



Heartland

Winter 2016

Soil & Crop News



Why plant cover crops?

+ OMAFRA Crop Talk | OSCIA News | FarmSmart

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PERTH COUNTY SOIL & CROP IMPROVEMENT ASSOCIATION

ANNUAL BANQUET & MEETING

THURSDAY JANUARY 19TH 2017

**PERTH EAST RECREATION
CENTRE, MILVERTON**



**SOCIAL ~ 5:00 P.M.
PROGRAM/DINNER 5:30 P.M.**

**Guest Speaker:
SHAUN HANEY**

**Founder & Owner of Real Agriculture, Co-host of Real Ag Radio, and a Lifelong Seedsman.
Serving Farmers across the Country covering latest Agriculture, Agronomics & Current events.**

[Shaun Haney \(@shaunhaney\) | Twitter](#)

[Shaun Haney - YouTube](#)

<https://www.youtube.com/user/shaney20>

TICKETS \$25

Contact Thelma @ 519-271-5190
OR email - eandtsmith@golden.net



In This Issue

AGM

Annual General Meeting

What did you miss at the county AGMs? See page 6.



Why plant cover crops? GRCA can tell you. See page 7.



Farmsmart brochure. See page. 13.

- 2 **Perth County AGM**
- 4 **From the editor**
- 5 **OSCIA director's report**
- 5 **Upcoming events**
- 6 **County updates**
- 7 **Why plant cover crops?**
- 8 **OSCIA soil sample discount program**
- 9 **OSCIA News**
- 13 **FarmSmart program**
- 17 **CropTalk**
- 27 **Growing Forward 2**

Workshops

cover photo by Matt Underwood



As I write this, snow is on the ground and all around me I see Christmas — lights, trees, gifts, nativities and happy smiling children. Thinking back only a few short months ago to my interview for the RCC position—where I wore capris and sandals—it's a stark reminder of the changing seasons and how blessed we are in Canada to experience them distinctly (I know we don't feel so blessed in the middle of January, but right now it's all fresh and new!)

For farmers, the winter months are a time to reflect on a growing season past and to plan for planting their new year crops. It's a time to catch up on reading, do some internet research, and attend farm meetings and conferences to learn from peers, colleagues and experts. There are no shortage of opportunities to do so in the coming months, through OSCIA and the myriad of other farm organizations. I hope to see many of you at the annual FarmSmart Conference, Perth OSCIA's AGM or the OSCIA Annual conference. You can find out more about each of these events in this edition.

The first few months of my time with Heartland Region have been rewarding and fun, and I'm gradually working my way up the learning curve. Thank you to everyone who has been kind and generous in helping me find my way, and patient with me as I figure out the nuances of the position.

For those of you who use email, you will regularly find an e-newsletter from Heartland Region land in your inbox. These emails will come in the months where there is no hard copy newsletter, and will contain current and up-to-the-minute information. If you don't receive one and would like to, make sure your email address is current with your secretary.

As we move forward, I'd like to remind you that this newsletter is about and for you—the OSCIA member in Heartland Region. Be sure to share with me your stories, successes and information that you'd like to share with your fellow members. Together we can make great things happen.

Happy holidays,

Mary

Heartland.scia@gmail.com 519-669-5608



Proudly serving the members of Huron, Perth, Waterloo and Wellington County Soil and Crop Improvement Associations

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www.heartlandsoilcrop.org

For more information on membership or anything at all, please contact John Poel at 519 860 7639 or at president@heartlandsoilcrop.org. Comments, ideas and sponsorship welcome!

Please return undeliverable mail to:

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Stuart Wright | *Heartland's Provincial Director*



There is exciting news from OSCIA this month as a brand new position has been created and filled with the announcement that Brittany Roka will be the Association Development Advisor. I believe there is a story that will introduce you to Brittany in this newsletter. I've had the pleasure of meeting her when she was RCC for Northeast Region and can say that she brings energy and enthusiasm that is going to be a huge advantage in this position that will develop over the next while. I have already reached out to Brittany and told her we are looking forward to having her visit Heartland.

The new Forage Master program is starting to take shape and everyone should be keeping their eyes

peeled for some more details as spring approaches. It will be a brand new program and hopefully will be more inclusive of a wider range of producers.

With Farmsmart coming up in Heartland we should also be aware of other events with a Soil and Crop flavour. South West Ag Conference in Ridgetown is always popular but an excellent Farm Show takes place in Lindsay in March that is worth the drive. Of course I want to remind everyone to attend the OSCIA AGM in February. The agenda looks top notch.

UPCOMING EVENTS

January 4-5: Southwest Ag Conference, Ridgetown

More information: www.southwestagconference.ca

January 19: Perth SCIA AGM

More information: see advertisement on next page

January 20: CompactionSmart Conference, Waterloo

More information: www.farmsmartconference.com

January 21: FarmSmart Conference and Beef Symposium, UofG

More information: www.farmsmartconference.com

January 31-February 1: Precision Agriculture Conference, London

More information: www.farms.com/precisionagriculture

February 7-8: OSCIA Annual Conference, London

County updates

Huron SCIA

Huron County SCIA held their AGM on Thursday, December 1 at the Stanley Community Centre in Varna. Following the brief business meeting, greetings from OSCIA provincial director Stuart Wright and an update from OSCIA regional program lead Lois Sinclair, members and guests enjoyed a delicious roast beef dinner.

The first guest speaker of the evening was Sharon Bailey from OMAFRA, who spoke about the Provincial Soil Strategy currently being developed. She stressed the importance of stakeholder feedback, and encouraged all in attendance to review the progress made to date. The official period for submitting feedback has passed, but additional input is still welcome. Visit <http://www.omafra.gov.on.ca/english/landuse/soilhealth.htm> for more information or to find out how to submit your comments.

The second speaker of the night was Matt Underwood, a Wingham-area native who is a graduate student at the University of Guelph. Matt spoke about his research in cover crops conducted at the Huron Research Station (read more in the article on the next page).

Special thanks to secretary Sharon Devine and the board of directors for organizing a great night out!

Wellington SCIA

Wellington SCIA members braved a cold and blustery day to attend the AGM on Friday, December 2 at the Alma Bible Church.

The day started out with a business meeting and greetings from OSCIA provincial director Stuart Wright, followed by a series of guest speakers including: an update from Jenn Deter of the Grand River Conservation Authority (see more about cover crops in the Grand River Watershed on the next page); Felix Weber who spoke about using drones as a management tool on the farm; Gabrielle Ferguson, program analyst with OMAFRA who spoke about the

impact of phosphorus on the Great Lakes and how farmers can play a role in the reduction of phosphorus loss; and John Lauzon, professor from the University of Guelph, who provided attendees with strategies to reduce phosphorus run-off.

Thank you to secretary Linda McFadden and the board of directors for an informative and educational event! Also, thank you to the many sponsors who made this day possible.

Waterloo SCIA

By Monday, December 5 snow was covering the ground, but a crowd of 80 members and guests gathered at the St. Jacobs Community Centre for Waterloo's AGM.

Following greetings from Stuart Wright and Lois Sinclair from OSCIA and a short business meeting, guests heard from a number of guest speakers who continued the trend of topics of the previous events, including: Merrin Macrae PhD from the University of Waterloo, who spoke about her research on cover crops to reduce soluble phosphorus run-off; an update from Darcy Weber on WSCIA's project; and Christine George, who spoke about the "unveiling the life beneath your feet" — going in-depth to learn more about the structure of soil.

Thanks to the hard work of secretary Lynn Strenske and the Waterloo SCIA board for organizing the event, and to the many sponsors who supported it.

Perth SCIA

Perth SCIA's AGM will be held Thursday, January 19 at the Recreation Centre. Special guest speaker is Shaun Haney, founder and owner of Real Agriculture.

For more information, see their flyer on page 2 or contact Thelma Smith, secretary 519-271-5190 OR email - eandtsmith@golden.net



Huron County 2017 board of directors



2017 Wellington SCIA board of directors



Waterloo SCIA 2017 board of directors

Why plant cover crops?

If there was an overall theme to 2016 speakers and topics covered at Heartland Region SCIA events, it would be cover crops. From summer meetings to the AGMs, the topic came up in presentations made by OMAFRA staff, Grand River Conservation Authority (GRCA), University of Guelph Researchers and in producer discussion panels.

If the question is, “why plant cover crops?”, the answer from local producers seems to be “why not?” The benefits to both the farm and soil and to the greater environment seem to far outweigh any of the disadvantages, as reported by the very farmers who use the practice on their farms.

GRCA research: In 2016, GRCA conducted a survey among 77 farmers in the Grand River Watershed who had participated in a cover crops incentive project through their Rural Water Quality program. Ann Loeffler and Jenn Deter presented an overview of the research at the Waterloo and Wellington AGMs.

The results of the survey showed that there had been a steady increase in adoption of cover crop practices in the area. 20% of the respondents had planted cover crops for the first time, while 50% had been doing so for the past 2-5 years. For one producer, planting cover crops had been part of his farming practices for over 40 years — in and of itself a testament to the long-term benefits of cover crops.

If adoption rates continue to increase, what are the reasons for farmers giving cover crops a go, and then continuing to plant them year over year?

Financial incentives. GRCA offers a one-time cover crops grant worth \$100/acre, for up to 30 acres, to producers. More than half the respondents indicated that the financial incentive convinced them to try planting cover crops.

Improves soil health

Increases soil organic matter

Improves soil moisture retention

Reduce compaction and erosion

Scavenge nutrients

Suppresses weeds

While survey respondents were generally positive about their experience planting cover crops, there were some disadvantages reported such as issues with red clover complicating wheat harvest, affecting spring planting dates, new weed challenges and the extra cost and time involved. However, overall the “pros” outweigh the “cons” and the benefits to the farmer, the soil and the water quality in the region were enough to convince them to keep going.

Source: GRCA

“Just try it” was the advice that many farmers would give someone looking to invest in cover crops.

Improve soil health
Increase organic matter
Hold nutrients
Weed suppression
Works up well
Improve soil structure
Nitrogen credit
Improve soil water retention
Erosion control

University of Guelph/Huron Research Station research: At the 2016 Huron SCIA AGM, Wingham native Matt Underwood, a graduate student at the University of Guelph, presented results from research that was conducted at the Huron Research

Station in the summer of 2016. In preparation for the presentation, he conducted a non-scientific poll on Twitter, which supports the argument that there continues to be interest and growth in the adoption of cover crops.



Ag friends! I'm talking @HuronSoilCrop AGM - want to get an idea of adoption of cover crops in #OntAg. Do you use cover crops on your farm?

54% Yes, on limited acres
32% Yes, on most/all acres
6% No, but I'd like to
8% No, they're a waste of \$

198 votes • Final results

RETWEETS
10

LIKES
9



But what about his academic research? At the Huron Research Station, there is a small staff of University of Guelph—Ridgetown researchers, technicians and summer students who conduct research trials on the 100 acre farm just north of Centralia. At this station, they are doing long-term rotational trials of cover crops to evaluate the effect on weed suppression, nutrient runoff, and cover crop termination.

The importance of the Huron Research Station trials, according to Underwood, is that the effectiveness of cover crops can vary across different regions in Ontario — and even from field to field and farm to farm in the same area. Having data that is local to Huron County will help determine the best practices for the area.

In the 2016 trials, the objectives were to determine the ideal application method and timing, as well as the most suitable species: drilling vs broadcast; planting among corn at V4 vs V8; and they used a variety of species including annual ryegrass, red clover, sunflower, oats and faba beans.

Despite the challenging condition in 2016 — rain is important in establishing cover crops — Underwood considered their efforts to be successful overall.

To help farmers make decisions about what to plant and where, Underwood shared an online tool:

<http://decision-tool.incovercrops.ca/>

This tool gives farmers access to information that will help them make decisions about the types of cover crops to plant to be most successful in their local area.



Oats at the Huron Research Station

OSCIA soil sample discount program extended for 2017

As a benefit of membership, take advantage of a 10% discount on soil sampling at the following laboratories. To obtain a coupon, contact your county secretary or your RCC.

Valid for current OSCIA members only until December 31, 2017

Discount applies to regular priced fees only, on applicable tests and services listed. Not available in conjunction with other discounts or programs, retailers/consultants may offer other discounts. Discount applicable to all samples received on a single submission. No cash value. This coupon must be submitted with samples and grower/field information.



10% off soil analysis (not including non-soil samples such as manure, feed, tissue etc)
Producer submitted samples only



2136 Jetstream Road
London ON N5V 3P5
1-855-837-8347
www.alcanada.com/

10% off complete soil analysis package, including basic plus micro-nutrient analyses (S1B + S7)
producer submitted samples only



10% off all soil analysis packages

1131 Erie Street, PO Box 760
Stratford ON N5A 6W1
1-800-323-9089
www.stratfordagri.ca/



8-146 Colonnade Rd
Ottawa ON K2E 7Y1
613-727-5692

www.exova.com/sectors/environmental/

10% off all surface, subsurface and plant tissue analysis packages



41 Bittern St
Ancaster ON L9G 4V5
905-648-9611
www.actlabsag.com
10% off all agricultural services

Outstanding Young Farmers Program (OYF)

Do you know an outstanding young farmer or couple who deserve recognition for a job well done? Nominations are now open for the title of Ontario's Outstanding Young Farmer.

The **Outstanding Young Farmers Program (OYF)** is a unique program designed to recognize farmers and farm couples who exemplify excellence in their profession. Any organization or any person can nominate a young farmer or couple for the regional recognition award as long as the nominee meets the following program eligibility requirements:

- Must be between the ages of 18 and 39
- Be farm operators
- Derive a minimum of two-thirds of their income from farming

Each region across the country holds an event where 5 or 6 nominees are judged on the following criteria:

- progress in agriculture career
- extent of soil, water and energy conservation practices
- crop and/or livestock production history
- management practices
- contribution to the well-being of the community, province and nation

Ontario Region OYF will be holding their next annual event September 2017 in London, in conjunction with Canada's Outdoor Farm Show. The regional winners will represent Ontario at the annual national event where they compete to be named Canada's Outstanding Young Farmers.

Nominations for the 2017 award are now being accepted by the Regional Coordinator, Dianna Forth email: diannaforth@sympatico.ca More information and nomination forms can be found on the website. <http://www.oymontario.ca/nominations.html>; Nominations close on January 15, 2017.

This is your invitation to recognize progress and excellence in Ontario Agriculture. Give committed young farmers the recognition they deserve. Nominate a talented, enthusiastic, young farmer today!



OSCIA PROVINCIAL NEWSLETTER

November 2016 Edition

Message from the President - Gord Green

Hi Everyone,



Well here we are in harvest mode reaping the benefits of our labours. This year will go down in memory for some unique challenges. The drought was foremost in everyone's minds but there have been other issues such as western bean cutworm and toxins in the corn. We have survived the first year of the neonic regulations plus numerous other challenges. On the flip side

there has been a rapid uptake in the use of cover crops resulting in many benefits to soil health.

Here at OSCIA we have been working diligently on a number of projects. Elsewhere in this newsletter you will see an announcement of an appointment to a new position – Association Development Advisor. This position was created to follow through on an action item from our Strategic Plan that was developed last year. It was recognized that help was needed at the local level for training and enhanced membership engagement. This is a two year position that we hope will empower the locals to be stronger and to help build membership. Please avail yourselves of the help this position will offer.

Another of our projects has been enhancing the Forage Masters Program. We are striving to make it an educational tool that incorporates forages for all sectors of livestock. We are well on the way to completing the changes. It will include a self assessment with a number of modules that cover all aspects of forage production with a lot of interesting commentary intertwined in the process. We are currently looking for sponsorship as well as volunteers to do a trial run. Anyone interested in doing a pilot can let their Provincial Director or the head office know. We plan on rolling this competition out in the spring of 2017.

Meeting season is just starting so make sure to attend your local annual meeting and find out what's new. I hope everyone gets their test plots done and harvest complete. Wishing a happy holiday season to all.

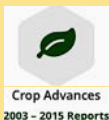
Yours in Agriculture,

Gord Green, OSCIA President

CROP ADVANCES

Applied Research on Soil & Crops - available on OSCIA website:

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



"The Butter Tart Challenge" - Results are in!

As part of OSCIA's Strategic Plan, one goal is to increase membership by 10% by the year 2020. To add a bit of fun to this, I challenged each local soil and crop board to work towards this goal with the promise of a batch of homemade butter tarts for the board of directors whose association showed the highest percentage increase in numbers starting early December 2015.

The numbers are in - and we have our winners! Within Thames Valley Region, Elgin SCIA showed the highest increase of the three counties. Provincially, Muskoka SCIA came out on top. Congratulations to both groups - I will get butter tarts to your director meetings sometime this winter!

While I am not planning a repeat challenge, I encourage every local association to get out there and try to recruit new members. If every director on every board finds just one new member, we would be very close to our goal.

Good luck with the rest of your fall harvest, and have a great winter!

Written by Cathy Dibble, Lead RCC

Member Benefit - Soil Analysis Discount

5 labs participating - visit OSCIA website for details:

<http://www.ontariosoilcrop.org/association/association-membership/>

A QUARTERLY NEWSLETTER, ISSUED
ALONGSIDE 11 REGIONAL NEWSLETTERS AND
OMAFRA CROP TALK, TO UPDATE
REGIONAL AND LOCAL ASSOCIATIONS
AND OMAFRA CONTACTS

In this Issue

- Message from the President
- Crop Advances & Members Soil Discount
- Increasing Membership through "The Butter Tart Challenge"
- Report on Neonic Study, University of Guelph
- OMAFRA initiative to update Ontario's soil maps
- Association Development Advisor Position

Ontario Soil and Crop Improvement Association

1 Stone Road West, Guelph ON N1G 4Y2

Phone: (519) 826-4214 or 1-800-265-9751

Fax: (519) 826-4224

Website: www.ontariosoilcrop.org

Assessment of the role of neonicotinoid seed treatment to manage early season corn and soybean pests in Ontario

A four year study is underway in Ontario, Canada to evaluate the utility of neonicotinoid insecticide seed treatments in corn and soybean production systems.

The objectives of this study are to:

- Determine the key early season insect pests in corn and soybeans and their distribution in Ontario.
- Develop early season insect pest risk assessments tools.
- Measure the economic impact of neonicotinoid seed treatments for early season pest control in these crops.

The extensive dataset generated by this study will provide context to the overall discussion of the value of neonicotinoid seed treatments in corn and soybeans in Ontario.

From 2014 to 2016, approximately 200 strip trials have been conducted on OSCIA cooperator's farms comparing corn or soybean seeds treated with:

- Fungicide-only
- Fungicide + neonicotinoid insecticide (Fig. 1)

Locations of on-farm trials in 2014 comparing corn hybrids planted with fungicide-only or neonicotinoid + fungicide seed treatments

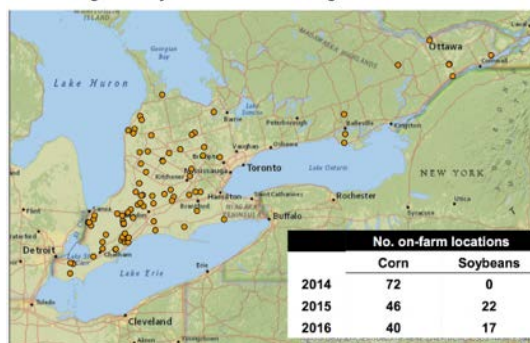


Figure 1. Distribution of on-farm strip trial locations in 2014 and summary of the number of sites in Ontario, 2014-2016.

In 2016, a number of corn trials also included a third treatment, fungicide + diamide insecticide. Each trial consisted of at least three replications of each treatment (Fig. 2). Cooperators sourced and planted their own seed. Once notified of planting, UGRC researchers installed wireworm bait traps in fungicide-only plots. For all plots, plant populations and vigour were measured on one or two field visits for soybeans and corn, respectively. Destructive sampling was completed within each plot one to two times to assess below-ground and foliar damage by insect pests. All insects found in bait traps or destructive sampling areas were collected and identified to species. Soil samples were collected from fungicide-only plots to measure soil texture composition, organic matter content, and neonicotinoid residue levels. Trials were harvested by the cooperators and yield data were reported to the researchers.

Preliminary results are presented below. The percentage of sites where early season pests were found in baits or destructive sampling is shown in Table 1. Of the sites where wireworms were detected, 3, 2, and 5 sites had an

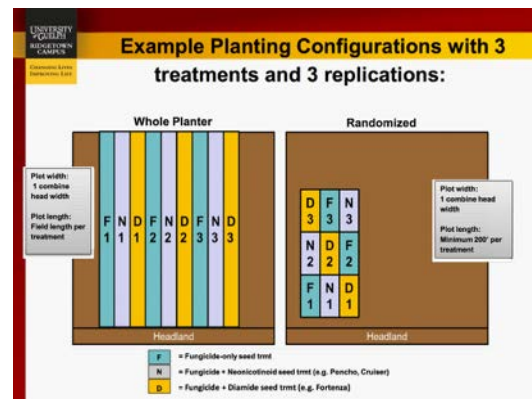


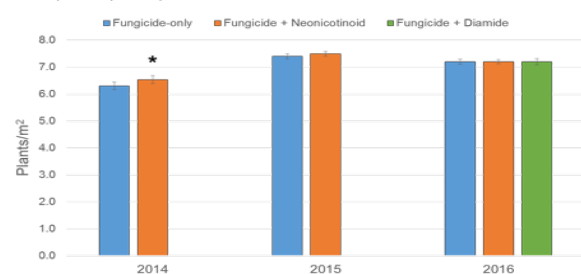
Figure 2. Example planting configuration of on-farm strip trials comparing seed treatment combinations for corn and soybeans.

Table 1. Early season pest presence within corn and soybean strip trials detected in wireworm bait traps and destructive sampling, Ontario 2014-16.

	Percentage of sites (# of sites)			
	No pests	Wireworms	White grubs	Wireworms & grubs
CORN				
2014	16.7% (12)	45.8% (33)	22.2% (16)	15.3% (11)
2015	30.4% (14)	58.7% (27)	37.0% (17)	26.1% (12)
2016	25.0% (10)	67.5% (27)	35.0% (14)	30.0% (12)
SOYBEANS				
2015	72.7% (16)	27.3% (6)	0.0% (0)	0.0% (0)
2016	70.6% (12)	17.6% (3)	11.8% (2)	0.0% (0)

average of >1 wireworm per bait trap in 2014, 2015, and 2016, respectively. In 2014, plant stands of corn treated with fungicide + neonicotinoid seed treatments were significantly higher than corn treated with fungicide alone. Plant stands did not significantly differ among treatments for either corn or soybeans in 2015 and 2016 (Table 2). The proportion of wireworm and white grub species found at all sites in 2014 and 2015 are described in Figure 3.

A) Corn (VE-V1)



B) Soybeans (VE-V2)

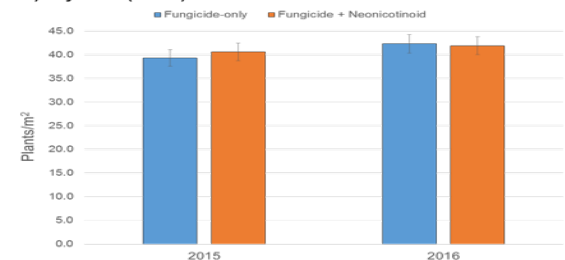


Table 2. Average plant stand of A) corn and B) soybeans at the VE-V2 stages treated with fungicide-only, fungicide + neonicotinoid, or fungicide + diamide seed treatments in on-farm strip trials in Ontario, 2014-16.

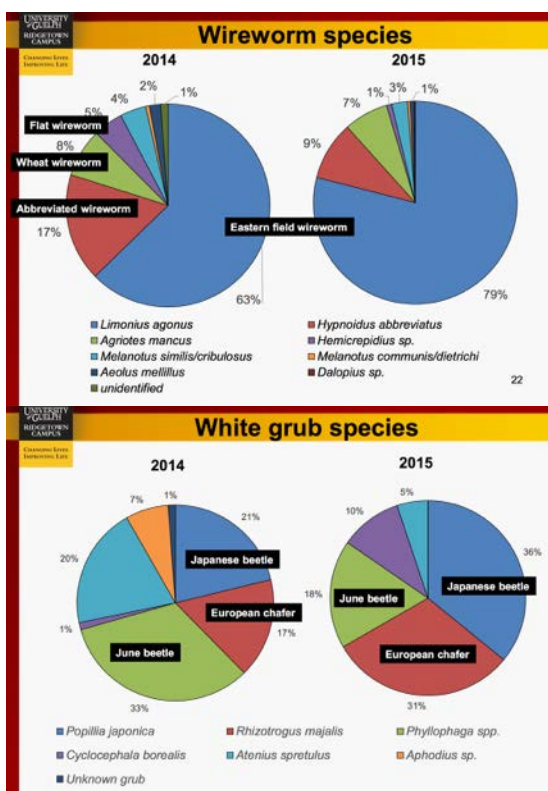


Figure 3. Wireworm and white grub species found in corn and soybean on-farm strip trials in Ontario, 2014-15.

Identification of insects collected in 2016 is currently underway. The mean difference in yield of corn and soybeans treated with fungicide-only or fungicide + neonicotinoid seed treatments in 2014 and 2015 is presented in Figures 4 and 5. Across all corn trial locations, the average yield advantage to the neonicotinoid seed treatment was 2.0 ± 3.9 and 3.4 ± 6.9 bu/ac in 2014 and 2015, respectively. For soybeans, the average yield advantage across all locations was 3.0 ± 1.6 bu/ac. In each year, approximately 50 per cent of corn or soybean trial locations achieved the average yield gain, or better.

Further analyses of these data sets will be conducted which will take into account the presence/absence of early season insect pests. Cooperators have also provided information for each trial location including crop rotation history, tillage practices, cover crop history, hybrid/variety details, planting dates, etc. which will be considered in the final analysis to evaluate risk factors for early season insect pests.

We are extremely grateful for the participation and cooperation of OSCIA members throughout this project and for funding provided by the Grain Farmers of Ontario through AAC as part of the *Growing Forward 2* program. We are currently awaiting the 2016 harvest data and planning for the final year of the study in 2017. If you are interested in participating in the study in 2017, please contact onneicstudy@gmail.com.

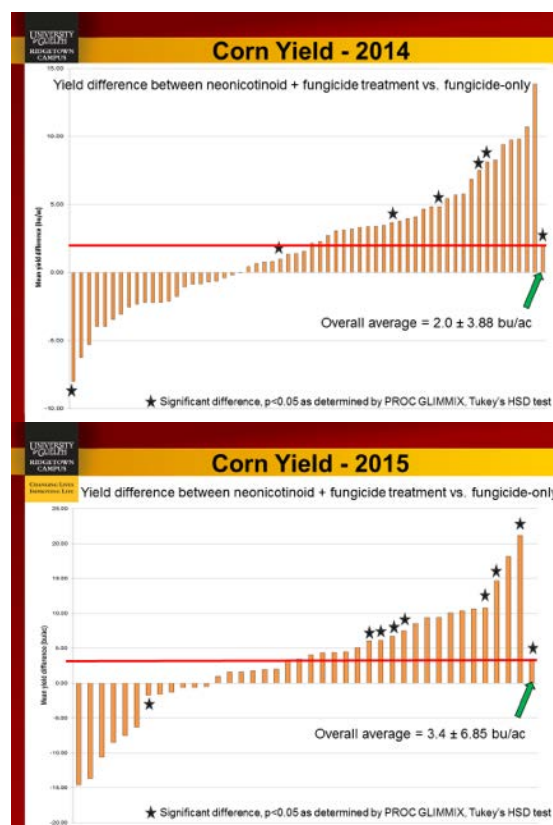


Figure 4. Mean yield difference (bu/ac) between corn treated with fungicide-only and fungicide + neonicotinoid seed treatments in on-farm strip trials in Ontario, 2014-15.

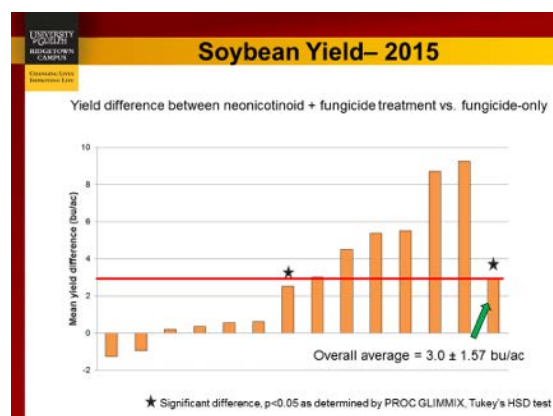


Figure 5. Mean yield difference (bu/ac) between soybeans treated with fungicide-only and fungicide + neonicotinoid seed treatments in on-farm strip trials in Ontario in 2015.

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

For more information, contact:
 Jocelyn Smith and Art Schaafsma, University of Guelph
 Ridgetown Campus

OMAFRA initiative to update Ontario's soil maps

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) is embarking on a new soil mapping initiative to update Ontario's existing soil maps and information databases. This is a long-awaited project, as many county soil maps have not been updated since the mid-20th century. Significant advancements in mapping technology over the last few decades mean new maps will provide more accurate, higher-detail soil maps and information products to farmers and rural communities. New mapping products will have many useful applications in agricultural and environmental initiatives, such as nutrient management to protect surface water, greenhouse gas mitigation, soil health improvement and precision agriculture practices.

As of fall 2016, field mapping work is underway for pilot projects in the Ottawa area and Peterborough County. In addition, OMAFRA staff is developing digital maps from a series of hard-copy legacy soil maps that cover the Cochrane to Hearst area in northeastern Ontario.

OMAFRA soil specialists are currently doing on-the-ground site investigations of soil types in the Ottawa and Peterborough areas with support from an OMAFRA contracted private sector vendor. More than 1,000 site inspections in Ottawa and 300 inspections in Peterborough will be completed by the end of 2016. OMAFRA is collaborating with local agricultural communities and organizations to spread the word about the project and to gain access to land for site evaluations. The soil information collected will be used in combination with aerial imagery and terrain digital elevation models to digitally model and map soils for an area using specialized software. Elevation data will be obtained from parallel projects that are using LiDAR (Light Detection and Ranging) technology to develop detailed elevation models for entire counties.

OMAFRA plans to collaborate with Agriculture and Agri-Food Canada, universities and researchers to better develop soil modeling methods. These renewed soil models will not only be used to correct issues in legacy soil classification maps, but can also be used to produce improved information products to support other initiatives, including maps of land suitability for agriculture.

The project is ongoing, with plans to expand mapping efforts throughout Ontario in the future. Renewed soil maps will bring much-needed data to better inform decision-making for policy and programs related to improving environmental and economic sustainability of Ontario agriculture.

Funding for this project is provided by *Growing Forward 2*, a federal-provincial-territorial initiative.

*Written by Ross Kelly, Manager, Resource Information and Business Services,
Environmental Management Branch, OMAFRA*

Provincial Office Update - Introducing the Association Development Advisor for OSCIA

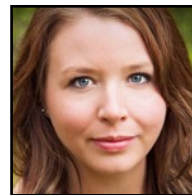
One of the key elements agreed upon by the OSCIA Board of Directors in the strategic action plan endorsed in 2015, was the creation of a new full-time membership development position to support the regional and local associations. The *Association Development Advisor (ADA)* will be responsible to coordinate a 2-year initiative aimed at boosting membership engagement and demonstrating value to membership. A strong and engaged membership is a key strength of OSCIA and supports our ability to leverage new opportunities, and provides the foundation for local and regional organizational health.

Once the work plan is finalized, one of the initial tasks of the ADA will be to probe the related needs of the membership to better understand common challenges and those that may be unique to the particular geographies. The exercise will identify and verify gaps and begin the process of building consensus on recommended tactics and skills training needed to fill the gaps and remove barriers to building membership engagement.

In addition to what can be accomplished through the ADA, expert consultants may be relied upon to lend a hand with designing and delivering workshops that address the identified needs. Workshop titles might include topics such as: how to chair a meeting, board governance, building successful leadership, outreach strategies to attract new members, and skills training for specific volunteer roles within the organization (e.g. best practices for a secretary/treasurer). Performance measures will be introduced to gauge impact and progress over time.

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

After a rigorous interview process, we are pleased to announce that Brittany Roka will soon start in the role as ADA, working from the Guelph office and reporting to the Executive Director. Many will know Brittany as the former Regional Communication Coordinator for the North Eastern Region where she has served since 2015. There is a lot to be accomplished over the next couple of years and we are convinced that Brittany has the insight, credentials and character to excel in the position.



You will be hearing much more from our Association Development Advisor over the months ahead.

By Andrew Graham, Executive Director Provincial Office

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CROP TALK

Volume 16, Issue 4 OMAFRA Field Crop Specialists — Your Crop Info Source

November, 2016

Table of Contents

1. Manure Analysis - Why testing for pH could be good for your bottom line
2. Soil Health Observation
3. Utilizing Corn Stalks for Feed or Bedding
4. Nitrogen Fertilizer: Does It Help Build Soil Organic Matter
5. Renfrew Soil Health Assessment Project
6. Agricultural Environmentalism

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Manure Analysis – Why testing for pH could be good for your bottom line

Christine Brown, Sustainability Specialist Field Crops/OMAFRA

An awareness of the nutrients contained in manure is an important part of managing crop fertility. It is one thing to know what nutrients are in the applied manure, but another to know what nutrients will actually be available for the crops to utilize.

Often, a comment is made that a producer applied manure to a corn crop, but then did not seem to get the value from the manure nitrogen (N) that was expected. The reason given is typically cool conditions that slowed mineralization, or wet conditions that increased denitrification loss. It may be time to re-evaluate potential nitrogen volatilization loss, based on some comparisons looking at N losses from different application practices where pH appeared to influence loss.

Manure nitrogen is composed of organic N and ammonium N (NH_4^+). The ammonium portion is similar to commercial fertilizer in that it is quickly available to a crop, but is also at higher risk for loss due to volatilization. Volatilization occurs when the “free ammonia” (NH_3) in manure is lost to the atmosphere.

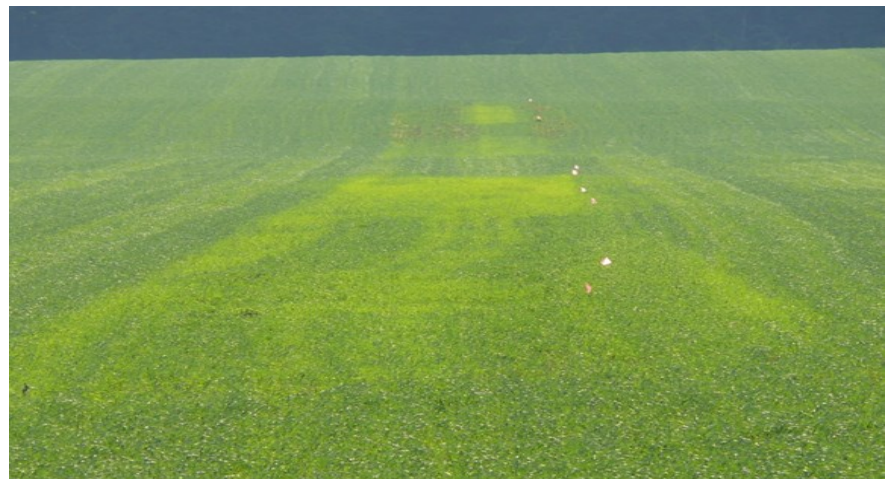


Figure 1. Available nitrogen from plots where high pH material was surface applied versus injected is evident in in oat cover crop growth.

The rate of loss depends on temperature, humidity, soil moisture, wind speed, pH and vegetative cover (example in Figure 1) as well as the rate of application and infiltration capacity in the soil. Losses increase with surface exposure which makes incorporation the best method of reducing ammonia loss and retaining the nitrogen for crop utilization.

The trend for ammonia loss is shown in Figure 2. The sooner the material is incorporated, the lower the ammonia loss. Incorporation equipment varies in its ability to completely cover the manure, and temperatures and moisture levels vary from season-to-season and from year-to-year. This makes it difficult to put an exact number on available nitrogen.

However, the impact of manure pH on losses (and other organic amendments) was accidentally discovered from plot work where ammonia loss was being measured in manure applied immediately after forage harvest. Normal pH in manure is in the 6.5 to 7 range. When a digestate material from an anaerobic digester system had a pH of 7.8, the ammonia loss measured in the dosimeter tube was immediate and much higher than for a liquid dairy manure with normal pH. The relative difference between a high pH material surface applied and injected is shown in Figure 3. The trend is the same for both high pH and normal pH materials, however the immediate loss is dramatic with the high pH material. Ammonia loss increases as pH increases, however the losses shown in Figure 3 were at pH levels of 7.8 to 8.2.

Since pH is not normally tested in manure samples, many producers will not know if the material they are applying has a high pH. Where the manure has a high pH and is applied, but not incorporated for even 1 day, the “expected” nitrogen credit from manure may be much lower than anticipated, and may result in the need for additional commercial nitrogen to maximize economic yield.

Take home message:

1. If you have manure (especially liquid) and are sending a sample to the lab for analysis, ask to have the pH tested. The cost is about \$10 per sample. While you're at it, it is a good practice to have the sample tested for sulphur.
2. If the pH of the material being applied is high, it is more important to inject or immediately incorporate the material. Waiting 24 hours to incorporate the manure may result in up to 100% loss of the ammonium portion of the manure, which will cost you in yield and/or additional commercial nitrogen if you are applying to corn. Temperature, soil moisture and wind speed will also influence potential loss.
3. Materials such as anaerobic digesters or products such as Lystegro, have high pH levels as well as high NH_4 content. Municipally-sourced digestate and Lystegro are injected by the companies to help ensure maximum nutrient availability for crop production.

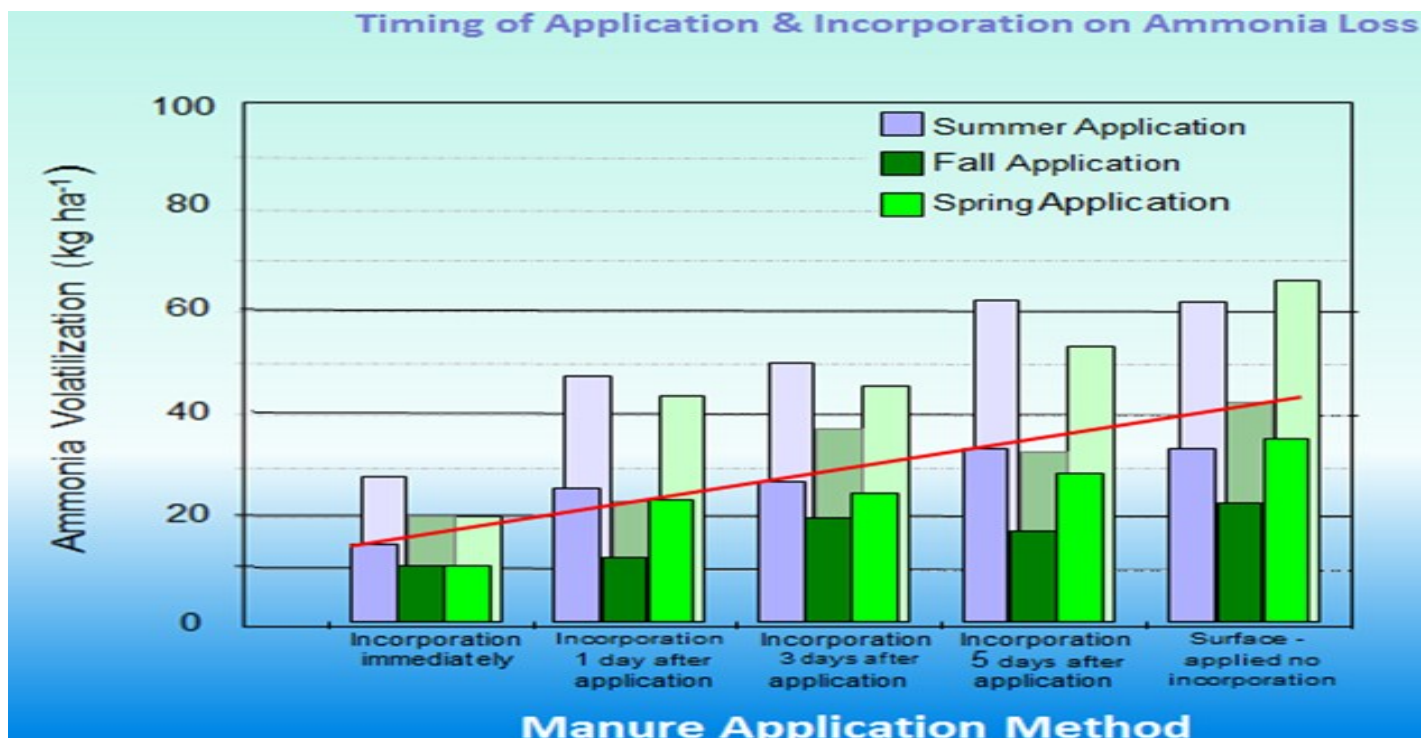


Figure 2. Timing of application and incorporation on ammonia loss.

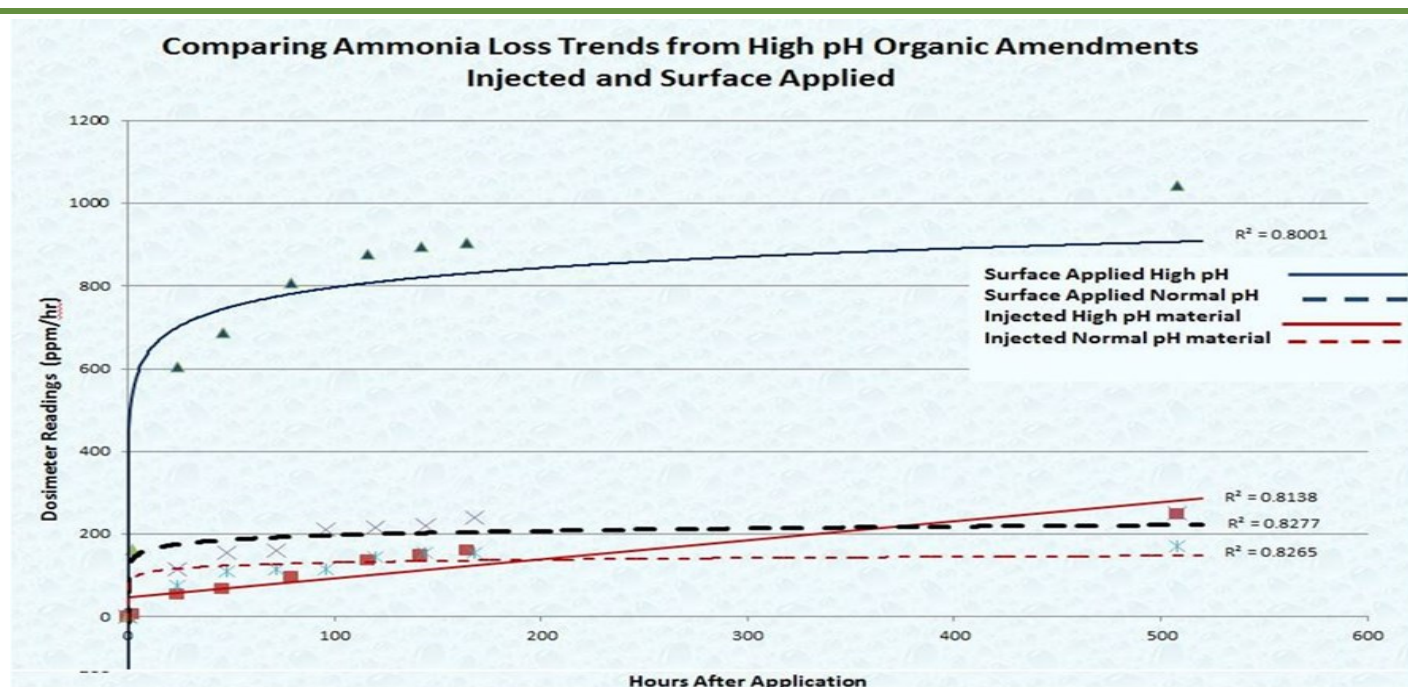


Figure 3. The graph shows the rapid loss trend (hours after application) of ammonium-N from materials that were surface applied with a high pH compared to surface applied materials with normal pH.

Soil Health Observations

Adam Hayes, Soil Management Specialist – Field Crops/ OMAFRA

2016 was a year where the lack of rainfall in many areas showed the benefits of good long term soil management. In some areas the lack of moisture was so extreme that it didn't matter. But in other areas, fields that were well managed showed significantly better growth beside their poorly managed neighbours. The healthier soils had good soil structure, minimal compaction and higher organic matter levels. This allowed the roots to penetrate the soil faster and deeper to explore more of the soil profile and take up more water and nutrients. These soils with good aggregate stability and lots of pores had higher infiltration rates when rain did come. The higher organic matter levels in these soils held more soil moisture making it available to the crop. Figure 1 shows a field with deficiencies in moisture holding capacity and the resulting variability in the cereal crop.



Figure 1. Example of poor moisture holding capacity.

Figure 2 shows a field with a history of manure application and a good crop rotation, where the corn crop is uniform in spite of dry conditions.



Figure 2. Example of good moisture holding capacity and uniform crop.

In the soil health field work conducted this spring and summer several interesting observations were made. When doing soil work on fields that are being managed with precision agriculture it was interesting to see what was causing the differences in the yield map. In some cases it is the soils that were laid down in the field thousands of years ago. A low lying area of a field that would typically be high yielding, sandy loam soil with good organic matter levels, is low yielding. The reason turned out to be a sand subsoil layer with no water holding capacity. Topography certainly plays a role as water moves from upper slopes to lower slopes and depressions, but in a number of cases tillage erosion has from upper slopes to lower slopes and depressions, but in a number of cases tillage erosion has completely

removed the topsoil layer on upper slope positions significantly reducing crop yields compared to a normal topsoil layer (Figure 3).



Figure 3. Example of tillage erosion

In other fields lower yields were due to low pH, nutrient deficiencies, low organic matter levels or high parasitic nematode levels. So it is important to look at all aspects of the soil when trying to determine what is causing lower yields in an area of a field.

Keep it Covered!

Manage residue well at harvest, leave it untouched and plant into it in the spring.

If some tillage is necessary:

- Leaving at least 50% soil cover going into the winter will provide sufficient erosion protection. For soybean or edible bean residue this means doing little or no tillage. One pass with vertical tillage is about all that can be done to maintain soil cover
- Minimize tillage in the spring to leave at least 30% cover after planting
- Planting the field into winter wheat will provide a “cover crop” to help protect the soil over the winter.
- Keep in mind implements that move a lot of soil like the chisel plows or other plows contribute to tillage erosion

Planning for 2017

This winter consider what you can do to fix soil erosion problems, increase organic matter levels on parts or whole areas of fields, add another crop to the rotation, utilize cover crops and make equipment changes to reduce soil compaction.

Programs like Growing Forward 2 and the Great Lakes Agricultural Stewardship Initiative (GLASI) can provide funding to improve soil management and soil health. Conservation Authorities also may have programs for farm fields.

Utilizing Corn Stalks for Feed or Bedding

Thomas Ferguson, Forage and Grazier Specialist/OMAFRA

There has been a lot of interest in utilizing corn stover for feed or bedding this year, especially in some of the drier areas of the province. Corn stalks can present a challenge to deal with in a cropping system and while there are many ways to handle the corn stover, the solution for each farm is going to be different. For farms with livestock, or neighbours with livestock, grazing or mechanically harvesting the stover can be an option. There are many benefits to grazing and removing corn stover but there are also costs associated with removing the corn stover that need to be taken into account.

Grazing corn stover can be an excellent way to manage corn residue. The cattle will digest the corn stover and break it down, while leaving almost all of the nutrients in the field and increasing their availability to the following crop. Grazing stover can be done relatively easily with some electric fence, a water supply and a mineral tub. Depending on the cattle being grazed and the quality of the stover, supplementing with hay or a protein source may or may not be necessary. Corn stover is best suited as a feed for 2nd trimester beef cows and one acre of corn stover will typically provide one cow with enough feed for 1 -2 months. The Total Digestible Nutrients (TDN) in corn stover is typically around 70% following harvest and then dropping to 40% TDN over time. This is partially due to leaching of nutrients, but also because the cattle will eat the highest quality leaves and grain first. If there is a lot of grain in the field, either on the ground or small cobs that the combine did not pick up, it may be necessary to restrict grazing to prevent grain overload. The animals can either be restricted to a certain time in the field, or they can be strip grazed. Strip grazing the field will keep the energy content of the diet more uniform over time. Once the animals have eaten most of the leaves and cobs in the field, it will likely be time to start supplementing with hay and/or protein. Body condition and fecal scores should be monitored while grazing to ensure the animals are not losing condition.

Corn stover can be baled for either feed or bedding. (Figure 1). When baling corn stover, organic matter and fertility will be removed from the field and the soil will be more exposed. In order to protect the soil health and prevent erosion, there should be a minimum of 30% ground cover after baling. If the corn stover will be reapplied to the field as compost/manure, then the loss of fertility and organic matter may not be an issue. However, if the manure is constantly being applied elsewhere, or the stover is sold off- farm, fertility will drop quickly if it is not managed. Harvesting stover puts more wear and tear on equipment than it does with other forage and straw crops and this needs to be taken into account. When harvesting the stalks, they are generally mowed or chopped, raked and then baled when they are dry.



Figure 1. Bales of corn stalks

According to the International Plant Nutrient Institute, 1 metric tonne of corn stover contains 18 lbs (8 kg) of nitrogen, 6.5 lbs (3 kg) of phosphorous and 44 lbs (20 kg) of potassium on a dry matter basis. Using prices of 54 cents/lb for nitrogen, 55 cents/lb for phosphorous and 37 cents/lb for potassium, the corn stover would be worth \$31.84/MT dry matter. On top of the base fertility the corn stover will also be removing valuable organic matter and residue cover which needs to be taken into account when setting a price. After harvest, if there is less than 30% residue cover, the field will be at an increased risk of erosion. If the stover is to be harvested, then the cost of chopping, raking, baling and transporting the stover must be calculated. Corn stover can be an economical source of feed and bedding, and managing it correctly can improve crop yields as well, but it is not 'free' and needs to be managed correctly to benefit both the livestock and the cropland.

Nitrogen Fertilizer: Does It Help Build Soil Organic Matter?

Jake Munroe, Soil Fertility Specialist – Field Crops/OMAFRA and Dr. Laura Van Eerd, Associate Professor, Nitrogen Fertility and Cover Crops, University of Guelph, Ridgetown Campus

Soil organic matter (OM) is the single most important soil health property that you have influence over through your management. Soil OM is all living, dead or long dead (and decomposed) material. Higher soil organic matter translates into better water holding capacity, which was critical in a season like 2016. It helps to improve soil structure and nutrient cycling. A higher percent organic matter can also mean more consistent yields year-to-year. Simply put, it is the foundation of a healthy soil.

Often, it is stated that nitrogen (N) fertilizer application helps to build soil organic matter by increasing total crop production. The logic follows that a higher yielding crop



Figure 1. Dark coloured topsoil indicates good levels of soil organic matter

returns a greater amount of residue, which can then break down and contribute to soil OM.

There have been a variety of scientific studies that have shown this to be true. However, nitrogen fertilization can also stimulate organic matter mineralization, which can lead to losses of OM and soil nitrogen. There is also research that shows no effect of N fertilization on soil organic matter over time.

Overall, it is safe to say that research findings on the effects of N fertilization on OM have been inconsistent in annual crop production systems. Because OM changes can only be detected over the long-term, it is difficult to determine the effect of N fertilization in different production systems with climates similar to Ontario's. For example, what is the impact of crop rotation? What role does tillage play? And how are deeper soil layers affected by nitrogen fertilization? A recent study conducted at the Ridgetown Campus of University of Guelph by Drs. Katelyn Congreves, Laura Van Eerd and Dave Hooker used the long-term crop rotation and tillage system trial to answer these questions.

The study

The research compared N rates across continuous corn, corn-soybean, and corn-soybean-winter wheat crop rotations under no-till and conventional tillage. Conventional tillage consisted of moldboard plowing in the fall followed by two to three passes with a field cultivator in the spring for corn and soybeans. Prior to wheat planting, two passes were made with either a tandem disc or cultivator. In the no-till treatment, there was zero tillage and only minimal soil disturbance at planting. As for N rates, starter-only rates were compared to starter plus moderate N fertilization to corn (89 lbs/ac N) and wheat (71 lbs/ac N) amongst crop rotation and tillage treatments. Samples were collected in 2006, 11 years after the establishment of treatments.

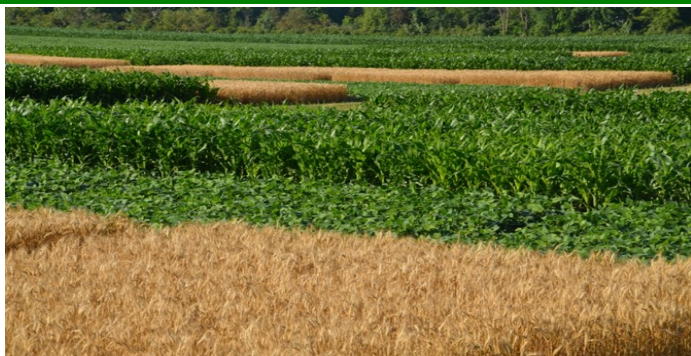


Figure 2. University of Guelph's long-term crop rotation and tillage system trial in Ridgetown

What did they find?

So, after 11 years did nitrogen fertilization help increase soil organic matter at the Ridgetown site?

Well, it depended. The greatest increase in OM due to N fertilization occurred in the corn-soybean-winter wheat rotation in both tillage systems. Soil OM was increased by 18 to 28% in the top 8 inches in the plots that received nitrogen fertilizer. Under continuous corn, however, N fertilization did not change soil organic matter levels in either tillage system. In the corn-soybean rotation, N fertilization increased OM by 22% in the no-till system only; no change was observed with plowing. Even down to a depth of 3 feet, the corn-soybean-winter wheat rotation showed the greatest increases in OM in response to N fertilization. Belowground biomass from a deep, fibrous-rooted wheat crop and growth during a typical fallow period may have contributed organic matter that is retained in the soil more easily compared to other crops.

Even more interestingly, corn yields from years 5-11 of the study revealed the benefit of an increase in OM. Year-to-year yield variability decreased as soil organic matter level increased. This meant more consistent corn yields regardless of the weather. Likely, this was due to soil OM benefits in terms of increased water infiltration and improved water holding capacity.

The bottom line

Nitrogen fertilization does not necessarily increase soil organic matter across all agricultural systems. Its effect depends on crop rotation and tillage system. For the clay loam soils of this study, there is clear evidence that inclusion of winter wheat in a corn-soybean rotation makes an increase in soil OM due to N fertilization more likely, regardless of tillage system.

We know that winter wheat in rotation benefits corn and soybean yields by 5 to 8%, reduces year-to-year yield variability in corn, improves soil health, and provides an excellent cover crop opportunity. Its value goes far beyond its net revenue at harvest. Now, this research suggests that wheat may also help make better use of N

fertilizer from a soil organic matter perspective. Just another reason to add wheat to the list.

Next steps

In 2008, Dr. Hooker made improvements to the trial to better reflect current production systems. The no-till treatment was modified to strip tillage for corn and nitrogen rates were increased in both corn and wheat. Winter wheat plots were split to include both with and without red clover treatments. These changes provide an excellent opportunity to study the effects of these production systems on soil health into the future.



Figure 3. Winter wheat field, Kent County, 2016

Renfrew Soil Health Assessment Project

Scott Banks, Cropping Systems Specialist/OMAFRA

The Renfrew Soil and Crop Improvement Association (RSCIA) initiated a soil health project utilizing Ontario Soil and Crop Improvement Association Tier One grant funding (up to \$1500). Adam Hayes, Soil Management Specialist with OMAFRA, developed an outline for the project. Nine RSCIA members participated in the project which involved soil health sampling on the participants farm and further soil health assessment. The cost of a soil health sample is approximately \$100. The project covered the cost of one sample and the participants paid for additional samples if they wished. Soil health samples and measurements were taken from a representative location in the field in a 4.5m x 6m (15' x 18') area, and GPS coordinates were taken to allow sampling at a later date to assess any change in soil health. Most participants opted to take one to three more samples in challenging fields or in fencerow areas for comparison. Each participant filled out the Farmland Health Checkup workbook for fields sampled.

Soil Sampling

Adam Hayes and crew conducted the soil health sampling over two days in May. The soil at each site was evaluated for physical, chemical and biological properties.



Figure 1. Water Infiltration test. A measure of the amount of time it takes rainfall to infiltrate into the soil. It is measured by pouring 1" of water in an 8" ring and recording amount of time it takes for water to soak into the soil.



Figure 2. Hands-on demonstration of using a penetrometer to measure surface hardness in the top 0" to 18" (measured in psi), conducted at the Field Day August 29th. The penetrometer or tile probe can be used to confirm the areas of the field where soil compaction exist. In some cases, such as this field, the soil is too dry to measure. Ensure the soil is moist (i.e. 2 days after a good rain).

Physical Analysis included:

- Aggregate Stability (%)
- Water Infiltration (seconds, see Figure 1)
- Depth of A-horizon (inches)
- Surface Hardness, 0" to 18" (psi, see Figure 2)

Chemical Analysis included:

- pH (BpH)
- Phosphorus (ppm)
- Potassium (ppm)
- Magnesium (ppm)
- Calcium (ppm)
- Zinc Index
- Manganese Index

Biological Analysis included:

- Organic Matter (%)
- Potentially Mineralizable Nitrogen ($\mu\text{gN/ grams dry weight soil/week}$)
- Total Number of Nematodes/kg soil (% plant parasitic)

After Sampling

After the samples were analyzed, Adam also completed the assessment of the Farmland Health Checkup for each participant's fields. A field day was held on August 29th at one of the participant's field, where a soil pit was dug to show the soil properties and discuss soil health as well as the results from each field.



Figure 3. Soil pit at the Field Day August 29th.



Figure 4. Adam describing the soil profile layers at the Field Day August 29th

A summary report will be provided to the cooperators and will be made available to others. Samples could be taken again in 5 years to see if there are any changes and the Farmland Health Checkup could be done again after 5 years to look at changes compared to the original.

In general, most of the soils in this project had good soil health scores. Each participant learned more about their own soil(s), what management practice can improve soil health and in a few cases, about potential problems that they may otherwise have not known. The goal would be to maintain the soil health and organic matter to avoid soil compaction and soil erosion by using diverse crop rotations, cover crops, reduced tillage and improved fertility and if possible adding organic amendments.

Project Contacts:

Adam Hayes, OMAFRA Ridgetown

Scott Banks, OMAFRA Kemptville

Gerry Richards, Renfrew Soil & Crop Improvement Association

Jennifer Doelman, Renfrew Soil & Crop Improvement Association

Agricultural Environmentalism

Ian McDonald, OMAFRA and Mari Veliz, Ausable Bayfield Conservation Authority

When it comes to the interaction between agronomy and environment are we thinking at the right scale? Most farmers that we know are true environmentalists, that is, they have a passion for the land, as it impacts their livelihoods and family directly. Farmers, as society's major stewards of the rural landscape, must have healthy and productive lands on an ongoing basis for their economic prosperity. At the same time most farmers operate family businesses that flow generationally so the desire for maintaining healthy farms (economically and environmentally) to pass to the next generation is top of mind. While farmers do own and rent the majority of land in southern Ontario most of them also understand that they have a responsibility to be "stewards" of that land on behalf of us all.

Farms are most often discussed from the standpoint of individual farms or the entire collective of all farms. Many observers tend not to think about or address farms at a regional scale. When environmental issues emerge, however, they may be detected at a more regional or watershed scale, not a site or property specific scale. These issues of scale can be difficult to address. Within a watershed, for instance, there are many individuals, each controlling different acreages and operating with different systems of production. Farms operate as systems even if we do not always think about it that way. Farm size, equipment size, crop patterns, the presence or absence of livestock, increased distance between farm holdings, etc. influence the farm system. Farmers are often farming different soils as they move further from the home farm. A farmer's management must adapt as he or she moves to unfamiliar soil types, topographies, drainage patterns, etc. Individual farmers may have holdings either owned or rented in different watersheds and the characteristics

of those watersheds may be quite different. It means that individual farmers may be working with different groups which have different ideas. This adds some complexity to the relationships and achieving joint goals of reducing agriculture's footprint. It may complicate the concept of shared responsibility and advantage to [collaboration](#) within and across watersheds in terms of compatibility of the players and the systems in use and attaining agreement on what are the solutions to addressing identified issues. There are challenges but also opportunities in meshing the farm system with the watershed system.



Figure 1. Major Watersheds of the Great Lakes

One consideration is that the concept of watersheds can be difficult if you think of big-scale watersheds. For example, if you think of issues at the Great Lakes scale (Figure 1), it may be difficult to see how you would get all the various landowners and partners to work collectively.

However, as you move to more manageable scales, such as your local backyard creek, or what might be considered sub-watershed scales, the opportunity to observe collaborative efforts comes into focus (Figures 2 and 3). There are a couple of considerations when trying to mesh farm systems with watershed systems. It's likely these sub-watershed scales that the community understands best. Although management decisions are made at the field scale, the community observes the culmination of those field-scale decisions at the sub-watershed or local backyard creek scale. If we think of our fields as mini-watersheds, or watershed building blocks, we may be able to think of water as not only something we want to remove when it's wet or use as a resource when it's dry, but we may start to see opportunities for improved water management.

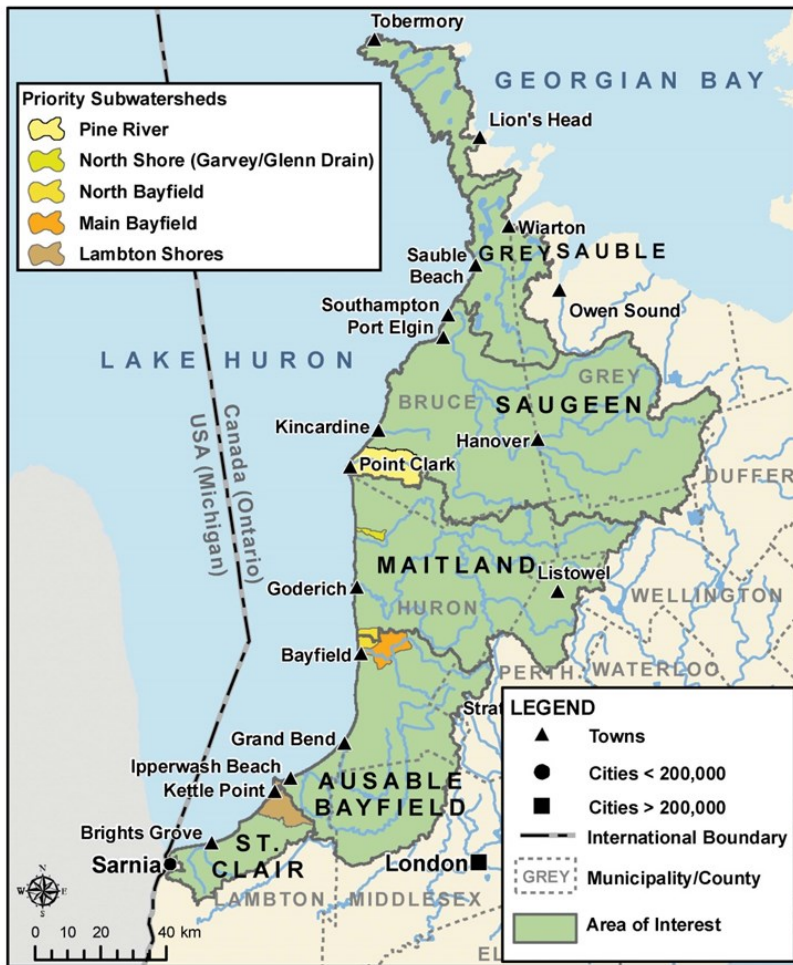


Figure 2. Watersheds along the southeast shore of Lake Huron.

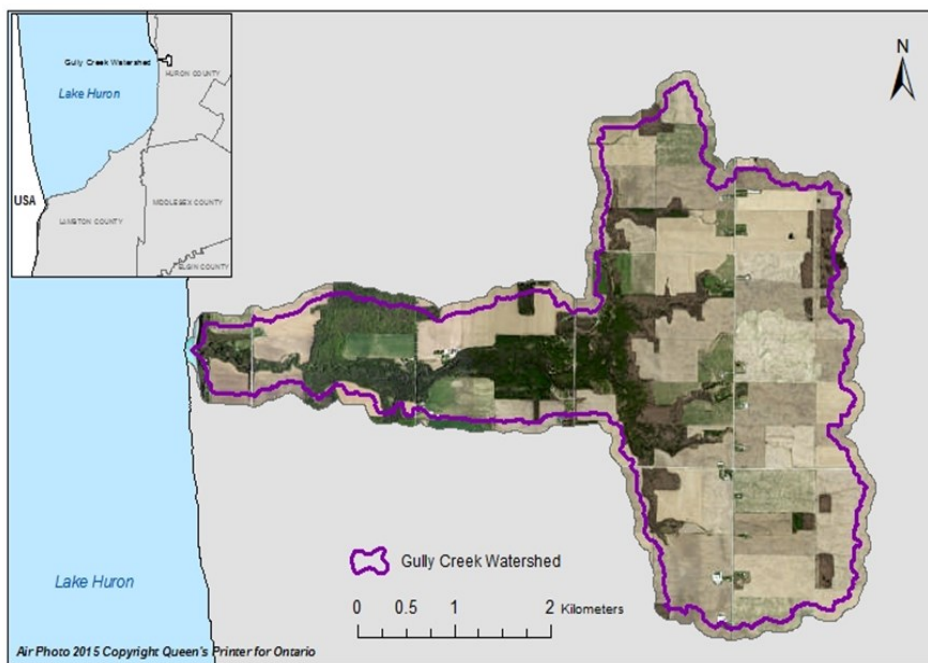


Figure 3. Gully Creek Watershed

Secondly, if one looks only at the field scale, positive changes that are made on individual farms within the watershed may have reduced value on the overall remediation at the entire watershed or sub-watershed scale. Farmers and policy makers may need to explore the issues at the watershed scale and identify the locations and practices that make the largest impact across that shared landscape. Perhaps there are opportunities to focus efforts on some critical areas, or activities, if we look at the issue from this perspective.

In the June 2015 issue of CSA News, a Crops, Soils and Agronomy (CSA) publication distributed by the American Society of Agronomy, Madeline Fisher writes about ongoing work to identify the best options for reducing nutrient losses and erosion within an entire watershed system. She was referring to work being conducted by a team of USDA-ARS scientists including Mark Tomer in Iowa. They have developed a tool called the Agricultural Conservation Planning Framework (ACPF) (<http://northcentralwater.org/acpf/>). At this website one can view a webinar on the tool and how it works.

The tool expands beyond precision agriculture into “precision conservation,” whereby the right conservation strategies are identified and are also placed within the watershed where they are most effective (e.g., controlled drainage, berms, riparian zones, land retirement, etc.). This recognizes that although each parcel of land within the watershed should strive to increase soil health, water infiltration and holding capacity, etc., that the placement of control structures in the watershed should be strategic to achieve the most good (Figure 4). This encourages people and groups to work together to find the best solutions for watershed management.

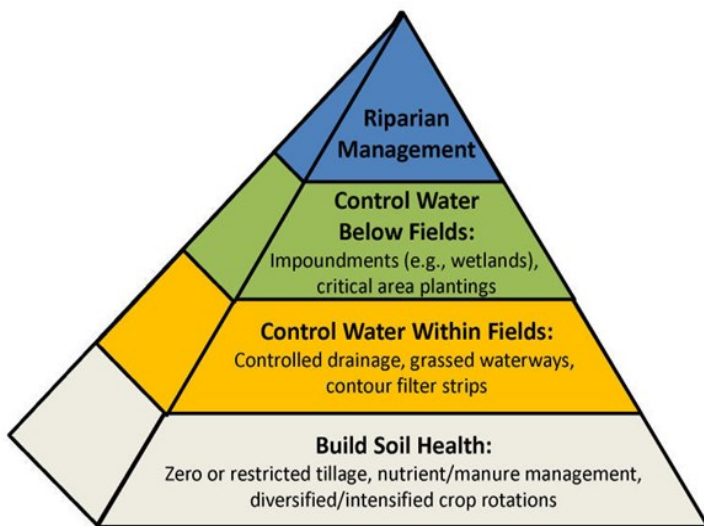


Figure 4. Conservation Practices within Watersheds that Optimize Water Flow and Reduce Nutrient and Soil Losses due to Erosion (Journal of Soil and Water Conservation)

The point of the pyramidal shape is to emphasize that, at the base, all landowners should be working to enhance soil health which will cycle more nutrients and allow greater water infiltration and water/nutrient holding capacity. Improved soil health significantly benefits the individual farmer and contributes to the overall reduction in environmental stress on the system. The next layer up identifies how and where to address water loss at a field scale to reduce nutrient and soil losses. The next step up is looking at water concentration flow paths, points within the watershed where structures could be installed to hold water generated in the landscape before it reaches surface water courses. A main emphasis of the pyramid is identifying how to manage those water control points that have the most impact in preventing soil and nutrients from reaching surface waters.

A principal goal of the approach is to identify a wide range of tools and practices that can be discussed and implemented as a group within the watershed so the optimal result is realized in a shared manner. The tool takes into account soil type, elevation/slope, hydrology, cropping practice, etc. High-resolution LiDAR (Light Imaging, Detection, And Ranging) imagery can also be

used to help understand how water moves within the watershed and where installations across the shared landscape will be most effective.

One of the obvious concerns of farmers is what this means in terms of impact on cultivatable land and costs. In the work done to build the tool the team used four test sites in Indiana. Setting a target for nitrogen reduction of 40% in surface water, the tool calculated that only 3-4% of acres within the watershed would need to be removed from cultivation to accommodate the water control strategies that would meet the entire watershed's commitment to nitrogen reduction when all the steps outlined in Figure 4 were implemented.

One of the complications we face is the increase in land tenancy based on short-term leases. Many landlords do not understand or are unwilling to make investments in installations to reduce soil erosion and nutrient losses. In addition they may not understand or even consider the impact of various management decisions on soil erosion and nutrient loss, so mitigation requirements might not be built into their lease agreements. Implementing such a system to the benefit of all requires the various individuals and groups to work collectively to identify and address problems that are present. This is beneficial in many ways since we share the landscapes within the watersheds and the best outcomes arise from cooperation in addressing problems, instead of patchwork implementations that can be expensive and ineffective.

This is an interesting concept, to which we should give some thought, as we try to maintain and improve the profitability of farms while addressing the shared water quality issues around nitrogen and phosphorus that confront us at the present time.



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Growing Forward 2

A federal-provincial-territorial initiative

Canada-Ontario Environmental Farm Plan (EFP)

Producers are invited to attend FREE EFP
(Fourth Edition) Workshops to:
Learn about best management practices
Develop an action plan for their farm
Learn about cost-share funding opportunities

Growing Your Farm Profits Planning for Business Success

Start the business planning process by attending
this FREE two-day interactive workshop.
You will: • Assess business management practices
• Determine priorities and key goals
• Develop realistic action plans
• Learn about cost-share funding opportunities

Biosecurity Workshop

At this one-day workshop, an experienced veterinarian or certified
crop advisor will show you the benefits of having an on-farm
biosecurity program, and identify key practices which will enhance
biosecurity measures on your farm.

Maximizing Your Traceability Investment Workshop

This in-class workshop will focus on how you can gain a competitive
advantage and improve your bottom line with your traceability
system. Real life examples and business profiles focused on
traceability best practices will be examined throughout the workshop.

Food Safety Workshops/Webinars

Looking to keep up to date on the latest food safety practices and help
strengthen your Growing Forward 2 application? The Food Safety
Workshop is a two-day in-class workshop to help you formalize your
food safety program, or you can take advantage of a series of six, 1.5
hour webinars which cover the same topics (see schedule online).

Workshops and Webinars in your area

EFP Workshop Schedule

Arthur	Day 1 - January 10	Day 2 - January 17
Wingham	Day 1 - January 11	Day 2 - January 18
Markdale	Day 1 - January 20	Day 2 - January 27
Orangeville	Day 1 - February 2	Day 2 - February 9
Mitchell	Day 1 - February 8	Day 2 - February 15
Clinton	Day 1 - February 15	Day 1 - February 22
Creemore	Day 1 - March 1	Day 1 - March 8
Linwood	Day 1 - March 20	Day 1 - March 27
Chesley	Day 1 - March 23	Day 1 - March 30

GYFP Workshop Schedule

Creemore	Day 1 - Jan 11	Day 2 - Jan 18	Day 3 - Jan. 25
Listowel	Day 1 - Jan 16	Day 2 - Jan 23	Day 3 - Jan. 30
Clinton	Day 1 - Jan 19	Day 2 - Jan 26	Day 3 - Feb. 2
Orangeville	Day 1 - Feb. 3	Day 2 - Feb. 10	Day 3 - Feb. 17
St. Marys	Day 1 - Feb. 14	Day 2 - Feb. 21	Day 3 - Feb. 28
Chesley	Day 1 - Mar. 2	Day 2 - Mar. 9	Day 3 - Mar. 16
Arthur	Day 1 - Mar. 21	Day 2 - Mar. 28	Day 3 - Apr. 4
Markdale	Day 1 - Mar. 23	Day 2 - Mar. 30	Day 3 - Apr. 6
Brodhagen	Day 1 - Apr. 11	Day 2 - Apr. 18	Day 3 - Apr. 25

Food Safety

Elora	Day 1 - January 12	Day 2 - January 19
Markdale	Day 1 - February 6	Day 2 - February 13

Traceability

Markdale	Day 1 - January 31	Day 12 - February 7
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Biosecurity

Check website for workshop postings www.ontariosoilcrop.org or call
for more information (519) 955-3139.

Register Online at www.ontariosoilcrop.org



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