Breaking Ground
(in Northeastern Ontario) Spring 2016
A Publication of the North Eastern Ontario Soil & Crop Improvement Association (NEOSCIA)

Agricultural Soil Levels in Algoma

By Christine O'Reilly, RAIN Research Technician

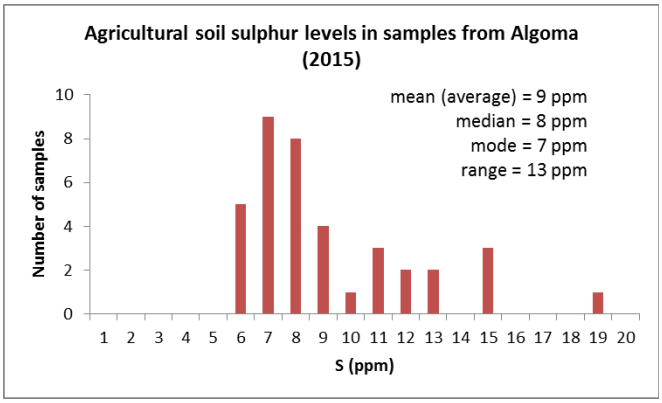
In the past, sulphur (S) was not typically a limiting nutrient for agricultural production in northeastern and southern Ontario. Airborne sulphur emissions created acid rain and snow, which deposited upwards of 8 -13 kg/ha of sulphate (SO_4) annually. In addition to reduced air pollution, commercial fertilizers are more refined and contain less incidental sulphur than older blends. There is growing interest in determining whether the sulphur status of agricultural soils across the province is adequate to meet crop requirements.

During the course of the Rural Agri-Innovation Network (RAIN)'s 2015 field research activities, 38 soil samples from 6 farms were collected across the Algoma District. These soils had an average of 9 ppm (parts per million) of S. Currently there is no accredited soil sulphur test for Ontario. However, A&L Canada Laboratories provided some guidance as to productive soil sulphur levels by ranking each value on a scale from very low to very high. All but the two highest samples were ranked as very low. One of the soils at 15 ppm was ranked as low, and the soil with 19 ppm rated very high (this location was near Essar Steel Algoma in Sault Ste Marie). This suggests an optimal range of 16 – 18 ppm of S, based solely on the index used by the laboratory.

Plants need sulphur to form amino acids, develop enzymes and vitamins, fix nitrogen (legumes only), produce seeds, and make chlorophyll for photosynthesis. The ratio of nitrogen to sulphur (N:S) in the soil can affect a plant's ability to take up the sulphur it needs. Healthy plant tissue typically has a N:S ratio of between 7:1 and 15:1. In western Canada, many growers apply nitrogen and sulphur in a ratio of 6 or 8:1 to prevent deficiency symptoms. However, sulphur, like nitrogen, can leach from the soil in wet conditions. Leaching loss is not as big of a risk in the prairies and causes differences in recommended practices for nitrogen between western Canada and Ontario.

Research conducted at the Thunder Bay Agricultural Research Station observed that canola responded positively to elemental S, but the response was inconsistent. Another study looking at alfalfa observed that ammonium sulphate gave higher dry matter yields per hectare than either urea or ammonium nitrate. In the first year of the trial, alfalfa fertilized with the ammonium sulphate also had significantly higher protein content.

It is clear that there is a growing need for Ontario-specific sulphur recommendations. Understanding the levels of sulphur currently in agricultural soils is the first step to addressing the potential sulphur deficiencies of the future (references upon request).



IMPORTANT NOTICE RE: MAILED ISSUES OF BREAKING GROUND—DETAILS ON BACK PAGE.

This newsletter is published 4 times per year. Articles can be submitted in either English or French. Please supply translation, if available.

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Agricorp & GF2 Updates *By Steph Vanthof*

The Manitoulin Soil & Crop Improvement Association and the Manitoulin Cattleman's Association hosted an information day on February 24, 2016. Information was presented from Murray Emke, Neil Tarlton, Mary Scott & Barry Potter. Some info for producers:

Agricorp – In 2016, oats and barley can be insured separately (previously insured under spring grain) as they have different markets and valuations. In past years, USAB used to be based on the predominant crop from the previous year but producers now have until May 1st to pick the crop. Forage can be insured up to a revised harvested value:

Between $100 - $640/acre for hay and intensively managed pasture
Between $25 - $160/acre for pasture

Yields for Northwestern Ontario (as defined by Agricorp) (yield/acre, change from 2014) include:

Spring grain	2,719 pounds (+113%)
Corn	136 bushels (+114%)
Canola	2,113 pounds (+115%)
Spring wheat	55 bushels (+119%)

The pilot for flax continues into 2016 – in 2015, approximately 8,000-10,000 acres were insured across Ontario.

GF2 Cost Share – Participating in GF2 workshops is now required to access GF cost-share funding – application guidelines will specify which workshop. Applications are now accepted during intake periods and are awarded based on merit. Costs cannot be incurred until after the approval letter has been issued, approximately 45 business days after the intake date. Read the application guidelines for specifics – go online for the latest version.

Thanks to the **Bank of Montreal** for sponsoring lunch!

Variable Rate Application on Potato Fields

By James Found

This year Poulin Potatoes will apply fertilizer using GPS satellite positioning and computer technology .Last summer a soil sampling crew from Synagri obtained soil samples from 600 acres of potato fields averaging one sample per hectare (2 Acres).Each sample location was given a GPS location to facilitate computer mapping of the soil variability. The resulting map will then be used to precisely dispense the fertilizer and lime during the potato planting process.

The expected benefits will be the saving of 20 to 30 Tons of fertilizer which will mostly offset the $20 K cost of the intensive soil sampling, lab analysis and design of the precision dispensing program. Avoidance of over liming in particular is important. This error in the past has resulted in scabby potatoes which cannot be marketed. It has required seven years of alternative cropping to return a field to potato production.

Season Extension Techniques for High-Value Horticulture

By Neil Tarlton

Inspired by the experience of North European countries where winters are harsh and severe, The winery "l'Orpailleur" adjusted its wine-growing method in order to protect vine stock from freezing by covering them in the fall and exposing them in the spring.

Ice wine is a very high value crop and can justify high cost methods in its production. Quebec producers do not have the advantage of an escarpment protecting them from cold winds as the Niagara escarpment producers do. Rather than pick the grapes directly off the vines, they pre pick the grapes storing them in nylon net tubes to desiccate as winter approaches. Though it results in another costly production process, it allows a greater quantity to be harvests, virtually eliminates bird damage and avoids the possibility of harvesting in deep snow conditions.

Union Libre's (a neighbour of Orpailleur) have a related method of protecting their root stocks of grapes using micro tunnels of fabric.

Breaking Ground (in Northeastern Ontario)

Breaking Ground (in Northeastern Ontario)

Fungicide trials on Oats at Marc McLean 2015/ prepared by Daniel Tasse OMAFRA

Field location: Kenabeek / Nlclay / tiled 50'
Variety: Deiter
Seeded: May 15th
Fungicide application: July 28th
Harvested: August 31t 2015
Header width : 24ft
Distance: 2,468 ft
2 measurements per treatment



Treatments	Wagon weight	Harvested area	Yield lbs/ac @13.5%	Moisture	Protein	Bushel weight	TKW
	lbs	acre	lbs	%	%	lbs	grams
Twinline	6,060	1.359	4,260	15.2	10.9	49.5	62.1
	5,685	1.359					
No treatment	5,340	1.359	3,951	14.8	10.3	48.2	60.4
	5,500	1.359					
Folicur	5,430	1.359	3,925	14.8	10.3	48.6	59.4
	5340	1.359					

Conclusion: slight increase of 8% or 309 lbs with the fungicide "Twinline"

Thanks to Marike Patton with Bayer CropScience and John Kobler at NLARS

2015 Corn Silage Plots at Rivadale Farms / prepared by D Tasse OMAFRA New Liskeard

Site: Earlton / Ncl clay / tiled
Seeded: May 5-8th , 2015
Herbicide: Converge XT , Samco biodegradable plastic
Harvest Date: September 16th
Previous crop: Hay -Alfalfa
Population : 32,000 and 37,000

8 rows x 1,841
Feed analysis : A & L Lab



Hybrid	Population	Area harvested	Wet weight	Moisture at Har	Yield adjusted at 65% moisture
DKC23-17	37,000	.845 acre	14,810 kg	67%	16.5
PRIDE A4415G2	37,000	.845 acre	15,720 kg	69%	16.3
PRIDE A4415G2	32,000	.845 acre	15,920 kg	68%	17.1
PRIDE A4025G3	32,000	.845 acre	13,640 kg	64%	16.5
PRIDE A4177G3	32,000	.845 acre	16,020 kg	64%	19.6

Feed Analysis	DM %	C.P %	NDF%	ADF%	NEL (Mcal/kg)	Milk Yield
DKC23-17	32.83%	9.44%	42.34%	22.27%	1.66	8,992
PRIDE A4415G2	30.69%	9.07%	42.91%	21.77%	1.64	9,433
PRIDE A4415G2	31.84%	8.75%	41.93%	22.43%	1.65	9,164
PRIDE A4025G3	35.80%	7.72%	42.51%	21.44%	1.64	8,344
PRIDE A4177G3	36.22%	9.56%	42.21%	21.11%	1.68	10,223

Message from OSCIA 1st Vice President

Mack Emery

As I write this at the start of the second week of March the snow is melting and water is running in this corner of the Northeast. It reminds us that spring is coming and even though there will still be wintry days planting season will arrive soon enough. Does your District Association have any Tier 1 projects planned for 2016? Make a point of checking that out and participate if you are able. There is up to $1500.00 available to each Association for their use (or even in cooperation with another Association) so lets be sure that money is spent!

The Northeast is in the preliminary stages of planning a "Crop Tour" event with one of the OMAFRA Crop Specialists for this summer. Keep posted for further information on that one.

As 1st Vice President of OSCIA I have the opportunity to host the Summer Directors meeting of OSCIA. This will be held August 14 to 16. I am planning to showcase farms and businesses in Sudbury and Manitoulin Districts to agricultural leaders from across Ontario who will be in attendance.

Call for Nominations: Provincial Director for Northeastern Ontario Soil & Crop Improvement Association (NEOSCIA)

Duties will commence February, 2017

Time commitment outside of NEOSCIA is 1 hour (approx.) per month on conference calls, 2 to 3 days per year to attend Provincial Annual Meeting, 2 to 3 days per year to attend Summer Provincial Directors Meeting, 2 to 3 days per year for other possible committee meetings.

Position allows $175.00 per diem/day while acting on behalf of NEOSCIA plus allowable expenses (mileage, meals, accommodation as required).

Please contact Dan Cook at dancook@puc.net or (705) 272-3964 for further information or to submit a nomination. Job duties can be found at www.farmnorth.com, Associations, NEOSCIA.

Intensive Oat Management

Funding for this work was provided by NOFIA, Pepsico Quaker, BASF, Grain Farmers of Ontario, EngageAgro, Syngenta, Canterra Seeds, SeCan and OMAFRA/U of G Partnership Agreement.

By John Kobler, NLARS Research Technician

In 2014 we had many fields where oats had become flat, the technical wording would be, "severely lodged." The growing season was wet right throughout the summer and this in turn provided adequate amounts of moisture to all of our Northern Ontario crops. Abundance of moisture, coupled with good soil fertility can be a contributing factor for creating a lodging problem, particularly to an oat crop. A discussion initiated at the local OSCIA meeting, and the general comment was that we needed to have some sort of Intensive Oat Management trial at the New Liskeard Agricultural Research Station. Clearly as farmers we also need to better understand how fertility effects our crops, particularly oats, and what could we do to help mitigate any of those lodging concerns.

In our experimental design we settled on three varieties of oats, Dieter - a traditional oat grown in our area, Morrison - a Quaker preferred variety, and Camden - a known high yielding oat originating from Western Canada. We had the opportunity to include two growth regulators, a product call Palisade from Syngenta and a product called Manipulator from EngageAgro. And we also had the opportunity to include one fungicide treatment a product called Twinline from BASF.

Past research has shown that excessive nitrogen (N) in our soils available to the plant during the growing season could be a factor for causing excessive lodging. To help simulate a lodging condition, via that fertility vector, we needed to look at applying various rates of additional nitrogen (N) in our experiment. The experimental design was rather large and we had to limit the number of nitrogen treatments to four distinct rates namely; 0N, 60N, 60N + 30N at flag leaf and 90N. The OMAFRA recommendation in the Agronomy Guide (Publication 811) calls for an application rate of 55N kg/ha of actual Nitrogen for an oat crop

The Intensive Oat Management trial was seeded May 14, 2015, two weeks later than we had hoped for. Unfortunately, later seeding dates inherently tend to have less lodging issues. This proved to be true for us in the fall of 2015 as we didn't see the severe lodging issues of previous year on any of the plots in our experiment.

Figure 1 shows the average overall yield that we attained for each variety individually, when we combine all the various treatments for each variety. Camden clearly turned out to be the highest yielding variety and Morrison was the lowest yielding variety in our experiment. Dieter was measured to be tallest variety with an average height of 106 cm. Both Camden and Morrison measured simpler at 90cm in height. Dieter had the highest lodging score as compared to the other two varieties. Farmers tend to shy away from taller varieties because they tend to be related to having potential lodging issues.

Interestingly, despite our late seeding date, we saw a response from each of the individual treatments. Those 4 nitrogen rates that we applied created a characteristic nitrogen response graph for each of the three varieties. Figure 2 shows the treatment r

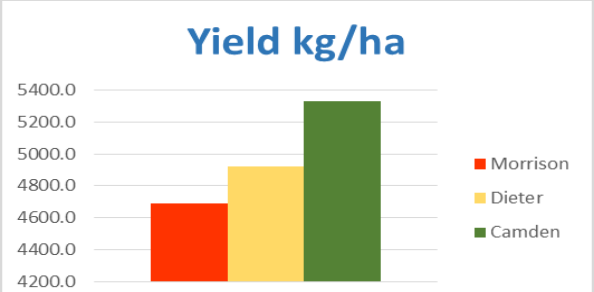


Figure 1 Average Yield by variety, regardless of treatment

response for Dieter oats and we can clearly see that Twinline fungicide was beneficial on the mid to higher rates of nitrogen. Out in the field, when we physically viewed the plots, at 0N the plant density or "canopy" was much thinner, resulting in a lower opportunity for disease pressure to have an effect.

In the Camden response graph, Figure 3, we see a lower benefit of using Twinline fungicide. Out in the field when we looked for actual physical disease pressure in the plots, Camden appeared to less susceptible than we would have thought, for a western variety in our area. Interestingly Camden had a visually thicker stem, and accordingly, Camden had the lowest lodging scores of those three varieties.

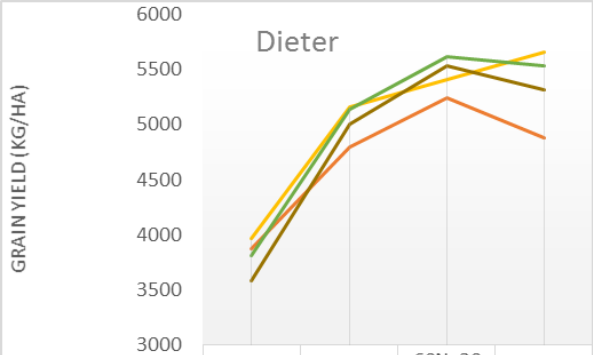
Figure 4 shows some benefit occurring from that single application of Twinline fungicide a crossed all rates of N for Morrison oat. This could be a varietal trait. (more susceptible to disease) Also, based on those lower yield numbers, there seems to be very little benefit from using a growth regulator on this variety.

Statistically if we look at all the interactions between treatments the amount of data that gets generated becomes rather large to be explained in a single article. At the risk of creating a complex graph, I created a graph showing each individual treatment response for all variety(s) lumped together. We can start to see some general trends as shown in Figure 5. Twinline fungicide clearly showed a benefit for all N rates levels, across the board for all plot data. (Remember regardless of Variety) However, the general trend for using a growth regulator appears to be that they are N rate sensitive.

We achieved the highest yield in this experiment from a combination of treatments. It was the treatment that included Camden Oat, at an N rate of 60N + 30N applied at flag leaf, and it included Twinline fungicide and Palisade as the growth regulator, where we achieved that highest yield of 6,294 kg/ha. Having said all this, in research we shouldn't draw too many conclusions with only one year of data. Therefore, we really need to be planning to execute this experiment again next year.

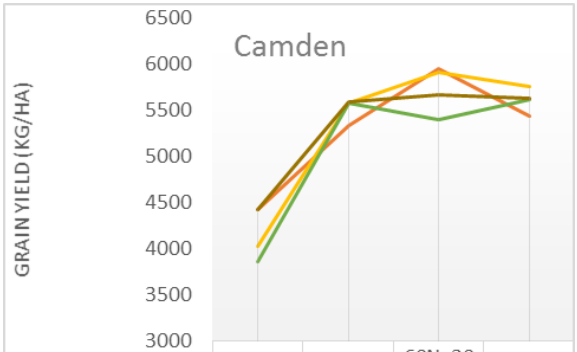
Intensive Oat Management (con't)

By John Kobler, NLARS Research Technician



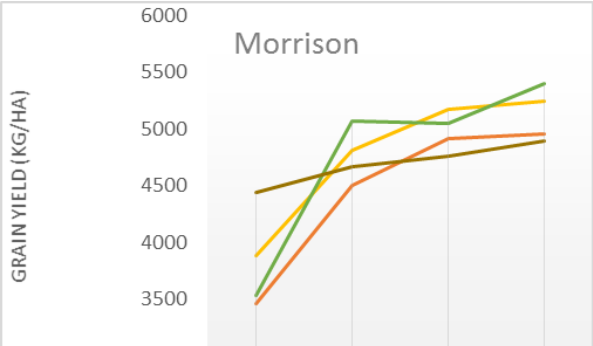
	0N	60N	60N+30 N@Flag	90N
None	3870.2	4794.2	5246.2	4878.9
TwinLine	3966.2	5159.5	5406.1	5660.9
Palisade	3810.2	5133.4	5614.6	5527.7
Manipulator	3583.0	5005.4	5533.2	5312.4

Figure 2: Treatment Response for Dieter Oat



	0N	60N	60N+30 N@Flag	90N
None	4426.3	5325.9	5942.7	5432.4
TwinLine	4022.6	5573.4	5908.6	5751.9
Palisade	3851.9	5569.9	5389.6	5616.7
Manipulator	4426.3	5592.6	5665.0	5625.5

Figure 3: Treatment Response of Camden Oat



	0N	60N	60N+30 N@Flag	90N
None	3463.2	4503.9	4919.1	4953.7
TwinLine	3886.5	4808.8	5169.8	5250.7
Palisade	3534.8	5071.1	5052.4	5403.9
Manipulator	4438.6	4664.9	4758.5	4895.8

Figure 4: Treatment response for Morrison

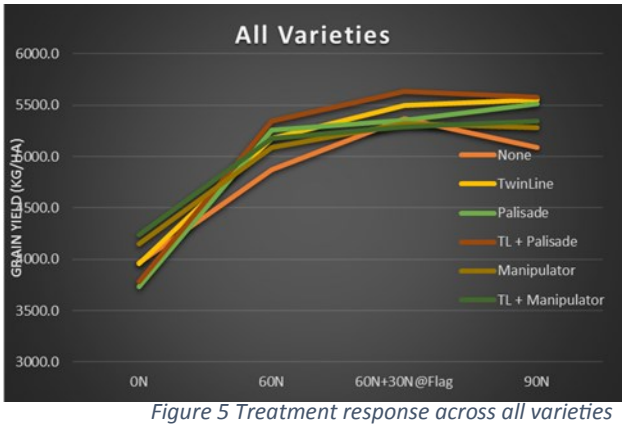


Figure 5 Treatment response across all varieties

Stay tuned for NOFIA's economic analysis of the different management options.

Information for Farm Emergencies, adapted from OMAFRA Bulletin

Emergency events, such as barn fires, natural disasters and disease, can cause substantial loss to a farm operation, creating unique challenges for farmers, including the disposal of large volumes of deadstock.

Planning ahead can help alleviate some of the stress during an emergency. We encourage farmers to develop a contingency plan for emergency situations. Visit ontario.ca/deadstock for information on contingency deadstock planning and the regulation (Disposal of Dead Farm Animals Regulation under the Nutrient Management Plan). Visit ontario.ca/farmsafety for useful resources, including information on preventative maintenance for farm buildings and our book, "Reducing the Risk of Fire on Your Farm."

OMAFRA environmental specialists and engineers can give you and your members and clients guidance on managing deadstock. You can also contact the Agricultural Information Contact Centre at 1-877-424-1300 orag.info.omafra@ontario.ca.

Breaking Ground (in Northeastern Ontario)

EN/PS Agricultural Symposium

By Steph Vanthof

Approximately 60 people attended the East Nipissing/ Parry Sound Federation of Agriculture Agricultural Symposium in Trout Creek on February 27, 2016. Len Davies spoke about the importance of succession planning within your agricultural operation.

The process of succession planning involves exploration (establishing whole family goals, building a family profile), evaluation (SWOT analysis, financial snapshot, developing a strategy) & execution.

Some tips before planning & during transition:

⇒ Communication is key, both during the planning and the transition.

⇒ The entire family needs to participate in strategic meetings, even the members who have no role/ interest in the farm.

⇒ Capitalize on identified weaknesses, even if that means outsourcing that aspect of the operation.

⇒ Complete a current financial snapshot, which can determine if there even is a need for succession, as well as a snapshot of where the farm will be during the transition.

⇒ During the succession planning, identify the tasks on the farm and who currently completes them. Identify who will complete them in the future and the date of transfer, listing any skills that need to be brushed up on before then.

Thanks to **Scotiabank** for sponsoring the event!

'Farm business succession is a journey, not an event'

The Western States, a cattle industry under stress

By Neil Tarlton

Cattle ranching in the western states of USA has hit the news recently. Cattle ranchers are in jail and there is an armed standoff in Oregon over grazing rights on federal land.

38 million of California's 100 million acres of land are suited only to grazing cattle. Unlike the eastern seaboard, half of this rangeland is federal land. The drought of the last four years has resulted in a marked decline in the stocking rate that this land is capable of supporting. With its Mediterranean climate crops such as olives or almonds have replaced feed crops suitable for cattle finishing.

From "The California Rancher" Tim Koopmann, president of the California Cattlemen's association has had to cull about half of his own herd down to 200 mother cows. State wide, approximately 140,000 mother cows had to be sent off for slaughter. This is from a state that ranks 4th in cattle numbers with - 5.2 million cows and calves. Rebuilding their herds in the future will be a steep road for many ranchers.

Cattle used to move into California for winter finishing with its warm winter climate. Now the trend is to move the cattle from California to mid-west states that have high quantities of corn and no pressure from the growing of tree fruit crops.

The California consumer is very sensitive to water conservation issues and the amount of water used by agriculture. Beef production is especially demanding. An average cow requires about three percent of its body weight daily in dry matter. An average mother cow needs around 12 to 18 gallons of water a day to sustain itself. Red meat consumption per capita in California has declined. Competition from Canada is also a factor. With the Canadian dollar at a low of $0.70 to the USA dollar, Canadian beef is attractive for US finishers and processors. Competition with US beef production as it suffers from cost of production increases.

Rangeland Alameda county 2015

Breaking Ground (in Northeastern Ontario)

2016 FORAGE AND SEED SHOW

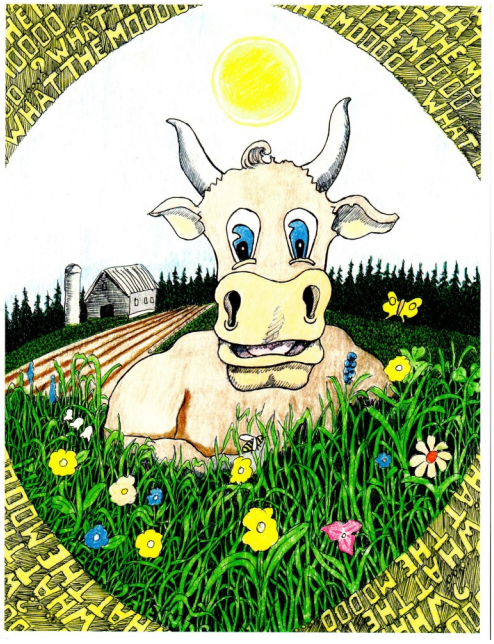
N.E.O.S.C.I.A. RULES AND REGULATIONS

This show is designated the Championship Show for the Earlton Farm Show
(All exhibitors from the North Eastern Ontario Region – NEOSCIA and North Western Quebec – are invited to participate.)

All exhibitors must be a 2016 paid up member of their respective Soil and Crop Improvement Associations.
All exhibits must have been grown in 2015 by the exhibitor. All exhibits will become the property of the Show Committee.
Entries will be accepted up until **6:00pm on Friday, April 15th,** at the Earlton Recreation Centre (Hallway).
No exhibitor will be permitted to make more than one entry in any class, with the exception of Classes 26, 27 and 30.

The following classes will be available for competition:

CLASS 1 - Hay, 75% legumes or more
CLASS 2 - Hay, 75% legumes or more with analysis
CLASS 3 - Hay, 75% grasses or more
CLASS 4 - Hay, 75% grasses or more with analysis
CLASS 5 - Hay, mixed (grass/legumes)
CLASS 6 - Hay, mixed (grass/legumes) with analysis
CLASS 7 - Hay, second cut 85% or more legumes
CLASS 8 - Haylage (moisture 60% or less) 75% legumes or more
CLASS 9 - Haylage (moisture 60% or less) 75% legumes or more with analysis
CLASS 10 - Haylage, mixed grass-legumes
CLASS 11 - Haylage, mixed grass-legumes with analysis
CLASS 12 - Grass silage, 75% grasses or more (60% moisture or more)
CLASS 13 - Grass silage, 75% grasses or more (60% moisture or more) with analysis
CLASS 14 - Round or Square Bale Haylage with Laboratory Analysis
CLASS 15 - Round Bale or Square Bale Haylage without analysis
CLASS 16 - Cereal silage (long stem or chopped)
CLASS 17 - Corn Silage
CLASS 18 - Corn Silage with analysis
CLASS 19 - Grain Corn A- Dry B- High Moisture
CLASS 20 - Barley
CLASS 21 - Barley, Pedigreed seed
CLASS 22 - Oats
CLASS 23 - Oats Pedigreed seed
CLASS 24 - Wheat
CLASS 25 - Wheat- Pedigreed seed
CLASS 26 - Other Cereals (buckwheat, triticale, rye...)
CLASS 27 - Pulse crops (peas, edible beans, fababeans, lentils ...)
CLASS 28 - Soybeans
CLASS 29 - Canola Seed
CLASS 30 - Forage Seed (Timothy, Trefoil, Clover, Alfalfa, etc.)



All entries must be prepared by the exhibitor and shown in clear polyethylene bags (available at the show) as follows:
a) Hay: at least 16 cm (6") and not over 24cm (10") of any ordinary bale, or its equivalent of loose hay
b) Big Round Bale Haylage: equivalent to Hay as mentioned in a)
c) Silage or Haylage: 4 litres or one gallon
d) Classes 18 to 26: 4 litres or one gallon
e) Canola Seeds (class 29) and Forage seeds (class 30): 1 litre or one quart
f) Classes 21, 23 and 25 must have Crop Certificate number written on tag.

All entries in Classes with Laboratory Analysis - The exhibitor is required to provide a Laboratory Feed Analysis of the sample from an OMAFRA accredited laboratory.

Judging will be based on 40% - sample visual evaluation
60% - results of Laboratory Analysis
All other existing rules and regulations apply to this competition.

In grain and forage seed classes, only varieties licensed for sale in Canada are eligible to compete.

It is the responsibility of the exhibitor to properly identify his or her exhibit and to enter it into the appropriate class.

The Committee reserves the right to refuse entry to any exhibit not meeting the above standards.

It is the responsibility of the exhibitor to properly identify his or her exhibit and to enter it in the appropriate class.

Any entry not meeting the above requirements will be refused.

The judge has the right to disqualify any exhibit not meeting the requirements of the class in which it is entered.

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OSCIA PROVINCIAL NEWSLETTER

Message from the President - Gord Green

Hi Everyone,

I would like to welcome you to our first newsletter of the New Year.

Meeting season is winding down and spring is just around the corner. This last winter we had excellent attendance at the various county, district and regional meetings around the province. Events such as FarmSmart and South West Agricultural Conference (SWAC) had record attendance.

The agricultural industry is fully engaged in gathering information on new ideas and how to do things better. Our program workshops are enjoying a large increase in uptake which has kept local and provincial staff hopping to keep up. These are excellent workshops and the increased interest demonstrates our concern for the environment and agriculture in general.

Our Provincial Annual Meeting was a success with very good speakers and presentations. The Tier 1 and Tier 2 presentations given at the Annual Meeting were great and they demonstrated the diversity of the projects being done across the province. I would encourage the locals and regions to apply for a Tier 1 project for this coming year. It is very easy to do but pre-approval is required. It is a very broad-based grant so just about any membership enhancement project will qualify. We now have a new OSCIA Soil Champion in the person of Tyler Vollmershausen from Oxford County. Dean Glenney, the 2015 Soil Champion from Haldimand County, gave an excellent presentation on his farm operation at the Annual Meeting. Another great presentation was from the 2015 Forage Master Chris Brown from Lennox & Addington. Cover crops and phosphorus algae blooms were the main guest speaker topics. It is interesting that the solution to the problems of phosphorus leaving our fields, greenhouse cap and trade credits, and overall soil health improvements all have the same solutions. These would be reduced tillage or no-till and the use of cover crops. Just something to think about.

On a bit of a sad note, we have decided to suspend the Ontario Forage Masters program for this year. We are in the process of retooling the program to give it a new face and try to address some of its shortcomings. A weakness of the current program is that it was addressing forage that pertained solely to the dairy industry. As a grassroots association, we recognize the importance of all the forage-based livestock industries out there and would like to come up with something that is relevant to all sectors. If you have thoughts on improving the program, please contact your provincial director. We have a great group of provincial directors across the province who, besides representing their own areas at the provincial level, also represent the province on various committees pertaining to agriculture. In some cases these people are the only farm representatives at the table.

I wish everyone a good planting season and a prosperous cropping year. Be safe out there and enjoy the experience.

Yours in Agriculture,

Gordon R. Green

Gord Green, OSCIA President

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

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- **SARFIP Update**
- **GLASI - Farmland Health Check-Up**
- **GF2 - Nutrient Management Funding**

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Blake Vince Talks Cover Crops at the 2016 OSCIA Annual Meeting (AGM)

Blake Vince has never plowed a field in his life. His father and former OSCIA President, Elwin Vince, went no-till in 1983 and the family hasn't looked back. The Chatham area farmer is innovating on their 1,300 acres and shared his thoughts on agriculture and conservation with AGM participants on February 10, 2016 in London, Ontario.

He starts his presentation with the all too familiar photo of a green Lake Erie, but draws a poignant connection as he points to an area in the lake. "This is a water intake pipe, this is my family's drinking water, my wife, my kids and myself," he starts.

Vince was selected as a Nuffield Scholar and wrote on the topic: Conserving farm land with cover crops and the importance of biodiversity (2014). He traveled to Europe and South America exploring soil, cover crops and no-till farming practices.

He points to the vast array of technology and the pace at which things are changing, and wonders why young people are still taught to plow. Vince believes the technology of the plow is obsolete now that our understanding of soil has evolved over the years. He quotes Edward Faulkner who said, all the way back in 1942, "There is no scientific evidence to support the need for tillage."

Active on Twitter, Vince coined the now-popular 'hashtag' #RootsNotIron and it was based on a conversation he had with an Ohio farmer and mentor, Dave Brandt. "I can do more with roots than you can with any machine," Brandt had challenged. And from then on, Blake Vince was hooked on the notion of incorporating cover crops into his no-till system.

He says that when no-till was first conceptualized here in Ontario, it focused only on the iron and didn't include the most important piece. "Almost all advantages of the no-till system come from the permanent cover of the soil and only a few from not tilling the soil. Always aim at full cover," Vince quotes Rolf Derpsh, a farmer from Paraguay that he visited on his Nuffield trip.

On his trip he found people using various methods to use living roots to transform soil, including planting cover crops into soybeans at senescence, or growing crops and grazing animals between rows of eucalyptus. In France he met Frédéric Thomas, who struggled with soils that were sandy on the top with a clay layer below. While other farmers used deep tillage to invert the soil, Thomas was having much better results using plant roots to transform the soil.

Vince flips to a slide of him planting corn in 2014. It is a photo that now has farmers across Ontario intrigued, because Vince is taking his John Deere 7000-series planter through a field that is knee high with hairy vetch, cereal rye and crimson clover. "There is no fertilizer in the tank and nothing special on the planter, just heavy duty down-pressure springs and notched closing wheels on the back. There is no lead coulter," says Vince, who has tinkered with his planter to make it work on his operation.

"I had all the neighbours watching me," he says, as he crossed his heart and plunged into a green field. Vince often speaks to the fear that farmers have of change and says that the largest compaction zone on a farm is usually between the ears.

But to Vince, this is a no brainer. He is visibly improving soil health and water infiltration, reducing erosion and making money. He says that we often focus on increasing production to make a profit, but rarely talk about a reduction of consumption. He was dumbstruck when Dave Brandt first told him that he used only 90 lbs of nitrogen to grow 180 bushel corn, because Vince was using almost twice that much. Since then, Vince has been increasing organic matter and reducing fertilizer application rates with no yield losses. But a salesman won't tell you that. Vince argues that "If it isn't in a jug, if it isn't in a bag, if it isn't covered in shiny paint, then the industry isn't interested in talking about it."

Vince has been experimenting with different cover crop mixes and concludes that it's not about density but diversity. With more varieties of seed in the mix, he gets better cover of the field and while there may not be as much biomass in the above-ground portion of some plants, he is more concerned with their roots and exudates that benefit the soil.

Last year, OMAFRA's Anne Verhallen used his field to do the cotton test with a pair of cotton briefs and the results were undeniable. The cotton had been consumed by micro-organisms; whereas the pair buried just a few feet over in the neighbor's field was nearly intact. "While this isn't the most scientific method, we can clearly see that something is happening beneath the soil that most of us don't understand," he says.

Vince quotes Einstein who said, "Those who have the privilege to know, have the duty to act." And he goes on to say, "I know that we, collectively as an industry, can do better than what we are doing today. We need to stop treating soil like dirt and start treating it like the living and breathing organism it is."

By keeping his fields green, Blake Vince is capturing solar energy and feeding soil biology, increasing organic matter, infiltration rates and water holding capacity and fertilizer application rates. By decreasing soil and nutrient losses, he is improving the quality of the Great Lakes. And that's something we will all benefit from.

Melisa Luymes, Heartland Regional Communication Coordinator

2016 OSCIA Soil Champion Award Winner

OSCIA is proud to announce the 2016 OSCIA Soil Champion Award winner, **Tyler Vollmershausen, of Vollmershausen Farms.**

Tyler Vollmershausen (2nd from the right) and his father, Larry (centre), pictured with OSCIA 2016 President, Gord Green (right), Lillie Ann Morris and Don Lobb (Sponsors).

Tyler, a sixth generation cash crop farmer from Oxford county, is the third 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 management practices.

The OSCIA Soil Champion Award was given to Vollmershausen Farms for their passion for improving soil health, and their use of cover crops, to name just a few reasons. For the full article on Tyler Vollmershausen and his family farm, please visit our website at: http://www.ontariosoilcrop.org/association/association-soil-champion-award/

Do you know someone worthy of the title Soil Champion? The submission deadline for the 2017 Award is September 1, 2016.

For the application form and more details, visit: http://www.ontariosoilcrop.org/association/

Amber Van De Peer, Executive Assistant, OSCIA

CROP ADVANCES

Applied Research on Soil & Crop Management information available on the OSCIA website:

http://www.ontariosoilcrop.org/research-resources/crop-advances/

SARFIP Update

The Species at Risk Farm Incentive Program (SARFIP) was delivered by your Association for the eighth consecutive season in 2015.

Under this year's SARFIP, 113 on-farm projects were completed and received cost-share support. From alternate watering systems to keep livestock out of natural areas, to human-made habitat structures for Species At Risk (SAR) like bat boxes or barn swallow structures, SARFIP provided up to 80% to producers.

Rotational grazing system, funded by SARFIP in 2015

Stay tuned for new opportunities through SARFIP in the 2016-17 program year starting this spring.

For more information, visit: www.ontariosoilcrop.org

Farmland Health Check-Up 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 (CCA) to complete a Farmland Health Check-Up. The Check-Up represents $500 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 will be available to implement best management practices identified in the assessment by the CCA beginning April 4, 2016. The coupon is valid as annual program budgets allow, 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

GF2 Cost Share Funding Available for Improved Nutrient Management

New manure spreader technology is helping farmers take advantage of the benefits of applying livestock nutrients on the land, while also reducing their environmental impact.

Responsible use of these nutrients contribute to the healthy soils that farmers need to grow crops, allowing them to be recycled and reused in a beneficial manner.

Solid manure spreaders with vertically arranged beaters–instead of the more conventional horizontal system–have a wide-spread pattern and are good at breaking up material before it goes on the field. This results in better, more even distribution, and lower nutrient application rates.

Russell Clark is a dairy farmer near the small town of Woodville in the Kawartha Lakes area west of Lindsay, Ontario. His farm is in the Lake Simcoe watershed, meaning all creeks, streams and rivers in that region ultimately drain into Lake Simcoe.

With over 400,000 residents in the watershed and the lake providing safe drinking water to seven municipalities, maintaining good water quality is important. This includes ensuring that livestock manure and the valuable nutrients it contains for crop production and soil health stay on the fields and out of the watercourses.

When it came time to buy a new manure spreader for his farm, Clark made the decision to use vertical beater technology and turned to *Growing Forward 2* for cost-shared assistance with his investment.

"We use a lot of straw for bedding and the vertical beaters chew up manure really finely without any big lumps, giving us fine and even application on the field," he explains, adding the wide-spread pattern distributes manure in a range of 25 to 30 feet or approximately seven to nine meters.

Traditional horizontal beaters have a narrow spread width and the vertical beater's wider spread pattern results in fewer tractor passes over a field. This helps reduce emissions, fuel consumption, and soil compaction.

A research study by the AgTech Centre in Lethbridge, Alberta comparing types and models of solid manure spreaders showed that the manure method of application is very important when it comes to getting the most out of spreading manure or compost on the land.

A uniform spread pattern means manure and its nutrients are evenly spread on the field; non-uniform patterns can impact crop germination and cause crop burn or nutrient deficiency from too many or not enough nutrients in one spot.

Clark says that in his experience, the fine consistency of manure spread with a vertical beater makes it easier to work into the ground after application. This makes the technology well-suited to reduced or no-till systems.

Program Coordinator Barb Caswell with the Ontario Soil and Crop Improvement Association (OSCIA) says farmers can access cost-shared support for nutrient management projects under the Environment and Climate Change Adaptation focus area of *Growing Forward 2*.

Vertical beaters and slurry guards for manure spreaders are examples of items eligible for support through the Land Application of Manure project category.

So are expenditures for rate monitors, sensors and flow meters for liquid manure equipment; scales to weigh solid manure spreading equipment going to field; spreader tank agitators to keep solids in suspension; remote shut-off devices for direct flow manure application systems; and surface inlet control valves, sentinel tiles, tile outlet markers, and monitoring equipment to detect and prevent manure from moving into tile drains.

To be eligible, farms must be located in the Lake Erie, Lake St Clair, Lake Huron or Lake Simcoe Watersheds or a designated source protection area such as a Well Head Protection Area A or B, Intake Protection Zone 1 or 2 or a Remedial Action Plan area.

As well, farmers must have completed a third or fourth edition Environmental Farm Plan workshop and Action Plan Review within the last five years. A project has to be identified as an action in that plan to move a "1" or "2" rating to a "3" or "4" (best) rating in order to be considered eligible for cost share, adds Caswell.

Growing Forward 2 is a federal-provincial-territorial initiative aimed at encouraging innovation, competitiveness, market development, adaptability, and industry capacity in Canada's agri-food and agri-products sector.

The Ontario Soil and Crop Improvement Association administers *Growing Forward 2* educational workshops and funding assistance to farmers.

More information about *Growing Forward 2* funding opportunities for farmers is available at:
www.ontariosoilcrop.org/oscia-programs/growing-forward-2/
or by contacting the OSCIA's regional program leads at:
www.ontariosoilcrop.org/association/contact-us/oscia-field-staff/
or by emailing: GF@@ontariosoilcrop.org

Lilian Schaer, Freelance writer for OSCIA



CROP TALK

Volume 16, Issue 1 OMAFRA Field Crop Specialists — Your Crop Info Source March, 2016

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Remaining articles can be found at: http://www.omafra.gov.on.ca/english/crops/field/news/news_croptalk.html

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Integrated Pest Management (IPM) Course for Corn and Soybeans

Offered online or in a classroom free of charge until August 31, 2016

Starting on August 31, 2016, successful completion of the Integrated Pest Management (IPM) Course for Corn and Soybeans will be required in order to purchase and plant neonicotinoid-treated corn and soybean seed. Following successful completion of the course, farmers will receive a certificate number. Farmers will need to provide proof that they have successfully completed this training by submitting their certificate number to a sales representative, vendor or custom seed treater.

Farmers are able to take IPM training in a classroom at various locations or online through the University of Guelph, Ridgetown Campus.

The **online course** requires four hours of commitment over two days. High speed internet, competence with a computer and being a self-directed learner are requirements for success.

The half-day **classroom course** is offered in a traditional classroom setting with an instructor. The classroom course is offered in various locations across Ontario. Instructors will present course material following the manual using PowerPoint, videos, handouts and will answer your questions to aid in your understanding of the topics.

IPM training is designed to be flexible, accessible and convenient and will be delivered **free of charge until August 31, 2016**.

Register today for the online course or find a course near you at: www.ipmcertified.ca

To learn more about the neonicotinoid-treated corn and soybean seed regulation, visit: www.ontario.ca/neonics

Neonic Regulation Requirements "To Do" List

Tracey Baute, Entomologist Field Crop Program Lead, OMAFRA

With the 2016 growing season approaching, it is a good time to review what the requirements are for using Class 12 pesticides (neonic treated corn and soybean seeds) in Ontario. Here is a "To Do" list for anyone wanting to purchase and plant neonic treated corn and soybean seed in Ontario.

Before seed delivery in spring of 2016:

For seed delivery for this spring's crop, all paperwork needs to be in to your seed vendor(s)/rep(s), including:

A. **Seed Declaration Form** if you are not planting more than 50% of your corn and soybean acres with neonic treated seed
B. **Inspection of Soil – Pest Assessment Report** if you are planting more than 50% of your corn and soybean acres with neonic treated seed

During the 2016 growing season and preparing for 2017 growing season:

1. Complete the mandatory **IPM Course for Corn and Soybeans** before this fall, prior to ordering **ANY** neonic treated corn or soybean seed for 2017. The course is free if taken by August 31, 2016. More info at www.ipmcertified.ca
2. Complete and submit your **IPM Written Declaration Form** to your seed vendor(s)/rep(s) that states IPM principles have been considered, and
3. Complete and submit the **Inspection of Soil – Pest Assessment Report(s)** for every 100 acre (or smaller) field/plot in which you intend to plant neonic treated corn or soybean seed in 2017. Neonic treated corn or soybean seed can only be planted in the application areas on the farm property(ies) identified in the pest assessment reports. Information on how to conduct a Pest Assessment can be found in the Pest Assessment Guide at https://www.ontario.ca/document/pest-assessment-guide .
4. If you experience any stand loss this spring in untreated (non-neonic) areas of the field, get an **Inspection of Crop-Pest Assessment Report** completed by a Professional Pest Advisor.

You can find links to the above mentioned PDF forms by visiting www.ontario.ca/neonics and clicking on the section titled "Information for growers".

Do We Have Palmer Amarath in Ontario and How Do I Tell It Apart From Other Pigweeds?

Mike Cowbrough, Weed Management Field Crops Program Lead, OMAFRA

Thankfully we do not have palmer amaranth, a pigweed species that in the United States is resistant to 5 different herbicide modes of action (Table 1). However, we do have waterhemp, another pigweed species that is often confused with palmer amaranth and is resistant to three herbicide modes of action (Table 2). Waterhemp has only been found in Essex, Lambton and Bruce counties. It should be pointed out that when the species was identified in Bruce county, the landowner aggressively removed all plants before they set seed. Subsequently this species has not been seen in the area since it was first discovered in 2002.

So how would you know if you have either waterhemp or palmer amaranth instead of the more common redroot and green pigweeds? Let's break it down.

Step 1: Does the stem have hair? If yes you can rule out either waterhemp or palmer amaranth. Redroot pigweed has a very hairy stem (Figure 1). Green pigweed's stem is comparatively less hairy but a cluster of fine hairs exists near the top of the plant (Figure 2). Both waterhemp and palmer amaranth have hairless stems (Figure 3).

Step 2: If the plant's stem is hairless, is the leaf's stem (called a petiole) longer than the leaf? If the answer is yes, it's most likely palmer amaranth (Figure 4).

Step 3: Send it to a taxonomist to confirm. If you really think you have palmer amaranth, that would be a very significant find and it's a species that we would not want to spread very easily. You can contact me and I will coordinate having the plant identified by a taxonomist.

Table 1. Herbicide and Herbicide groups that populations of palmer amaranth are resistant to in the United States (source: weedscience.org)

Herbicide	Herbicide Group
Pursuit, Classic, Pinnacle	2
Treflan, Rival, Prowl H2O	3
atrazine, Sencor	5
glyphosate	9
Reflex, Valtera, Authority	14

Table 2. Herbicide and Herbicide groups that populations of waterhemp are resistant to in Ontario

Herbicide	Herbicide Group
Pursuit, Classic, Pinnacle	2
atrazine, Sencor	5
glyphosate	9

Figure 1. The hairy stem of redroot pigweed

Figure 2. The sparsely short-haired green pigweed stem

Figure 3. The hairless stem of waterhemp

Figure 4. The long petiole (leaf stalk) of palmer amaranth which is much longer than other pigweed species found in Ontario

The Advantages of Seeding Early

Meghan Moran, Canola and Edible Bean Specialist, OMAFRA

There are some clear advantages to seeding canola early, including high yield and mitigating pest issues. This spring ensure that your planting equipment is ready to go early in the season and get your canola crop off to a quick start.

Ideal planting dates in Ontario are typically in late April and early May. Germination can occur at soil temperatures as low as 1 or 2° C, but emergence will be more rapid at higher temperatures. Data posted by Canola Council of Canada suggests that if temperatures stay at 3°C it may take up to 14 days before full germination is achieved. At 6° C it will take only 8 days. However, beginning seeding at 3 or 4° C soil temperature is a reasonable target if soil conditions are fit for planting and temperatures are expected to rise. Even though soil conditions may be cool, early seeding will typically result in higher yields as long as adequate plant stands are established.

Soil conditions are, of course, of primary importance. Good soil moisture in the seed zone and adequate seed-to-soil contact are important for emergence. Residue should be evenly distributed and a firm seed bed will improve seed placement. With late seeding there may not be adequate moisture to seed at the recommended 1/2" to 1" depth, and deeper seeding will reduce emergence rates.

Spring frost can be an issue because the growing point is above ground and exposed between the cotyledons (seed leaves). However, a light frost may be tolerated, particularly if canola has reached the 3-4 leaf stage. If plants have "hardened" over several days of cold weather, they may be more tolerant of frost than rapidly growing plants. On the other hand, seeding late in May can lead to flowering during hot weather in late June and July and this temperature stress can have a huge impact on yield.

Good stand establishment and rapid, early growth is ideal for mitigating issues caused by insect pests. Flea beetle emergence from overwintering sites will peak at soil temperatures of 15° C, and it may take up to 3 weeks for all adults to emerge. Insecticide seed treatments control flea beetle for about 3 to 4 weeks, but slow early growth can mean that protection is lost before canola has passed out of the susceptible growth stage. At the 3-4 leaf stage, canola should be better able to outgrow the feeding damage.

Rapid, early growth is also ideal where swede midge is a concern. Swede midge adults emerge from the soil in mid-May to early June and larvae feed on the growing point at the center of the plant. A crop that bolts early may escape significant damage, and risk of damage is not a concern after flowering is initiated on secondary branches. Canola planted in late May or early June in areas with a history of swede midge faces high risk of damage.

Consider what the ideal seeding rate is for the given conditions. In an average year somewhere between 40 and 60% of the planted seeds will emerge. The ideal plant population is 7-13 plants/ft^2 or 4.5-6 plants per foot of row on 7.5" rows. There are benefits to having a dense stand, including increased light capture, mitigating losses to insect pests, and less branching leading to earlier and more even maturity. Your seeding rate should factor in the seed size, compensate for low emergence rates, and provide a final stand well within the ideal population for the best final yield results. Note that at a seed size of 4.75 g and seeding rate of 5 lb/ac, a typical 60% emergence rate will result in around just 4 plants per foot of row. For very early or very late plantings the seeding rate could be bumped up by 5 to 10%.

A uniform stand will likely yield more than a non-uniform stand, even at the same plant population. In uneven stands the plants will compete for soil and light resources, and will branch more in thin areas causing delayed and uneven maturity. After the crop emerges, determine the plant population and percent emergence, and note the uniformity of the crop. If there is a regular pattern across the field, uniformity may be affected by issues with your planting equipment. Take notes so you can make further improvements next year.

Assessing for Winter Wheat Survival

Joanna Follings, Cereals Specialist, OMAFRA

This year's winter wheat crop was off to a great start thanks to excellent weather conditions this past fall which gave many growers the opportunity to get the crop in early. Many fields had excellent stands that were well tillered going into winter; however, February brought some unusually warm days making fields vulnerable to winter kill.

The winter wheat crop should be assessed in late April to early May with the replant decision being made as late as possible. When evaluating wheat stands you need to count the number of plants per foot of row. Table 1 shows the yield potential for various plant stand counts.

Figures 1 and 2. A well-established, healthy winter wheat stand on the left and a field with winter kill on the right.

Table 1. Determining Yield Potential for Various Plant Stand Counts

Number of Plants		% Yield Potential	Planting Date	
			Yield t/ha (bu/acre)	
Per metre of row	Per foot of row		Oct. 5	Oct. 15
66	20[1]	100	5.34 (80)	4.84 (72)
33	10	95	5.11 (76)	4.57 (68)
23	7	90[2]	4.84 (72)	4.37 (65)
20	6	85	4.57 (68)	4.10 (61)
16	5	80	4.30 (64)	3.90 (58)

Source: Smid, Ridgetown College, University of Guelph, 1986-90.
[1]Full stand.
[2]23 plants/m (7 plants/ft) of row, healthy and evenly distributed plants.

It is also important to assess the health of the plants themselves to determine whether plants are actually going to survive or not. Are the plants well anchored into the ground or is the seed lying on the soil surface with the plant holding on by a single root (Figure 3)? If plants are not well anchored do not include them in your stand counts as they are less likely to survive.

When making assessments do not focus only on bad spots in the field. Do a number of stand counts and plant health assessments throughout the entire field to get a broader perspective of what is happening. If 5% of the field is in poor condition and the remainder of the field is in good condition, do not take the wheat out. Also, be sure to consider the planting date. If the wheat was planted early, it has more yield potential.

Figure 3. A winter wheat plant not well anchored into the soil



BULLETIN GRANDES CULTURES

16ième vol. 1ière édition | MAAARO - des spécialistes en grandes cultures | mars 2016

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Le reste des articles peut être trouvé en suivant ce lien http://www.omafra.gov.on.ca/french/crops/field/news/news_croptalk.html

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Les avantages des semis hâtifs

Meghan Moran, spécialiste de la culture des haricots comestibles et du canola, MAAARO

Les semis hâtifs de canola présentent des avantages évidents, car ils sont associés à des rendements élevés et à l'atténuation des problèmes reliés aux ravageurs. Ce printemps, assurez-vous que vos semoirs sont prêts à être utilisés pour être en mesure de semer tôt et permettre à votre culture de canola de démarrer rapidement.

Les dates de semis optimales en Ontario vont de la fin avril au début mai. La germination peut se produire à des températures du sol aussi basses que 1 ou 2 °C, mais la levée sera plus rapide à des températures plus élevées. Des données publiées par le Conseil canadien du canola laissent croire que si les températures se maintiennent à 3 °C, cela peut prendre jusqu'à 14 jours avant que la germination se fasse. À 6 °C, le processus s'effectue en seulement 8 jours. Toutefois, il est raisonnable de commencer les semis à une température du sol de 3 ou 4 °C si l'état du sol le permet et qu'on s'attend à ce que les températures augmentent. Même si le sol est frais, les semis hâtifs donnent habituellement des rendements plus élevés du moment que les densités de peuplement sont adéquates.

L'état du sol est, bien sûr, de toute première importance. La levée demande une bonne humidité dans la zone des semis et un contact sol/semence adéquat. Les résidus de culture doivent être étalés uniformément et le lit de semence doit être préférablement ferme pour faciliter la mise en place des semences. Quand les semis sont faits plus tard, l'humidité risque de ne pas être adéquate à la profondeur de semis recommandée (1/2 à 1 po), et des semis plus profonds vont réduire les taux de levée.

Le gel printanier peut causer certains problèmes, car le point de croissance est alors au-dessus du sol et il est exposé entre les cotylédons (premières feuilles). Un léger gel peut cependant être toléré, surtout si le plant de canola a atteint le stade 3 a 4 feuilles. Si les plants se sont endurcis pendant plusieurs jours de temps froid, ils peuvent alors être plus tolérants au gel que les plants qui ont poussé rapidement. Par contre, des semis à la fin mai peuvent déclencher la floraison durant les jours chauds à la fin juin et en juillet, et ce stress

thermique peut avoir de lourdes conséquences sur les rendements.

Un bon établissement ainsi qu'une croissance rapide et hâtive représentent des conditions idéales pour atténuer les problèmes causés par les insectes nuisibles. Les éclosions d'altises dans les sites d'hivernage sont à leur maximum quand les températures du sol atteignent 15 °C, et cela peut prendre jusqu'à trois semaines pour que tous les adultes apparaissent. Les traitements insecticides permettent de lutter contre les altises durant environ trois à quatre semaines, mais un début de croissance lent peut signifier que la protection devient inefficace avant que le canola sorte du stade de croissance vulnérable. Au stade 3 à 4 feuilles, le canola est mieux en mesure de survivre aux dommages causés par l'alimentation des insectes.

Une croissance hâtive et rapide est également idéale dans les situations où la cécidomyie du chou-fleur est préoccupante. Les adultes de la cécidomyie du chou-fleur sortent du sol de la mi-mai au début de juin et les larves s'alimentent au point de croissance dans le centre du plant. Une culture qui monte à graines rapidement peut échapper à d'importants dommages et les risques sont peu importants après que la floraison ait commencé sur les ramifications secondaires. Le canola semé à la fin mai ou au début juin dans les zones avec antécédents de cécidomyie du chou-fleur est à haut risque de subir des dommages.

On doit évaluer le taux de semis qui convient le mieux aux conditions en place. Au cours d'une année moyenne, entre 40 et 60 % des semences mises en terre vont lever.

La densité de peuplement idéale est de 7 à 13 plants/pi^2 ou 4,5 à 6 plants par pied de rang sur des rangs de 7,5 pi. Une forte densité de peuplement comporte des avantages, dont une plus grande quantité de lumière, une réduction des pertes attribuables aux insectes nuisibles et moins de ramifications, ce qui permet une maturité plus rapide et plus uniforme. Le taux de semis doit tenir compte de la taille des semences, compenser les faibles taux de levée et permettre d'obtenir un peuplement offrant les meilleures possibilités de rendement. Pour une semence de 4,75 g et un taux de semis de 5 lb/ac, on obtiendra un taux de levée habituel de 60 % qui ne donnera qu'environ 4 plants par pied de rang. Dans le cas des semis très hâtifs ou très tardifs, on peut augmenter le taux de semis de 5 à 10 %.

Une parcelle uniforme donnera probablement un rendement plus élevé qu'une parcelle qui ne l'est pas, même si la densité de peuplement est la même. Dans les peuplements peu uniformes, les plants vont se concurrencer pour les éléments nutritifs du sol et la lumière, et le degré de ramification sera plus élevé dans les zones clairsemées, ce qui retarde la maturité ou produira une maturité inégale. Après la levée de la culture, il est bon d'évaluer la densité de peuplement et le taux de levée et de prendre note de l'uniformité de la parcelle. Si les variations apparaissent de manière régulière dans le champ, il se peut que le semoir soit en cause. Notez vos observations afin d'améliorer la situation l'an prochain.

Évaluation de la survie du blé d'automne

Joanna Follings, spécialiste de la culture des céréales, MAAARO

Cette année, la culture de blé d'automne a bien démarré en raison de conditions climatiques excellentes l'automne dernier, ce qui a permis à de nombreux producteurs de semer tôt. Les peuplements étaient excellents dans bon nombre de champs où le blé était bien tallé pour affronter l'hiver; toutefois, en février, des journées exceptionnellement chaudes ont rendu certains champs vulnérables à la destruction par l'hiver.

La récolte de blé d'automne doit être évaluée à la fin avril jusqu'au début mai et la décision de resemer doit être prise le plus tard possible. Au moment d'évaluer les peuplements de blé, on doit compter le nombre de plants par pied de rang. Le tableau 1 montre le potentiel de rendement pour différentes densités de peuplement.

Il est également important d'évaluer la santé des plants comme tels afin d'établir s'ils vont survivre ou non. Les plants sont-ils bien ancrés dans le sol, ou la semence est à la surface du sol et le plant ne tient que par une seule racine (figure 3)? Si les plants ne sont pas bien ancrés dans le sol, on ne doit pas les compter dans le dénombrement, car ils risquent probablement de ne pas survivre.

Lorsqu'on évalue le taux de survie, on ne doit pas uniquement prendre en compte les zones en difficulté. Dénombrer les plants et évaluer leur état de santé à travers tout le champ pour obtenir un point de vue plus complet de la situation. Si 5 % du champ est dans un mauvais état et que le reste est en bonne condition, ne pas retirer le blé. S'assurer aussi de tenir compte de la date des semis. Si le blé a été semé tôt, le potentiel de rendement est plus élevé.

Figure 1. Parcelle saine et bien établie de blé d'automne

Figure 2. Parcelle de blé d'automne ayant subi des dommages hivernaux

Figure 3. Plant de blé d'automne mal ancré dans le sol.

Tableau 1. Évaluation du potentiel de rendement pour différentes densités de peuplement.

Nombre de plants		% de potentiel de rendement	Date de semis	
			Rendement t/ha (boiss./acre)	
Par mètre de rang	Par pied de rang		5 octobre	15 octobre
66	20[1]	100	5,34 (80)	4,84 (72)
33	10	95	5,11 (76)	4,57 (68)
23	7	90[2]	4,84 (72)	4,37 (65)
20	6	85	4,57 (68)	4,10 (61)
16	5	80	4,30 (64)	3,90 (58)

Source : Smid, Collège de Ridgetown, Université de Guelph, 1986-90.
[1]Peuplement entier.
[2]23 plants/m (7 plants/pi) de rang; plants sains et répartis uniformément.

Effet du soufre sur les fourrages

Ben Rosser et Ian McDonald, MAAARO

La nécessité des apports de soufre (S) aux cultures fourragères apparaît de plus en plus évidente. Selon Environnement Canada, les efforts concertés pour réduire les pluies acides depuis les 30 dernières années ont mené à une réduction globale des dépôts de soufre atmosphérique de 22 à 27 lb/ac/an en 1990 à 9 lb/ac/an en 2010. À la lueur de la diminution de soufre atmosphérique à l'état libre, des recherches réalisées récemment en Ontario sur du maïs ont montré que les effets du S sur la culture étaient variables et non uniformes. Des études similaires sur la luzerne ont aussi montré des effets très variés des apports de S sur les rendements.

Le soufre est un élément nutritif indispensable aux plantes pour former deux des 21 acides aminés et assurer la synthèse des enzymes et des vitamines utilisées pour la formation de chlorophylle. Dans les cultures de légumineuses, il a été démontré que le soufre joue un rôle important dans la fixation de l'azote.

Étude de cas sur la luzerne

En juin 2014, on a appliqué sur trois bandes, dans une parcelle de luzerne de cinq ans au site de FarmSmart Expo à la station de recherche d'Elora, le même traitement de 200 lb/ac de sulfate de potassium (~36 lb de S/ac) pour le comparer à des parcelles non fertilisées. Aucun autre engrais n'avait été appliqué à cette parcelle depuis son ensemencement. Bien que le rendement n'ait pas été mesuré en 2014, l'effet de l'apport d'engrais a été marqué, puisque les bandes fertilisées étaient plus hautes, plus touffues et d'un vert beaucoup plus foncé que les zones du champ n'ayant pas reçu de soufre. Ces bandes fertilisées étaient encore visibles au printemps de 2015 (figure 1) et contenaient davantage de luzerne comparativement aux bandes non fertilisées, d'un vert plus pâle, qui étaient surtout constituées de graminées. Les rendements ont été mesurés à la deuxième coupe (20 juillet). Le rendement en matière sèche et le pourcentage de matière sèche provenant de graminées et de luzerne ont été mesurés et consignés à la figure 2.

L'apport de sulfate de potassium a eu un effet important sur le rendement, les rendements en matière sèche ayant plus que doublé au site d'Elora. L'effet sur le rendement était surtout marqué dans la luzerne; dans les bandes témoins (sans apport d'engrais), la luzerne représentait en effet 68 % de la matière sèche contre 100 % dans les bandes traitées au sulfate de potassium.

À des fins d'évaluation de l'effet du S sur les rendements, des échantillons de sol ont été prélevés à 6 po de profondeur en mai 2015, et des échantillons foliaires ont été prélevés à la fin du stade de bourgeonnement de la repousse après la deuxième coupe (tableau 1).

Figure 1. Effet de l'application de sulfate de potassium effectuée en 2014 sur le rendement de la luzerne en 2015, station de recherche d'Elora, Université de Guelph, 25 mai 2015.

Tableau 1. Teneurs moyennes de sulfate de potassium dans le sol et teneurs en S dans les tissus de luzerne dans des parcelles fertilisées et non fertilisées à la station d'Elora.

Traitement	Sulfate dans le sol (ppm)	S dans les tissus (%)
Témoin (sans engrais)	0,51	0,20
0-0-50-18S @ 200 lb/ac	0,10	0,28

Tableau 2. Résultats des analyses de tissus dans les parcelles fertilisées et non fertilisées.

Élément	Sans apport d' engrais	0-0-50-18,5S 200 lb/ac	Signification statistique
S	0,21	0,28	*
N	3,81	4,45	*
Ca	2,52	2,46	ns
P	0,46	0,42	ns
K	2,49	2,01	*
Mg	0,48	0,51	ns
Zn	56,13	48,76	ns
Mn	28,48	27,87	ns
Cu	12,21	14,4	ns
Fe	75,52	82,78	ns
B	58,72	46,15	ns

***** La valeur dans les parcelles fertilisées était significativement plus élevée que celle dans les parcelles non fertilisées.
«ns» : la valeur n'était pas significativement différente entre les parcelles fertilisées et les parcelles non fertilisées.

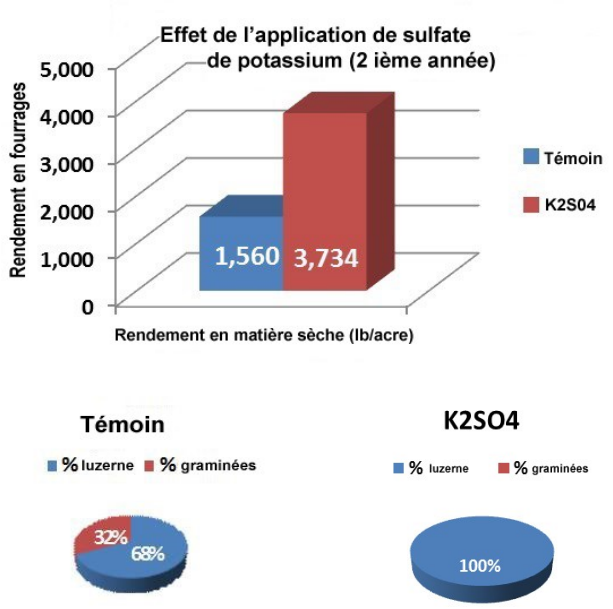

Figure 2. Rendement fourrager (2ième coupe) après fertilisation l'année précédente à raison de 200 lb/ac de sulfate de potassium.

L'analyse pour la teneur du sol en sulfate, effectuée en mai, n'a pas semblé être une bonne variable descriptive de l'effet du S à cet endroit, étant donné que les parcelles non fertilisées présentaient des teneurs en soufre plus élevées que les parcelles fertilisées. D'importantes différences entre les teneurs en S dans les tissus ont été observées entre les bandes fertilisées et les bandes non fertilisées. Par ailleurs, les teneurs en S des échantillons non fertilisés étaient légèrement inférieures aux concentrations critiques de 0,22 % (Guide agronomique des grandes cultures, MAAARO) et celles des bandes fertilisées étaient nettement supérieures.

Autres recherches

Une recherche distincte menée par John Lauzon à la station de recherche d'Elora a aussi montré que le S avait un effet important sur les rendements ainsi qu'un effet résiduel l'année suivante. En 2014, du soufre a été appliqué sur des parcelles à raison de 5 à 50 lb de S/ac, et ces apports ont eu des effets importants sur les rendements. En 2015, on a de nouveau observé des rendements plus élevés dans la luzerne dans les parcelles où du soufre avait été appliqué en 2014. Il est intéressant de noter que les rendements dans ces parcelles résiduelles ont encore augmenté lorsqu'on a effectué un apport additionnel de 36 lb de S/ac à la moitié de chaque parcelle en 2015. Cela laisse croire que dans les champs où l'effet du S est très marqué, il peut être nécessaire de faire des applications annuelles pour maximiser les rendements.

Durant l'année d'application, la forme de l'engrais a aussi semblé importante. À quantités égales, les apports d'engrais sulfatés assimilables ont eu un effet beaucoup plus important sur les rendements que le soufre élémentaire qui doit d'abord être transformé en sulfate par les microorganismes du sol.

L'effet du S sur les rendements dans les sites de la station de recherche d'Elora a été évident et a été observé ailleurs également. Des recherches à la ferme, menées par le MAAARO, ont montré que des apports de soufre dans des champs de luzerne avaient eu des effets significatifs sur les rendements dans certains cas à d'autres endroits.

Gestion du soufre

En raison de la nature transitoire du soufre dans le sol, aucune analyse de sol n'a été adaptée pour le soufre dans les grandes cultures en Ontario.

Comme l'azote, le sulfate assimilable est également libéré par la minéralisation de la matière organique du sol et est vulnérable au lessivage. Les conditions qui favorisent les effets du soufre sur le rendement peuvent se retrouver dans les champs qui se drainent rapidement (ex. : sols sableux) et ceux qui sont pauvres en matière organique ou qui ne reçoivent pas d'amendements contenant du soufre (le fumier).

Récapitulation

- Le soufre atmosphérique à l'état libre a grandement diminué en Ontario au cours des dernières décennies.
- L'effet du S sur les rendements a été observé dans les fourrages, alors que ce n'était pas le cas auparavant.
- L'effet sur le rendement s'observe habituellement dans la luzerne (proportion plus élevée ou rendement supérieur de luzerne).
- Les engrais sous forme de sulfate sont le plus efficaces sur les rendements durant l'année d'application.
- Des applications annuelles semblent nécessaires pour maximiser les rendements.

Si vous êtes un producteur de cultures fourragères, essayez de fertiliser certaines bandes dans vos champs, surtout si les ressources en soufre risquent d'y être réduites ou si les risques de pertes de soufre sont élevés, tel que décrit plus haut.

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

North Eastern Ontario Soil and Crop Improvement Association

Serving the Northern Agricultural Community since 1966

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Effective for the June issue of Breaking Ground, only paid OSCIA members will receive paper copies. Breaking Ground will still be available to everyone via email or on www.farmnorth.com. If you would like to continue to receive your mailed copy, contact your district rep (adjacent) to renew your 2016 membership if you haven't already done so.

Wildlife Damage to Crops

At the various farm meetings across the North I have attended over the last few months the issue of wildlife damage to crops has been a regular topic of discussion. Resolutions were passed at both Northern Caucus and OFA convention to pursue the issue with government. While past estimates from various sources indicate the damage is significant province wide, the situation in the North is evolving and we need some indication now as to what the real situation is.

We need to hear from individual farmers as to the challenges you are facing. To this end we have created a wildlife damage survey on www.farmnorth.com. You can complete it online, or send by email or regular mail to NOFIA or myself. If you are able to provide pictures so much the better.

If we are able to obtain a wildlife damage profile this season for each district we will be in a much better position to develop and present proposals to government.

Please spread the message through your local groups and if you have any questions don't hesitate to contact me.

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Completed surveys can be sent to:

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