

# Heartland

JUNE 2015

# Soil & Crop e-News



## Ontario Farms to Host Forage Expo in Waterloo

OMAFRA Crop Talk | OSCIA News | Cover Crop Trial | Summer Events





**Regional  
Communications  
Coordinator**

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*Proudly serving the members of Huron,  
Perth, Waterloo and Wellington County  
Soil and Crop Improvement Associations  
(Heartland Soil & Crop News is published 4 X a year)*

With #Plant2015 done for another year, we're crossing our fingers for some great growing weather. And I'm also anticipating the great events lined up for this summer! Perth SCIA is hosting their Twilight Tour and Waterloo SCIA will be hosting hundreds of people on Ontowa Farms for the Forage Expo. Then there's the Farm\$mart Expo, the OSCIA Summer Meeting and the IFAO's Soil Day. Wellington and Huron have their field days lined up for early September and I'll email out these details later.

I'm also looking forward to working on the "Roots Not Iron" cover crop trial and so grateful for the provincial funding to do the project. When I emailed members in search of co-operators last month, I had an overwhelming (in a good way) response from farmers across the region. It was a shame we couldn't fund more than four sites! This is exciting research and I'll definitely be keeping you all in the loop. If you're doing cover crop trials of your own, I'd love to hear how they're going. Please get in touch.

Last month, I met with all four Heartland secretaries in Stratford for some training and it was a blast! I'd like to give a very special thank you to our wonderful secretaries: Thelma Smith (Perth), Lynn Strenzke (Waterloo), Linda McFadden (Wellington) and Sharon Devine (Huron) for all the hard work they do for their local associations.

And, fingers crossed, by next issue I'll be able to unveil Heartland's new website too!

See you out and about!

**John Poel** | President

**Bill Miller** | Vice-President & Perth County President

**Horst Bohner** | OMAFRA Rep

**Stuart Wright** | Provincial Director

**Mel Luymes** | Communications Coordinator

**Stefan Zehetner** | Huron County President

**Andrew Taylor** | Waterloo County President

**Carl Israel** | Wellington County President

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[www.ontariosoilcrop.org](http://www.ontariosoilcrop.org)

Facebook.com/Heartlandsoilandcrop

Twitter: @HeartlandSCIA

**Website Under Construction**

*For more information on membership or anything at all, please contact Mel at [heartland.SCIA@gmail.com](mailto:heartland.SCIA@gmail.com) or 519 820 2358. Comments, ideas and sponsorship welcome!*

# In This Issue

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#RootsNotIron Farmers



Planting soy into cover crop, Huronview



Ryan Martin and the Waterloo SCIA



- 4 | Perth Twilight Tour
- 5 | Director's Update
- 5 | Summer Events
- 6 | Profile: Ontowa Farms
- 9 | "Roots Not Iron" Trial
- 11| Spring Production Day
- 12| Farm\$mart Expo
- 13| OMAFRA Crop Talk
- 23| OSCIA News
- 27| GF2 Workshops / SARFIP

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**There can be no doubt that a society rooted in the soil is more stable than one rooted in pavement.**

**- Aldo Leopold**

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(quoted by Odette Menard at Heartland's Spring Production Day)

**Cover photo:** Ralph, Ryan and Phil Martin of Ontowa Farms, West Montrose

# Perth Soil And Crop Improvement Association **TWILIGHT TOUR**



## Thursday July 2 6pm @ Perth Demo Farm

\$10 for OSCIA Members, \$15 for Non-Members

Perth Demo Farm at Bornholm, north of Mitchell near Hwy 23 and Rd 44,  
across from Huron Tractor

6:00—Beef on a Bun

6:30—Crop Tours of the Demo Farm

Peter Johnson (Wheat)

Horst Bohner (Soybeans)

7:30—Speaker: Dr. Don MacKay,

### **How a Changing Climate Affects Your Farm**

*Don has a PhD in Meteorology and is the former Director of the Canadian Environmental Modelling Centre. He has received the Order of Canada for his contributions to environmental science. In this talk, he will discuss frost and drought and how climate patterns are affecting agriculture here in Ontario.*



For more info, contact : Thelma Smith at [eandtsmith@golden.net](mailto:eandtsmith@golden.net) / 519-271-5190



After an interesting planting season, with frost creating a few do-overs in the field, we can catch our breath now and look forward to some twilight meetings this summer, not to mention FarmSmart and the Forage Expo in Waterloo. On the Provincial front, after doing some strategic planning this spring, the full board will meet again in August for the Summer Meeting. It is being held in Embro and hosted by incoming President Gord Green. We have a new RCC from the Northeast who has taken the reins from Graham Gambles and we are looking forward to meeting her then too. I also want to say a big thank you to the OSCIA executive for their support of Heartland. With Tier One grants, they

are supporting Huron and Waterloo county associations with their respective summer events and they are funding a website redesign for the region that will raise our profile and be useful to our membership. With a large Tier Two grant, they have funded Heartland and Thames Valley's joint cover crop trial and I'm looking forward to seeing what results we come up with. My compliments to all the counties as there are many great events happening to keep Heartland exciting. Hope to see many of you at them this summer.

## 2015 SUMMER EVENTS



- JUNE 30:** Ontario Seed Growers Association Field Day - Connell Seeds, 5483 5th Line Palmerston, -9:30 –3 RSVP Online
- JULY 2:** Perth Twilight Tour - Perth Demo Farm, Bornholm - 6-9pm \$10/members
- JULY 7:** Forage Expo - Ontowa Farm, 2600 Northfield Dr. E, Waterloo. Free, lunch available for \$10
- JULY 8 & 9:** SouthWest Crop Diagnostic Day, Ridgetown, 8:45 am to 4 pm. Register by July 1st [www.diagnosticdays.ca](http://www.diagnosticdays.ca)
- JULY 16:** FarmSmart Expo, Elora Research Farm, 8:30-4:30. \$75 for members [www.farmsmartconference.com](http://www.farmsmartconference.com)
- AUG 12:** IFAO Soil Health Day, Innisfil, 9-4. \$75 for 1st registrant and \$25 for 2nd. [www.ifao.com](http://www.ifao.com)
- SEPT 8:** Wellington SCIA Field Day—details to follow online
- SEPT 9:** Huron SCIA Field Day—details to follow online
- SEPT 15-17:** Outdoor Farmshow
- SEPT 22-26:** Plowing Match

For more upcoming events, see: [www.oscia.wildapricot.org/events](http://www.oscia.wildapricot.org/events)

# ONTOWA FARM



**O**n July 7, Ontowa Farms will be hosting hundreds of farmers for the 2015 Forage Expo. Farming near Elmira, Ralph and Judy Martin, along with their sons Ryan and Phil, now milk 100 cows on their 280 acres.

When Waterloo SCIA decided to play host this year, director Ryan Martin volunteered his farm. “We’ve gone to the Expo in the past and enjoyed it. Of course we really appreciate when people host us so we figured now is our turn,” he says.

The Martin family has a long history of giving back to the farming community. Not only have they been involved in OSCIA over the years, they donate a heifer every year to the Mennonite Central Committee auction and they are also proud ‘advocates.’ After they hosted a tour of their new barn in 2010, word got around and their phone started ringing. Ontowa Farms was featured on CBC Radio and even made the front page of the Toronto Star.

“When people drive by and can only see the outside of the barn, they might think of some of those scary videos,” says Ryan. So the Martins hosted the media to show them what goes on inside, and they were quite impressed. “They all get a kick out of the cow brush,” he adds.

Ryan and Phil are fourth generation dairy farmers. Nearly 100 years ago, their great grandfather, David Martin, began to specialize into dairy and was big into genetics.

The story goes that he brought his new Holstein herd on the train and walked them back from the West Montrose station to his farm. He also purchased milking machinery that he ran by a gas generator, until he brought electricity to his farm in 1920. He dug 25 post holes for the lines and had power a few years before other farms on his road.

The Martins trace their farming history back even further than that, all the way to the first Mennonite settlers in the area. Ralph says that Sam Betzner Jr., named on the Doon Pioneer Memorial Tower, was his great grandmother’s grandfather. Betzner came from Pennsylvania in 1800, travelling 700 kilometres over 10 weeks and started to farm alongside the Grand River. After a few more joined them, a Pennsylvania company bought 60,000 acres for Mennonite settlement in 1805, and this eventually became Waterloo, the first major settlement in what was then the interior of Upper Canada.

The farm at 2600 Northfield Drive (and the site for the Forage Expo) has been in the family since the 1950’s and Ralph remembers an OSCIA grain corn field day there when he was very young. At that time, new corn hybrids were just coming into the area and his father was growing trials on the farm, in conjunction with the University of Guelph.

A lot has changed since then, but Ryan Martin continues in his grandfather's footsteps, as one of the founding directors of the new Waterloo SCIA. After many years with no local board, a group of young seed dealers garnered renewed interest and formed a group three years ago. The board has a good amount of enthusiastic young farmers, they've hosted some great meetings and now they are keen to take on the challenge of hosting the Forage Expo. When asked why he joined his local SCIA, Ryan replies, "I like the emphasis on sharing information and coming up with ideas, trying new things, getting better. That's the nice thing about farming, every other industry would have trade secrets, but we're about sharing information."

Ontowa Farms combines the words Ontario and Iowa; Ralph met Judy, an Iowa farmer, while they volunteered with the Mennonite Central Committee in Brazil. He spent two years there after completing his diploma at the OAC. Ryan and Phil also graduated from the program and spent

time working off-farm before coming back to farm full-time. Since then, they've doubled the herd size to 100 and increased their acreage to 280 to fully support the herd. They grow corn silage, alfalfa haylage and oat silage and also finish bull calves as grain fed veal. In 2010, they constructed the new barn, and took advantage of incentives for energy-efficient Big Ass® Fans and solar panels to heat water.

The Martins don't want to get any *bigger*, so they are now focusing on getting *better* and fine tuning their system. Their goal is 1.4 kilos of butterfat per cow per day and they are already close to that. For milk production, they currently average 36 litres at 4% fat and 3.3% protein.

After the Forage Expo, the Martins are also holding Phil's wedding (to Katie Lichti) on the farm. The family is excited for the Expo. Ryan and his wife Lori have a 4-year old son named Isaac, who is probably the most excited of all.



**Waterloo and Dundas SCIA &  
Ontario Forage Council**  
Present  
**Ontario Forage Expo 2015**

**Tuesday, July 7<sup>th</sup>, 2015-Waterloo County**  
hosted by: Ontowa Farm-2600 North Field Dr., Elmira

**Thursday, July 9<sup>th</sup>, 2015-Dundas County**  
hosted by: Westergreen Farm-11245 Smail Rd., Brinston

**Starting at 10:00am**

**FORAGE DEMONSTRATIONS AND TRADE SHOW**  
**FREE TO THE FARMING COMMUNITY!!**

No Pre-registration Required      Lunch will be available onsite



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# #Roots Not Iron

Stefan Zehetner (Huron SCIA) plants DeKalb 26-10 soybeans into a cover crop of cereal rye and dwarf Essex rape at the Huronview field, Clinton, ON. The seed was donated by Monsanto and Hill & Hill Farms. This will be the site for Huron's Field Day on September 9th



Photo: Stefan Zehetner

## Area farmers dare to plant into green cover for this innovative 3 year trial

**T**hames Valley and Heartland Regions have partnered in a unique project to research three different approaches to farming, with an especially keen interest in understanding a no-till-green-all-the-time approach. They've called the project #RootsNotIron, after the title on Twitter. The project is being funded by OSCIA's Tier 2 Grant, with support from the Innovative Farmers Association of Ontario, OMAFRA and the University of Guelph, Quality Seeds, as well as local Conservation Authorities and other businesses.

Seven farmers from across the seven counties are devoting 10 acres to research three treatments, replicated three times across their fields over a corn-soy-wheat rotation. The first strip consists of a 'conventional' treatment, using tillage and no cover crops. The second strip mimics our current 'best management practice' with minimum tillage and clover after wheat, burned down in the fall. The last strip is no-till and features an 8 species mix after wheat, and annual ryegrass into corn in June. Cover crops will overwinter and won't be burned down until after planting. Soil and crop tissue testing across the sites will allow for an economic and agronomic cost-benefit analysis.

Our Wellington farmer is Jake Kraayenbrink who farms near Drayton, and you might know him as a past winner of the Premier's Award for Agri-Food Innovation Excellence in 2011 for Automatic Air Inflation Deflation (AAID) on farm tires to reduce in field compaction. Keith Martin is Waterloo's farmer and you may have seen him demonstrating his Strip Cat strip tiller in the area. Huron's farmer is Harrison Burgsma, who runs 780 acres with his dad near Dungannon, just a stone's throw from Lake Huron. Perth's research will be led by OMAFRA's Horst Bohner and Shane McClure on the Perth Demo Farm in Bornholm. Thames Valley farmers include Peter Johnson. Scott Innes and Dave McEachran, with RCC Cathy Dibble taking the lead.



L-R: Peter Johnson, Anna Kraayenbrink, Harrison Burgsma, Cathy Dibble, Keith Martin, and Scott Innes.

# Introducing Bio-K™

## A Superior Source of Potassium for Soybeans



NEW HAMBURG, ONTARIO – As Ontario soybean growers look for ways to push their crop yields higher, they will soon have access to a new, more efficient source of potassium (K) that offers the highest plant absorption rate of any potash fertilizer on the market.

Bio-K – an extremely safe form of K for seed and foliar application due to its low salt index – is being unveiled across Ontario this fall as the newest addition to the ALPINE brand of liquid fertilizers, says Tommy Roach, Director of Specialty Products & Product Development for Nachurs Alpine Solutions.

### **Five Times Faster K Uptake**

What makes Bio-K so different from other K sources is that it's a K acetate, says Roach. "Plants produce acetate naturally. It's a building block for many vital plant functions. That's why Bio-K is absorbed by plants so much faster and more efficiently than other forms of K – because plants recognize the acetate as a natural organic acid they produce themselves," he explains.

Roach points to an independent study published in the Journal of Plant Nutrition that showed the foliar absorption rate of K acetate on soybeans was 47.1 per cent compared to 9 per cent or less with other forms of K. "Plants don't produce chlorides, nitrates, or sulphates, so those K sources are far less efficient at getting into the plant," he explains, noting that Nachurs Alpine Solutions is the only company that manufactures K acetate for the agriculture market. The ALPINE manufacturing plant in New Hamburg, Ontario, produces Bio-K for Ontario growers.

### **Best Solution for K-Deficient Soils**

Many Ontario growers have been discovering that their soils are running low in K, adds Roach. "Bio-K gives them a safe and effective method of getting K into their plants – both in-furrow and as a foliar product," he says, noting trials have shown that Bio-K doesn't harm seeds or burn leaves. K is especially important for soybeans, which have a long reproductive stage, he adds. K helps in the formation of starches, sugars, and proteins, and aids in seed production.

Field trials testing Bio-K on soybeans were conducted at multiple sites across Ontario this year. "We applied Bio-K with our ALPINE HKW6® seed-placed starter, and also tested a foliar product, ALPINE K20-S™, containing Bio-K," says Ken Brett, ALPINE Sales Manager for Eastern Canada.

"Those trials compared Bio-K to check strips with no starter, and to strips treated with ALPINE G24® and ALPINE G20®. We're expecting the results to be similar to US trials conducted over the last few years that have shown quicker and more even emergence, better plant health, excellent tank mixability, and higher yields," says Brett.

Growers who use traditional ALPINE liquid starters – ALPINE G24 and ALPINE G20 – on soybeans already see an average two-bu/acre yield advantage, says Brett. "Because Bio-K is such an efficient form of potash, we anticipate it will exceed the performance of our existing starters on soybeans and give Ontario growers additional advantages on their crops next spring."

### ***For More Information, Please Contact:***

***Ken Brett***

***ALPINE Sales Manager, Eastern Canada***

***(519) 939-1171***



# Spring Production Day

This past March, Perth County SCIA hosted Heartland's Production Day at Premier Equipment in Elmira. **Kevin McKague** (OMAFRA) kicked off the day by examining the issue of phosphorus runoff, how it is causing algae blooms in the Great Lakes and where it is coming from. As we now know, the majority of P (both dissolved and particulate) comes from agricultural "non-point sources," which basically means it is coming from everywhere, and from both overland field runoff/ erosion and through tiles. Kevin described a number of ways that farmers are working to control phosphorus runoff through nutrient management grassed waterways, wetlands, filters and berms.

**Odette Menard** (MAPAQ) went on to describe the world beneath our feet and highlighted the role of soil biology (eg. earthworms, mycorrhizae fungi) and diversity in building soil health. She shared her cover crop trials in Quebec and (below) she highlighted the dense growth of a cover crop planted into corn at 4 leaf stage, compared to that planted at 8 leaf. She stressed that while there was no yield difference, the more dense and diverse the cover crop, the more it is contributing to life in the soil. She was an especially engaging speaker and left participants with a lot to think about.

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2015  
International  
Year of Soils



Cover seeded at 4 leaf (MAPAQ)



Cover seeded at 8 leaf (MAPAQ)



Premier's Soil Information System (SIS)

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After lunch, OSCIA's Ingrid Vanderschot discussed funding opportunities for farmers under Growing Forward 2 and Premier staff showed us where technology is taking our understanding of soils.

**Kaye McLagan, Premier Equipment**, outlined their Integrated Solutions' Soil Information System (SIS) work. Using Trimble technology, they can provide field maps that describe topography and variability of moisture, compaction, chemistry, texture etc. that allows for variable rate seeding and fertilizer application.

**Mark Pierce** of Premier Crop Systems, Iowa, described his company as 'an agriculture company that looks like a software company.' They work to compile field and trial plot data to make it comprehensible to a farmer in order to make better management decisions.

# FarmSmart Expo

Thursday, July 16th, 2015-Elora Research Station  
University of Guelph, 6182 2nd Line, Elora

**FarmSmart Expo** provides progressive farm operators and agri-business people with leading-edge, hands-on diagnostics stations that identify current issues in crop production to help them develop and advance their farm business operations.

## Program

1. Application technology
2. Narrowing the Yield Gap of 30”  
Soybean Rows
3. Soil Pit
4. Wheat in the System
5. Weed Control
6. High Yield Corn with Late N  
Applications
7. Research Highlights

Certified Crop Advisor (CCA) Continuing Education credits have been applied for. Pre-registration encouraged.

## Timetable

8:30 Registration  
opens

9:10 Introductions

9:30 Start of first session

2:30 UG Research Speed Dating on Soils and  
Crops current research initiatives

4:30 Have a safe trip home

## Cost

OSCIA members! \$75

Non-members \$110

(includes 1 year membership)

Students \$40

*WALK IN RATE \$110 (no membership benefit)*

Discounted Rate deadline:

Monday, July 13th, 2015.

## Keeping in Touch

 @FarmSmart15 #FSExpo15



Details and registration: [www.farmsmartconference.com](http://www.farmsmartconference.com) or call 1-877-424-1300



# CROP TALK

Volume 15, Issue 2

OMAFRA Field Crop Specialists — Your Crop Info Source

June, 2015

## Table of Contents

1. What Is The Impact Of Manure On Soil Organic Matter?
2. Precision Ag Site Specific Management
3. Fine Tuning N Application In Corn
4. Fertilizing Pastures
5. Forage Options Following Wheat
6. In-Furrow Liquid Fungicide Application in Soybeans?
7. Cover Crop Options for 2015

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Brought to You by the Following OMAF and MRA Crop Specialists

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## What Is The Impact Of Manure On Soil Organic Matter?

*Christine Brown, Nutrient Management Lead, OMAFRA*

Regular manure applications combined with forage-based rotations are the envy of crop producers when soil organic matter (SOM) levels and soil resilience are considered. What is the actual organic matter benefit from manure to the soil, and how does that vary with different types of manure and organic amendments?

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

### Factors Impacting Nutrient & Organic Matter Benefits

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

- **Ruminants** usually have forage based diets, while **monogastrics** (i.e. hogs) are fed grain-based rations. Beef and dairy manure contain undigested forages and often contains bedding materials. These materials are high in cellulose and lignin and take longer to decompose in soil when compared to the less complex sugars from undigested corn.
- **Animal stage / age** will influence the amount of feed consumed, but also dictate the protein and mineral content.
- **Ration** formulations vary. High production phases require more concentrated diets, including phosphorus, potassium and trace elements such as calcium. Regular and high application rates of manure will build up phosphorus and potassium levels, pH (in acidic soils). Micro-nutrients deficiencies, including zinc and sulphur, are rare with regular applications.



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

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

#### Building Soil Organic Matter With Manure

Applying manure to the soil will provide other benefits, such as a greater diversity and activity of organisms and better soil structure. Table 1, *Effects of 11 Years of Manure Additions on Organic Matter Levels*, shows the increase in

soil organic matter (SOM) over time. This suggests that at an application rate of 20 tons / acre / year, the SOM level was maintained, while at lower rates and without other additions such as residue or cover crops, the organic matter level gradually decreased.

#### Maintaining Soil Organic Matter Example

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

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

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

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

Table 1. Effects of 11 Years of Manure Additions on Organic Matter Levels				
	Application Rate (tons/acre/year)			
	None	10 Tons	20 Tons	30 Tons
<b>Organic Matter (%)</b>	4.3	4.8	5.2	5.5
<b>pH</b>	6.0	6.2	6.3	6.4
<b>P (% increase)*</b>	---	3.2	57	65
<b>K (ppm)</b>	121	159	191	232
<b>Total pore space (%)</b>	44	45	47	50
Source: <i>Building Soils for Better Crops</i> , (Magdoff) SARE Outreach, www.sare.org				
Note: The original organic matter level was 5.2%. The study was conducted on continuous corn silage on a clay soil adding dairy manure. The manure application also improved soil aggregation and the amount of pore space.				
* P ppm (Bray) was converted to % change				

### Maintaining Soil Organic Matter - Example

soil organic matter (2.7%)  
 2,000,000 lbs in surface 6 inches x 0.027 =  
 54,000 lbs organic matter/acre

X 0.03  
 (3% SOM decomposes each year)

Lost by decomposition = 1,620 lbs OM

### Manure Application to Maintain Soil Organic Matter - Example

1 ton solid dairy manure  
 (26% dry matter)  
 = 520 lbs solids

X 0.20 stable carbon  
 (~80% decomposes in 1<sup>st</sup> year)

Gain from manure = 104 lbs

1 ton solid dairy manure  
 (26% DM; 15 lbs total N and 31:1 C:N ratio)  
 15 lbs N x 31 =  
 448 lbs organic carbon

X 0.20 stable carbon  
 (~80% decomposes in 1<sup>st</sup> year)

Gain from manure = 90 lbs organic carbon

**1,620 ÷ 104 = 15.5 tons solid dairy manure** (provides 81 lbs available N, 114 lbs P<sub>2</sub>O<sub>5</sub>; 204 lbs K<sub>2</sub>O)

Source: [Magdoff](#) – Building Better Soils for Better Crops

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

Material (as applied basis)	Solid Dairy	Liquid Dairy	Liquid Hog	Solid Broiler	Leaf/yard compost
Dry Matter %	26	8.5	3.5	66	50
Total N %	0.72	0.40	0.40	3.12	0.9
NH <sub>4</sub> -N ppm	1500	1600	2645	6550	15
C:N ratio	31 : 1	14 : 1	3.7 : 1	8 : 1	17 : 1
P %	0.20	0.09	0.12	1.4	0.24
K %	0.61	0.25	0.19	1.8	0.46
Stable solids added	104 lbs/ton	172 lbs/1000 gal	70 lbs/1000 gal	264 lbs/ton	200 lbs/ton
Stable carbon added	90 lbs/ton	112 lbs/1000 gal	30 lbs/1000 gal	100 lbs/ton	61 lbs/ton
Rate to maintain SOM decomposition	15.5 tons/ac	9,400 gal/ac	23,000 gal/ac	6.1 tons/ac	8.1 tons/ac
Available N-P-K applied/ac (SOM maintenance rate)	80 -115 - 205	120 - 155 - 255	470 - 505 - 470	230 - 315 - 235	15 - 70 - 80

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

## Precision Ag Site Specific Management

Ian McDonald, Applied Research Co-ordinator, OMAFRA

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

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

## Developing Management Zones

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

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

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

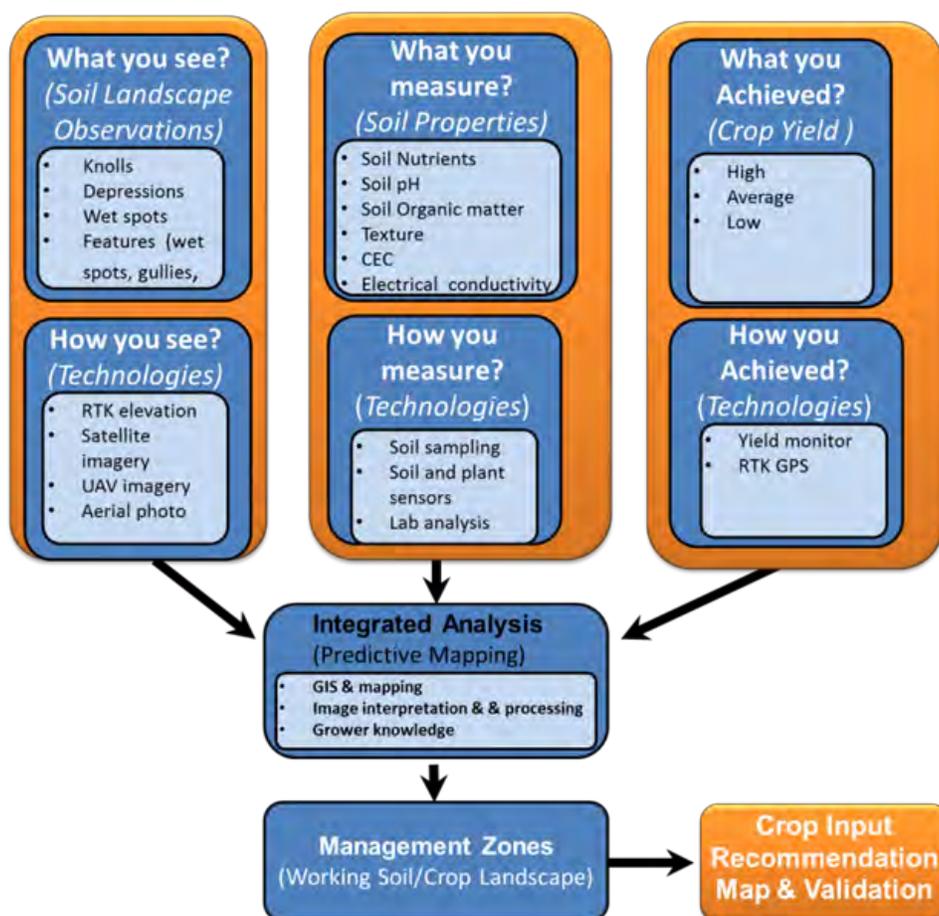


Figure 1. Logic Model of the development of management zones (adapted from Aspinall and Sweeny, OMAFRA, 2014)

### Research Project

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

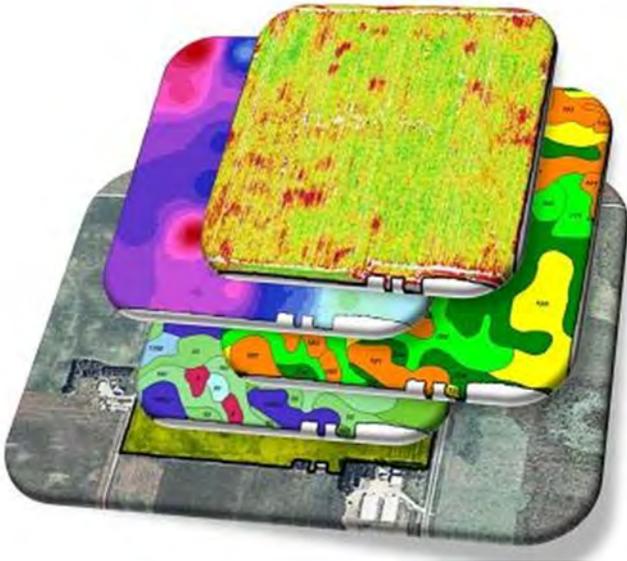


Figure 2. An example of various data layers that are overlapped in the generation of management zones. Top to bottom - yield, water, soil type, soil chemistry.

### Variable Rate Application Outcomes

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

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

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

### Learn More

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

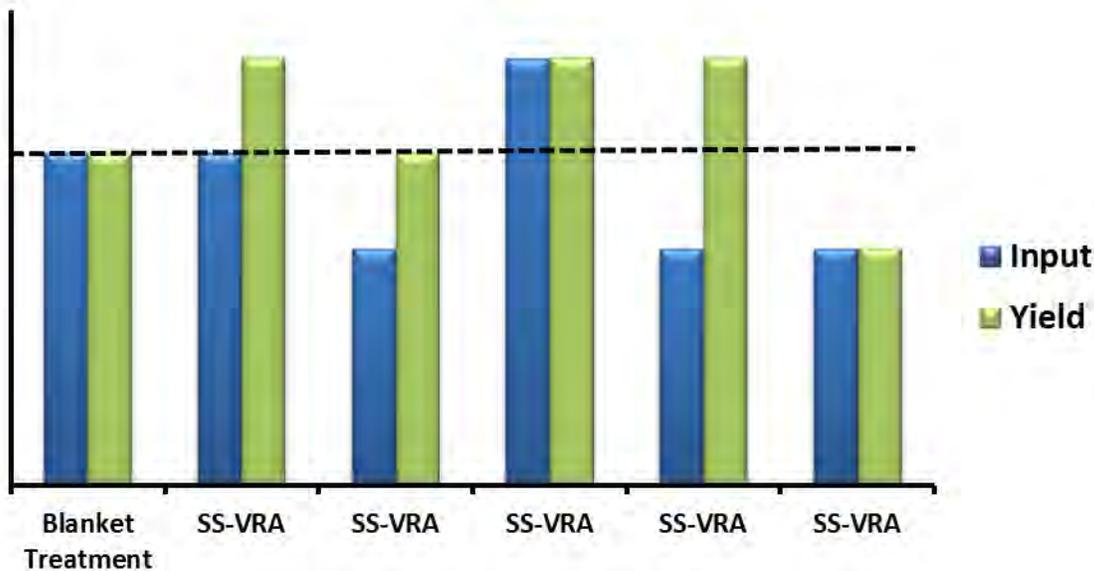


Figure 3. Responses with a site specific management variable rate application (SS-VRA) system. (Adapted from Raj Khosla, Colorado State U, SW Ag Conferene, 2015)

## Fine Tuning N Application In Corn

Ian McDonald, Applied Research Co-ordinator,  
OMAFRA

Nitrogen (N) management in Ontario corn tends to rely on pre-plant N applications broadcast on tilled soil and incorporated before planting. While this practice “gets the job done”, it poses issues with efficient N use and doesn’t offer much flexibility in managing N requirements. When all the N is applied early in the season, the rate selected is based on past experience with the field. This doesn’t provide any opportunity to tailor the rates to the conditions of the season.

Some corn producers have long applied N in split applications. A small portion of the N is applied pre-plant or through the planter, and the remainder is applied as a side-dress when the corn is in the 4-10 leaf stage. This allows the early “starter” N to carry the crop into June when the spring weather, planting conditions, anticipated conditions for the remainder of the season, and yield expectations allow the producer to estimate the amount of N needed to finish the crop. This offers significant opportunities for N optimization compared to the pre-plant system.

While many side dressers estimate N rates by looking at the crop and the weather, some are using other tools to optimized in-season N rates. These tools include:

- the Pre Side-Dress Nitrogen Test (PSNT), and
- more recently, optical sensors.

### PSNT

The PSNT gives an estimate of the N available by taking a 30 cm (12 in) composite soil sample in early- to mid-June. Given the spring weather, varying amounts of available N will be mineralized from the organic N pool present. The N amount in any year is a function of soil type, cropping history, tillage, seasonal temperature and moisture. The limitation of the PSNT has been the amount of test variability within a field and between fields. Research is continuing to determine how and when N mineralizes and what conditions (ie rainfall) impacts its availability. Follow the new GFO supported Sentinel Nitrogen Project tracking soil nitrate levels at 8 Ontario Corn Performance Trial locations <http://weathercentral.ca/>.

### Optical Sensors

Sensor technology for N status in plants has been available for some time. The biggest issue is that they measure only the plant condition and not the soil. Sensing the plant N status at a moment in time does not necessarily relate to the amount of mineralized and available (or soon to be available) N in the soil. Just because the corn looks N deficient doesn’t mean that the amount of N available in the soil is low. Other possibilities might be limiting the plants ability to access the N, or organic N is not yet mineralized and available. Using an early installed N-rich strip for sensor calibration does not provide any indication of the background organic mineralized N from the organic pool.

The other limitation is that the optical sensor technology relies on reading the reflectance of light from plants and then interpretation. Sensing has to occur relatively late so that there is enough plant material in the field to provide reflectance. The sensors do not collect data from light reflectance from bare soil. Sensing optimization has usually occurred beyond the crop stage of corn growth when additional N can be applied without damaging the crop. (Additional information is available at <http://www.nue.okstate.edu/>). The introduction of technologies like Y-drops and high clearance applicators with soil injectors has made this less of a problem, but research supporting this practice remains scarce. Dr. Peter Scharf, University of Missouri, suggests that response to late N is a function of overall N stress (<http://bit.ly/1KwUeyG> and <http://bit.ly/1HHNkG7>). His research suggests that If earlier N applications were sufficient to meet crop needs, the response of late N will be negligible and normal side-dress N gives the best yields.

Greg Stewart and Ben Rosser wrote a good article on use of optical sensors, specifically the Green Seeker (<http://bit.ly/1KjQPQt> ). Other interesting articles can easily be found with a quick web search.

### Use In Precision Ag

Dr. Raj Khosla (Colorado State University) is well known for his research on precision agriculture. At the South-West Agricultural Conference, he discussed the integration of optical sensors into the spatial management of crops. (<http://bit.ly/1GybwJk>) While his research on spatial management has shown benefit, the use of management zones is only half the picture. Spatial management of the crop within zones really addresses the soil. Both the soil and the crop must be accounted for equally in the data gathering and decision making. The soil is not currently addressed in optical sensor use in Ontario. A combination of crop sensing + soil sensing is required to determine input rates to economically optimize the system.

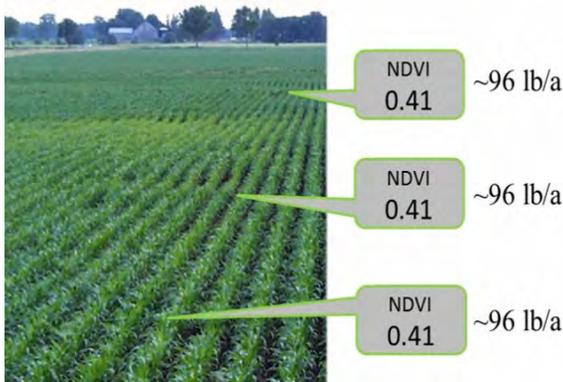
In Figure 1, the Normalized Difference Vegetation Index (NDVI) reading, the measurement unit used in current optical sensors, was the same at 3 locations in the field. The NDVI readings indicated, starting from the bottom of the picture, are from high, mid and low elevation positions in the field. Using a whole field approach to N rate decisions, the rate that would be selected using the equation suggest an optimum broadcast rate of 96 lbs/ac across the field.

If we take into account the field variability, the N rate decision is significantly different. Figure 2 overlays the management zone map on this field. Despite the same NDVI reading being recorded at 3 locations, they are actually within 3 separate management zones.

- The “**Low**” response management zone is in a higher elevation position and on a slope. This area is likely to run out of water before other parts of the field. It has lower anticipated yield potential, so its ability to utilize additional N is not as high, Therefore the optimal rate of N is only 37 lbs/ac.
- The “**Medium**” zone at the low slope position is where water will flow to and where there is likely higher organic matter providing higher amounts of natural mineralized N to the crop. Although the yield potential of this area is high, its response to added inputs is lower since it naturally is better able to meet the crop needs. The N rate in this zone is optimized at 92 lbs/ac, because the soil in this zone will supply a significant amount of N from natural pools or organic matter.
- The “**High**” response management zone is where there is the most potential for the crop to respond to added inputs. It doesn’t have quite the water and natural N as the medium response area, so needs higher input rates. A 144 lb/ac N application rate is suggested.

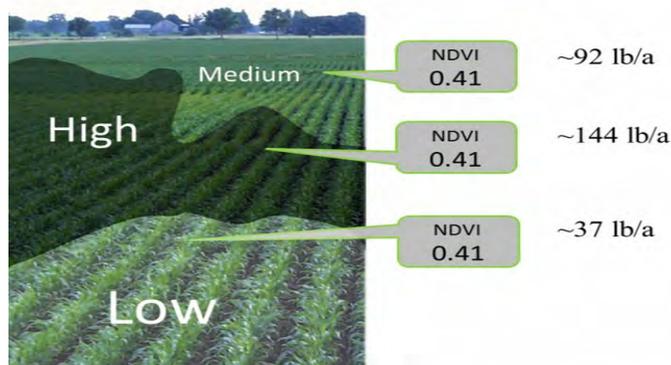
Figure 2 illustrates how N rates can be optimized by combining plant sensing (optical) with soil sensing (precision ag spatial management zones). Areas with high responsiveness to added inputs get more, and those with low potential to take advantage of added nutrients get less.

$$N \text{ Rate (kg ha}^{-1}\text{)} = (135.3 \times (\text{NDVI}_{\text{Ref}} / \text{NDVI}_{\text{Target}})^2) - (134.8 \times (\text{NDVI}_{\text{Ref}} / \text{NDVI}_{\text{Target}})) + 1$$



**Figure 1.** NDVI readings collected with an optical sensor driven across a field and N rate selected based on whole field management decision support methodology (Raj Khosla, Colorado State U, SW Ag Conference, 2015).

$$N \text{ Rate (kg ha}^{-1}\text{)} = \text{Crop properties} + \text{Soil Properties}$$



**Figure 2.** Identification of Management Zones by response potential to added N, and N Rate by Zone for same NDVI's when Site Specific Management Used (adapted from Raj Khosla, Colorado State U, SW Ag Conference, 2015).

## Fertilizing Pastures

Jack Kyle, *Grazier Specialist, OMAFRA*

Fertilizing pastures with nitrogen is one of the easiest ways to increase productivity. There are a few questions you should ask yourself before purchasing nitrogen fertilizer.

### Can You Manage More Grass?

With warm weather there will be rapid grass growth that will need to be managed. Do you have enough livestock and the fencing that will allow you to manage this growth? If you can rotate livestock from pasture to pasture, then you have the main requirement for taking the best advantage of the grass growth and optimizing its use.

### Legumes Provide Nitrogen

If the pasture has greater than 35% legume in it, there will likely be adequate nitrogen produced by the legumes to meet the requirements of the grasses. When estimating the amount of legume, keep in mind that there needs to be an even distribution of the legumes across the pastures. Legume plants are often more visible than the grass plants in the stand. As producers, we often overestimate the amount of legume present. Take a careful look. You could even hand harvest a small square sample and then separate the grasses and the legumes to see how much of each are actually present.

### Nitrogen Application - Rate & Timing

Grass responds very well to nitrogen fertilization, provided there is a reasonable level of phosphorous and potassium available in the soil. You will see a response to nitrogen about 2 weeks after application, and this increased growth will carry on for about 5-6 weeks.

To get an economic response to nitrogen, a minimum of 40 lbs per acre of actual nitrogen should be applied. Because of the high solubility of nitrogen, a maximum application rate of 75 lbs per acre is suggested. If you have a very productive pasture that you want to put on more nitrogen, then increase the number of applications.

Timing of application will depend on a number of factors, but mid-June will generally give the optimum results. By mid-June, the lush spring growth will have slowed and the nitrogen will give the grass another boost. Once we are into July the risk of not getting enough rainfall to take the nitrogen into the root zone is a concern. The other consideration is that grass growth may slow in the heat of the summer, especially if there is a shortage of moisture.

## Forage Options Following Wheat

Joel Bagg, Forage Specialist, OMAFRA

With higher land costs as well as the need for more forage in some parts of Ontario, there is increasing interest in following winter wheat and other cereals with a forage crop. Not only can this approach produce some extra feed, it also provides excellent winter cover crop benefits. There are a few double-crop forage options that can provide some cheaper, good quality forage. When potential winterkill with ryegrass or winter cereals does occur, consider that little has been lost, as it provided cover crop benefits and there is still the opportunity to plant an alternate crop in that field in the spring. Summer seeding alfalfa mixtures rather than waiting until next spring can provide the benefit of a full yield next year without the usual establishment year yield loss. Each option has its advantages and disadvantages, and every situation is different.

The challenge is getting the wheat harvested, the volunteer wheat controlled, and the next crop seeded in a timely manner. Competition from volunteer wheat can be a significant problem. Without vernalization winter wheat will not form a stem in the fall to provide significant growth and yields are very limited. A lot of volunteer wheat can result when light grain goes through the combine, such as fusarium infection situations. One approach to reduce the problem is to do some light tillage (at least behind the combine swath) to encourage the grain to germinate. A burndown with glyphosate 7 – 10 days later will remove much of the volunteer grain. Of course this takes time, and as the calendar gets later some options are lost. Dry summer weather following seeding can delay germination and growth.

### Summer Seeding Oats For Forage

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

- moderate to high forage quality depending on the stage at cutting
- adding peas to improve quality is an option
- cut in the fall, wilting and harvest can potentially be challenging
- follow these annuals with another crop any time next spring

### Italian Ryegrass

<http://fieldcropnews.com/2014/06/italian-ryegrass/>

- potentially high to very high “dairy” forage quality
- a cut in late fall and a cut next May can be followed by corn silage, soybeans, sorghums, etc
- if first-cut stand is good, an option is continue to cutting every 4 weeks
- risk of winterkill should be managed

### Double Cropping Winter Cereals For Extra Forage

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

- fall rye or winter triticale

- moderate to high forage quality depending on the stage at cutting next May (target flag-leaf)
- some risk of winterkill
- high yield potential
- can follow with corn silage, soybeans, sorghums

### Summer Seeding Alfalfa

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

- full yield potential next year without the usual spring seeding establishment yield loss

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## In-Furrow Liquid Fungicide Application in Soybeans?

Horst Bohner, Soybean Specialist, OMAFRA

Foliar fungicide application has become more common in soybean production, especially in years with heavy white mould pressure. Liquid in-furrow fungicide application is also now being used in some US states. This additional fungicide is aimed to protect seedlings from diseases such as rhizoctonia.

Trials are underway in 2015 to assess the value of adding products such as Priaxor in-furrow at planting to soybeans. In 2014, we planted three trials with two varieties to assess the best application timing of Priaxor on soybeans, including an in-furrow treatment. In-furrow application of the fungicide was accomplished by using Keaton seed firmers attached to a Kearney planter in 15 inch rows. Foliar fungicides were also applied using a 40 foot Hardi sprayer at the various plant growth stages indicated in Table 1. KP Plus (0-51-33) was tank mixed and applied with the fungicide on the treatments indicated.

### Results

Wet conditions were typical in most areas of Ontario in 2014 and persisted throughout the growing season. The temperature was slightly below average. These conditions were ideal for white mould development. White mould was found in both the St. Thomas and Perth sites, but was not observed in the Lucan location.

In Table 1, reported yields denoted by the same letters are not statistically different. There was no statistical change in yield when the fungicide was applied solely in-furrow, or at the V6 growth stage. This indicates that applying foliar fungicides in-furrow or in combination with herbicides is not beneficial. A positive yield response of 1.8 bu/ac was observed when Priaxor was applied at the R2 or R4 soybean growth stage. There was no statistical yield advantage to adding the KP Plus foliar.

These results concur with previous Ontario research that showed a 2 bu/ac average yield gain when applying one application of foliar fungicides.

The greatest yield response was observed with the most intensive treatment - in-furrow and foliar R2 applications of Priaxor, with an additional foliar application of [Acapela](#) at the R4 growth stage. The average yield increase observed across all sites and varieties for this treatment was 5.2 bu/ac. This was mainly due to white mould suppression and gives strong evidence that large yield gains can be achieved with the use of a foliar fungicide if white mould is present at moderate levels. The in-furrow portion of the treatment likely had little impact on the yield since that treatment by itself (Treatment #2) did not improve yield over the untreated check.



Figure 1. White mould present at two of the three research

**Table 1. Average Soybean Yield Response to Fungicide Application, 2014**  
(all sites and varieties)

#	Treatment & Growth Stage	Yield (bu/ac)
	Untreated Control	49.1 de
	Priaxor In-furrow	48.6 de
	Priaxor V6	47.8 e
	Priaxor R2	50.9 bc
	Priaxor R4	50.9 bc
	Priaxor R2 + KP Plus	49.4 cde
	Priaxor R4 + KP Plus	51.8 b
	In-furrow Priaxor + Priaxor R2	49.5 cd
	In-furrow Priaxor + Priaxor R2 + Acapela R4	54.3 a

## Cover Crop Options for 2015

Adam Hayes, Soil Management Specialist-Field Crops, OMAFRA

There are many opportunities to include cover crops in the rotation. The goal is to keep the soil covered with at least 30% crop, cover crop or residue, 100% of the time. A second goal is to have living roots in the soil as much as possible. Research at University of Guelph, Ridgetown Campus has shown that planting a cover crop provides a benefit, even if the growth is limited. So consider the these options and find a way to reap the benefits of cover crops.

### Interseeding into Corn

There is a fair bit of interest in interseeding cover crops into standing corn. Different seeding times have been tried - from the 5- to 6 leaf stage of corn, to the tassel stage, to when the canopy begins to open up late summer or early fall. The most success in Ontario has been with seeding annual ryegrass and/or a clover at the 5 to 6 leaf stage of corn. Some growers have developed equipment to plant the cover crop or to move some soil after broadcasting the seed. Most broadcast the seed. Ryegrass seeding rates are generally 15 to 25 lbs/ acre. A rule of thumb for broadcasting cover crop seed is to add 20% to the drilled in rate.

It is important to think about the herbicide program when planning to interseed into corn. Table 1 lists herbicides that can reduce the success of the cover crop.

Some growers have interseeded cereal rye at 60 lbs/ac into corn as the crop begins to mature or even after harvest. They have achieved enough growth late fall and early spring to provide some benefit.

### Cover Crops Following Cereals and Late Summer Harvested Crops

“Cover Crops Following Cereals and Late Summer Harvested Crops” has more information on cover crop options in this time frame <http://fieldcropnews.com/2014/07/cover-crops-following-cereals-and-late-summer-harvested-crops/>

### Cover Crop Options in Soybeans

When winter wheat as a crop is not an option after soybeans, consider seeding a winter cereal as a cover crop. The most common option is rye, but any winter cereal will do such as wheat, barley or triticale. Broadcast 60 lbs/ ac at 10% leaf drop, or drill it in immediately following harvest.

**Table 1: Potential for injury to ryegrass and clover cover crop interseeded in corn.**

Herbicide	Annual ryegrass	Clover
Converge XT	Safe	injured
Callisto	Some injury – some stand reduction	Injured **
Engarde	Some injury – some stand reduction	Injured**
Integrity - Set up rate	Safe	Not injured
Integrity – full rate	Injury – stand reduction	Some injury
Primextra	Injury – stand reduction	Some injury
Lumax	Injury – stand reduction**	Injured**
Treflan/Prowl	Injury – some stand reduction*	Some injury
Focus	Injury - stand reduction**	Slightly injured
Frontier Marksman	Some injury – some stand reduction **	Some injury

(\*) Indicates severity of damage, more \* = more damage

Source: Dr. Darren Robinson, University of Guelph, Ridgetown Campus, project funded under GF2

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Since 1939

# OSCIA NEWS

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

## Table of Contents

- Message from the President
- "There is no more Undisturbed Soil on Earth"
- Special Note - RCC Update
- Keeping an Eye on Entry Points to your Property - Be Vigilant
- Seed Bytes - BeeConnected App for Pollinator Protection
- OSGA Summer Field Day - June 30<sup>th</sup>
- Soil Health - OSCIA's Top Research Priority
- GLASI Update & Coupon
- SARFIP Update
- 'Foliar fungicides can increase soybean yields when facing disease pressure' - Excerpt from Spotlights on Crop Advances
- COFS - Sylvite to Sponsor FREE Breakfast again in 2015

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&  
<https://oscia.wildapricot.org>

## Message from the President - Alan Kruszel



Hi Folks,

As I sit and write this message, we are expecting a low of 4 degrees celsius with clear skies and no wind, which in my world means a risk of frost! I hope that not too many others are facing the same issue in the beginning of June!!

I've heard reports from across the province on the whacky spring weather we've been having and its impact on planting. It appears that most areas are done planting with a few folks in the north still battling wet conditions trying to get finished.

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

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

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

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



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

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

Alan Kruszel  
[akruszel@ontariosoilcrop.org](mailto:akruszel@ontariosoilcrop.org)



### On-farm Corn & Soybean Trials 2015 neonicotinoid seed treatment efficacy study

Have you planted your strip trials?

We are looking for follow-up!

Please email [onneonicstudy@gmail.com](mailto:onneonicstudy@gmail.com) ASAP!



**“THERE IS NO MORE UNDISTURBED SOIL  
ON EARTH”  
- Odette Ménard**

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

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

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

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

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

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

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

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

*Graham J. Gambles, RCC, NEOSCIA*



#### Special Note:

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

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

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

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

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

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

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



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

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

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

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

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

(Forwarded by Canadian Seed Growers' Association)

*Harold Rudy, Executive Officer, Research and Business Development*



## ATTENTION SEED GROWERS

### OSGA Field Day - 'Seed Care'

**JUNE 30, 2015**

~~~~~  
**Location: Connell Seeds  
5483 5th Line, R.R. #3  
Palmerston, ON**

~~~~~  
**REGISTER FREE HERE:**

**<http://www.oscia.cloverpad.org/Events>**

~~~~~  
**New Technology on Site:**

- Low Temperature dryer
- Planters modified for seed dust control (deflectors)
- New Seed Treatment Plant under construction

## Soil Health - OSCIA's Top Research Priority

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

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

Questions being posed include:

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

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

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

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

*Harold Rudy, Executive Officer, Research and Business Development*



## 2014 CROP ADVANCES

Premier Website for Applied Research on Soil & Crop management

2014 Crop Advances available on the OSCIA website:

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

## Great Lakes Agricultural Stewardship Initiative (GLASI) Update

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



## Species At Risk Farm Incentive Program (SARFIP) Update

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



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

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

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

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

### How was the Research conducted?

Field scale trials were conducted in Perth, Middlesex and Elgin Counties. Treatments were tested on two varieties at each study location.

### What has the project found?

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

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

### Where can I get more information?

More information on this project can be found in the Crop Advances section of the OSCIA website at: <http://www.ontariosoilcrop.org/cropadvol11.htm.htm>

### How was the research funded?

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

Written by: Lilian Schaer



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



Breakfast provided daily at the OSCIA/OMAFRA demo plots from 8:30am-10:30am.

Proof of OSCIA membership required (i.e. card, newsletter, email invite).

Updates will be posted on the website: <http://www.ontariosoilcrop.org>





Photo by Carl Hiebert

# SARFIP<sup>2015</sup>

## Species At Risk Farm Incentive Program



This project was undertaken with the financial support of the Government of Canada.  
Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.



### Growing Forward 2

A federal-provincial-territorial initiative

#### 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

#### 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

#### Biosecurity Workshop

At this one-day workshop, an experienced veterinarian 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 Webinars

Looking to keep up to date on the latest food safety practices and help strengthen your Growing Forward 2 application? Join us for any or all of the food safety workshops, covering a variety of important food safety topics. All workshops are online as webinars, taken from the comfort of your home or business.

#### Workshops and Webinars in your area

**Tentative workshop dates & counties for Heartland and Georgian Central Regions**

Most of the workshop locations will be determined closer to the workshop dates and the registered producers will be notified of the location.

**Lois Sinclair** - Regional Program Lead  
519-955-3139 email: lsinclair@ontariosoilcrop.org

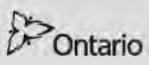
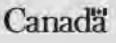
#### GYFP Workshop Schedule

|                  |                   |                   |
|------------------|-------------------|-------------------|
| Brussels         | Day 1 - May 8     | Day 2 - May 15    |
| Wingham          | Day 1 - June 4    | Day 2 - June 10   |
| Oro Medonte Area | Day 1 - June 17   | Day 2 - June 24   |
| Mount Forest     | Day 1 - July 3    | Day 2 - July 10   |
| Creemore         | Day 1 - July 9    | Day 2 - July 16   |
| Elmwood          | Day 1 - August 4  | Day 2 - August 11 |
| Alliston         | Day 1 - August 10 | Day 2 - August 17 |
| Markdale         | Day 1 - Sept. 15  | Day 2 - Sept. 22  |

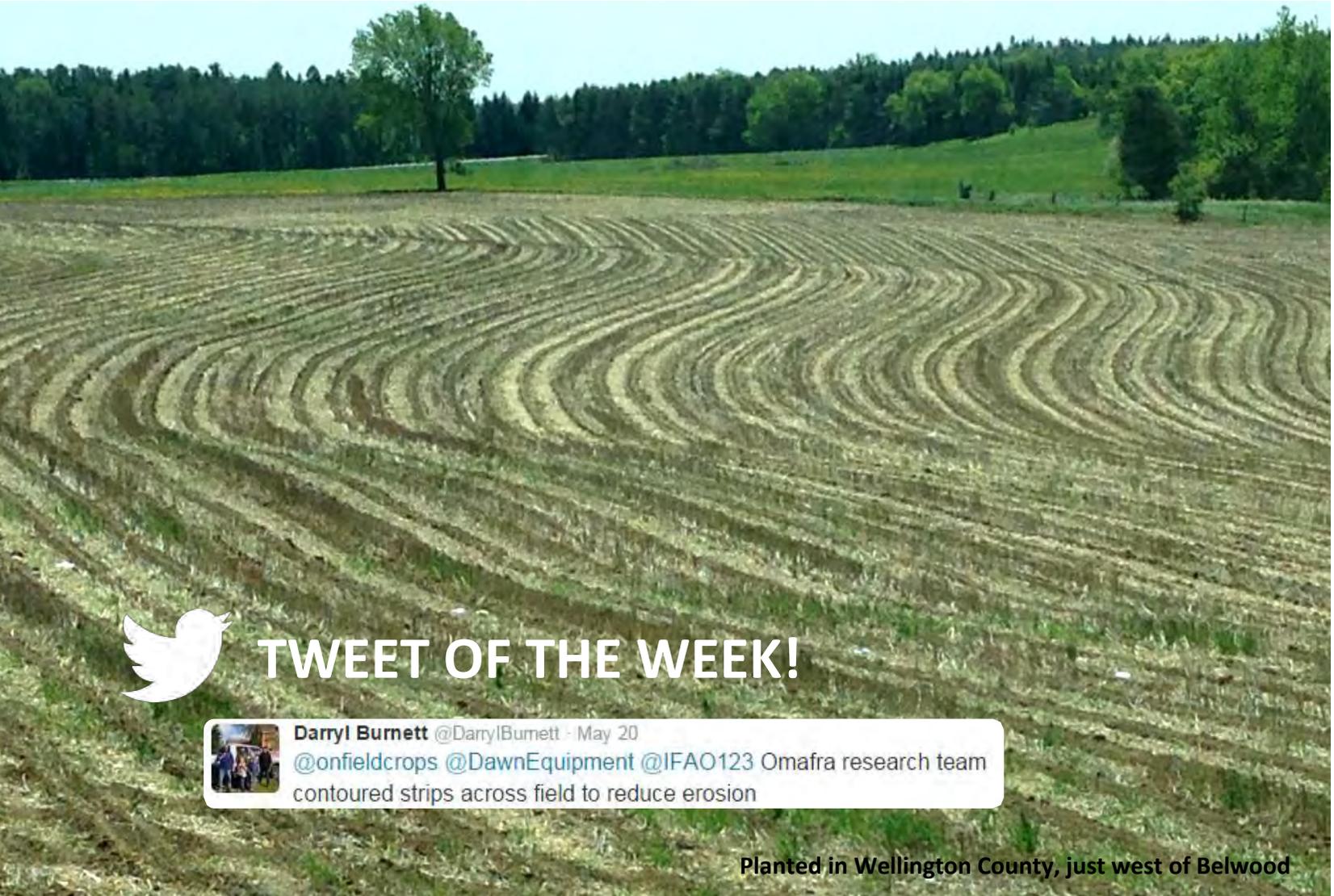
#### EFP Workshop Schedule

|              |                   |                   |
|--------------|-------------------|-------------------|
| Utopia       | Day 1 - May 13    | Day 2 - May 20    |
| Linwood      | Day 1 - June 2    | Day 2 - June 9    |
| Mount Forest | Day 1 - June 11   | Day 2 - June 18   |
| Markdale     | Day 1 - June 30   | Day 2 - July 7    |
| Wingham      | Day 1 - July 14   | Day 2 - July 21   |
| Orangeville  | Day 1 - August 5  | Day 2 - August 12 |
| Brodhagen    | Day 1 - August 13 | Day 2 - August 20 |
| Chesley      | Day 1 - Sept. 28  | Day 2 - October 5 |

**Register Online at [www.ontariosoilcrop.org](http://www.ontariosoilcrop.org)**

Back by popular demand, OSCIA has announced SARFIP funding for 2015. Funding is available for projects such as tree or grassland planting, improved stream crossings, erosion control measures, invasive species control, livestock fencing, alternative watering systems and much more. To be eligible, farmers must have an FBR, a Premises ID, and a recent EFP Action Plan on the farm property. Depending on location and the presence of Species at Risk, farmers could be eligible for funding from 40% (up to \$5,000) to 80% (up to \$20,000). It's well worth the time to apply and if you haven't updated your EFP in the last five years, it's a good idea to do that too. See [www.ontariosoilcrop.org](http://www.ontariosoilcrop.org)



# TWEET OF THE WEEK!



**Darryl Burnett** @DarrylBurnett · May 20  
@onfieldcrops @DawnEquipment @IFAO123 Omafra research team  
contoured strips across field to reduce erosion

Planted in Wellington County, just west of Belwood

## A BIG THANK YOU TO OUR SPONSORS



**Premier**  
Equipment Ltd.

