Reduce tillage but avoid soybeans on soybeans – high risk situation
- **Fungicides – target fields at risk (above)**
  - a. Many chemical / biological options
  - b. Proper timing and coverage critical –
    - i. First spray at R1 (first flower) with 2nd application at R3 (pod forming) if necessary

Figure 1. A soybean field in August showing significant white mould damage.

Figure 2. Apothecia: Sclerotia in the soil will produce mushroom-like structures called apothecia that eject spores onto the soybean plant.

Figure 3. Sclerotia stem: after the spores inoculate the plant, the fungal pathogen grows and consumes plant nutrients which cause the stems to girdle, this kills any plant tissue above and results in injury as shown in Figure 1.

Figure 4. Selerotia pod: the black sclerotia, as seen here attached to a soybean seed within the pod, which when re-introduced to the soil will start its life cycle all over again.



BULLETIN GRANDES CULTURES

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Établir un nouveau pâturage

Jack Kyle, spécialiste des animaux de pâturage, MAARO

On peut vouloir mettre en place un nouveau pâturage pour délaisser des cultures annuelles au profit de plantes fourragères ou de pâturages vivaces, ou pour améliorer un pâturage existant qui est peu productif. Quand on planifie des semis pour un nouveau pâturage, il est toutefois conseillé de se poser quelques questions avant de passer à l'action. L'application d'engrais dans un pâturage existant qui n'est pas très productif peut donner de bons résultats, mais l'effet ne sera pas aussi marqué et persistant que de ressemer le champ avec des espèces productives.

Quel est l'objectif poursuivi en faisant de nouveaux semis?

- Le champ sera-t-il destiné à un pâturage en début ou en fin de saison?
- Le champ sera-t-il fauché pour conserver les plantes fourragères un certain temps?
- Le champ restera-t-il en pâturage pour de nombreuses années ou sera-t-il cultivé d'ici moins de 10 ans avec une autre culture dans le cadre d'une rotation?

Plantes de pâturage

Si le champ est surtout utilisé pour le broutage en fin de saison et pour le pâturage de réserve, il est préférable de semer principalement du lotier et de la fétuque élevée. Par contre, pour des pâturages de début de saison, le trèfle, la luzerne et le dactyle pelotonné devraient être prédominants dans le mélange. La luzerne convient très bien aux sols bien drainés alors que le trèfle et le lotier conviennent mieux aux sols moins bien drainés.

Bon nombre de producteurs se montrent trop réticents à semer de la luzerne dans les pâturages. En fait, un pâturage à base de luzerne qui est bien entretenu donne des résultats optimaux en matière de productivité animale et de qualité des fourrages. Les racines profondes de la luzerne et sa tolérance à la chaleur en font un choix idéal pour les pâturages de la mi-saison à la fin de saison. Avec un bon système de rotation des pâturages et des pratiques de gestion optimales, la luzerne est un

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Pour optimiser les essais à la ferme

Gilles Quesnel, spécialiste de la lutte intégrée contre les ennemis des grandes cultures,
et Ian McDonald, coordonnateur de la recherche appliquée, MAAARO

Les essais à la ferme qui sont planifiés et réalisés correctement peuvent représenter une excellente façon d'évaluer de nouvelles idées, ainsi que de nouveaux produits et du matériel. Mais pour qu'un essai à la ferme, même le plus simple, puisse fournir de l'information utile, il est important de prendre le temps de le planifier et de bien l'exécuter.

Pour y arriver, deux conditions de base doivent être respectées. Tout d'abord, l'essai doit être conçu de manière à ce que toutes les variables de la production (comme le drainage, l'apport d'engrais, le travail du sol, etc.) demeurent constantes dans la parcelle à l'étude, à l'exception des divers traitements évalués (comme les hybrides, les fongicides, la densité de peuplement, etc.). Deuxièmement, pour que les résultats obtenus soient crédibles, l'essai doit être conçu de manière à ce que les données recueillies puissent faire l'objet d'une analyse statistique. Ces conditions sont à peu près indispensables si l'on veut répéter l'essai et le rendre aléatoire (c.-à-d. évaluer chaque traitement dans un ordre différent à chaque répétition de l'essai).

Lignes directrices pour mettre sur pied un essai à la ferme

Planification

Fixer l'objectif de l'essai et décrire l'information à recueillir (ex. : variété, date de semis, rendement et % de la surface occupée par des résidus, etc.). Sans répétitions de l'essai, il est impossible de vérifier si les différences observées entre les traitements sont réelles ou uniquement attribuables à la chance ou à l'erreur. Par ailleurs, dans le cas d'un essai ne comportant que deux ou trois traitements dans une parcelle (comme la comparaison entre une parcelle de maïs traitée avec un fongicide foliaire et une parcelle témoin non traitée), il est plus facile de répéter chaque traitement au moins deux fois, mais préférablement trois ou quatre fois dans le champ.

Pour disposer de données suffisantes permettant d'effectuer une analyse rigoureuse et fiable des résultats, il faut au moins six parcelles d'essai, qui peuvent être une combinaison de traitements et de répétitions. Par conséquent, si on compare seulement deux traitements, il faut trois répétitions (2 x 3 = 6). On peut faire exception à ce minimum de six parcelles dans certains essais d'hybrides de maïs, comme ceux qui sont réalisés par l'industrie des semences, où chaque site est considéré comme une répétition, les mêmes hybrides étant semés dans de nombreux sites. Cette méthode offre suffisamment de répétitions pour permettre une analyse valable des données.

Les largeurs réelles des blocs doivent être basées sur la largeur de la machinerie utilisée (semoir, pulvérisateur, moissonneuse-batteuse, etc.). Chaque parcelle de traitement (bande) doit être d'une longueur minimale de 500 pieds et d'une largeur suffisante pour fournir un rendement récolté d'au moins 1000 lb afin de réduire au minimum l'effet des erreurs inhérentes à la prise de mesures et au pesage. Au moment de comparer les données comme les doses d'engrais, la différence des doses entre les traitements doit être suffisamment élevée pour exercer un effet mesurable sur les rendements (ex. : une différence d'au moins 30 lb/acre d'azote réel dans le cas du maïs).

Choix du champ

Idéalement, la pente du champ doit être uniforme, tout comme son drainage et sa fertilité; de plus, le type de sol doit être représentatif de l'exploitation. Si le champ est en pente, orientez la parcelle de manière à ce que les traitements soient à la verticale de haut en bas de la pente. Prenez des parcelles situées à au moins 100 pieds de distance des clôtures, et jusqu'à 200 pieds des gros arbres. Si possible, les semis doivent être faits perpendiculairement (angle de 90o) aux sources connues de variables possibles comme les tuyaux de drainage, les sillons labourés ou les dérayures et les manoeuvres au champ (épandage d'engrais ou de fumier). On réduit ainsi les risques engendrés par l'ajout de variabilité associée à des chevauchements ou à des oublis dans l'apport d'intrants culturaux.

L'objectif est de réduire la variation inhérente ou appliquée dans l'ensemble de la parcelle afin de s'assurer que les différences de traitement observées sont réelles et non attribuables à des variations sous-jacentes qui ne sont pas reliées. Il est très important d'observer le champ tout au long de la saison. Faites preuve de discernement pour évaluer s'il se produit des situations dans le champ qui sont susceptibles d'avoir un effet sur les résultats et qui n'étaient pas associées aux différences dans les traitements. Il faut envisager de renoncer aux résultats d'une parcelle s'il est évident qu'il y a quelque chose qui cloche avec le site du projet.

Disposition des parcelles

Prévoyez la disposition des parcelles sur papier ou électroniquement, en y incluant les sites de répétitions et de randomisations, et en veillant à ce qu'il y ait suffisamment de superficies disponibles pour l'essai dans le champ. Veillez à ce que les traitements soient bien identifiés, pour être en mesure de repérer les sites des divers traitements tout au long de la saison.

La figure 1 est un exemple d'une parcelle répétée pour trois traitements (3 répétitions et un essai aléatoire).

Rép 1	Parcelle 1	Traitement 1
	Parcelle 2	Traitement 2
	Parcelle 3	Traitement 3
Rép 2	Parcelle 4	Traitement 2
	Parcelle 5	Traitement 3
	Parcelle 6	Traitement 1
Rép 3	Parcelle 7	Traitement 3
	Parcelle 8	Traitement 1
	Parcelle 9	Traitement 2

Figure 1. Répétition de parcelle (3 traitements X 3 répétitions)

La figure 2 est une disposition possible pour une parcelle comportant deux traitements et quatre répétitions. Cette disposition convient bien lorsqu'on utilise de la machinerie large comme une rampe de pulvérisation de 100 pi (ex. : application foliaire de fongicide).

À la figure 2, on récolte une bande de chacun des traitements côte à côte (ex. : avec et sans fongicide des deux côtés du bloc) et on pèse le maïs, ce qui donne un total de 8 points de données.

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Pour optimiser les essais à la ferme

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Récolte

Les bacs de pesée donnent des résultats plus précis que les capteurs de rendement pour peser le maïs récolté. Si l'on utilise un capteur de rendement, ce dernier doit être étalonné et toutes les parcelles doivent être moissonnées dans la même direction afin de réduire les erreurs associées à la variation de vitesse.

Interprétation des données

Les données propres à une exploitation sont plus utiles si on les combine aux résultats provenant de parcelles à d'autres sites. SI vous prenez le temps de bien planifier les essais, les semis et la récolte d'une parcelle, prenez aussi le temps de bien analyser les résultats et de les partager. Consignez les données dans un format lisible et transmettez-les pour analyse et regroupement à votre conseiller agricole, au spécialiste du MAAARO ou au représentant de la meunerie aussitôt que possible après la récolte.

Les essais à la ferme permettent de répondre à d'importantes questions, mais ils exigent beaucoup de planification et d'attention accordée aux détails. Une bonne distribution des parcelles combinée à des analyses statistiques permet d'isoler les biais afin de repérer les véritables effets des traitements et d'améliorer la précision des réponses à vos questions.

Figure 2. Disposition de parcelle pour un essai comportant deux traitements et quatre répétitions.

Établir un nouveau pâturage

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gage de succès.

Il existe un certain nombre d'espèces de graminées qui peuvent être semées. Je préfère le dactyle pelotonné en raison de sa croissance hâtive au printemps et sa repousse rapide. De plus, quand l'inflorescence est enlevée, le dactyle demeure végétatif pour le reste de la saison de croissance. Le brome des prés est également une excellente espèce pour les pâturages. On retrouve souvent de la fléole des prés dans les mélanges, mais sa repousse estivale est médiocre. Voici d'autres espèces de graminées intéressantes : le ray-grass (surtout pour des pâturages de courte durée), l'alpiste roseau, le festolium (croisement entre le ray-grass et la fétuque) et peut-être le pâturin (surtout pour le pâturage à long terme). On trouvera une bonne description des espèces fourragères dans la publication 811F du MAARO, Guide agronomique des grandes cultures, à http://www.omafra.gov.on.ca/french/crops/pub811/3species.htm.

Fertilité du sol

La fertilité du sol est un point très important. Les nouveaux semis ne donneront pas de bons résultats si le pH est trop bas, ou si les teneurs en phosphore et en potassium sont faibles. Les doses d'engrais recommandées pour les pâturages sont basées sur les analyses de sol et sont également indiquées dans le Guide agronomique des grandes cultures http://www.omafra.gov.on.ca/french/crops/pub811/3fertility.htm.

Ensemencement

L'ensemencement des cultures fourragères peut se faire par semis direct ou dans un lit de semences travaillé. Le lit de semences doit être suffisamment ferme pour faciliter la maîtrise de la profondeur des semis ainsi qu'un bon contact entre le sol et la semence. Les semences de plantes fourragères sont très petites et doivent être plantées à une profondeur de 7 à 10 mm (1/4 à ½ po). Le recours à une plante compagne est facultatif. On peut à cette fin utiliser de l'avoine récoltée sous forme d'ensilage préfané ou en grosses balles, du stade de montaison au tout début de l'épiaison. On éliminera ainsi l'effet de concurrence de la plante compagne et cela offrira de meilleures conditions de croissance aux nouvelles pousses durant juillet et août. Le champ ne doit pas être brouté avant que les plantes fourragères soient bien enracinées. Le bétail déchire les plants et si ces derniers ne sont pas solidement ancrés dans le sol, ils seront arrachés!

Ainsi, des semis d'espèces appropriées dans un lit de semences relativement fertile permettent d'obtenir un pâturage productif pendant de nombreuses années. excellente espèce pour les pâturages. On retrouve souvent de la fléole des prés dans les mélanges, mais sa repousse estivale est médiocre. Voici d'autres espèces de graminées intéressantes : le ray-grass (surtout pour des pâturages de courte durée), l'alpiste roseau, le festolium (croisement entre le ray-grass et la fétuque) et peut-être le pâturin (surtout pour le pâturage

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La graisse bactérienne commune dans les haricots secs se propage par voie aérienne

Brian Hall, spécialiste de la culture des haricots comestibles et du canola, MAAARO

Semis tardifs, temps humide et récolte tardive : 2014 est décidément une année que bon nombre de producteurs ne regretteront pas! Malgré tout cela, de nombreux producteurs de haricots secs comestibles ont terminé la saison avec des rendements de bons à excellents, marqués cependant par une hausse de maladies bactériennes. Les graisses bactériennes sont préoccupantes lorsqu'elles surviennent, car elles peuvent affecter et le rendement et la qualité des fèves.

Il existe trois types principaux de graisses bactériennes qui s'attaquent aux haricots secs comestibles :

- la graisse bactérienne commune;
- la graisse bactérienne à halo;
- les taches brunes bactériennes (graisse bactérienne).

La récolte de haricot adzuki a été particulièrement affectée en 2014 par une grave éclosion de taches brunes bactériennes. Les infections ont d'abord été observées tard en juillet alors que les taches se sont rapidement répandues en raison de l'humidité élevée et du vent. La maladie a continué à se propager dans les champs jusqu'à ce qu'il fasse plus sec à la mi-août. À ce moment, l'infection était répandue aux feuilles, aux tiges et aux gousses, ce qui a fait chuter les rendements et affecté la qualité.

La graisse bactérienne commune est la plus répandue dans les haricots secs. Ce fut par ailleurs la première fois qu'on a observé des taches brunes bactériennes dans tout type de haricot sec comestible en Ontario. Les autres types de haricots peuvent agir comme hôtes de la maladie, mais les haricots adzuki semblent particulièrement vulnérables. Certains producteurs ontariens de haricots mange-tout ont également signalé des dommages causés par les taches brunes bactériennes en 2014.

D'où provient la graisse bactérienne?

Ce sont les semences infectées qui sont la source initiale des infections bactériennes dans une région. La présence de résidus de haricots infectés et la température jouent un rôle majeur dans la propagation de la maladie. De graves éclosions de graisse bactérienne commune et de graisse bactérienne à halo surviennent lorsqu'on sème des semences contaminées.

Les taches brunes bactériennes peuvent s'établir par des semences infectées, mais la bactérie peut aussi survivre longtemps sur des plants sains sans que les symptômes de la maladie se manifestent si les conditions ne sont pas propices à leur apparition. Contrairement à la graisse bactérienne commune et à la graisse bactérienne à halo, les bactéries « résidantes » qui véhiculent les taches brunes bactériennes sont considérées comme la principale source d'infection. Les autres plantes-hôtes « résidantes » pour les taches brunes sont le maïs, le soya, d'autres types de haricots secs et la vesce velue. Il est donc possible que les taches brunes bactériennes soient déjà présentes dans une région avant que ne se produise une éclosion.

Comment se propage la maladie bactérienne?

Les tempêtes peuvent transporter les bactéries sur de longues distances. On croit que ces bactéries peuvent parcourir par voie aérienne des distances allant jusqu'à 160 km. Une contamination à partir des plantes-hôtes peut aussi se produire par l'intermédiaire des humains, du matériel, des animaux, des insectes et des éclaboussures de la pluie. Lorsqu'une semence infectée lève, les bactéries suintent de la surface des feuilles et se propagent aux autres plants par les éclaboussures des gouttes de pluie. De graves épidémies peuvent se produire uniquement à partir de quelques semences infectées mises en terre et se propager dans un champ lorsque les conditions climatiques sont favorables. Les bactéries se multiplient rapidement et leur population peut plus que doubler en 30 minutes. Les bactéries s'introduisent dans les plantes par des orifices naturels (stomates) et par les blessures dues à la grêle, à la pluie battante, au vent, à l'érosion du sol, aux insectes ou à la machinerie. Les pluies diluviennes contribuent particulièrement à la propagation et à la multiplication des maladies bactériennes. Les cellules orageuses locales peuvent infecter un champ sans nécessairement en affecter un autre à quelques kilomètres.

Lorsque la bactérie est introduite dans un plant, elle se répand facilement de manière systémique dans toutes les feuilles, les tiges, les gousses et les graines. La graisse bactérienne à halo est favorisée par les précipitations, l'humidité élevée et les températures modérées (18 à 22 0C), alors que la graisse bactérienne commune et les taches brunes bactériennes sont favorisées par les températures élevées (28 à 32 0C).

Symptômes

Les symptômes de la graisse bactérienne commune et de la graisse bactérienne à halo peuvent sembler très similaires. Les symptômes initiaux sur les feuilles, dans le cas des trois types de graisse bactérienne, se manifestent sous forme de petites (3-5 mm) taches gorgées d'eau qui virent au vert pâle puis au brun. Dans le cas des graisses bactériennes commune et à halo, les lésions grossissent et le centre s'assèche; un pourtour jaune peut apparaître. Les feuilles peuvent devenir cassantes. Les lésions aux gousses apparaissent d'abord sous forme de taches gorgées d'eau qui s'agrandissent, fusionnent et forment des cloques qui se creusent et deviennent brun rougeâtre. Les chancres peuvent sembler graisseux lorsque les bactéries suintent pour s'assécher ensuite et former une croûte.

Les lésions foliaires dues aux taches brunes bactériennes ne semblent pas, le plus souvent, gorgées d'eau et sont beaucoup plus petites que celles qui sont causées par les graisses bactériennes commune et à halo. Lorsque la maladie devient systémique, des lésions beiges et creuses avec un pourtour brun rougeâtre apparaissent sur les tiges et les pétioles. Les gousses peuvent sembler recourbées ou présenter des lésions aqueuses avec un pourtour brun rougeâtre.

Figure 1. Lésions matures causées par la graisse bactérienne commune.

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La graisse bactérienne commune dans les haricots secs se propage par voie aérienne

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Figure 2. Taches brunes bactériennes sur un plant de haricot adzuki.

Figure 3. Gousses de haricot adzuki infectées par des taches brunes bactériennes

Quelle est l'efficacité des bactéricides à base de cuivre?

Les fongicides n'ont aucun effet sur les graisses bactériennes. Les bactéricides à base de cuivre peuvent réduire la prolifération des bactéries sur le feuillage et limiter leur propagation dans les gousses et le feuillage sains. Les applications sont plus efficaces sous forme de traitement préventif durant le stade végétatif, car les bactéries se multiplient et se propagent rapidement. L'efficacité n'est que faible à modérée une fois que l'éclosion s'est produite en raison de la quantité élevée d'inoculum habituellement présente dans le champ.

La première application devrait être effectuée avant l'apparition des symptômes et les traitements devraient être répétés tous les 7 à 10 jours si les conditions sont favorables. Il est plus efficace de faire les traitements après un orage. Dans les champs endommagés par la grêle ou les orages violents, l'application d'un bactéricide peut aider à protéger les plants quand les conditions sont propices à l'infection. La recherche a montré que les bactéricides à base de cuivre ne sont habituellement pas aussi efficaces contre la graisse bactérienne commune comparativement aux taches brunes et à la graisse bactérienne à halo.

Que peut-on faire de plus?

1. Semer des graines certifiées dont vous connaissez l'origine! Les semences provenant de régions semi-arides (comme celles qui viennent de l'Ouest du pays) présentent très peu de risques d'être infectées.
2. Semer des haricots blancs résistants à la graisse bactérienne commune. Les variétés de haricots blancs sont résistantes à la graisse bactérienne à halo. Voici des exemples de variétés de haricots blancs résistantes à la graisse bactérienne commune : OAC Rex, Lighthouse, Mist, Apex et Rexeter.
3. Les traitements de semences à la streptomycine réduisent ou éliminent la contamination de surface, mais ils ne maîtrisent pas les infections dans les fissures ou sous la surface de la graine.
4. Ne pas cultiver de haricots (comestibles ou soya) dans un même champ plus d'une fois tous les trois ans.
5. Le labour des résidus infectés va accélérer leur décomposition et réduire la survie des agents pathogènes. Les bactéries pathogènes survivent plus longtemps sur les résidus de haricots laissés à la surface du sol après la récolte.
6. Désinfecter les cultivateurs, les pulvérisateurs et toute autre pièce de machinerie entre les travaux dans deux champs différents.
7. Ne pas rester dans le champ quand le feuillage est humide.
8. Éviter des haricots secs comestibles à côté de champs où des haricots ont été infectés l'année précédente.
9. Inspecter attentivement les champs de haricots dès la moitié du stade végétatif, surtout durant les périodes d'humidité élevée. Les infections qui surviennent après des orages et des vents violents, ou de la grêle se manifestent souvent de 7 à 10 jours plus tard.
10. Éliminer les repousses spontanées de haricots adzuki.

Établir un nouveau pâturage

Continued from page 11

à long terme). On trouvera une bonne description des espèces fourragères dans la publication 811F du MAAARO, Guide agronomique des grandes cultures, à http://www.omafra.gov.on.ca/french/crops/pub811/3species.htm.

Fertilité du sol

La fertilité du sol est un point très important. Les nouveaux semis ne donneront pas de bons résultats si le pH est trop bas, ou si les teneurs en phosphore et en potassium sont faibles. Les doses d'engrais recommandées pour les pâturages sont basées sur les analyses de sol et sont également indiquées dans le Guide agronomique des grandes cultures http://www.omafra.gov.on.ca/french/crops/pub811/3fertility.htm.

Ensemencement

L'ensemencement des cultures fourragères peut se faire par semis direct ou dans un lit de semences travaillé. Le lit de semences doit être suffisamment ferme pour faciliter la maîtrise de la profondeur des semis ainsi qu'un bon contact entre le sol et la semence. Les semences de plantes fourragères sont très petites et doivent être plantées à une profondeur de 7 à 10 mm (1/4 à ½ po). Le recours à une plante compagne est facultatif. On peut à cette fin utiliser de l'avoine récoltée sous forme d'ensilage préfané ou en grosses balles, du stade de montaison au tout début de l'épiaison. On éliminera ainsi l'effet de concurrence de la plante compagne et cela offrira de meilleures conditions de croissance aux nouvelles pousses durant juillet et août. Le champ ne doit pas être brouté avant que les plantes fourragères soient bien enracinées. Le bétail déchire les plants et si ces derniers ne sont pas solidement ancrés dans le sol, ils seront arrachés!

Ainsi, des semis d'espèces appropriées dans un lit de semences relativement fertile permettent d'obtenir un pâturage productif pendant de nombreuses années.

Conférences web : *approfondir ses connaissances*

Par Stéphanie L. Roberge, journaliste régionale NEOSCIA, Verner ON

C'est le 7 ainsi que le 23 janvier au Collège Boréal à Sturgeon Falls que les agriculteurs du Nipissing Ouest ont eu l'opportunité d'approfondir leurs connaissances grâce à des conférences web. La première, qui s'est déroulée depuis Ridgetown et qui est connue comme étant le « South West Agricultural Conference » (SWAC), a pu accueillir 13 participants. Dès huit heures et demie, les agriculteurs ont eu la chance de choisir entre 2 sessions à un intervalle de 50 minutes, et cela, jusqu'à 17h. Les choix de sujets étaient nombreux, entre autres : le maïs, le soja, l'utilisation du Greenseeker ainsi que l'engrais. La deuxième, diffusée de Waterloo, fut plutôt centrée sur la santé des sols. C'est à cette conférence même que les 11 participants ont eu accès à une session non seulement auditive mais aussi visuelle, ce qui signifie qu'il était possible de voir les orateurs présenter.

Ces deux conférences avaient plusieurs choses en commun même si elles n'ont pas eu lieu la même journée. Bien entendu, les deux ont offert de l'expertise provenant de producteurs ontariens qui ont pratiqué ce qui a été présenté et de professeurs venant non seulement de l'Université de Guelph mais aussi d'universités américaines. De plus, on a donné aux producteurs l'occasion de discuter lors de pauses de dix minutes, durant le dîner et aussi pendant la période de questions avant de quitter. En ayant accès à toute cette information courante, les agriculteurs ont aussi pu échanger leurs opinions et discuter de leurs propres expériences avec d'autres gens de la région, tout en évitant le déplacement de longue distance. Le tout fut possible grâce à la coordination de Pierrette Desrochers (MAAARO) et au partenariat entre le Collège Boréal – Nipissing et le comité de l'amélioration des sols et récoltes de Sudbury Est – Nipissing Ouest.

Enfin, s'il y a un type d'agriculture qui est le plus productif et le plus important au monde, c'est bien l'agriculture canadienne. Diversifiés, les vastes champs canadiens apportent non seulement à la population des emplois et l'opportunité de maintes exportations, mais ils offrent aussi une grande variété de produits à d'autres pays; ce qui rend donc l'agriculture un élément crucial de l'économie canadienne. Pour que l'agriculture soit un succès, par contre, il faut beaucoup de temps et d'effort. Malgré le long hiver froid, les agriculteurs sont encore à la tâche et ont comme responsabilité de continuer à se procurer de l'information courante afin d'améliorer leur performance pour la prochaine saison. Pour tous ceux intéressés, les séances vidéo du « South West Agricultural Conference » sont disponibles au www.southwestagconference.ca.

"Excellence is not a singular act, but a habit. You are what you repeatedly do."
– Shaquille O'Neal

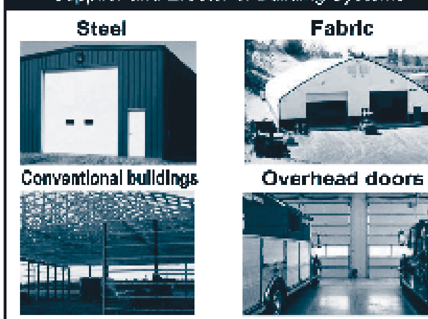
"If I have a thousand ideas and only one turns out to be good. I am satisfied."
– Alfred Nobel

"Its not that I'm afraid to die, I just don't want to be there when it happens."
– Woody Allen

"You always pass failure on the way to success."
– Mickey Rooney

"The greatest pleasure in life is doing what people say you cannot do."
– Walter Bagehot

"Friendship is composed of a single soul inhabiting two bodies."
– Aristotle



Grassroots Innovation
Since 1939

OSCIA NEWS

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

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www.ontariosoilcrop.org
&
https://oscia.wildapricot.org

Message from the President - Alan Kruszel

Hi Folks,

Welcome to my first message as President of OSCIA. It is indeed a great honour for me to have been selected for this position! As always, your OSCIA Board, Executive and staff have been working very hard to keep the association running smoothly. The board will be getting together in early April for a Strategic Planning session. The last plan was developed ~ 5 years ago so it's about time to refresh it. If you have some comments on where you'd like to see the association headed, please feel free to contact your local provincial director who would be pleased to pass on your thoughts.

As many of you are aware, we have revamped our Grant Structure for this year. Applications are now being accepted for the Tier One (small one year demonstration type projects) and Tier Two(multi-county/district/region & multi -year research type projects) grants. We are hearing lots of discussion going on across the province and we anticipate several Tier Two applications to come in for funding. Please feel free to share your ideas on our Grant Blog @ https://osciagrants.wordpress.com Also, all the forms and guidelines can be found there as well.

Please be aware, there is limited (but substantial) funding available. For Tier One, approval will be on a first come, first served basis while for Tier Two, applications will be rated/scored and only the top projects will be approved. Deadline for application for Tier Two is March 31, 2015 so don't delay!

With 2015 being declared by the United Nations as the International Year of Soils, we all should be thinking of ways to better protect our soils. As such, our recent AGM focused a lot on soil health and we had an excellent group of speakers provide some insight on what we could be doing. Reduce or eliminate tillage, leave more residues on

the soil surface, practice better crop rotations, plant cover crops, practice 4R nutrient stewardship... the list goes on and on.

So this year, dare to be different, try something new that will benefit soil health on your farm. Get together with a few neighbours and try something different as a group, then maybe you can even get a Grant to host a plot tour so many more folks can see the innovative things you've tried. That's part of what Soil and Crop is all about!

All the best for a safe and successful planting season!

Alan Kruszel, President, OSCIA
email: alan.kruszel@ontariosoilcrop.org

OSCIA Launches Soil and Crop Sustainability Fund - $75,000 raised to date!

The launch occurred recently at the Ontario Soil and Crop Improvement Association's (OSCIA) annual meeting on February 4, 2015. The primary purpose of the OSCIA Fund will be to support applied research relating to soil and crop management. For the first initiative of the fund, OSCIA partnered with the University of Guelph to establish the Soil Health Graduate Scholarship, where funds will be used to support student research relating to improving soil health.

"We are very interested in practical, applied, on-farm research so alignment with scientists and their graduate students will benefit all parties," stated OSCIA President Alan Kruszel. "We are delighted that the Soil Health Graduate Scholarship at the University of Guelph meets a number of our objectives – including tax receipts for those who contributed to the scholarship."

"The OSCIA efforts to contribute to the Soil Health Graduate Scholarship will elevate our research capacity to support sustainable soil practices", says Dr. Rob Gordon, Dean of the Ontario Agricultural College. "Healthy soils are critical for optimal crop production, environmental protection, and support sustainable communities."

With 2015 declared 'International Year of Soils' by the United Nations, it was only fitting that OSCIA seize the opportunity to launch the Soil and Crop Sustainability Fund. For several years, the OSCIA board has been investigating opportunities for individuals and organizations to invest in projects related to OSCIA's mission to "facilitate responsible economic management of soil, water, air and crops through development and communication of innovative farming practices."

In launching the fund, an invitation to become a Founding Partner went out to Past-Presidents of the association. The response was outstanding with the launch raising $75,000.

"Once word got out about what we were planning, several local and regional soil and crop associations wanted to get involved," Kruszel added. Several friends of the association have also contributed.

The OSCIA is most appreciative of support from the Founding Partners and looks forward to the enhanced commitment by University of Guelph for soil health research and student training.

OSCIA Soil Champion Award

Dean Glenney, a cash crop farmer from Haldimand county is the second recipient of the OSCIA Soil Champion Award. This annual award was initiated by Don Lobb and Lillie Ann Morris who are both very well known for their passion towards soil conservation and soil health. Researchers, extension staff and conservation-minded farmers are increasingly concerned about soil erosion. It is important to direct attention to those who have excelled in the use and promotion of best soil management practices.

The OSCIA Soil Champion Award was given to Dean for his exceptional career accomplishments in building and promoting soil health within the agriculture industry.

Dean's unique approach to growing corn and soybeans using what he calls "fence row farming" has been turning heads in recent years. It has also won him a slew of awards from Dupont-Pioneer corn yield champion to Halidmand County Farmer of the Year, to Haldimand Farm Enterprise of the Year, as well as National No-Till Association Soil Practitioner of the year, and now he's been named the 2015 Soil Champion by OSCIA.

Left to Right: Andrew Graham, Lillie Ann Morris, Dean Glenney (recipient) and Alan Kruszel

Do you know someone worthy of the title Soil Champion?

The submission deadline for the 2016 Award is April 30, 2015.

For the application form and more details, visit:
www.ontariosoilcrop.org/en/resources/sca.htm

2015 International Year of Soils

"Dirt: Soil Health and what is at stake" - David Montgomery

"A nation that destroys its soils, destroys itself," says Dr. David Montgomery, quoting Franklin D. Roosevelt as he kicked off the OSCIA Annual General Meeting in London this past February. Dr. Montgomery is a geologist at the University of Washington and is the author of the book *Dirt: The Erosion of Civilizations*.

"Soil is a strategic resource that we don't tend to talk about as a society," he argues. "We tend to talk about oil or water. But as a species that makes its living by farming the soil, we simply cannot afford to degrade it at a global scale."

He believes that soil erosion is the most under-appreciated environmental crisis that we are facing in this century and provides some alarming statistics as he summarizes a 1992 study: "Over the last 40 years soil erosion and degradation has caused farmers to abandon about 430 million hectares of arable land, an area equivalent to about one-third of all present cropland. The estimated rate of world soil erosion in excess of new soil production is 23 billion tons a year or about a 0.7 percent loss of the world's soil inventory each year (Pimental, et al.)"

Montgomery states that historians have long believed that the demise of civilizations was based on deforestation that led to soil erosion. But he argues that the problem was not the axe, but the plow. "The plow fundamentally altered the balance between soil production and soil erosion," he says.

His book carefully traces the rise of the plow and the fall of civilizations over the past 10,000 years. He notes that civilizations lasted for periods of 500-1000 years, which is the amount of time it would take for the area's top soil to be lost and degrade. He notes that the longest lasting civilizations are those that sprung up in floodplains, like Egypt. Montgomery argues that Sudan and Ethiopia subsidized the growth of Egypt for centuries, through sending their topsoil down the Nile.

Montgomery recently compared 1,400 studies on erosion rates in both nature and agriculture, and found that an average conventionally-tilled field will lose an average of 3.939 mm of top soil a year; whereas a natural area loses 0.053. Bare soils don't exist in nature, he argues. "Nature covers soil with plants and plants build soils."

However, he found that the rates of erosion under no-till systems are more similar to those in nature, which is in balance to the rate of soil production. He concludes that, "agricultural soil loss is not because humanity farms but arises from *how* we farm – from using the plow."

Montgomery continues with examples from his next book, which will outline how civilizations around the world were successful in *building* soil. "There are really good examples in Europe and South America," he says. "The Dutch built some of Europe's most fertile soils on top of what was essentially beach sand that they reclaimed from the ocean."

"How did they do it?" he asks. "Intensive mulching, the return of organic matter to the land and the promotion of life in the soil."

Montgomery says he is convinced that building soil health is the secret weapon that will address some of society's biggest challenges of our century.

Firstly, he notes that commercial fertilizer use has driven global yield increases but that we won't have access to cheap fertilizer in a post-oil world. Soil fertility will need to be built through other means.

Secondly, he argues that agriculture is currently contributing to global carbon emissions, but there is potential for it to do the opposite. He introduced the concept of biochar, which is made from burning organic matter in a low oxygen environment. This produces energy while creating an inert form of carbon (charcoal) that doesn't degrade, and provides a net carbon reduction of about 20%. It is an energy source that is actually carbon *negative*, he says, and it will endure in soils for centuries.

Next, he argues that restoring soils in urban environments will solve public health issues. There is potential for city dwellers to grow their own vegetables, which will benefit both their social and nutritional well-being.

Lastly, he argues that the environmental crisis stemming from a loss of biodiversity can also be addressed by building soil health. "It all starts with the ground beneath our feet."

And Montgomery goes on to make soil political. "Humanity as a whole has a stake in the outcome," he says. "I can't think of any other one thing to suggest to senior policy makers that would help solve the full palette of environmental problems that we face in this century."

"We have to stop treating soil like dirt," Montgomery concludes, as he commended the members of the OSCIA for their work on building and researching soils here in Ontario.

Mel Luymes, Heartland RCC

ATTENTION SEED GROWERS

~ ~ ~ ~ ~

OSGA Field Day - 'Seed Care' at Connell Seeds

R.R. #3 Palmerston, ON

~ ~ ~ ~ ~

June 30, 2015

~ ~ ~ ~ ~

New Technology on Site:

Low Temperature dryer

Planters modified for seed dust control (deflectors)

New Seed Treatment Plant under construction

Water Flow Monitoring Systems Investigated

OSCIA partnered with the Environmental Management Branch Engineers of OMAFRA to research and trial a number of precision water flow sensors for the accurate measurement of field tile water flow and volume. Nine different types of water flow sensors with data loggers were tested. Based on the testing results, the best water flow sensor available for these objectives was determined.

The successful water flow sensor and data logger:
- operated in partially filled pipes
- operated in low level water with low velocity
- operated in extreme weather conditions (-20C to 40C)
- required minimal supervision
- able to record data and transmit data remotely
- able to trigger automatic water sampler
- able to work on 12 volt batteries
- does not have any moving parts to measure and record water flow data all year
- able to measure water flow at a minimum depth of 2 inches with a minimum of 0.03 m/s;
- able to measure depth of water at a minimum depth of 1 inch

The benefits of this equipment are:
- greater time efficiency
- greater applied in-field accuracy
- defendable data collection
- improved defendable results

The use of this water flow sensor is essential for improved science based defendable policy development. From the testing results, the best sensor and data logger was determined to be the Hach FL900 with the electromagnetic flow sensor Flo-Tote3. The results of the testing and data logger review has resulted in adoption of the same technology by Agriculture and Agri-Food Canada scientists and some Conservation Authority technicians.

This system allowed the study of phosphorous losses from three on-farm field scale agri-environmental projects within Ontario. Operated all year round, this research provides more thorough and complete picture of phosphorus losses moving beyond agricultural fields.

Harold Rudy, Executive Officer, Research and Business Development

2014 CROP ADVANCES

Premier Website for Applied Research on Soil & Crop management

2014 Crop Advances is now available on the OSCIA website at:

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

New OSCIA Grant Structure Brings New Opportunities for Local/Regional Associations

2015 brings the introduction of a new grant structure. After careful review of past accomplishments, comments received from members, and consultation with Ministry representatives, the new structure will present enhanced opportunities for local and regional associations to engage with project partners in a broad array of one-year activities including education and demonstrations, and three-year in-depth investigations involving applied research.

Four components comprise the new structure. Two remain virtually unchanged from previous years (though there are new application and claim forms) and include the Regional Communication Grant, and the Seed Fair Grant. It is the new one-year Tier One Grant, and the three-year Tier Two Grant that are garnering considerable attention.

Tier One offers up to $1,500 per county/district or region per year, at 100% reimbursement of eligible costs. Multiple submissions can be made throughout the year until the maximum per local/region is reached, or funding is fully committed. Typical projects include one-year field trials, bus tours, and guest speakers at events. Pre-approval of proposed projects is required.

The opportunities are really ramped up in Tier Two. Multiple local and regional Associations are encouraged to collaborate on three-year projects that fit into one or more of the four focus areas. This is a competitive process; a few large-scale projects will be selected for funding based on merit. Up to $30,000 per project per year is available. The Tier Two submission deadline is March 31, 2015

Go to the blog (**https://osciagrants.wordpress.com**) to find out more and retrieve the applications. You will also find a list of responses to frequently asked questions, and a long list of suggested topics. Look them up, continue the discussion, and get planning!

Andrew Graham, Executive Director

Farmland Health Check-Up

In April the Farmland Health Check-Up will become available to farmers in the Lake Erie, Lake St. Clair and southeast shores of Lake Huron Watersheds. Offered at **no cost to the farmer,** this program takes its cue from the Environmental Farm Plan but is focused entirely on soil and pollinator health. OMAFRA and OSCIA are partnering with Certified Crop Advisors to deliver this initiative.

The Check-Up will identify Best Management Practices (BMP) to strengthen soil health. Merit-based cost-share will be available in 2015 to support the implementation of these BMPs.

Watch the OSCIA website for details about this exciting opportunity www.ontariosoilcrop.org/en/programs.htm or email GLASI@ontariosoilcrop.org.

Christine Schmalz, Environmental Program Manager

Neonicotinoid Seed Treatment Efficacy Study
On-Farm Corn and Soybean Trials - 2015

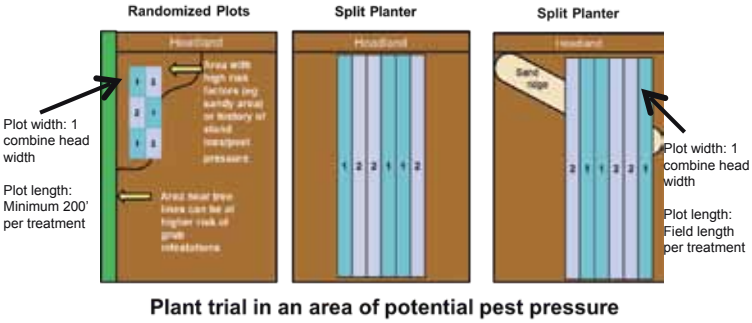
Objectives:

- To determine the key early season pests, develop risk maps, and measure the efficacy of neonicotinoid seed treatments in corn and soybeans in Ontario.
  - ☐ If you participated in the 2014 corn study, please place your 2015 soybean trial in the same field as your 2014 corn trial. The soybean trial is not required to be planted on the exact same spot as the 2014 corn treatments; however, this is desired if this is possible with your equipment.
  - ☐ In order to continue our study of Ontario corn pests, are we are asking participants to plant a corn trial in 2015 as well if possible.

Study Design:

- Each trial contains at least **6 plots** (**2** treatments of the same hybrid/variety repeated **3** times)
  - Trt 1: Fungicide-only
  - Trt 2: Fungicide + Neonicotinoid (e.g. Poncho or Cruiser)
- Trial planted and harvested by OSCIA members. Planter type does not matter.
- Early season assessments done by UGRC/OMAFRA – 2 early season field visits will be completed
  - Plant stand & vigour
  - Soil sample/Crop History/GPS
  - Pest presence/identification
  - Crop pest damage rating
- Yield data to be collected by OSCIA members (dry bu/ac)
  - Each **individual** plot weight measured using calibrated yield monitor or weigh wagon
  - Submit yield results to onneonicstudy@gmail.com within 2 weeks of harvest

Example Planting Configurations:



Plant trial in an area of potential pest pressure

1	= Fungicide-only seed trmt
2	= Fungicide + Neonicotinoid seed trmt

UoG and OMAFRA staff will carry the following checklist when making the first field visit to determine if the site is suitable to be included in the study:

- ❑ Directions, field map and accurate record of planting
- ❑ Plot corners clearly marked and of minimum size
- ❑ Fungicide only and insecticide treated seed of same corn hybrid or soybean variety
- ❑ Both planted same day with same planter
- ❑ 3 replications, following a randomized scheme or using split-planter configuration
- ❑ Plots not planted in a headland
- ❑ Plot located in highest pest risk area of field

NOTE: Should any one of these items fail then the site will be excluded.
Top quality, accurate data are required and poor quality data will harm the objectives.

To Participate In This Study:

- Identify an appropriate field location.
- Contact your local seed supplier as soon as possible to determine the availability of insecticide treated and fungicide only treated seed of the same corn hybrid/soybean variety for your maturity area.
- If insecticide treated and fungicide only treated seed of the same hybrid/variety is not available from your preferred supplier, check with other seed suppliers in your area.
- Contact Jocelyn Smith to register your field location: onneonicstudy@gmail.com

THANK YOU for your participation and attention to detail in this very important study.

Jocelyn Smith
Research Associate, Field Crop Pest Mgmt
University of Guelph Ridgetown Campus
519-674-1500 x63551
Fax 519-674-1555

UNIVERSITY of GUELPH
RIDGETOWN CAMPUS

2015 International Year of Soils

"Education is the most powerful weapon which you can use to change the world."
– Nelson Mandela

"It matters not what someone is born, but what they grow to be."
– J. K. Rowling

"Faith is taking the first step, even when you don't see the whole staircase."
– Martin Luther King, Jr.

"Always bear in mind that your own resolution to succeed is more important that any one thing."
– Abraham Lincoln

"My idea of an agreeable person is a person who agrees with me."
– Benjamin Disrael

"A bank is a place that will lend you money if you can prove that you don't need it."
– Bob Hope

Purpose-Grown Biomass Opportunities

The Sault Ste. Marie Innovation Centre (SSMIC) and the Rural Agri-Innovation Network (RAIN) have recently completed two projects assessing the potential for various purpose grown and intensively managed biomass feedstock options:

1. Crop Performance and Production Analysis for Purpose Grown Biomass in Algoma District

2. Speckled Alder Regeneration Study

For more information, please contact:

Saul Fraleigh,
RAIN Research Technician
705.942.7927 x 3034
sfraleigh@ssmic.com

Rural Agri-Innovation Network
c/o Sault Ste. Marie Innovation Centre
1520 Queen Street East, BT 200
Sault Ste. Marie, ON P6A 2G4

www.rainalgoma.ca

Crop Performance and Production Analysis for Purpose-Grown Biomass in Algoma District

The main objective of this project is to assess the potential productivity and costs associated with purpose-grown agricultural biomass crops in Algoma District. This included a literature review and economic assessment as well as replicated trials at two farm sites.

Economic Assessment

Photo: Miscanthus *(M. Nagara)* container stock ready to be planted in Echo Bay, Ontario.

Results of net present value (NPV) and internal rate of return (IRR) show a strong relationship to the cost of seeds/plants. Payback periods for switchgrass and reed canarygrass were approximately seven years where miscanthus and poplar/ willow was over ten years (assuming 40ha field, and farmgate price of $90.00/oven-dried tonne).

The sensitivity analysis shows the effect of changing economic variables on the project NPV. The variables were ranked with biomass market price having the greatest positive and negative influence on NPV. At year ten, a market price increase of 25% showed an NPV of $60,000 for all crops but miscanthus.

Other interesting results of the sensitivity analysis include:

- At year ten, reducing yield by 25% of the baseline scenario resulted in all crops having a negative NPV;
- At year ten, reducing seed/plant cost by 50% resulted in all crops having a positive NPV;
- At year twn, no annual fertilizer applications resulted in positive NPV for all crops;
- At year ten, changes in land rent values by 25% only had marginal effects on NPV.

AAC agricultural adaptation council
Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Field Research

In 2013, two sites were selected and planted (Massey Farm in Echo Bay and Down Farm on St. Joseph Island) with four biomass crop types (Miscanthus, Switchgrass, Reed Canarygrass and Willow/Poplar).

Crop growth has been observed during the growing season, tracking height, density and survival. First year growth is variable, but all biomass types planted have survived well even under wet field conditions. The following table describes first year Miscanthus weight of both the industry standard (*M. Giganteus*) and the newly developed Canadian variety (*M. Nagara*). A significant difference was observed on both sites and across all replications between these Miscanthus varieties.

Miscanthus variety yields (kg/ha wet basis) at the end of the first growing season for both trial locations.

End-of-season sample (October 4, 2013)

Site	Crop	Varitety	Rep 1	Rep 2	Rep 3	Rep 4	Standard Deviation	Average
Down Farm	Miscanthus	*Giganteus*	64.81	129.63	138.89	104.94	33.10	109.57
		Nagara	243.83	234.57	503.09	703.70	225.69	421.30
Massey Farm	Miscanthus	*Giganteus*	89.51	30.86	67.90	64.18	24.24	63.27
		Nagara	382.72	256.17	185.19	228.40	84.91	263.12

Speckled Alder Regeneration Study

The purpose of this study was to investigate the regenerative capacity of speckled alder based on different harvesting methods and to establish an alder plantation using seed propagation. It was hypothesized, based on a literary review of studies with other coppice species, that both the type of harvesting equipment used (saw and axe), as well as the time of harvest (summer and winter) would impact the regenerative capabilities of speckled alder. The hypothesis being, that a winter harvest utilizing a saw type implement would prove most conducive to regeneration. Results of this project after three years of growth are shown in Figure 1, below.

Yield of the speckled alder regeneration (tonnes/ha wet basis) after three years of re-growth.

	Saw – Summer	Saw – Winter	Axe – Summer	Axe – Winter
Rep 1	5.92	5.50	5.07	2.69
Rep 2	3.01	8.46	6.49	4.05
Rep 3	12.00	6.77	1.55	8.47
Average	5.99	6.92	4.46	4.63
Standard Deviation	4.59	1.49	2.54	3.02

Photo: Example of Speckled Alder (*Alnus incana)* found in abundance across northern Ontario.

East Algoma Est
Community Futures Development Corporation
Société d'aide au développement des collectivités

The Rural Agri-Innovation Network (RAIN) is a project of the Sault Ste. Marie Innovation Centre and NORDIK Institute, with collaboration and support from local associations, producers, businesses, municipalities, and funding organizations.

www.rainalgoma.ca

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

North Eastern Ontario Soil and Crop Improvement Association
Serving the Northern Agricultural Community since 1966

Limitations of Modern Landclearing

By Graham J. Gambles, Regional Communication Coordinator, (RCC) NEOSCIA

A century ago, my grandfather cleared land in the Cochrane area by the most modern methods of his time. Saw and axe. Having grown up in Muskoka, he knew how to use them. He also knew the value of horses, and his sturdy team moved prime logs off the cleared land, transported them to the rail line, and sent the logs to the mill. Leftovers became fuel wood or were burnt as slash, providing instant fertilizer. Natural decay and trampling by cattle and horses would produce a field fit for cultivation in a decade.

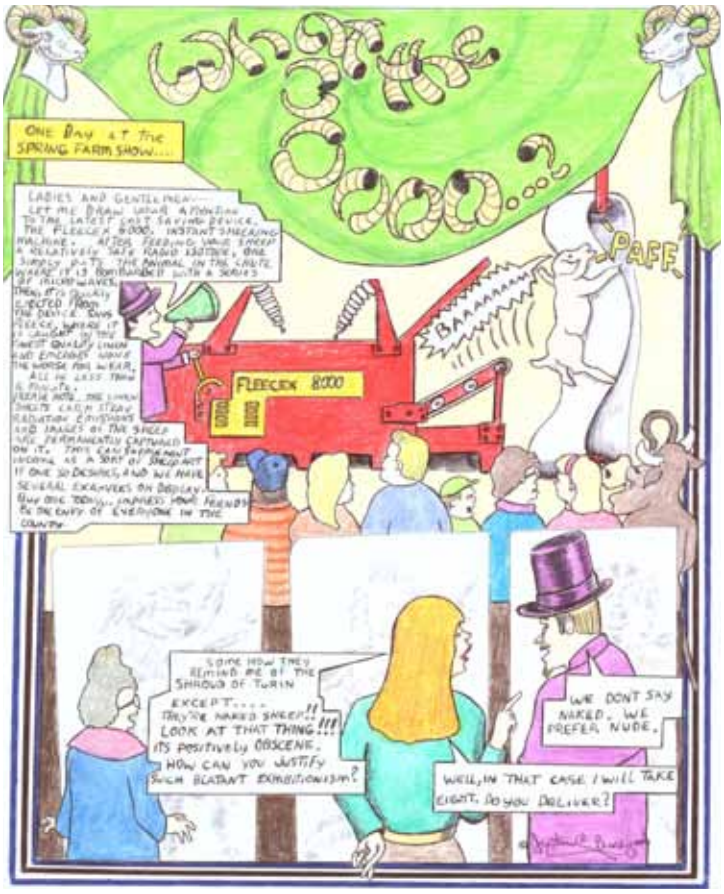
Since then, we have gone through the period of power saws, mobile tree harvesters, bulldozers and truck transport. We have modernized forestry, but it still takes a decade to create a decent, productive field from a cleared forest. Soil is too acid, the agronomists say, so we add lime by the ton, burn the organic topsoil, incorporate underlying clays, and if we are lucky, reduce the wait to about seven years.

What Grandad accepted as part of nature, was the need to let the land "rest". He did not recognize that trees produce chemicals, now known as "TALL" oil (from the Swedish term for spruce). He did not know that the organic leftovers of conifers (limbs, bark, roots, etc.) would release "polyphenols" for years, and it would be a decade before they were leached from the land. However, Alex Skepasts, agronomy lecturer at New Liskeard College of Agricultural Technology, repeatedly cautioned his students to be aware of growth limitations caused by soil polyphenols.

Recently, the farm community has adopted heavy duty forestry mulching machines for land clearing. Turn a hectare of forest into toothpicks and the land is ready to seed in a day. Too good to be true? Yes. The quantity of polyphenols released from the trees into the soil over a decade, is now released in a day. We can still add lime, but that has no effect on organic polyphenols. Nitrogen fertilizer is reported to be "eaten" by the organic oils. Do we know how to neutralize these chemicals? We do know that they are a major concern to MOE, as witnessed by the efforts underway to control their release off site at abandoned forestry mills, such as the decommissioned paper plant at Iroquois Falls.

Soils specialists say that trees should never be mulched. Move every piece of wood of the land and compost it. Do not burn! Is this economically viable? I doubt it. What we need is scientific research into the neutralization of organic polyphenols. OSCIA has a new program of field research available for innovative projects. This could be seed money for a more extensive research program involving university talent. NEOSCIA is developing a program. Can NOFIA be involved to hasten the development of this project? Can we obtain funding from commercial companies and funding agencies? With a little community effort, probably.

Or we could just wait another decade.



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