Breaking Ground
(in Northeastern Ontario) *Winter 13/14*

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

Northern Ontario Present at the 2013 Royal Agricultural Winter Fair

Record Attendance of Northern Ontario Businesses at 2013 Edition of the World-Renowned Fair

FedNor Minister Greg Rickford looks over a sample from the Northernwestern Products booth and listens to Rita Boutette of Lake of the Woods Sunrise Soap describe the wide variety of products from the region on display at the Northern Ontario Pavilion during the 2013 Royal Agricultural Winter Fair.

For over a decade, the Northern Ontario Agri-food Pavilion, supported by the Government of Canada through FedNor, has been one of the 'must-see' attractions at the annual Royal Agricultural Winter Fair in Toronto. This year was no exception. A record 56 agricultural, agri-food and equine producers from the North filled the popular 6500-square-foot pavilion at Canada's premiere agricultural exposition, which ran from November 1st to 10th, 2013. There were a number of fresh faces in the pavilion with 19 new exhibitors attending The Royal for the first time, generating excitement by offering an even greater variety of products and services.

The first weekend of The Royal featured a visit by FedNor Minister Greg Rickford who officially opened the Northern Ontario Agri-food Pavilion with a ribbon-cutting ceremony. The Minister then toured the pavilion to meet the participating exhibitors from Northern Ontario. He was particularly pleased to see the increased number of producers from Northwestern Ontario and some of the pavilion's latest attractions. Minister Rickford even took the opportunity to visit the Pavilion a second time to celebrate even more exhibitors from Northern Ontario, including Lake of the Woods Brewing Company.

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

Material in this newsletter is based upon factual information believed to be accurate. Action taken as a result of this information is solely the responsibility of the user. We reserve the right to edit articles.

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COMING EVENTS

Temiskaming Crops Coalition & Grain Farmers North 15

are holding their Annual Meeting

Date: January 17, 2014

Place: Holiday Inn Express, New Liskeard, Ont.

Time: 9:30 a.m.

Cost: $20.00 (*includes membership & meal*)

Elections will be held, and there will be guest speakers.

PLEASE PLAN TO ATTEND

For more information, please contact:

Dennis Jibb
(TCC President) 705-563-2881

Kevin Runnalls
(GFO Rep.) 705-563-2496

PLEASE NOTE: Green Tractors, Poupore Road, Earlton will be hosting a Crop Information session on January 8, 2014:

9:00 am to 4:00 pm, admission $25.00.

Algoma Soil & Crop Improvement Association

Annual General Meeting

Bruce Station Hall

January 15, 2014

Contact:
Murray Cochrane (705-842-5622)

Temiskaming Grower Pesticide Courses

Thursday, MARCH 13/14: Earlton
Friday, MARCH 14/14: Cochrane
Saturday, MARCH 14/15: Earlton (French)
You MUST Register:
Call: 1-800-652-8573
Web: *http://www.opep.ca/*

OBIT

George Evanoff

Long time promoter of the Soil and Crop Association in Nipissing East/Parry Sound District, George Evanoff of Powassan, passed away on August 25, 2013, after a short illness. He was 80. George was a farmer in MacKellar for many years before taking up residence in Chisholm Twp. He had also worked as a Conductor/Trainman on the CPR and Via lines for an extended period. He is survived by his wife, Jean, and daughter Patty, both of whom are now in Ottawa. He was always a proud and active member of OFA.

Thunder Bay Agricultural Research Station (TBARS)

TBARS is doing current research that is applicable to all northern farmers. For those of you with internet connection, just search for "TBARS Agriculture" and click on "Extension". The facility was a past OMAFRA and University of Guelph research station that is now run as a "not for profit" endeavor for northern farmers. Examine their research results on the "Efficient & Economic Use of Fertilizer Nutrients".

NLCAT Aggies to meet in New Liskeard in 2014, 20 years after the closing of the Agricultural College

In April 1994, the New Liskeard College of Agricultural Technology (NLCAT) closed its doors and eventually became the New Liskeard Agricultural Research Station (NLARS). About 800 students graduated from NLCAT between 1966 and 1994.

A Facebook group, the NLCAT Aggies, was created a couple of years ago. It currently has 155 members who live all over Canada and beyond.

Back in April 2013, the Facebook group remembered "Black Friday" in 1993, twenty years ago, the day of the announcement that NLCAT would close a year later, in 1994. Discussions began online about a week-end reunion for all students and staff of the former NLCAT. This reunion is to mark 20 years since the College, as we knew it, closed.

The reunion will be held during the week-end of August 15-17, 2014. The draft agenda includes a welcoming reception on Friday night, a tour of NLARS (New Liskeard Agricultural Research Station) on Saturday, a Banquet on Saturday night and a closing brunch on Sunday morning. Also being considered as an option is the "Foire gourmande" in Ville-Marie on Saturday. This is a once in a lifetime homecoming opportunity for everyone to meet again and reminisce about their years spent at the College and to meet alumni from their class as well as from other classes and staff. This is also a great opportunity to bring along families with who to share those memories of the years at NLCAT.

The biggest challenge is to locate all students and staff who were at NLCAT over the years. We are asking anyone who knows NLCAT alumni and staff to make sure to let them know about this reunion. NLCAT alumni can either join the NLCAT Facebook group or contact JD Methot (jd40@xplornet.com) to provide their coordinates. Reunion details will be posted on Facebook and sent to everyone who provided their coordinates once the plans are finalized.

Corn Under Plastic Project at Phillips Seeds Ltd, Kerns Township

NLARS 2013
CHU = 2386

By Terry Phillips, CCA.

- Project was to compare Costs and Yield (Quality) of Corn for Grain
- Fertilizer was Bulk spread as 90-20-40 w/ 2 Zinc (302 lbs/ac) May 3rd.
- Field was prepared with a Lemkin cultivation tool May 4th, 2013.
- Field was planted with 8 Row Samco Corn Planter with Converge XT applied at set-up rate of 30 ac/case as premerge treatment under plastic. Alpine liquid starter (6-24-6) was applied at planting @ 5 gal/ac. Two hybrids were planted at approximately 10 ac each of DKC 27-55 RIB and DKC 27-54 (with an additional 5 ac of DKC 27-54 planted without plastic cover) on May 7th, 2013.
- When plastic had Photo degraded Round-up Weathermaxx was sprayed as cleanup @ 0.67 l/ac.
- Crop development was advanced under plastic and continued through Tasselling and Silking (July 18).

- Crop continued until Sept 13th Frost
- Crop was combined Oct 30th, 2013.

Cost Breakdown vs Gross Return		
Cost of Production Per Acre Basis	**With Plastic**	**Without Plastic**
Lemkin Cultivator	20.00	20.00
Planting	45.00	30.00
Plastic	153.60	n/a
Liquid Starter 6-24-6	13.90	13.90
Seed Corn DKB 27-54	86.38	86.38
Pre Emerge Herbicide Converge XT	18.80	18.80
Fertilizer 90-20-40- 2 Zn (302 lbs/ac)	91.77	91.77
Post Emerge (Round Up 0.67 1/ac)	14.73	14.73
Combine	40.00	40.00
Drying	71.72	126.42
Crop Insurance	14.43	14.43
RMP	5.00	5.00
TOTAL	**583.87**	**461.43**
Corn Selling Price $180.00/mt		
Dry Basis Yield	2.82/ac	1.75/ac
Corn Value	507.60	315.00
Loss per Acre	-80.27	-146.43
Breakeven Cost of Corn Needed	207.05/mt	263.67/mt

- All corn in each plot was combined and weighed at Wabi Elevators with: DKC 27-55 RIB (under plastic) yielding 2.52 mt/ac or approx 99 bu/ac of Grade 4 Corn with 1.49 NEL (as is) @ 27 % Moisture.
- DKC 27-54 (under plastic) yielding 2.82 mt /ac or approx 111 bu/ac of Grade 3 Corn with 1.46 NEL (as is) @ 26.5 % Moisture.
- DKC 27-54 (without plastic) yielding 1.75 mt/ac or approx 69 bu/ac of Sample Grade Corn with 1.28 NEL (as is) @ 40 % Moisture.

Conclusions: in cool weather conditions of 2013 (despite yield challenges) Plastic film was reasonable investment.

Breakeven cost for Corn under Plastic Film was $207.05 /mt (close to average cost of corn in Temiskaming) while Corn without Plastic Film was $263.67 /mt (near high of cost in recent years) so with a more normal yield Corn under Plastic Film would make Economic sense.

Thanks to Lee Laframboise and Eric Rivard for planting with Samco System. Daniel Tasse for assistance in plot measurement and Harvest photos. Loren Runnalls for cleanup spray. Jean Marc Toupin for combining and Dan Desjardins of Conray-Dymond Trucking for assistance in hauling to Wabi Valley Elevators.

http://www.youtube.com/watch?v=x7OQwNGPEp0

Northern Ontario Present at the 2013 Royal Agricultural Winter Fair

Continued from page 1

A new feature this year was the promotion of beer, wine and spirits producers. Eight Northern Ontario companies touted their products at a booth within the pavilion, while some were also featured in the LCBO kiosk adjacent to the pavilion. In addition, five Northern Ontario brew pubs and one winery offered their products in the Royal Wine Bar and Brew House. Each tapped into an opportunity to be the bar's featured product for a day with the company's owner serving and promoting the product from behind the bar.

Most importantly, the 10-day event, which attracted approximately 330,000 visitors, provided a venue for participants to exhibit, demonstrate and sell their value-added products and services. Many also cultivated potential distributors and wholesalers to further penetrate markets outside Northern Ontario. Exhibitors spoke highly of their experience, identifying a long list of benefits - ranging from establishing new contacts and having a chance to fine-tune their marketing approaches to increasing their sales. Through its support of the pavilion, FedNor is helping the agri-food and equine industries of Northern Ontario to grow, prosper and create jobs.

For a list of exhibitors who participated in the Northern Ontario Pavilion, please visit *www.fednor.gc.ca.*

NEOSCIA Haskap Trial: Initial Results 2013

In 2013, 16 grower co-operators, representing every District in the North-East, began a field research project that will evaluate the potential for growing the new varieties of HASKAP berry that have been developed by Dr. Bob Bors at the University of Saskatchewan. (See story in the Summer 2013 edition of BG.) This 2 year project was made possible by OSCIA "Partner Grant Funding" and the support of Phytocultures Ltd. of Cornwall, PEI (www.phytocultures.com) who supplied the tissue culture plants.

Each of the growers received more than 100 plants (from 5 varieties) to test on their choice of soil and with their choice of fertilizer. This past fall, the growers were asked to report back on the development of these Haskap varieties. There will be a full report, including soil and leaf tissue analysis, at this time next year. However, in order to provide a little info for other people who would like to start their own trials with Phytocultures seedlings in the coming year, the following data could prove helpful.

Fifteen of the projects took place on bare soil, while a final 16th project was developed at the last moment when a plastic mulch layer became available for doing a trial that involved planting the seedlings into various types of plastic ground cover. However, for the purpose of this evaluation, all projects were averaged together, involving over 2000 plants.

The accumulated data shows that by September, the AVERAGE height of the "producer" varieties Tundra, Boreal, and Indigo Treat was 20 cm., while the variety Indigo Gem stood at 23 cm. The "pollinator" variety Czech-17, was much larger at 35 cm on average. HOWEVER, the RANGE of growth within each variety, (and at every location) indicated that individual plants could be up to 50% bigger OR smaller than the average. There was no consistency of growth among individual plants within individual varieties in the first season.

In regard to the survival rates of individual varieties, there was an incredible consistency of 90 to 92% among all varieties, averaged over 11 growers that reported back. Individual growers did report significant failures of certain varieties at specific sites, but these reports were inconsistent over the entire project.

We also learned that typical sandy "blueberry" soil needs amendments of fertilizer in order for the plants to thrive. Similarly, heavy clay soil needs to be well worked before planting, as poorly tilled soil does not allow growth. Dried out clay also results in excessive plant demise, as it is difficult to re-wet this bare soil at root level. It was also noted on one site that a cold wet spring can have very detrimental effects on Haskap survival. The plants covered by plastic mulch were in wet soil for the entire growing period, and although they survived well, growth was less than for some sites with bare soil. However, mulch of any kind is essential to control weed growth, as many organic growers who did not use mulch reported difficulty in weed control.

It was noted that deer will pull out a few plants in the spring, and then move on, but fence-breaking beef will feast on the plants, (without up-rooting them) in the fall. It should also be noted that this past fall was very wet, and freeze up occurred on saturated soil. Survival rates next spring will be interesting!

NEOSCIA Seeks Woodlot for Future Trial

Most farm owners here in the north have a significant area that remains in woodlot. We are currently looking for a number of woodlot owners (across ALL Districts) who have either Yellow or White BIRCH as part of the species present. As we end our Haskap farm trial in 2014, we will be looking for a new project for the following 2 or 3 years. There is an opportunity to evaluate new "medicinal" products associated with Birch. Perhaps a trial could take place on YOUR farm?

Please contact:

Graham Gambles at 705-672-3105, *gamblesgraham@yahoo.ca* or send a letter to Box 586, Haileybury, Ontario, P0J 1K0.

"You can delegate authority, but not responsibility."
–Stephen W. Carnikey

"To play it safe is not to play."
– Robert Altan

"Doubt can only be removed by action."
– Johann Wolfgang Von Goethe

"A mother is not a person to lean on but a person to make leaning unnecessary."
–Dorothy C. Fisher

"The greatest barrier to success is the fear of failure."
– Sven Goran Eriksson

"In the business world, the rearview mirror is always clearer than the windshield."
– Warren Buffett

2013 Soybean Trials in Temiskaming

Temiskaming Crop Coalition co-operator, Kevin Runnalls, has long been interested in evaluating the growth of soybeans in narrow verses wide spaced rows. It has been the opinion of many local farmers that there would be no yield loss in wide spaced rows of 15", compared to the traditional 7.5" seeding system. This year, Kevin had the machinery available to do a field trial.

He chose a 72 acre site that had been seeded to spring wheat in 2012. He chose a pair of roundup tolerant bean varieties for the job – RR Richer and New Liberty - and these were planted at a rate of 185,000 seeds to the acre. The equipment used was a JD 1790 planter with 15" spacing, employing a 6-24-6 liquid starter. This machine was compared to a JD 1850 Airdrill using 7.5" spacing using a starter of 50# 11-52-0.

The former wheat field was still fairly wet and compacted at seeding. Emergence was between 80 and 90%, seven days after planting. The only mid-summer visual evaluation that seemed out of the ordinary was the observation that the wider spaced rows showed lower white mould pressure.

Come harvest, a 35 foot swath was combined from each field. Each trial harvested was therefore about 2 acres. The result showed that 70# MORE seed was harvested from the 15" spacing trial compared to the 7.5" field trial.

In summary, Kevin feels that the results are comparable, and supports the notion that wider spaced bean rows are at least equal in production to narrow rows, with a lower occurrence of white mould being an added advantage.

Kevin Runnalls explains the benefits of modern technology.

Congratulations to the 2013 Canola Challenge Winners!

		Yield	Agronomist	Variety
1	James Parsons	3918	Terry Phillips/ Co-op Regionale	Invigor 5440
2	Joe Gordon	3893	Randy Martin/ Sprucedale Agromart	Invigor 5440
3	Don Curry	3747	Ralph Voisin/ Huron Bay Co-op	Invigor 5440
4	Jon Wiley	3653	Randy Martin/ Sprucedale Agromart	Invigor 5440
5	Murray Jantzi	3616	Norm Coutu/Verner Co-op	Pioneer 45H31
6	Henry Vander Wielen	3533	Klaus Kristiansen/ Alliance Agri Turf	Invigor L130

1st Place Winner – $2,000
2nd Place Winner – $1,000
3rd Place Winner – $ 750
4th, 5th and 6th Place Winners – $ 500 each

All winners also receive a "Canola Challenge Winner" jacket.

Ontario Canola Growers Association
519-986-3519
www.ontariocanolagrowers.ca

CROP TALK

OMAFRA Field Crop Specialists – Your Crop Info Source

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

Agricultural Information Contact Centre: 1-877-424-1300
Publication Order Centre: 1-888-466-2372
Northern Ontario Regional Office: 1-800-461-6132
OMAFRA Web Site: www.omafra.gov.on.ca

IPM Approach To Corn Seedling Insect Pests

by Gilles Quesnel, Field Crop IPM Program Lead, OMAF and MRA

Early season corn insect pests can significant impact stand establishment. Using an integrated pest management (IPM) approach to manage insect pests will help achieve good stand establishment, while minimizing the impact on the environment and reducing costs. An IPM approach will help determination if and when the use of an insecticide is needed. The decision will be based on the evaluation of the insect pest problem to determine when the benefits of using an insecticide exceed the disadvantages, measured in terms of cost and risk. Below are the main corn seedling pests along with scouting technique, action thresholds and management strategies. (OMAFRA Publication 811, Agronomy Guide, Chapter 13 and Publication 812, Field Crop Protection Guide)

Wireworm

Description: Wireworms are 7 - 35 mm (1/4 to1-1/3 inches) long, cylindrical, copper-brown coloured and hardened. (Figure 1) Due to their long life cycle, the wireworms can damage several successive crops by attacking roots, seeds and germinating corn seedlings.

Figure 3 - Western Corn Rootworm

Risk Factors: Damage is usually worse in the second year after sod, following years with high grassy-weed pressure, or when corn and cereals are frequently in the rotation. They are more common in sandier soils, especially on knolls.

Scouting: Scout in mid-April using bait stations, a few weeks before planting.

Management: The action threshold is one wireworm per bait station. Use insecticide seed treatments in fields that have reached threshold, have a history of wireworm, or are following grassy sods. No rescue treatments are available. Controlling grassy weeds in crops previous to corn will help with prevention.

Black Cutworm

Description: Black cutworm larvae are greyish-black, about 3.5 cm (1-1/4 in.) long when mature. (Figure 2) In early spring, larvae will first develop on weeds and then move to corn seedlings. A corn plant attacked by cutworm may suddenly wilt because the stem has been hollowed out or fed on underground. Larger larvae cut off the plants at or just below ground level.

Figure 2 - Black cutworm larva

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Ministry of Agriculture and Food
Ministry of Rural Affairs
Ontario

IPM Approach To Corn Seedling Insect Pests

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Risk Factors: These include a history of cutworm damage, presence of winter annual weeds such as chickweed and volunteer wheat before planting, no-till and heavy crop residue.

Scouting: Start once every 5 days as soon as corn emerges, looking for leaf-feeding pinholes by young climbing larvae as the first sign of damage.

Management: If more than 10% of corn plants show leaf feeding / pinholes, treating with a foliar insecticide will give nearly 100% control. The risk has passed when corn reaches the five-leaf stage and begins to produce roots at the base of the plant, Using seed treatments specifically for black cutworm control is not recommended, unless the field has had a continuous history of cutworm injury. For fields with a history of cutworm injury, consider planting Bt corn hybrids specifically for black cutworm control. In no-till corn fields, it is important to remove green vegetation that could attract the moths in early spring. Fall burndown of volunteer crops and weeds is recommended. Fields should be bare for at least 2 - 3 weeks before planting.

Corn Rootworm

Description: There are Western and Northern corn rootworm (CRW) in Ontario. (Figure 3) CRW eggs are deposited in the soil from July until a killing frost. Eggs over-winter and begin hatching in early June. Larvae feed on corn roots from mid-June to mid-July.

Figure 3 - Western Corn Rootworm

Risk Factors: These include fields which were in corn the previous year and had high CRW beetle populations, or were the latest planted corn field the previous season.

Scouting: Monitor 20 plants in five different locations in your field weekly from when the CRW adults emerge at the end of July to the end of August.

Management: Crop rotation is the best strategy. If crop rotation is not practical and there was more than one beetle per corn plant throughout the month of August, it may be necessary to either: plant transgenic CRW Bt hybrids, plant corn seed treated with high rate insecticide, or apply a soil insecticide to control CRW.

Corn Flea Beetle

Description: Adults are tiny (1.8 mm), black beetles. (Figure 4) Flea beetles are vectors of Stewarts' bacterial wilt, a disease that can cause corn plants to wilt or become stunted.

Figure 4 - Corn Flea Beetle

Risk Factors: Only hybrids and seed corn inbreeds susceptible to Stewarts' bacterial wilt show yield loss. Planting seasons following mild winters have higher beetle activity.

Scouting: For susceptible hybrids / inbreds, scout eve-ry 4-5 days after corn emergence. Inspect five sets of 20 seedling plants per field to determine beetle pres-ence and density. Six beetles per 100 plants prior to the fifth-leaf stage warrants control.

Management: With susceptible hybrids and inbreeds, use insecticide seed treatments and avoid early planting dates and fields with a history of Stewart's wilt. Additional foliar sprays may be necessary for seed corn and susceptible hybrids if beetle populations are very high.

European Chafer

Description: Various types of grubs can attack field crops. (Figure 5) European chafer is the most common. Proper identification of the species is important because their different life cycle influences the management strategies needed. Grubs prune roots, causing plants to become stunted and eventually die. Fields near turf (lawns, golf courses and pasture) are particularly prone. Spring feeding damage by European chafer larvae starts in April and is com-pleted by mid- to late May.

Figure 5 - White Grub Larva

Risk Factors: Sandier knolls where past injury was evident.

Scouting: Scout for chafers in the fall in standing soybean stubble fields. Scout for grubs on the sandier knolls and areas with past injury. Using a shovel, dig up 30 cm2 (1 ft2) of soil, 7.5-10 cm (3-4 in.) deep, in at least five areas of the field. Count how many grubs are found in each sample. The presence of two or more larvae per 1 ft2 (30 cm2) indicates the need for control.

Management: No rescue treatments are available for this pest. Cultural options include disturbing the soil by tillage or disking, which brings the grubs to the surface where they are exposed to the elements and natural enemies. For this strategy to be effective, plow in the fall before the grubs migrate below the plow depth. For corn, use an insecticide seed treatment that is registered for European chafer. If grub populations are high (i.e., four or more grubs per square foot), use the higher rate of an insecticide seed treatment. If the chafer population is extreme, avoid planting corn and plant soybeans instead.

Keeping the Soil Covered—Managing Crop Residues and Cover Crops

by Adam Hayes, Soil Management Specialist—Field Crops, OMAF and MRA

Protecting the Soil Over Winter

Fall harvest is almost complete. The crop has provided cover for the soil through the summer and early fall. Between now and next spring's planting, the soil will be exposed to pounding rains, overland flow from rain and melting snow, and high winds. All of these can cause

significant soil loss and strip productive soil from areas within fields. That soil is lost and the productivity of those areas reduced. A few simple measures can go a long way to protecting your soil.

50% Residue Cover

One of the easiest things to do is to leave at least 50% of the soil surface covered with crop residues in the fall. A minimum of 50% cover of corn and cereal residue (Figure 1) will protect the soil in most situations. Lighter residues such as those from soybeans and edible beans, generally require a higher percent residue cover to provide adequate soil protection. To achieve this goal, do as little tillage as possible where residues have not been spread evenly. It goes without saying that leaving all crop residues on the soil surface will provide the most protection (Figure 2).

If there are areas of the field where concentrated overland flow erodes the soil every year, consider installing an erosion control structure. Assistance in the form of expertise and grants is available from many local conservation authorities and Growing Forward 2 funding programs.

Fall and Spring Management of Cover Crops

Cover crops are another practice that can help keep the soil covered over winter. By early-November, many annual cover crops will have been killed by frost, mowed, tilled, or had an herbicide applied. Radish and oats may not be killed by cold temperatures until mid-winter. Annual ryegrass and clover will usually survive the winter.

A living winter cereal cover crop can provide good soil protection over the winter, especially on lighter soils. Consider terminating cover crops now that will be alive in the spring and difficult to control in the following crop. This includes perennials (clover, annual ryegrass) and winter annuals (volunteer winter wheat).

Once the cover crop has been terminated, if the growth is not too thick and tall (Figure 3) it can be left until the following spring and no-tilled into or worked lightly. Many cover crops have high water content or are immature at termination, so they will desiccate and melt away to leave very little residue (Figure 4). If the cover crop growth is significant, some fall tillage may be warranted, especially on finer textured soils.

Figure 1 - 50% residue cover in the fall.

Figure 2 - Full residue cover in the fall.

Figure 3 - Oat and radish growth in the fall.

Figure 4 - The same field showing oat and radish residue in the spring on a clay loam soil. Corn was no-tilled into this in the spring

Fall Forage Double Crop With Cover Crops

by Scott Banks, Emerging Crop Specialist, OMAF and MRA

Cover crops can meet your goal, whether it is to get more yield from the same acres, or to achieve 'at least 30% soil cover 100% of the time'!

Chris & Kristen Moore of Kinburn, Ontario hosted a "Corn Silage for Sheep Field Day" on September 14, 2013. As part of the day, we had planted several potential crops that could also provide late-fall grazing.

The crop species were:

- forage turnips (high and low seeding rates),
- fall cereal rye,
- winter wheat,
- spring wheat,
- oats,
- peas-oats-barley,
- common annual ryegrass,
- hybrid sudan grass,
- pearl millet and
- soybeans.

The plot area was cultivated prior to planting and then seeded with a conventional John Deere 8300 grain drill and trail packer on August 14th. This planting date fits the crop scenario where cover crops are planted following the harvest of winter wheat or spring cereals. Fifty pounds per acre of actual nitrogen from urea was broadcast across all plots. The first rainfall was about one week after planting. No herbicide was applied.

Results:

61 days after planting, each species was hand-harvest to simulate grazing and determine yield. The harvested material was then sampled to determine harvest moisture and analyzed for feed nutrient value. The pearl millet and soybeans were not harvested due to lack of top growth. *Results are summarized in Table 1.*

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Fall Forage Double Crop With Cover Crops

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Table 1 - The Harvest Moisture, Yield, Crude Protein and Relative Feed Value 61 days after from seeding

Species	Harvest Moisture	Yield*	Crude Protein %	Relative Feed Value
Spring Wheat	86%	1.39	18.9%	123
Peas-Oats-Barley	95%	1.17	20.7%	135
Turnip—High Seed-ling Rate (combined leave & tuber)	94%	1.05	21.3%	n/a
Turnip—Low Seed-ling Rate (combined leave & turnip)	95%	0.51	24.7%	n/a
Oats	92%	0.73	19.5%	122
Winter Wheat	91%	0.61	22.8%	173
Annual Rye	94%	0.53	29.9%	218
Cereal Rye	94%	0.42	31.2%	212
Sudan	93%	0.21	19.8%	142

*Yield – metric tonnes per acre adjusted to 12% moisture.

Visually the turnips appeared to have the greatest yield potential, as the sheep will graze both the leaves and the tubers. We weighed the leaves and the tubers separately.

However, at this site the spring wheat yielded the highest, followed by the peas-oat-barley mixture. In other cover crop trials, spring wheat and oats have generally provided similar yields. Crops are shown in Figures 1-5.

Figure 1 - Spring Wheat

Figure 2 - Peas-Oats-Barley Forage Mix

Figure 3 - Forage Turnip

Figure 4 - Forage Turnip - low plant density—Larger Tubers 15 October 2013

Forage Turnips

The tubers made up about 40% and the leaves were about 60% of the total turnip yield (dry matter basis). The har-vest moisture of all the species is quite high as indicative of the lush growth at this time of year. This high moisture, low fiber forage may require some dry hay or straw supplementation to provide sufficient fiber. It was also interesting to learn that turnips at a lower seeding rate produced a larger tuber. However, there was a significantly lower total yield of only 0.51 as compared to 1.05 tons per acre with the higher seeding rate. Turnips seeded at the high seeding rate had a variation in tuber size.

Hybrid sudan grass, pearl millet and soybeans are warm season species, therefore as demonstrated in this plot, these species planted late in the season would not be recommended due to lack of yield potential. Winter annuals such as winter wheat and fall rye cannot stem elongate until they have been vernalized by going through a winter, so their yield is quite limited when harvested the year of seeding.

On many farms, there is an opportunity to seed cover crops following winter wheat or a spring cereal crop such as spring wheat or oats. It should be noted that the harvested yields shown in Table 1 are from only one year at one location. Establishment costs (include seed, additional nitrogen, 1 pass cultivation and seed drill) range from $50 to $100 per acre, depending on seed costs .

These cover crops can provide 1 to 2 tons (dry matter) per acre of high quality forage in addition to the earlier grain crop in the same production year. These cover crops also provide the additional benefit of recycling crop nutrients, improving soil structure and reducing soil erosion, all to meet the goal of 'Wanted dead or alive! At least 30% soil cover 100% of the time!'

Virus Diseases of Dry Beans On the Rise in 2013

by Brian Hall, Canola & Edible Bean Specialist, OMAF and MRA

Edible beans are susceptible to many virus diseases. In 2013, there were more reports of virus-like symptoms in grower fields. Virus diseases are a sporadic pest in dry beans. Yield losses are generally low, but individual field losses can be significant. Virus diseases become more prevalent in years when aphid populations are higher.

Virus Diseases

There are several viruses which can infect and damage dry beans in Ontario. The most common are:

- bean common mosaic (BCMV),
- alfalfa mosaic virus (AMV),
- bean yellow mosaic (BYMV),
- cucumber mosaic (CMV), and
- tobacco ringspot (TRSV).

Symptoms

Early symptoms of virus infection often mimic that of other plant stress and pest injury symptoms. The most common symptoms are a light-green to yellow mosaic (mottling) appearance of infected leaves, and distortion of leaves, including downward cupping and wrinkling. Infection of young plants can cause stunting, bunchy appearance and stem discolouration. Later infections can cause bud blight, top stem death, poor pollination, and misshapen pods. Virus infection through a field can cause uneven maturity and affect overall plant vigour and pod fill. Visual symptoms may appear similar between viruses, so only laboratory submissions can confirm which virus is present.

Spread By Infected Seed

Only BCMV and CMV are known to be spread through infected seed. In the US dry bean seed growing regions, field inspection for virus infection is a common requirement. BCMV, the most serious and common of the bean viruses, is principally spread through infected seed. All Ontario white bean registered varieties and most col-oured bean types are resistant to BCMV.

Transmitted By Aphids

There are over 20 species of aphids (e.g. soybean, green peach, and pea) that can effectively spread virus infection throughout a field. Perennial legumes can act as a winter host for the viruses, and during the growing season host virus transmitting aphids. Virus diseases can also be spread by contact, or equipment that causes plant injury. Thrips have also been shown to be a vector for some viruses.

Management

1. Certified seed can help lower the risk through field inspection.
2. BCMV is the most serious edible bean virus, and the best control is to grow resistant varieties.
3. In years when aphids are a problem, late planting may increase the risk of serious infection.
4. Bean fields planted in close proximity to perennial leg-umes or vegetable crops may have higher risk of in-fection, as these crops may harbor bean viruses or virus spreading aphids.
5. Spraying dry beans for aphids will provide little protec-tion against the spread of viruses. Winged aphids move readily and can quickly spread a virus in a field.
6. Seed-applied insecticides have not proven effective in reducing aphid transmission.

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Feb 5 & Feb 12 - GYFP - Thessalon
Feb 15 & Feb 22 - GYFP - Huntsville
Feb 21 & Feb 28 - GYFP - Azilda
Feb 25 & Mar 4 - GYFP - Earlton - English
Feb 26 & Mar 5 - GYFP - Cochrane - English
Feb 26 & Mar 5 - GYFP - Massey
Feb 27 & Mar 6 - GYFP - Timmins - English
Mar 1 & Mar 8 - GYFP - Verner - English
Mar 3 & Mar 19 - GYFP - Wahnipitae
Mar 4 & Mar 18 - GYFP - Mindemoya
Mar 29 & Apr 12 - GYFP - Powassan
Apr 7 & Apr 14 - GYFP - Earlton - French
Apr 8 & Apr 15 - GYFP - Cochrane - French
Apr 9 & Apr 16 - GYFP - Hearst - French

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Jan 21 & Jan 28 - EFP - SSM
Jan 22 & Jan 29 - EFP - Thessalon
Feb 7 & Feb 14 - EFP - Azilda
Feb 18 & Feb 24 - EFP - Massey
Feb 19 & Feb 25 - EFP - Wahnipitae
Feb 20 & Feb 27 - EFP - Mindemoya



BULLETIN GRANDES CULTURES

13ième vol. 4ième édition | MAAO et MAR - des spécialistes en grandes cultures | novembre 2013

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Préparé par:

Bonnie Ball, spécialiste de la fertilité du sol
Scott Banks, spécialiste des cultures émergentes
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Horst Bohner, chef de programme, soya
Christine Brown, chargée de programme, gestion des éléments nutritifs des grandes cultures
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mauvaises herbes, grandes cultures
Brian Hall, spécialiste des récoltes de remplacement
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Peter Johnson, spécialiste des céréales
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Greg Stewart, spécialiste du maïs
Albert Tenuta, pathologiste, chargé de programme-grandes cultures

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Compilation : Patti Arts

Machinerie lourde et compactage du sol

par Greg Stewart, MAAO et MAR, et Ben Rosser, Université de Guelph

De gros pneus et de faibles pressions de gonflage sont-ils le remède à tous les problèmes?

Pour les producteurs, le compactage du sol est un problème constant qu'ils cherchent à éviter autant que possible. L'élimination ou la réduction du compactage du sol repose sur plusieurs grands principes :

1. confiner la circulation à l'intérieur des champs à des allées permanentes de manière à garder des zones libres de circulation pour la culture;
2. éviter de rouler sur des sols détrempés sensibles au compactage;
3. utiliser de la machinerie présentant des charges à l'essieu plus faibles;
4. accroître l'aire de contact en utilisant des pneus à carcasse radiale, de plus gros pneus, un plus grand nombre de pneus ou des chenilles;

Figure 1. Aires de contact et profils de compactage pour un camion-citerne Husky de 8 000 gallons rempli de fumier au maximum de sa capacité (environ 21 000 lb/pneu) chaussé de pneus à carcasse radiale Alliance Agri-Transport 35,5LR32 sous une pression de 18 lb/po² (à gauche) et de pneus à carcasse diagonale Firestone ANS Tractor 35,5L-32 sous une pression de 32 lb/po² (à droite). (Courtoisie de Sam Bradshaw, Ontario Pork, et de 2013 North American Manure Expo.)

Ministère de l'Agriculture et de l'Alimentation
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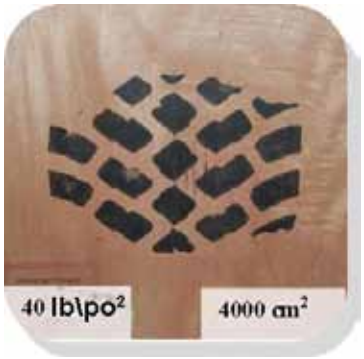
Ontario

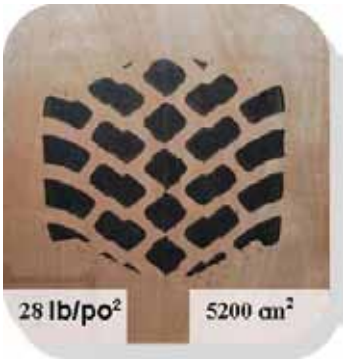
5. réduire la pression de gonflage des pneus.

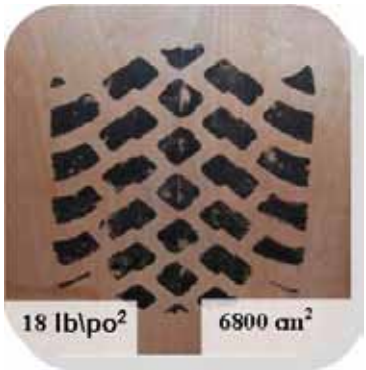
Des efforts considérables ont été consentis par les fabricants de machinerie au titre de deux de ces principes, à savoir augmenter la taille des pneus et réduire les pressions de gonflage. Ces efforts ont permis de diminuer l'aire de contact au sol et, par conséquent, l'orniérage et le compactage. La figure 1 illustre comment, pour un camion-citerne rempli de fumier au maximum de sa capacité, on obtient une aire de contact accrue et une ornière moins profonde de 10 cm avec des pneus à carcasse radiale sous une pression de gonflage de 18 lb/po² (à gauche) qu'avec des pneus à carcasse diagonale sous une pression de gonflage de 32 lb/po² (à droite).

Dans des études de compactage bien connues effectuées à l'Ohio State University, on a obtenu un compactage moins important avec un tracteur à quatre roues motrices chaussé de pneus sous des pressions de 6 et de 7 lb/po² qu'avec un tracteur à deux chenilles. Cependant, le même tracteur utilisé avec des pneus sous une pression de 24 lb/po² a donné lieu au pire compactage de l'expérimentation. Cela montre hors de tout doute comment on peut réduire

Figure 2. Aires de contact d'un pneu à carcasse radiale Alliance Agri-Transport 35,5LR32 installé sur un camion-citerne Husky de 8 000 gallons rempli de fumier au maximum de sa capacité (environ 21 000 lb/pneu) sous des pressions de gonflage de 40, de 28 et de 18 lb/po².







les risques de compactage avec des pneus à aire de contact accrue sous des pressions de gonflage spécialement adaptées à la charge à l'essieu. La figure 2 illustre comment on réduit la pression de gonflage d'un pneu à carcasse radiale sur un camion-citerne rempli de fumier au maximum de sa capacité afin d'atteindre le minimum de force portante requise lorsqu'on passe de la vitesse sur route (40 lb/po² à 25 milles à l'heure) à la vitesse au champ (18 lb/po² à 5 milles à l'heure). L'ajustement du gonflage des pneus en bordure des champs afin d'assurer une plus grande flottaison des pneus aux vitesses d'avancement inférieures dans les champs est chose courante en Europe depuis des années, mais cette pratique ne fait que commencer en Ontario.

Charge totale imposée aux essieux

L'exposé qui précède passe peut-être sous silence le fait que le compactage du sol, surtout à quelques centimètres sous la surface du sol, est aussi fonction de la charge totale imposée aux essieux. De gros pneus présentant de faibles pressions de gonflage n'éliminent pas les risques de compactage découlant de charges totales très importantes. De gros pneus peuvent en effet réduire l'orniérage ou le lissage, mais la distribution de la pression sous ceux□ci peut toujours avoir un impact négatif sur la structure du sol.

Le compactage du sol est un problème qui peut avoir des répercussions coûteuses et désastreuses sur le rendement. Des efforts devraient être consentis pour éliminer la cause de ce problème. Des pneus appropriés et des pressions de gonflage correctement ajustées peuvent réduire considérablement le compactage du sol. Il s'agit au moins d'une partie de la solution aux menaces de compactage du sous-sol auxquelles nous faisons face dans un monde où la charge à l'essieu ne cesse d'augmenter.

Fumier, phosphore et paysages d'hiver

par Christine Brown, chargée de programme, Gestion des éléments nutritifs, MAAO et MAR

Le dépôt des engrais près des semences, la gestion des résidus de culture et le recours à des cultures de couverture sont des pratiques de gestion optimales qui contribuent à éviter que le phosphore présent dans le sol n'atteigne les cours d'eau. Cependant, les fumiers épandus dans les champs nécessitent plus d'attention si l'on veut éviter les pertes de phosphore, surtout pendant l'hiver et à la fonte des neiges.

Le phosphore (P) est indispensable à la croissance des plantes. La croissance racinaire des cultures est meilleure dans les sols riches en phosphore; cependant, trop de phosphore peut être nuisible pour l'environnement. Le phosphore, lorsqu'il entre dans un cours d'eau, provoque un phénomène appelé *eutrophisation*. L'eutrophisation survient lorsque des éléments nutritifs dissous s'accumulent dans les plans d'eau et stimulent la croissance des plantes aquatiques. Ce phénomène peut provoquer des fluctuations des concentrations d'oxygène dissous, ce qui limite la vie aquatique. Parfois, la présence de phosphore dans les cours d'eau peut même déclencher la prolifération d'algues toxiques.

Le dépôt du phosphore près des semences maximise l'efficacité des éléments nutritifs. Les pratiques de gestion qui laissent le sol couvert par une culture sur pied ou une couche de résidus de culture sur au moins 30 % de la surface du sol contribuent à garder le phosphore du sol en place. Les orages violents et les pluies qui surviennent à la

Chaque hiver est différent, et les conditions hivernales varient énormément dans la province. Grâce aux études sur le sort des éléments nutritifs, nous disposons d'un plus grand nombre de mesures enregistrées pendant l'hiver et à la fonte des neiges. Le mouvement des éléments nutritifs dans les sols en hiver est souvent plus important que le mouvement enregistré pendant toutes les autres périodes de l'année combinées. La figure 1, Le *phosphore dans le paysage hivernal*, illustre ce qui peut advenir du phosphore lorsque celui□ci est exposé au jeu combiné de la fonte des neiges, de la pluie et de sols gelés ou partiellement gelés. L'eau, qui ne peut ni s'infiltrer ni percoler dans un sol gelé, ruisselle à la surface du sol. Dans ces conditions, les cinq premiers centimètres (2 pouces) de sol, qui sont dégelés et saturés (boue), peuvent facilement être entraînés par l'eau (érosion en nappe ou en rigoles). Le phosphore présent dans cette couche peut se dissoudre dans la solution de sol et être entraîné hors du champ sous la forme de phosphore dissous. De fortes concentrations de phosphore dans le sol d'un champ augmentent le risque de perte de phosphore dissous (ou phosphore soluble).

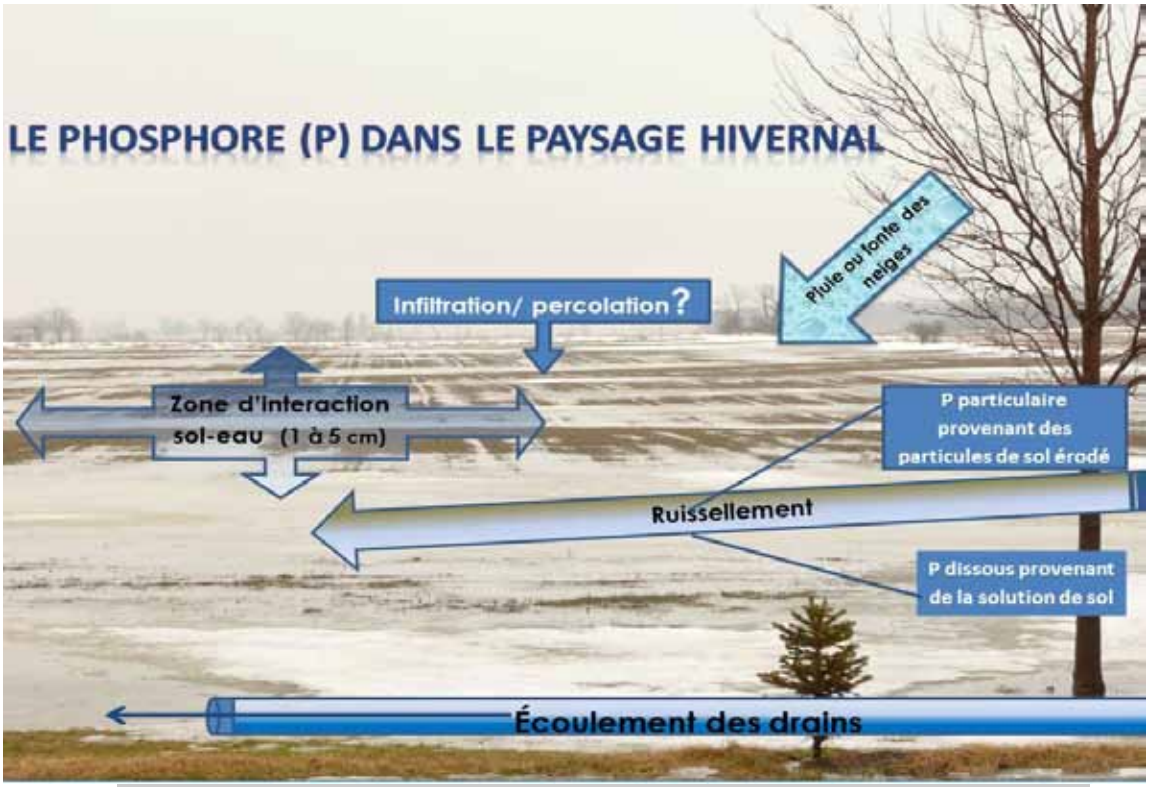


Figure 1 - Le phosphore (P) dans le paysage hivernal

Et le fumier dans tout ça?
Dans le paysage hivernal illustré à la figure 1, l'épandage de fumier après la récolte fait en sorte qu'une plus grande quantité de phosphore est présente dans la rhizosphère. Lorsque le fumier est épandu en surface sans incorporation au sol, le phosphore qu'il contient est concentré dans les quelques premiers centimètres de sol. Plus grande est la quantité de phosphore, plus grand est le risque de perte de phosphore soluble pendant les périodes de ruissellement hivernales. L'incorporation au sol du fumier épandu à l'automne réduit le risque de perte de phosphore soluble. Toutefois, l'incorporation au sol peut augmenter le risque de perte de phosphore dans les sédiments (érosion).

Le fumier et les autres amendements organiques enrichissent le sol de nombreux éléments nutritifs nécessaires aux cultures. La gestion doit donc porter sur l'ensemble des éléments nutritifs plutôt que sur un seul d'entre eux. Tant les pertes d'azote (N) que les pertes de phosphore (P) peuvent avoir des répercussions négatives sur l'environnement, sans compter que la gestion d'un élément nutritif peut aggraver les pertes de l'autre.

Le semis direct contribue à garder les résidus de culture à la surface pour réduire l'érosion des sols. Cependant, le fumier épandu à l'automne sur un sol non travaillé n'est pas incorporé en général, ce qui entraîne une certaine perte d'azote. En revanche, les températures plus froides ralentissent l'activité des microorganismes du sol, ce qui réduit le risque de perte par volatilisation. Le semis direct permet également de réduire le lessivage de l'azote quand le fumier est épandu à la fin de l'automne ou qu'il est injecté ou incorporé pendant l'hiver. Même si le risque de perte d'azote est réduit, le risque de perte de phosphore augmente avec la hausse des concentrations de phosphore près de la surface du sol.

Pratiques réduisant le risque de perte de phosphore du fumier

- **Éviter d'épandre en hiver!** Même si les éléments nutritifs n'atteignent pas les cours d'eau, le plus souvent, ils ne restent pas là où ils ont été appliqués.
- Éviter d'appliquer des éléments nutritifs dans des zones de ruissellement concentré ou à des endroits où l'eau s'écoule lors de fortes pluies ou à la fonte des neiges.
- Régler la machinerie de manière à obtenir un taux d'application précis et uniforme.
- Comme les cultures sur pied font une utilisation optimale des éléments nutritifs, l'apport doit correspondre le plus étroitement possible aux besoins des cultures.
- Épandre le fumier à des taux d'application qui répondent aux besoins des cultures.
- Épandre d'abord le fumier dans les champs dont les teneurs en phosphore sont relativement faibles.
- Incorporer le fumier et laisser idéalement plus de 30 % de la surface du sol couverte de résidus.
- Semer des cultures de couverture pour que le sol reste protégé et qu'il retienne les éléments nutritifs

Durabilité de l'agriculture – Qui la définit?

par Ian McDonald, coordonnateur de la recherche appliquée, MAAO et MAR

Le mot « durabilité » est l'un de ces mots qu'on utilise à toutes les sauces et qui a des sens différents selon qui l'on est et qui l'on veut représenter. Les environnementalistes l'utilisent, les grosses entreprises l'utilisent et les personnes ordinaires l'utilisent. Mais que signifie vraiment le terme durabilité et pourquoi est-il important de savoir comment il est défini? Le mot durabilité est le nom formé à partir de l'adjectif durable. Voici une traduction libre de la définition que donne le dictionnaire Merriam-Webster en ligne à « sustainable », l'équivalent anglais de « durable » : 1. capable de se maintenir; 2. *a.* se dit d'une méthode de récolte ou d'utilisation d'une ressource qui vise le maintien de la ressource et qui évite de lui causer un tort permanent <*techniques durables*>, <*agriculture durable*> <*développement durable*>; et 2.*b.* se dit d'un mode de vie comportant l'utilisation de méthodes durables <*société durable*>.

Durabilité de l'agriculture

Ma définition de durabilité de l'agriculture implique l'interrelation de facteurs agronomiques, économiques, environnementaux et sociaux, qui débouche sur une « agriculture performante » (figure 1). Tous ces facteurs interviennent au sein d'une relation dynamique en évolution constante. Même si la performance peut parfois être au rendez-vous sans un équilibre entre ces facteurs, cette performance sera vraisemblablement superficielle et entachée de répercussions à long terme.

Figure 1. Représentation de la dynamique sous-jacente

Si vous demandez à un agriculteur comment se porte l'agriculture de nos jours, il vous dira sans doute qu'elle ne s'est jamais portée aussi bien ou quelque chose du genre. Il soulignera les cours intéressants des denrées, les rendements à la hausse, les innovations au niveau du matériel et de la technologie et les valeurs foncières à la hausse comme autant de facteurs favorables aux volets agronomiques et économiques d'une agriculture performante.

Qu'en est-il des autres volets d'une agriculture performante? Dans le cadre actuel, négligeons-nous les volets environnementaux et sociaux?

Durabilité environnementale

En parcourant l'Ontario rural ce printemps pour travailler auprès de producteurs à des projets de recherche sur le terrain, j'ai vu beaucoup de paysages ruraux. Ce qui saute d'abord aux yeux, ce sont les vastes superficies cultivées et les mastodontes qui sillonnent les champs et les routes. Au second regard, j'ai aussi remarqué une augmentation considérable du travail du sol. Dans certaines parties de l'ouest de l'Ontario, j'ai vu peu de champs de maïs et de soya cultivés suivant les méthodes du semis direct et du travail réduit du sol et très peu de résidus de culture dans les champs, sinon aucun. Cette situation est préoccupante quand on pense que les résidus permettent de réduire considérablement les risques d'érosion du sol (figure 2).

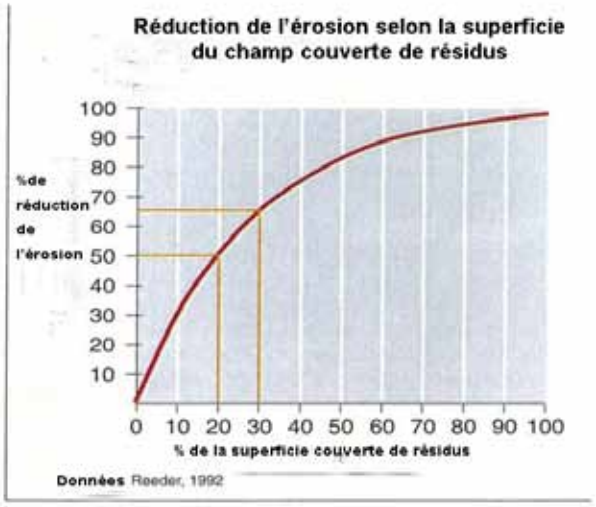


Figure 2. Influence d'une couche de résidus sur la réduction de l'érosion du sol

En raison des fortes précipitations reçues à la fin de mai, l'érosion en rigoles et l'érosion en nappes sur ces champs ont pris des proportions phénoménales. Même dans les zones où des pâturages et des cultures fourragères étaient incluses dans la rotation, l'ampleur de l'érosion était démoralisante (photo 1). Force est de constater qu'on a de moins en moins recours au semis direct et au travail réduit du sol (TRS), et ce, malgré la multiplication des études ayant démontré le peu de différences en termes de productivité, si tant est qu'il y en a une, entre le semis direct et le travail du sol suivant des méthodes traditionnelles (figure 3). Compte tenu des modèles de précipitations récents où les épisodes de pluie sont moins fréquents mais plus intenses, même les sols les mieux gérés sont vulnérables à l'érosion. Les pertes de sol surviennent également lorsque des sols secs sont exposés à des pratiques de travail du sol intensives. Pensez aux tempêtes de poussière du printemps dernier?

Durabilité sociale

Quelles sont nos responsabilités en tant que propriétaires fonciers privés et locataires? Nous sommes les gardiens et les responsables de terres, une ressource importante qui joue un rôle et peut comporter des avantages pour toute la société. Comment faire pour assurer le partage des routes, de l'eau et de l'air que nous utilisons tous?

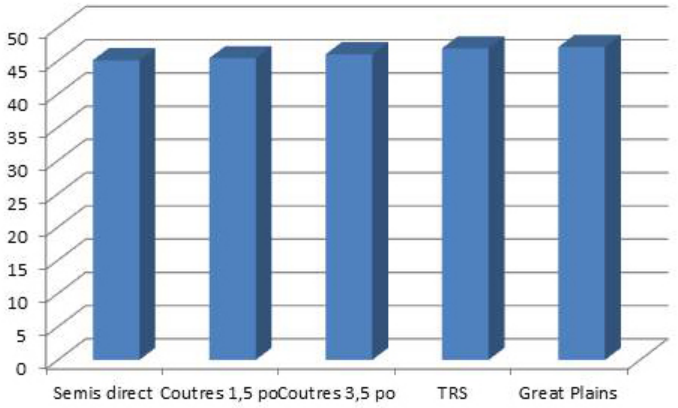
Les entreprises et les organisations de la chaîne de valeur élaborent des programmes que les producteurs doivent respecter en tant que clients et vendeurs. Les secteurs de l'horticulture et de l'élevage ont déjà commencé à mettre en place des programmes reposant sur les principes HAACP. Ces programmes sont essentiellement des pactes sociaux! Nous payons cher pour mettre en œuvre certains de ces programmes, sans compter que nos acheteurs peuvent avoir des exigences différentes ou conflictuelles. Cependant, comme les producteurs agricoles primaires et entreprises connexes représentent un pourcentage de la population qui va en diminuant, nous devrons continuer de tenir compte du volet social dans la dynamique d'une agriculture performante.

Photos 1 et 2 -
. Exemples récents de graves cas d'érosion dans des champs de l'Ontario

Photo 1

Photo 2

Figure 3. *Résultats d'essais de rendement du soya en Ontario à des fins de comparaison entre différents systèmes de travail du sol*



Herse Great Plains Turbo-Till utilisée seulement en 2006-2007 (3 essais), coutres attachés au semoir de semis direct John Deere 1560. Bohner, 2013 (45 essais de 2003 à 2007)

J'ai récemment parlé avec M. Ralph Martin, Université de Guelph, Chaire de recherche sur la production alimentaire durable des Compagnies Loblaw limitée, et M. Terry Daynard, un agriculteur, écrivain et défenseur de l'agriculture bien connu. Ils ont tous les deux adopté une démarche globale à l'égard de la durabilité, qui intègre tous les volets d'une agriculture performante. Ils tissent des réseaux de personnes et d'organisations au sein des chaînes de valeur de l'agriculture pour permettre la création de plateformes agricoles durables et résilientes. Ils estiment tous les deux que si nous ne définissons pas nous□mêmes ce que doit être la durabilité, quelqu'un d'autre le fera pour nous, et nous pourrions ne pas être satisfaits du résultat. Nous nous devons de passer de la parole à l'acte. Terry Daynard a abordé ce point à la conférence FarmSmart; sa présentation est accessible à www.ghscia.com. Vous pouvez le suivre sur Twitter à @TerryDaynard.

Forage Radish Field Trials

by Graham Gambles, RCC for NEOSCIA

A new type of cover crop, "Forage Radish" is being tested at a number of locations in Ontario. Note that this is not "oilseed" radish. Forage radish is more closely associated with the "Daikon" radish that you might see in a grocery store. Also note that it is part of the "brassica" (cabbage) family, so it should not be part of a canola rotation.

Forage radish is valued as a cover crop for rapid cover development and the ability to prevent erosion from both wind and rainstorms. However, its aggressive tap root can break up mild tillage pans and compaction within 6 to 8 weeks. The massive roots and luxuriant top growth can lead to higher levels of soil organic matter. Literature suggests that getting a different root system and different crop residues into your rotation will encourage a wider variety of soil organisms and in particular, support beneficial organisms. As a result, field crop yields can increase!

The Haileybury Community Garden was the site of a one acre test this year. Seed (from Speare Seeds) was provided by Jim Johnston (Pasture Hill Supply) of Temiskaming. The site had been unused for decades, so it had high natural levels of organic matter and no sign of compaction. Three areas were available for testing. The baseline was a well-mown sod area that had received considerable heavy equipment traffic in the spring, a second unworked site had horse manure stored on it over the previous winter, and a third site had just been roto-tilled after the manure was broadcast on it.

Forage radish seed was broadcast August 01 at a rate of about 10#/acre, with no attempt to cover it. Red clover was seeded along with it as the site was to remain inactive into the fall of 2014. Emergence was observed at mid-month, but growth seemed slow until September. At that point, rapid growth occurred both above and below the soil, and continued until the first severe frost on October 23. The crop persisted until mid November, when temperatures consistently fell below freezing. Only the odd plant had bolted to the flowering stage by freeze-up.

Forage radish, as expected, did best where the manure had previously been stored. It is a major scavenger for nutrients, especially nitrogen. It did OK in the roto-tilled area, but not as well as expected, considering that manure had been added on this site. (The nitrogen may have been tied up in the wood shavings that came with the horse manure.) The sod area that had no manure added, and had undergone spring compaction, did have a stand of radish by mid fall, but both top and root growth were less than half of that on the cultivated area. (See the photo for comparisons.)

A second test site at a horticultural operation on dense New Liskeard Clay also provided interesting results. Here, the seed was direct seeded in the spring in order to upgrade the level of soil organic matter over the summer. Cattle manure was applied to the site. Rapid germination was beset with "Flea Beetle", possibly from nearby Canola fields. Although there was some set back, the crop persisted due to its rapid growth rate, and by mid summer the plants had begun to bolt. It was necessary to remove the flowers before seeds had set, so the site was mown with a lawn tractor. Forage radish has a tendency to grow up and out of the ground, and for some plants a haircut turned into a full scale scalping with associated plant losses. Although the site was cut 3 times to eliminate the possibility of seed set, most of the radish still persisted until freeze up.

What did we learn? First, Forage Radish is a viable cover crop in the north that can be planted in either the spring or late summer, providing that it has at least 6 weeks of growing season available. It has a deep dietary need for nitrogen, possibly best supplied by either solid or liquid manure. It also can be broadcast post-harvest into sod, and it will germinate and survive under that level of competition. This ability might be useful if it spread in a band along waterways and midfield channels where runoff from late summer manure applications could endanger water resources. It would certainly have no growing problem if broadcast in a grain field that would later receive post harvest manure applications. This would result in the rapid conversion of nutrients into organic matter, while protecting the watershed.

We also know that Forage Radish is susceptible to canola pests such as flea beetle, and insecticide coated seed might be a requirement for spring planting. (Could it also be a victim of Swede Midge that is currently causing a problem for canola growers?) Spring planting will require either an early summer plow-down prior to seed set, or a system of timed clippings that will eliminate the flower without damaging the exposed root. Either way, you do not want the plant to set seed, or you will have long term competition from this crop!

It is expected that all Forage Radish will be dead by spring.The associated roots will be well decayed by planting time if minimum tillage is used, and the water channels that remain will allow moisture to seep deep into the soil.

L to R: Radish from manure storage, tilled field, and bare sod. Stake is 4' x 1"

OSCIA NEWS

A NEWSLETTER TO UPDATE OSCIA MEMBERS, PRESIDENTS, SECRETARIES, TREASURERS, DIRECTORS, AND OMAF/MRA AGRICULTURE DEVELOPMENT CONTACTS

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Ontario Soil and Crop Improvement Association
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E-mail: oscia@ontariosoilcrop.org

ATTENTION SEED GROWERS!

OSGA'S 2013 ANNUAL MEETING

When: December 3rd, 2013
Where: Four Points Sheraton, London ON

RSVP by November 22nd
1-519-826-3152
or
amber.vandepeer@ontariosoilcrop.org

Message from the President - Henry Denotter

Another growing season is coming to an end and it is time to reconcile last spring's thinking with what was experienced. This reflection could result in a change of practice or even more important, an OSCIA project idea. This could be a local trial with several fellow members or maybe a bigger trial for which you apply for help in the form of a regional grant.

These ideas are all important so make sure you follow through. They do not need to be elaborate, "thinking outside of the box" or high profile projects. Variety trials, especially independent ones, are still highly sought after. I know in Essex County Independent Corn Adaptability Trials (ICAT) projects have continued for quite a number of years and the presentation of results from these is a highlight at the local annual meeting.

To best serve the interests of our members, OSCIA continues to explore opportunities to align with other organizations to expand both research and knowledge transfer.

Markets and weather have kept up their usual volatility while keeping everyone on their toes.

OSCIA has been busy as we knew we would be. Growing Forward 2 applications for Capacity Building funding assistance have been and are continuing to be received and processed. With the first intake for Implementation funding assistance closed, the Guelph office is very busy evaluating the projects. EFP and GYFP workshops are in full swing.

Another successful Ontario Forage Masters competition took place. Four great presentations were made in Guelph, but as always we had to choose a winner. OSCIA would like to congratulate Paul De Jong from Grey County for winning 2013's competition. Paul will now compete for Ontario in the North American Forage and Grassland

Council competition in Memphis, Tennessee, January 12-14, 2014. We wish him well at this event.

Of course the bee issue is still on the front page of newspapers. OSCIA is awaiting Tracey Baute and Art Schafsma's report, and it will be interesting to see the reaction to it. Both Tracey and Art are scheduled to be at the Southwest Agricultural Conference (SWAC) and OSCIA's annual meeting. This whole issue has opened some big concerns with seed treatment options. Make sure you look at them and make a scientific decision. We need to be leaders not followers.

The days are getting shorter and it is cold outside so perhaps attending an information meeting or workshop in your area is the place to be. Being well informed is your best ally.

Season's Best.

Henry Denotter, President, OSCIA

Advancing Crop Technologies with Grants to Regions and Counties/Districts

One of the major agricultural events that OSCIA participates in each year is Canada's Outdoor Farm Show. OSCIA partners with OMAF Field Crop staff to develop information displays and demonstration plots at our show site. The OSCIA/OMAF tent and plots traditionally attract many producers looking to learn about the plots, to talk and ask questions of both OSCIA and OMAF staff.

For the past three years, Ontario Agri-Food Education (OAFE) has been working with high schools across the province to organize farm show tours for students in High Skills Major Programs in agriculture, horticulture, environment and food course streams. OAFE teacher ambassadors bring groups of these students through our demonstration plots to learn about OSCIA, OMAF, and what our organizations do. Staff are also asked to talk about their careers in agriculture, and to emphasize the varied career options available to students in the agricultural field.

OAFE is dedicated to increasing agriculture awareness in elementary and high schools across Ontario,

providing curriculum based learning resources and fully teacher certified ambassadors to deliver teaching sessions focusing on agriculture, environment, food and health tailored to the ages and learning needs of all students.

OAFE has recently launched a new website, www.growingcareers.ca, in order to provide resources to both students and teachers. Did you know there are three jobs out there for every graduate with a bachelor's degree in agriculture? Growingcareers.ca will help students find out what types of career opportunities exist in agriculture, and how and where to start looking for them. The student section also includes over 40 videos of career profiles featuring people working in many varied positions in the agri-food industry. The teacher resource section provides subject specific, curriculum based teaching information, as well as guides to help teachers provide students with detailed information on the career options in both agriculture and food processing.

OSCIA is proud to be a corporate member of OAFE.

Students down in the soil pit with OMAF staff describing soil structure and tree root growth.

Cathy Dibble, Lead Regional Communications Coordinator, OSCIA

75th Anniversary for OSCIA - 2014 *Special Recognition Awards*

In 2014, OSCIA will be 75 years old! To commemorate this special year, the OSCIA Board of Directors will provide several opportunities for their members to participate in the celebrations:

1. **Soil & Crop Lifetime Achievement Award**
   Eleven Regional Winners to be Recognized
2. **Photo/Video Contest taken through 2013**

Please also note:

1. The Photo/Video competition is now up and running, with the submission form available on the OSCIA website at: http://www.ontariosoilcrop.org/oscia-photo-video-contest-2013.htm; please see website for further details.
2. Deadline for Provincial submission is **November 30, 2013**.

For more information please contact your Provincial Director.

2013 Ontario Forage Masters Winner

OSCIA is proud to announce the 2013 Ontario Forage Masters winner, Paul De Jong from Grey County!

The winner was announced at the Royal Agricultural Winter Fair (RWAF) on November 6th during the 4-H Ontario Award Ceremony.

Winner Paul De Jong and OSCIA President Henry Denotter

As the winner, Paul has been invited to compete at the 2014 American Forage and Grassland Council Forage Spokesperson Competition in Memphis, Tennessee on January 12-14, 2014. We wish Paul all the best in the next competition.

The *deadline* to enter for the next Ontario Forage Masters program is **April 18, 2014.**

Contact your local SCIA or visit our website www.ontariosoilcrop.org for an entrance package and competition eligibility and guidelines.

You could win great prizes from our sponsors, and as a finalist, tickets to the Horse Show at RAWF, along with one night's accommodation as part of the program.

OSCIA Annual Meeting

"Who Defines Sustainability?"

February 4 & 5, 2014
Lamplighter Inn & Conference Centre, London.

Grassroots Innovation Since 1939

Featuring:

Ontario Forage Masters Winner, Paul De Jong from Grey County

Keynote Speaker Terry Daynard, Professor Emeritus

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

Seed Bytes - Significant Changes to Seed Field Inspections for 2014

The privatization of field inspections for seed production will begin in 2014. At the same time, inspection reports and certification of seed lots will be authorized digitally. For seed growers, these changes are significant and detailed instructions with critical timelines and updates will be provided at the Canadian SeedGrowers' Association (CSGA) website:

http://seedgrowers.ca/alternative-service-delivery-updates/

Visit this website regularly in the spring of 2014 as some details are under development.

Harold Rudy, Secretary Manager, OSGA

George Morris Centre Study Summary

OSCIA completed a recent investigation in conjunction with the George Morris Centre and the Loblaw Chair in Sustainable Food Production at the University of Guelph to determine if the very successful Environmental Farm Plan (EFP) can play a role in sustainability demands of the agri-food supply chain.

Key findings from the study identified that EFP is a familiar platform embraced by the farm community where its strengths provide a solid awareness and educational program to producers in a confidential and voluntary manner, defining best environmental practices with provision of an action plan for continuous improvement, something no other environmental platform provides. requirements without compromising confidentiality of unrelated information or duplicating information with myriads of other platforms that attempt to arrive at the same outcome. The study also concluded that retailers knew nothing or very little about the EFP, which is something OSCIA hopes to change through a new partnership with Provision Coalition, a coalition of 11 member associations representing the sustainability interests of food and beverage manufacturers of input supply sectors across Canada http://provisioncoalition.com/Home

Investment in this project has been provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In Ontario, this program is delivered by the Agricultural Adaptation Council.

The George Morris Centre (http://www.georgemorris.org) is a national, independent, not-for-profit economic research institute focused exclusively on the agriculture and food industry, providing research, analysis, education and information. The full report may be obtained at: http://www.ontariosoilcrop.org/en/resources/publications.htm

Harold Rudy, Executive Director - OSCIA

VISIT OUR WEBSITES:

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

OSCIA Directors Meet with OAC Researchers

Guelph, ON - The Directors of the Ontario Soil and Crop Improvement Association (OSCIA) recently met with a number of key researchers from the Ontario Agricultural College (OAC) of the University of Guelph to discuss research needs and opportunities for further collaboration.

“OSCIA has a long history of working with researchers from the Ontario Agricultural College and extension staff from the Ontario Ministry of Agriculture and Food and the Ministry of Rural Affairs”, says Henry Denotter, President of OSCIA, “so it is logical that we connect from time to time to meet new researchers to become better acquainted with their area of expertise to open up the lines of communication.”

Eleven researchers from OAC outlined their area of expertise. “It is important that our faculty continue to stay connected with important stakeholders regarding their research and also recognize the importance and value of research conducted on farms, such as through members of OSCIA”, says Dr. Rob Gordon, Dean of OAC. “The meeting was a great opportunity to showcase to OSCIA the varied expertise of our faculty and there are many areas for enhanced collaboration. A key priority of our research is extension and service to the various stakeholders and groups such as OSCIA."

Gordon also shared that “OAC faculty are recognized globally for the impact of our research and we annually access more than $56 million in funding to support our research programs. But we also need to make sure that the primary beneficiaries of our soil and crops research are Ontario farmers.”

OSCIA’s mission is to “facilitate responsible economic management of soil, water, air and crops through development and communication of innovative farming practices”. OSCIA’s research committee has identified and ranked their research priorities: soil health and biological interactions of soil; residue and tillage management for crop production and soil erosion prevention; economics and agronomics of emerging crop treatments and new crop development, especially related to adaptation to climate change; bio-economy impacts, such as from biomass production, residue management and biosolids application as it relates to soil management; manure and municipal bio-products such as green bin materials and biosolids.

The researchers and their area of expertise are appended. For further information, contact:

Ontario Soil and Crop Improvement Association
Harold Rudy, Executive Director
harold.rudy@ontariosoilcrop.org

Ontario Agricultural College
Dr. Beverley Hale, OAC Associate Dean, Research & Innovation
bhale@uoguelph.ca

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

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

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

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

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

"The bigger mistake people make in life is not trying to make a living or doing what they most enjoy."
– Malcolm Forbes

QUINOA - Ontario's New Premium Food?

by Heartland Soil and Crop Improvement Association *WINTER 2013*

Two years ago the word 'quinoa' was unknown. Now, 80% of people have not only heard about quinoa, they have eaten it in the last week. Jamie Draves of Katan Kitchens, spoke about this crop at a field day held at Herrle's Market near St. Agatha.

Currently, 20 million pounds of quinoa are imported into Canada annually. To replace half the imports to Canada an estimated 10 000ac of quinoa are needed. The market is growing, so the required acreage is expected to grow as well.

Quinoa is an easily digested complete protein. Not a grain, but a seed, it is the most nutritionally complete plant available, and is the only one to contain all nine amino acids. It has also no taste, which makes it a flexible ingredient in cooking.

It is a traditional food in South American. There is some controversy over wealthier nations importing this high quality food crop from countries with serious nutrition problems. There is also no standardization of the crop, finding sufficient qualities for import, of sufficient quality, can be challenging.

Canada currently imports whatever South America can ship. Clearly there is an opportunity to grow this crop locally.

Working with funding from the AAC, Jamie started growing some very small plots in various parts of Ontario in 2012. For 2013 plots were planted all over Ontario, except in the far northwest.

With the help of Duane Falk at the University of Guelph, a quinoa breeding program is being developed to help identify and propagate some hardy varieties that are suited to Southern Ontario. They are also trying to establish a more uniform stand that will be easier to harvest. Currently, with no standardization, a field of quinoa looks rather like a field of weeds, with plants of all sizes and heights.

Currently, they are trying to establish some basic knowledge about the crop. How dense should it be planted? At what row spacings? Is there an optimum density to reduce weed pressure? Do we need a burndown pre-harvest? Can we combine it? Can we combine it without loosing too much seed? How can we modify existing equipment to maximize harvestable yield? Can it be a rotational crop?

Research is also being done to generate input curves and make some basic fertility recommendations. It seems that as long as the soil has a good phosphorous level, very few inputs will be needed.

In 2012, plots were planted in late May, no rain fell until mid August in many areas, and the yield were still good. It is a good crop for Southern Ontario, and is well suited to conditions we expect to become more common in the future.

Interestingly, the quality of the quinoa grown in Ontario is better than many of the imports. Jamie and his team wonder if it's because of the increased soil quality. Quinoa is such a hardy, resilient plant, it excels at absorbing available nutrients. When there are more nutrients available, the quinoa utilizes them.

Jamie is looking for 500-1000ac to plant next year. He is looking for partners now as it is time to prepare the fields. Quinoa does best in a pH neutral soil.

Interested growers should contact Katan Kitchens. Jamie is looking to build long term relationships. He is looking a small space commitment for trial planting, and hopes to expand on the area in the future.

"There is a huge area for research in this crop, can lead it!" (Jamie Draves).

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

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

NEOSCIA & NWOSCIA in "Paired Partnership"

by: Graham Gambles, Regional Communication Coordinator, NEOSCIA

In the spring of 2013, the Ontario Soil & Crop Improvement Association announced the availability of a new partnership grant, specifically to benefit closely associated regions. At the annual meeting of the NEOSCIA at the Earlton Farm Show in April, the newly elected executive decided to invite our sister organization from N.W. Ontario to join with us in a two year partnership. The field research proposal was to evaluate the new SAMCO corn/mulch seed drill on the cooler soils of northern Ontario.

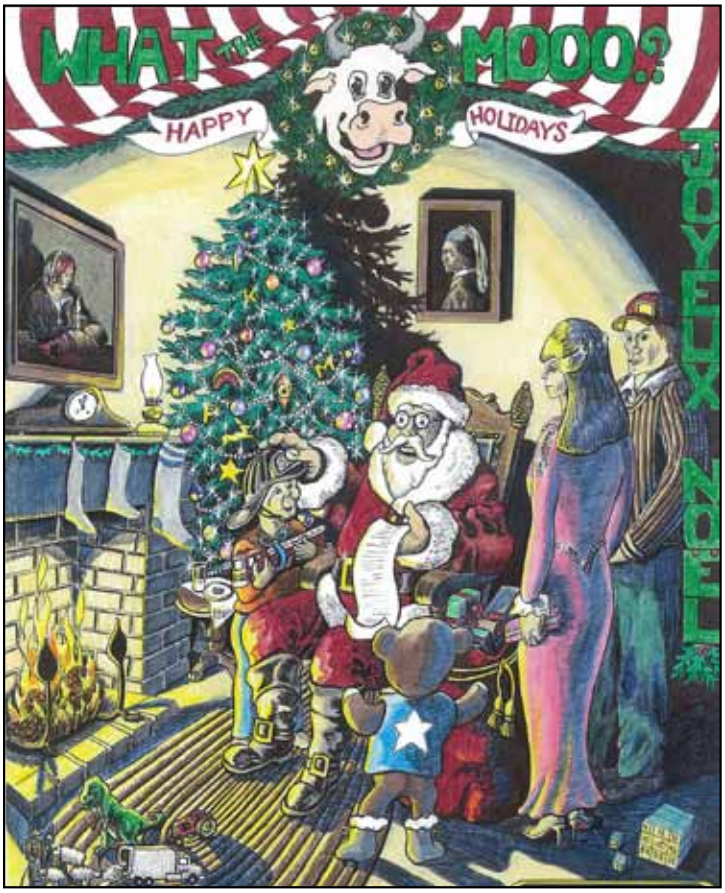
With this newly announced grant, OSCIA would provide $5000 in support to EACH of the partners in both 2013 and 2014. The initial proposal by the 2 regions would have seen a 2 row SAMCO demo unit being used for field trials in a number of districts across NE and NW Ontario. Unfortunately, there was not sufficient time to develop this proposal. The back up proposal was a little more limited in scope, but will provide long term research benefits for the entire North.

This year, a 20+ acre SAMCO field trial at the farm of Terry and Jack Phillips in Temiskaming would be supported by using the paired partner grant to pay for laboratory services and specified field costs. (View the results of this project on page #3.) The NW region, without a SAMCO unit of their own, would not participate in 2013. However, in 2014 a group of 5 farmers will buy a full size SAMCO unit and begin trials on all 5 farms. NWOSCIA has also applied to additional funding agencies (such as "Agricultural Adaption") to help offset the costs of the unit. In Temiskaming, the owners of the locally operated SAMCO units will be invited to participate in additional trials.

http://www.youtube.com/watch?v=x7OQwNGPEp0

Our Entire Organization Joins in Sending Holiday Greetings with every Good Wish for the New Year

Notre Organisation Entière Vous Envoie Le Meilleurs Voeux pour les Fêtes et Meilleurs Souhaits pour l'An Nouveau



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