



Breaking Ground

(in Northeastern Ontario)

Fall 2013

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

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Alternative "Agriculture" For The North

Over the past decade, there have been many full time farmers who have sold the farm but severed a few acres around the homestead for gardens, lawns, and reforestation purposes. Others have made the move to a new land holding, often complete with a significant woodlot. At the same time, mature folks without a rural background have come to the country and developed Estate Lots, some complete with a horse and hobby farm. Meanwhile, a generation of farm youth are linking with urban partners who may not have an interest in traditional farming, but want to contribute their professional skills to the farm. At a certain point, most will wonder what they can do with their piece of rural heaven that will turn a profit without a huge investment in more land and equipment.



Hazelnut

Over the summer, a number of meetings were held to promote new opportunities afforded by intensive agriculture on small rural holdings. The most unusual was the recognition that the back woodlot may have economic resources of mushroom and fungi that are now in demand by medicinal research and "Foodies" the world over. In Brampton, the makers of Nutella (a hazelnut chocolate spread) are building a huge new factory and asking farmers south of the 401 to establish 20,000 acres of hazelnut orchard in the

next decade. Although the varieties that they demand will not grow in the north, the research for this project has determined specific varieties that will grow in climate zones 2, 3 and 4. There is a demand for these nuts in the urban marketplace of Southern Ontario. And then there is Haskap berry.



Haskap berries

NEOSCIA is currently involved in a region wide evaluation of this crop involving 16 growers. Many more have already stated their interest to become involved.



Chaga Mushrooms Shiitake Mushrooms

In this issue, we will take a look at these new positive trends in agriculture that will involve northern farmers. If you have a mature woodlot, a small acreage around the home, or an irregular piece of land that won't let you turn a modern piece of equipment in, flip the page and consider the new opportunities in "agriculture" that await.

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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Hazelnuts as a diversified opportunity

John Kelly, Director, Ontario Hazelnut Association



There has been a lot of discussion on the future for hazelnuts in the province of Ontario. This crop may be a good alternative for growers in northern Ontario as well. Hazelnuts have many advantages as a crop – they require very few inputs and also don't require a lot of a labour. Whoever is going to grow hazelnuts, however, must have an orchardist's mentality. This is a crop that is not going to yield commercially for at least 4 years, but when they do come into production, they will continuously yield for many, many years. It has been stated that wherever one can grow an apple tree, a hazelnut tree can also be grown. Generally this is a true state-

ment, and in fact the range for hazelnuts may be larger. There are hazelnut trees that are grown in Saskatchewan for example. There are however some significant varietal differences that must be considered. In northern Ontario, these must be cold tolerant and Eastern Filbert Blight tolerant. While there are some varieties which will grow in the north, and provide excellent quality nuts to the fresh market, it is yet uncertain if the industrial paste market will use the varieties that thrive in the north. This is a topic that needs to be further investigated, so for the present, the main market for hazelnuts in the north is likely the fresh market. This market is not saturated and does represent opportunity.

The newly formed Ontario Hazelnut Association (OHA) is looking into developing new markets for hazelnuts, including extending the range for industrial hazelnuts and to diversify the market opportunity. The OHA will also be providing information sessions on growing hazelnuts, developing communications to the industry and working closely with end users of hazelnuts to grow the sector. Look for the fifth annual Ontario Hazelnut Symposium in March 2014. For more information on the OHA and on how to join the association, please visit www.ontariohazelnuts.com or contact Shelley Imbeault (shelleyimbeault@ofvga.org).



Northern Hazelnut Varieties

by Linda Grimo (Nut.Trees@grimonut.com)

For those living in colder regions of Ontario there is a great desire to grow trees that will produce an edible nut crop. Through breeding and selection hardy hazelnuts are providing that opportunity.

Eastern Filbert Blight is devastating to hazels and breeding selections are first made based on immunity or high resistance to the fungus. Elliptical black stromata reveal filbert blight fungus on the branches of susceptible hazels which eventually kill the tree.

Two species of hazels are native to much of North America and can grow up to the tree line in the near Arctic in Canada. The hardier of the two is the beaked hazel (*C. Cor-nuta*); so named because the husk covering the small nut completely enclos-

es it and it looks some-what like a birds head and beak. It is a small bushy tree with multiple stems emerging from the ground and reaches a height of 1 metre. The nuts are pea size and thick shelled.

The American hazel (*C. americana*) is found in Southern Ontario. This species grows to a height of 2 metres and is found in forest openings and along fence-rows. The nuts are larger, about 1 cm in diameter with a slightly thinner shell than the beaked hazel. Two hardy selections of the American hazel have been named "Winkler" and "Rush". Their nut size is medium-large with fairly hard shells.

Ernie Grimo made 2 hybrid selections that demonstrate hardiness, ripen the nuts in mid-summer, and release the nut cleanly

from the husk. Both "Het 1" and "Het 3" produce medium size nuts that ripen mid-August. The trees are highly blight resistant. Other selections using hardy trees from Manitoba show good blight resistance and superior hardiness. More research is needed to test their flower and catkin hardiness in zones 3 and 4.

There is not a great demand for the small beaked hazel, but Grimo Nut Nursery offers hardy seedlings grown from the seed of their hardiest Northern selections. These are suitable particularly for zone 4, but some are hardy to zone 3. These Northern Hazel Seedling trees provide excellent nut crops for those who live in colder climates.

Agri-Food & Health for Northern Ontario

By: *Graham Gambles, RCC for NEOSCIA*

Innovation Initiatives Ontario North (iion) held an “unusual” conference at Hidden Valley Resort in mid-September. iion took the basic theme that “good food is the best medicine” and came up with a list of speakers that provided an insight into the benefit of specialized food sources that could be used to promote better health and even sources of medicinal products. A good portion of the event went to the production and collection of mushroom/fungi that may be growing in farm woodlots, or could be developed as a new farm product.

We have heard much about “Superfoods” recently, such as Quinoa and Amaranth, and it is nice to know that they can be grown here in the north. Field tests are currently underway for Quinoa at NLARS in Temiskaming, and at a site in the Cochrane district. The chief promoter of these “pseudo cereals”, Jamie Draves of Katan Kitchens has partnered with OSCIA (and others) to get the word out to northern farmers that yes, there is great potential to develop this new food source in the region. He believes that his testing will show that Quinoa and other “Superfoods” need fresh land with little history of pesticides, combined with a climatic limitation in order to produce crops with the highest level of nutrients. These new (to us) food sources are highly thought of by the Canadian Celiac association.

Along the same vein, Danielle Franz, founder of “Troinoa” gave the guests a taste test of her newly developed “probiotic iced kefir” which can be used as an ice cream replacement or frozen dessert. Kefir is an organic milk and bacterial culture that introduces live micro-organisms to the human gut, thereby improving digestion. It is a functional food that is comparable to Greek yogurt. Her brand, “Yogalicious” has made its way into some grocery stores in southern Ontario.

However, the potential production for mushroom/fungi collection from northern woodlots (and forests) was the primary theme of this conference. Here in Canada, there is very little history of fungi collection for human consumption, probably due to continual cautions in the media to avoid mushrooms due to their potential to be poisonous (or hallucinogenic). Conversely, across Europe and even Russia, local populations collect and sell wild mushrooms much in the manner that northerners deal in wild blueberries. If our farm community wants to provide food and medicinal resources from our woodlots, the potential is there, provided that we educate ourselves in this new production area.

Consider “Chaga”, a black fungi that grows on both white and yellow birch. Grant Lauzon, President of Northern Harvester’s of North Bay, spoke about the presence of this fungi in the “Great Lakes Deciduous Forest area, between 45 and 50 degrees north (the area that encompasses the NEOSCIA region). For centuries, this product has been collected across Europe and Siberia for

its gastronomic medicinal uses. Today it is being evaluated as a potential cure/inhibitor for some cancers. In a birch dominant hardwood forest, the substance is more valuable than the trees that it grows on. Mature specimens, 4 or 5 years old, may fetch \$30 per pound. The best part is that they grow back on the same trees relatively quick, and are a sustainable woodlot product – compared to normal clear-cut forestry practices. Check out your woodlot this winter, and especially before you start timber harvesting!

The owner of Haliburton Forest, a huge private tract in the Muskoka area, spoke on how he is combining fungi collection in the forest with wood production and tourist accommodation. Dr. Peter Schleifenbaum has identified over 500 mushroom species in his massive woodlot. He has the Chaga collected prior to timber harvest and has found that the timber resource is only worth 1/3 the value of the fungi. Chaga has a quickly developing market in Canada. He is also growing Shiitake mushrooms on lower grade hardwood logs collected from the forest. Holes are drilled into the logs and fungi laden sawdust is pressed into the holes. The logs are water saturated, and within a year, a wild horticultural crop is harvested, fetching high prices in big city farmers markets.

Shiitake have also been identified as a natural way to deliver a vitamin D extract to sufferers of skin damage such as psoriasis and excessive skin tanning, a problem that is widespread in Canada. As such, the demand for new medicinal delivery systems is growing in the health field, providing a new opportunity for the farm community. Bruno Pretto of Mycosource (<bpretto@mycosource>) produces and sells Shiitake “thimble spawn” for use in the inoculation of hardwood logs. The practice, formerly limited to southern Ontario, has now been proven to be practical in woodlots as far north as Sudbury.

Dr. Jack Hay of Moon Bay Biological, confirmed the potential value of Shiitake mushrooms both as a food source and as a source of medicinal extract. His greenhouse grown Shiitake are valued at \$8/# in farm markets and \$12/# for prime specimens sold to restaurants. His Parry Sound property is also a source of many fungi that are being evaluated as pharmaceuticals at UBC and Mount Sinai Hospital.

Interested in learning more about the potential for fungi production on the farm? Start with a mushroom identification course! In Temiskaming, contact SCIA member Simone Holzamer (705-647-6921). She now provides a one day initiation to mushroom collection, featuring Richard Aaron who is a free-lance educator based in southern Ontario (natureteacher1@gmail.com).

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Energy East in Farmland

By : *Graham Gambles, NEOSCIA Regional Communication Coordinator*

The proposed TransCanada gas/oil pipeline conversion project will, if it is given the approval, take place in 3 of our NEOSCIA Districts. These are Cochrane, Temiskaming, and East Nipissing/Parry Sound. The company held a series of open house information sessions throughout this area in mid summer, offering the local population the chance to learn more about the proposal. TC came well prepared for their stop in Temiskaming Shores, with possibly as many as a dozen specialists, all armed with background papers and a series of large scale maps and photographic talking points. The weather, being excellent for a change, did not allow for many farmers to attend, although the urban community was well represented.

Most people were concerned about the effect of a potential oil spill on the water resources. TC pointed out that their first line of defence is continuous monitoring, with thousands of points on the entire gas line

being monitored continually, with instant data logging in the control rooms. In addition, they undertake biweekly inspections by air and follow up by ground inspection. They also do in-pipe inspection (on a much more limited basis) with x-ray units that flow through the pipe with the gas (or oil), checking for weak spots in the system. At this point in time, they do not use any modern satellite based remote sensing equipment (such as the equipment that Nipissing University is testing on area farms to monitor growth factors) to monitor the line.

The most direct effect on the farm community will be seen where there is a current (or new) pumping station, and they will be installed every 30 km. Work will also take place along roadways where more surface reinforcement will be required at crossings. Once the gas is removed from the line, the in-pipe x-ray equipment will be sent through the entire line, and will identify any potentially weak lengths of

pipe. These would be dug up and removed, so could cause a potential disruption at certain points in farmland. They point out that these locations are most common where heavy machinery is continually crossing the line at specific points, such as a new logging road associated with a forestry operation. Random crossing by heavy farm equipment should not cause a problem.

They do admit that a sudden rupture of pipe would cause local pollution problems, but point out that the pumping system should immediately shut down the line at each end of the break, thereby removing the pressure that forces the fluid out of the line. Gravity would then dictate how far the oil would spread. However, a small leak that did not cause a massive rupture could go undetected for a much longer period of time, if it was not large enough to be detected by changes in line pressure. These would eventually be found by air or surface monitoring.

TC is eager to talk to everyone about this project, which would convert one line (of the three gas lines that run through the area) into an oil pipeline. The community contact for farmers is Dan Stencil, who is based at the North Bay offices for TransCanada Pipeline.

2013 Twilight Crop Tour

Temiskaming Crop Coalition's annual summer tour brought out more than 150 visitors to a BBQ held at Koch Farms of Earlton, followed by a bus tour. Milling oats comparisons were made at Bowmanlea Farms, Soybean seeding equipment was viewed at Kevin Runnalls farm, and corn under plastic was observed at Phillips Seeds. Year end results of these 3 sites will be entered into a later edition of BG.

Tim Greer gave a talk on the re-minted Lilley Bee Apiaries, founded in 1944 by grandfather Harold Lilley. That original operation was developed upon the request of the Provincial government to meet the demands of local crop pollination. After almost 7 decades, a new facility was purchased in 2012 to house the honey extracting and packing equipment. Lilley Bee operates about 1500 hives (there are about 4000 hives in Temiskaming every summer, run by 3 operators). Local hives usually average 100# honey, compared to the provincial average of about 80#. Note, however, that past records show that local hives would produce up to 200# yearly when trefoil was being pollinated.

Lilley Bee hires local youth to help with the operation, and over the years there have been more than 100 teens involved. Greer reminds farmers that they must not spray pesticides when bees are working the fields. The best time to spray is at night or in the EARLY morning. Fortunately, with new GPS guided equipment, concerned farmers can easily work their fields at night and avoid decimating the fragile bees with pesticides. See more on bee/pesticide management in the OMAF Crop Notes .New Liskeard Agricultural Research Station, (currently in its 91st year) was also

a popular stop, especially with the recognition that University of Guelph may pull out of the operation in 2014. Technician John Kobler said that there were 3890 test plots present in the 2013 trials. Some of the trials were as follows:

conventional soybeans vs Roundup Ready varieties, traditional corn seeding vs corn under plastic (late season planting), oats trials, wild oat management, Miscanthus (and associated grasses) biomass trials, as well as hybrid poplar biomass trials. Quinoa was also tested for nitrogen rate and carbonatite organic fertilizer response.



TCC Twilight Tour BBQ event at Koch Farm, Earlton, recorded by Nipissing University's miniature unmanned remote sensing aircraft. This unit was being used to record nearby field crop test plots at the time.

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Using Fungicide-Only Treated Seed and Following IPM

Tracey Baute, Field Crop Entomologist – Program Lead, OMAF and MRA

Ontario has experienced significant honey bee kill incidences during corn and soybean planting during the past two years. Based on the analysis conducted by PMRA the neonicotinoid (i.e. Poncho, Cruiser) seed treatments are the likely cause. To try to mitigate the risk of these incidences, best management practices (BMPs) have been implemented. As we learn more about the issue, the BMPs will be strengthened with further steps to help reduce the risk. Information on the current BMPs can be found at www.omafra.gov.on.ca/english/crops/facts/reduce-riskpollinators.htm

There are many components of the BMPs for reducing the risk to bees at planting. One important component is to go back to following Integrated Pest Management (IPM) and make a choice to use non-insecticide treated seed in fields that don't have a history of pest issues. Fewer fields planted with neonicotinoid seed treatments helps reduce the chance of bees coming into contact with contaminated planter dust. We have seen the use of neonicotinoid seed treatment evolve from being used on those acres that needed it for specific pest problems, to being used on nearly 100% of corn acres and 65% of soybean acres in Ontario. Not all of those acres have pest problems.

Because of the risk to pollinators, some growers are considering ordering non-insecticide treated (fungicideonly) seed. Others are uncertain because they are not sure what their pest risks really are. Based on my experience, only 10 to 20% of the corn and soybean acres are actually at risk of most of the soil pests on the product labels. But where are those acres and who are most at risk?

The key soil / early-season pests that the neonicotinoid seed treatments protect corn and soybeans from include seed corn maggot, wireworms, grubs (chafer, June beetle), black cutworm, corn flea beetle, corn rootworm, bean leaf beetle and soybean aphids. Some fields are more at risk than others. So what are these risk factors?

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Using Fungicide-Only Treated Seed and Following IPM

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High Risk Factors

1. Soil Type

Heavy clay soils are prone to corn rootworm infestations, but crop rotation and using rootworm Bt corn hybrids are more effective control options that should be considered. Fields with sandy soil are most likely to have grub or wireworm issues. If you look at a soil map of Ontario, the sandy soil areas very closely match our grub and wireworm hot spot areas. Wireworm and grubs can be scouted for in the early fall, since they are the same larvae that overwinter and feed on the crop in the spring. Digging in sandy knolls or in problem areas where crop emergence has been a concern can help determine their presence. Bait traps can also be used to monitor for activity. For information on how to scout for grubs and wireworms, refer to <http://www.omafra.gov.on.ca/english/crops/pub811/13general.htm#soilpests>.

2. Crop Rotation

Fields following alfalfa, sod or other grassy crops (corn, wheat, etc) are prone to wireworms and grub infestations. Corn following corn is prone to corn rootworm infestations.

3. Field / Pest History

Some growers know they have a pest issue. Most growers who have grubs, know they do because even the neonicotinoid seed treatments can't protect the crop as well in heavy infestation years. Gaps in the stand are still noticeable in these situations. Growers with wireworms tend to experience this too. Early season bean leaf beetle infestations tend to be more prevalent in the 5 most southern counties of Ontario, especially those planted early and those neighbouring alfalfa fields.

Time of Planting Relative to Neighbouring Fields – The earliest fields to emerge in any given area are most attractive to bean leaf beetles (soys), black cutworm (corn) and corn flea beetles (seed corn). The latest planted corn fields from the previous year are likely to have higher corn rootworm infestations in corn the next year.

4. Mild Winters

The milder the winter, the easier it is for the beetle pests in particular to overwinter. They overwinter at the soil surface under crop debris and leaf litter. Springs following mild winters are at high risk of bean leaf beetle and corn flea beetles infestations.

5. Cool, Wet Springs/No Till Fields

Cool, wet soil conditions in the spring

leads to poor crop emergence, which gives the soil insect pests in particular the upper hand. Wireworm and grub feeding can be prolonged, keeping the crop from growing ahead of the root feeding injury. Fields are more prone to seed corn maggot in cool, wet springs when the seed sits in the soil longer than usual. The risk is greater in no-till fields, deep planting situations, fields with recently applied manure or incorporated green manure. Seed corn maggot is really only a pest of soybeans, and is rarely a pest in corn in Ontario.

6. Weed Management/Cover Crops

Fields with annual weeds present in late winter / early spring (ie. chickweed) or cover crops are most attractive to black cutworm moths that will lay their eggs on this green vegetation. Fields with poor grass control harbour wireworm and grub infestations.

Soybean Aphids

Most of the soybean acreage is at risk of soybean aphids, but the majority are at risk every other year. Fields next to buckthorn and early planted fields are most at risk of early infestations, but any field can be infested later in the season. Soybean aphids are not actually controlled by the seed treatments when it counts the most, during the R1 to R5 stages of soybeans when yield is at risk. At best, the seed treatments are keeping early season infestations from starting up early. Experience has shown that Ontario's soybean aphid infestations really don't start to get out of control until around R3 or later, and it doesn't matter then if the field was treated with Cruiser or not. The 2013 season is a great example of that. The exception might be Eastern Ontario, where they do see early season infestations and threshold tends to be reached very close to early flowering (R1). In this scenario, fields treated with Cruiser tend not to need control until a few weeks later. But the Cruiser doesn't necessarily stop a spray from happening. Regardless, a foliar insecticide spray at threshold is still the only method of controlling soybean aphids during the growth stages R1 to R5.

Alternate Control Methods

There are other insecticide options for some of these pests. For corn, granular units can be installed on corn planters, and Force 3G (tefluthrin) can be used in-furrow for wireworm, rootworm and seed corn maggot. There is a cost to adding the units to the

newer planters, but over a 10 year life span of a planter, it works out to about \$2 per acre cost. Force 3G is currently not registered for use on grubs, though research has shown to work on European chafer. Unfortunately, there currently are no soil applied insecticide options for soybeans.

Black cutworm, bean leaf beetle, soybean aphids and corn flea beetles can be controlled by foliar insecticides, if timed correctly. Scouting for these early and spraying at threshold is very important.

Food Grade Soybeans & Seed Corn

Where I am particularly concerned is for our higher value corn and soybean crops, such as food grade soybeans and seed corn production. These crops cannot afford to be infected with viruses. Foliar insecticides tend not to adequately reduce the transmission of these viruses like the neonicotinoid seed treatments have. Bean leaf beetles can vector bean pod mottle virus to soybeans, impacting yield, quality and export opportunities. Corn flea beetles vector Stewart's wilt, which some parent lines of seed corn are susceptible to. This disease is quarantined in over 100 countries, so it can have a serious risk to seed exportation. In these crops, I still see significant value in the neonicotinoid seed treatment.

Bottom Line

I recognize the ease that insecticide seed treatments have provided, but they are insecticides and should be used for that purpose. Growers not fitting into the high risk factors may not need insecticide seed treatment, and should consider trying fungicide-only seed next year. If in doubt, plant test strips on your field to learn which fields do need protection and which do not.

Corn and Soybean Seed Ordering Decisions 2014

- Corn and soybean producers – be proactive in protecting pollinators.
- Before you order seed for 2014, understand your insect risk
- Where the insect risk is minimal, consider using seed treated with fungicide only.
- Your seed dealer can help you determine seed treatment options. You may have to order early.

Visit www.ontario.ca/bihl for Best Management Practices, and for more information to minimize the risk to bees.

Winter Wheat – Ramping It Up!!!

by Peter Johnson, Cereals Specialist, OMAF & MRA

Ontario Wheat Performance Trials First To Include Fungicides In Evaluation

Years ago, no one sprayed wheat with a fungicide, and even rarely with a herbicide. Today, if you don't spray a fusarium fungicide on your wheat crop, you aren't a real wheat farmer. The fusarium issues this year have really driven this point home.

Performance trials are meant to "mirror" the management practices of growers. In 2010, the Ontario Cereal Crop Committee (OCCC) realized that the cereal performance trials needed to address this issue. We began including "managed" trials (fungicides applied) with our normal unsprayed trials to determine if this changed the rankings of the varieties.

While the relative rankings did not change much, in some cases it made a significant impact. In 2013, it was decided to continue these trials with financial support from the Grain Farmers of Ontario, Cribit Seeds, Szentimery Seeds, Bayer, Syngenta, and BASF. For the first time in Ontario, and as far as I am aware the first time in North America, both managed and unmanaged data is available! This is a HUGE win for producers.

Go to the OCCC website, www.gocereals.ca and look at the "Variety Trials". Table 1A, 2A and 3A show the relative yields of both managed and unsprayed trials. Check it out, and pick the best variety for the management options you apply.

Picking Top Wheat Genetics

By now you have probably looked at the wheat variety trials (www.gocereals.ca). Many growers anxiously await the data from Area I or Area II, as that is where their farm is. WRONG! Each year we generate biplots to determine if varieties rank the same from site to site within an area.

ALMOST NEVER do the individual sites from Area I and Area II match up uniformly into those geographic areas.

In 2013, everything matched up nearly perfectly for all sites, with the exception of Ottawa (Area III),

Palmerston (Area II) and Woodslee (Area I). Palmerston and Ottawa paired with each other. Woodslee was off all by itself, with variety rankings essentially unrelated to all the other sites. Go figure!

What chart should you look at then? Use the Area I / II combined data (Table 1 at www.gocereals.ca). Area III really is different, as

winterkill and icing are much greater problems at these eastern Ontario locations. However, for the rest of the province, the more data you have to look at, the more likely you will pick a winning variety year in and year out. It is called "wide area adaptability".

We go to a lot of effort to generate this information. You might as well use it the best you can, and in that way, you will PICK TOP GENETICS!

Death To Fall Nitrogen On Wheat!

Every fall I fight this battle. Some agronomist somewhere will get the bright idea that fall nitrogen (N) can increase wheat yields. In some other jurisdictions, fall nitrogen is a standard recommendation. Well, maybe for them, but in Ontario, IT JUST ISN'T SO!

Beginning in the fall of 2009, we conducted trials to investigate if fall N could have a yield benefit. I'm all about yield, so if this was something that would work, I'm on it. After 4 years of replicated research trials on more than 20 sites, we are moving on. It simply doesn't work. Refer to www.ontariosoilcrop.org/docs/v9crpadv_cer1-2012_winter_wheat_nitrogen_response_interim_report.pdf

Never once in those 20+ trials did a fall N application followed by a spring N application yield more than the same amount of nitrogen applied only in the spring. The best we could achieve was an equal yield, but usually it yielded less. Generally, an estimated 50% of the fall-applied N was lost, and the other 50% was available for the crop in the spring.

This is wrong on many fronts. Fall N means another trip across the field. Fall N that is not utilized by the crop means more nitrogen has the potential to become an environmental problem. And fall N that does not increase yield makes me lose money. Bottom line - DON'T DO IT!

Fall Weed Control In Wheat

During the spring and summer of 2013, I took a straw survey of how many growers sprayed their fields getting planted into wheat with a burndown herbicide, or with some fall herbicide once the wheat emerged. I was SHOCKED! Less than 5% of growers utilize this weed control opportunity. It should be 95%, not 5%!!!! So here is a list of reasons, and options.

• Better Weed Control

Control of winter annuals and perennials is far better in the fall than in the spring.

The weeds are trans locating to the roots, where the herbicide needs to go, rather than to new growth. Control of things like dandelion, perennial sowthistle, stinkweed, and many more are all much better with fall applications. And it is so nice not to have yellow wheat fields in the spring!

• Control of Resistant Fleabane

Roundup resistant Canada fleabane is spreading rapidly throughout the province. Most fleabane germinates in the fall, or very early spring. Inclusion of products like Eragon or dicamba in the fall will give much better fleabane control. Eragon even gives residual control into the spring.

• Chickweed Control

Many growers on sandy soil fight chickweed every time they grow wheat. Trouble is, chickweed almost grows under the snow, it is that cold tolerant. By the time you can spray it in the spring, it is already flowering, and often has set seed. The damage is done. Again, most chickweed germinates in the fall. Fall glyphosate helps. Fall Eragon or Refine Extra give 90% + control, even providing some residual into the spring.

• Red Clover

With heavy, early weed pressure in the spring from dandelion or chickweed, red clover is often out of the picture. We have no herbicide that will kill the weed in the spring without killing the clover. With most fall applied herbicides, the clover can be applied in the spring without injury. This provides a clean field, and clover for soil structure and nitrogen for my next corn crop.

• Options Galore

There are more options than you may think for fall herbicides. Glyphosate and Eragon must be applied before the wheat emerges, of course. But Refine Extra products, bromoxynil / MCPA products, and Infinity are all registered for fall use. Depending on which weeds you have, there is almost always a fall option, whether the wheat has emerged or not. (OMAFRA Publication 75, Guide To Weed Control www.omafra.gov.on.ca/english/crops/pub75/chapter8.htm)

NO 2,4-D!

The one caveat to fall weed control - stay away from 2,4-D. Fall 2,4-D can actually impact heading and pollination of the wheat crop the next spring. Weird. But real. No fall 2,4-D!

Whatever the herbicide, do the right thing. If you can at all, spray in the fall!

Double Cropping Fall Rye For Extra Forage

by Joel Bagg, Forage Specialist, & Peter Johnson, Cereals Specialist, OMAF and MRA

Fall rye is an excellent forage crop when seeded after early-fall harvested crops. It is ready for harvest in southern Ontario in mid-May, which provides great opportunities for “double crop” options, yet can fill in the gap in years when forage supplies are short. Seed as early as possible in September, apply nitrogen in the spring, and time harvest for nutrient quality needs. Do not confuse cereal rye (*Secale cereale*) with ryegrass (*Lolium multiflorum* or *L. perenne*), as they are totally different grass species with quite different characteristics.

Fall rye prevents erosion and gives good weed suppression. Rye is very cold tolerant, the hardiest and most disease resistant of the winter cereals. Fall rye has an extensive fibrous root system, can scavenge nitrogen very effectively, and utilizes early spring moisture for rapid growth. Fall rye is faster growing and earlier maturing in the spring than the other winter cereals, including wheat, barley and triticale. This enables an earlier forage harvest and more “double crop” options.

Fall rye grows well on lighter and low pH soils, but does not do well on poorly drained, heavier soils. Forage rye is higher yielding, but not as palatable as winter wheat. Rye matures rapidly at the flag-leaf, boot and early-heading stages, with significant reductions in forage quality. This can create the challenge of a very narrow harvest window, particularly if there are rain delays.

Double Crop Options

Farmers looking for extra forage can plant fall rye following the harvest of many crops, particularly corn silage. Forage rye harvested in mid-May can be followed by a late-planted crop, such as soybeans, edible beans, or a warm-season annual forage crop such as sorghum.

Winter wheat heads two weeks later than fall rye making forage wheat harvest too late to be followed by corn or soybeans. In dry years, decreased moisture in the soil profile following forage rye can have a negative effect on the yield of the following crop. It is essential to completely kill the rye with glyphosate or tillage to minimize shading and competition for moisture. Rye is sometimes noted for having an “alleopathic effect” that suppresses the germination and growth of

weeds and other crops. With most of the rye plant removed, alleopathy is a low risk in forage situations. The possible exception is with no-till corn on heavier soil types.

Seeding

Fall rye is easy to establish and can be seeded from late-summer to late-fall. If harvest as silage the following May is planned, fall rye should be seeded in September, but later seedings can work. Early planting allows more time for tillering, higher forage yields, and slightly earlier forage harvest dates. Some growth going into winter is preferred for early spring growth and good yields. Seed is relatively inexpensive. Under good conditions, fall rye can be seeded at 110 kg/ha (100 lbs/ac), but the seeding rate can be increased up to 190 kg/ha (168 lbs/ac, 3 bu/ac) if the seed is broadcast rather than drilled, or if the seeding date is late.

Grazing

Fall rye is best used to provide early-spring grazing, but can also be grazed into late-fall. It is ready to graze early in the spring and growth is very rapid. To ensure that it does not get too mature, be prepared to move livestock frequently by strip grazing. Grazing rye on wet heavy clay soils in late-fall or early-spring is not recommended due to livestock “pugging” and compaction. If fall pasture is desired, fall rye should be seeded by August 15-30th.

Haylage

Fall rye can be made into good stored feed as either silage or baleage. Fall rye cut at the desired stage is extremely difficult to dry sufficiently to be made into dry hay. Nitrogen applied at 55 – 80 kg/ha (50 – 70 lbs/ac) in the spring at green-up will stimulate tillering and increase forage yield.

The timing of cutting is critical. Quality, palatability, and intake drop very quickly at the heading stage (faster than other cereals) so the optimum harvest window is very narrow. It is recommended to target harvesting forage rye at the flag-leaf or early-boot stage for high nutrient quality. Early-boot generally occurs May 10th - 20th in southern Ontario. At this stage, a dry matter yield of 2 tonnes per acre or more is possible under good conditions.

There can be a very large range in forage

quality with only a few days difference in harvest. At the early-boot stage (Zadok Stage 39 - ligule of the last leaf just visible), crude protein (CP) can approach up to 18% (depending on the amount of nitrogen applied), with Neutral Detergent Fibre (NDF) under 50%.

At the head-emerged stage (Zadok Stage 55), CP drops to the 13 - 14% range, while NDF increases to over 60%.

This will likely be adequate for beef cows, heifers, and dry cows, but will not be high producing dairy cow or sheep quality.

When rye is cut later, at the early-dough stage, the yield may approach 3 tonnes per acre, but the quality, palatability and intake will be much lower. Delaying forage rye harvest past the boot stage because of bad weather or competing field crop activities is not very forgiving.

Winter Triticale

Winter triticale, a cross between rye and wheat, has been suggested by Tom Kilcer in New York State as being preferable in both forage yield and quality to either fall rye or winter wheat. His research indicates that winter triticale harvested at the flag-leaf stage (rather than boot-stage) can be very high quality feed for dairy cows. There is limited data evaluating the agronomics and nutrient quality of winter triticale in Ontario, although research is currently underway. Preliminary Ontario research results suggest that triticale suffers much more from late plantings or adverse fall conditions than rye. Triticale seed is difficult to source and more expensive than rye. Harvest of triticale will be slightly later than rye at the same stage of maturity, which may delay planting of the subsequent crop. While there is good potential for triticale, farmers interested in forage triticale should try rye as well and evaluate them in their own systems.

Summary

Seeding fall rye for forage can be an excellent, cheap source of additional feed. Seed as early as possible in September, apply nitrogen in the spring, and time harvest for nutrient quality needs. By double cropping, rye can fill the gap on years with short forage supplies, or be a regular part of a profitable rotation.

Using Pre-Harvest Herbicides in Soybeans

By Mike Cowbrough, Weed Management Field Crops Program Lead & Horst Bohner, Soybean Specialist

When poor herbicide performance or late seed germination results in unacceptable amounts of weeds in a soybean crop, a pre-harvest herbicide treatment will aid in a quicker, more efficient harvest. Drier plant matter will pass more easily through the combine and will result in lower seed losses and reduced seed staining. Appropriate product selection for the target weed species and application timing are important for the success of any pre-harvest desiccant.

Pre-harvest herbicides do not speed up maturity, nor make soybean seed dry down faster, they only serve to drop remaining leaves and dry out green material. They will kill green tissue such as leaves, stems, or pods on soybeans but will not help speed up maturity or dry down green seed. Crop quality can be increased because the harvest timing after the field has been sprayed is more predictable, and therefore harvest schedules can be better managed.

What are the target weed species?

If perennial weeds are the target, glyphosate is the preferred product because the shorter days and cooler temperatures that occur in the fall act as a trigger for perennial weeds to reallocate sugars to their roots for over-winter storage. Applying glyphosate in the fall promotes movement of the active ingredient down to the roots, providing more effective control of Canada thistle, perennial sow thistle, field Bindweed and dandelion.

If annual weeds are the target glyphosate will still be effective, but the speed of activity is slow compared to the other pre-harvest options of Aim (carfentrazone), Eragon (saflufenacil) and Reglone (diquat).

Therefore glyphosate is often tank-mixed to provide broad-spectrum activity but with increased speed of activity on broadleaf weeds in particular. It is generally not recommended to mix one of the fast acting pre-harvest options with glyphosate if perennial weeds are the primary target. This is because their ability to quickly burn leaf tissue can sometimes impede translocation of glyphosate within a perennial plant.

Application Timing

Application timing is critical. Do not spray too early. If application occurs too early yield losses can occur and chemical residues may be taken into the seed. Herbicide residues in the harvested seed will result in marketing problems.



Figure 1 - Beans have separated from pod

If large patches of soybeans in the field remain green it will be necessary to wait for those areas to mature before spraying. It is safe to spray when seed fill is complete. This can be determined by a colour change of the seed from green to yellow. The occurrence of yellow pods is an excellent indicator that the seed has also changed colour. Since the colour change of the pods is gradual it may be difficult to determine when the pods have

truly "changed" from green to yellow or brown. A change in colour is defined by the absence of any green colour. Another way to assess if the field is ready is to determine if the seed has separated from the pod. Once the seeds turn yellow, the next visual change is that the seeds start to shrink inside the pod and separates from the white membrane inside the pod. This indicates that the seed is at full maturity. This test is most accurately done by collecting random pods from the top one third of the plant. If all the seed has separated from the pod then the crop has reached physiological maturity and can be sprayed.

The following products can be used for pre-harvest applications in soybeans. Use products based on the label rates and with the recommended water volumes.

IMPORTANT NOTE: If you are harvesting food grade soybeans (e.g. non-GMO) for the export market, there may be restrictions on what pre-harvest herbicides you can use. Contact your buyer to verify what pre-harvest products are acceptable to use.

- 1. AIM EC at 47 mL/ac + non-ionic surfactant at 0.25% v/v**
 - The pre-harvest interval for this product is 3 days.
- 2. REGLONE at 0.68 L/ac + AGRAL 90 at 0.1% v/v**
 - Apply within 7 days of variety maturity and harvest 5-7 days after application.
 - 3. **GLYPHOSATE at 0.67 L/ac (540 g/L) to 1 L/ac (360 g/L)**
 - Apply when the crop is 30% grain moisture or less.
 - Do not apply to crops being grown for seed, as glyphosate can negatively affect seed quality.

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Table 1 - Visual Control of lamb's-quarters, ragweed, pigweed and foxtail 8 days after application of various

Treatment (rate/ac)	Vison Control (%) 8 days after application			
	Lambsquarter	Ragweed	Pigweed	Foxtail
Glyphosate (1L/ac)	32	20	38	62
Reglone (0.92L/av) + Agral 90 (0.1% v/v)	74	80	78	48
Glyphosate (1L/ac)*+Aim EC (47mL/ac)+NIS 1 (0.25%v.v)	39	25	50	64
Glyphosate (1L/ac)*+Eragon (28.5g/ac)+Merge (0.5% v.v)	49	72	66	65
Glyphosate (1L/ac)*+Reglone (0.92L/ac)+Agral 90 (0.1% v.v)	70	77	76	49

Growing Forward 2 Ontario Project Implementation for Producers FAQs

By Ryan Weaver, marketing analyst at Mentor Works

Growing Forward 2 (GF2) Project Implementation for Producers funding provides Ontario small business grants designed to help farm businesses take the next steps after completing Capacity Building Project(s) and deal with and respond to issues and risks.

What type of funding does the Project Implementation Stream provide for Producers?

GF2 Ontario government funding provided through the Project Implementation Stream is provided as small business grants Ontario.

How much funding can I expect to receive from this GF2 Ontario program?

GF2 Ontario Project Implementation Stream will fund up to 35% of project costs or up to 50% of project costs if your project is considered innovative.

How can I ascertain whether or not I am eligible for these Ontario business grants?

There are two ways that you can qualify for these Growing Forward 2 Ontario government grants for small business:

- 1.) If you are an established Producer in Ontario with a Premises Identification Number and a Farm Business Registration Number, and you filed income taxes last year as a farm/business, then you are eligible.
- 2.) If you are a new Producer in Ontario who filed income taxes as an individual, and have not filed income taxes as a farm for the last two years, and you have a Premises Identification number and can demonstrate that your income over the next three years will be a minimum of \$30,000, then you are also eligible.

What type of projects are eligible for GF2 business grants in Ontario?

Projects must be within one of the 6 focus areas of Growing Forward 2:

- Environment and Climate Change

- Assurance Systems
- Market Development
- Animal and Plant Health
- Labour Productivity Enhancement
- Business and Leadership Development

Each focus area has specific requirements for projects and applications.

What projects are eligible for Ontario small business grants under the focus area Environment and Climate Change?

The following types of projects will be considered for funding:

- Nutrient Management
- Soil Protection
- Water Protection
- Wildlife

For this focus area, some projects must be in specific watershed or water protection zones, in order to be considered eligible.

What projects are eligible for small business grants Ontario under the focus area Assurance Systems?

Projects that focus on one of the following areas are eligible for GF2 Ontario government funding:

- Animal Welfare
- Food Safety
- Food Traceability

With this focus area, some of the funding is directed towards particular animals: hogs, cattle, bison, sheep, goats and poultry.

What projects are eligible for small business grants Ontario under the Market Development focus area?

Projects in this focus area must be about the expansion and growth of farm businesses through one of the following, in response to a risk identified in the assessment stage:

- Adoption and use of business tools

- Market, customer and competitor analysis
- Marketing resources

What types of projects are eligible under the Animal and Plant Health focus area?

In order to qualify for GF2 business grants in Ontario the projects in this focus area must deal with at least one of:

- Prevention of animal and plant diseases
- Control of the spread of animal and plant diseases
- Prevention and control of pests

What types of projects are eligible for business grants Ontario under the focus area Labour Productivity Enhancement?

Projects under this focus area must be dealing with an identified risk or issue and taking appropriate initiative to:

- Improve/provide training opportunities for HQP
- Implementation of new technologies
- Improvements to facility/site

What types of projects are eligible for small business government grants under the focus area Business and Leadership Development?

In order to qualify for GF2 Ontario small business grants projects must focus on improvements related to:

- Production efficiency including benchmarking
- Financial Management including the adoption of record keeping that indicates performance and progress
- Social Responsibility including measures that improve the productivity and efficiency of the farm and stewardship
- Human Resources improvements including new training opportunities for employees beyond required skills

How can you connect with Mentor Works?
You can send us an email (info@mentor-works.ca) or call us at 1-888-599-3111.

Using Pre-Harvest Herbicides in Soybeans

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fect seed germination.

- Apply at least 7 days prior to harvest.

3. ERAGON at 28.5 g/ac + Merge at 0.5% v/v

- Apply when stems are green to brown in colour and pods are mature (yellow-brown) and 80-90% of the original leaves have dropped.
- The pre-harvest interval for this product is 3 days.

[* glyphosate rate per acre is based on a product concentration of 360 g/L (e.g. Roundup Original) 1 NIS = Non ionic surfactant (numerous products/trade names are available)]

Comparative studies in Ontario There is limited public research comparing performance of pre-harvest treatments on different weed species. Dr. Peter Sikkema has conducted four trials from 2010 to 2011 on edible beans and his results are sum-

marized below. Regardless of treatment used, the expectation should be that the pre-harvest treatment will improve harvest efficiency but it will not result in a complete "dry down" of target weeds.

Source: Dr. P. Sikkema, 4 Trials: DB10D1A, DB10D1B, DB11D1A and DB11D1B. Weed Control Trials Research Report, 2010- & 2011. University of Guelph, Ridgetown Campus.



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Registres sur les pâturages

par Jack Kyle, spécialiste des animaux
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La tenue de registres sur les pâturages est un aspect important de la gestion des pâturages. Avec des registres écrits, vous pouvez constater les effets des décisions de gestion ainsi que les répercussions des conditions météorologiques sur le rendement fourrager et le gain de poids. Vous serez à même d'établir un certain nombre de comparaisons entre différentes années qui vous fourniront de l'information de gestion valable.

Avec en main une série de registres qui fournissent des détails sur les cultures, il est possible d'établir des comparaisons fiables des rendements mois par mois et année par année. Un carnet qui se glisse dans la poche ou une reliure à trois anneaux sont un bon point de départ. Si vous voulez un jour utiliser un chiffrier électronique, rien ne vous en empêche.

Données à consigner

Vos registres devraient inclure :

- des données météorologiques – précipitations, dates des gelées et températures atteintes lors des canicules;
- des données sur les cultures fourragères ou de pâturage – espèces comprises dans les mélanges, apports de fertilisants, taux de croissance à différents moments de la saison de pâturage;
- des données sur les animaux d'élevage – format, type et nombre d'animaux mis au pâturage, fréquence des déplacements vers de nouveaux enclos, dates de début et de fin de la saison de pâturage, quantité de fourrage résiduel et d'aliments supplémentaires requis.

La liste est longue, mais les registres peuvent avoir le degré de complexité ou de simplicité qu'on souhaite leur donner. Le tableau 1 est une illustration qui présente le cas d'une exploitation vaches-veaux qui a effectué cinq rotations des pâturages au cours de la

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Registres sur les pâturages

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saison de pâturage. Ce pâturage a produit 158 jours-vaches par acre de pâturage.

Mesure du pâturage disponible

Il existe un certain nombre d'outils qui permettent d'aider à mesurer la quantité de fourrage disponible. La hauteur et la densité du peuplement sont deux éléments importants. L'utilisation d'un bâton ou d'un herbomètre est utile pour mesurer la quantité de fourrage présent. Vu la grande diversité des espèces utilisées dans nos pâturages en Ontario, la fiabilité de ces outils laisse beaucoup à désirer.

Si vous regardez de près à la densité et à la hauteur d'un peuplement et que vous tenez compte du taux de charge-ment, vous devriez être à même d'évaluer le nombre de jours-animaux par acre à votre disposition. Un carnet suffira pour vous permettre de consigner vos mesures et,

avec le temps, vous obtiendrez un portrait exact de votre gestion des pâturages. En consignait et en accumulant ces données, vous pourrez prendre des décisions qui seront profitables pour votre exploitation.

Votre graphique en biseau

Périodiquement durant la saison de pâturage (une fréquence de toutes les deux semaines serait optimale), vous pouvez évaluer la quantité de fourrage disponible dans chaque enclos et créer votre graphique en biseau. Ce graphique montre la quantité de fourrage disponible dans vos enclos à un moment précis. Ainsi, la figure 1 indique les jours de pâturage offerts par chacun des 12 enclos. Le biseau descendant est formé par le tracé reliant la valeur obtenue pour l'enclos dans lequel on vient de mettre les animaux (enclos 1) à la valeur obtenue pour l'enclos que les animaux viennent de quitter

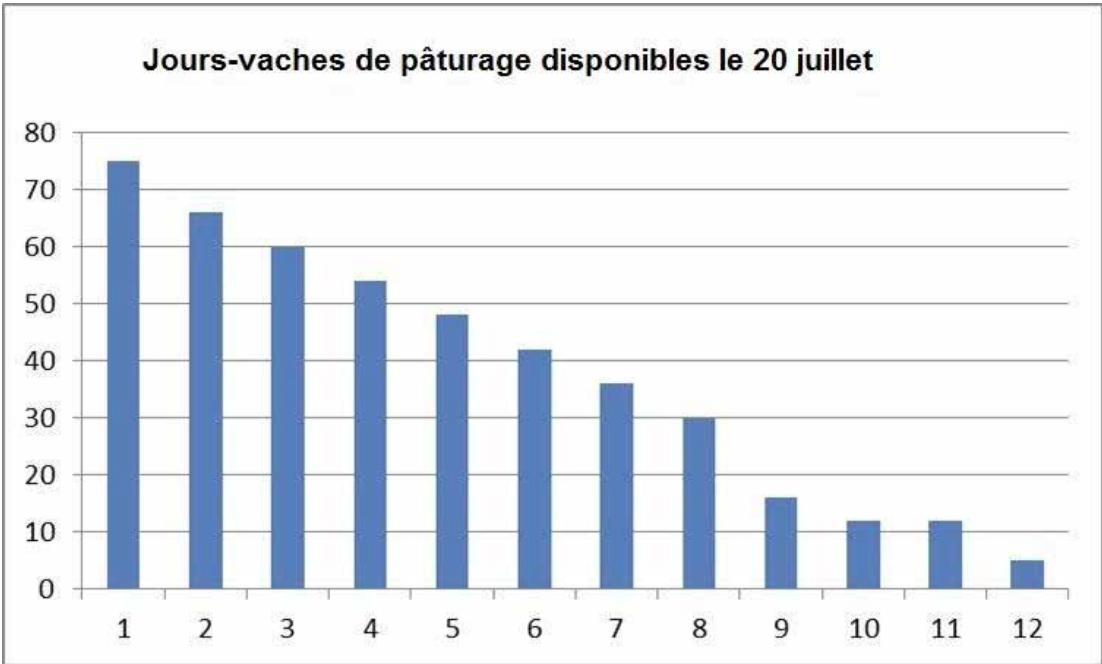
(enclos 12). Ce graphique en biseau vous indiquera les éventuels problèmes dans un ou plusieurs enclos et vous permettra de prévoir vos besoins en fourrages à venir. Dans cet exemple, le graphique montre que les enclos 9 et 10 ne récupèrent pas aussi rapidement qu'on le souhaiterait. Ce graphique permet d'anticiper suffisamment à l'avance qu'il n'y aura pas assez de fourrage dans ces deux enclos au moment d'y mettre les animaux. L'alternative serait de ralentir la rotation ou de trouver une source d'aliments d'appoint à servir aux animaux quand ils seront dans ces enclos. Si la rotation se fait tous les 3 jours, il reste 24 jours avant de revenir à ces enclos, ce qui laisse le temps de s'adapter.

En matière de pâturages, les années se suivent, mais ne se ressemblent pas. C'est pourquoi l'information recueillie vous permet d'analyser les différences et de gérer les pâturages de manière à ce qu'ils fournissent un maximum de rendement.

Tableau 1 – Exemple de registre sur les pâturages

Identification de l'enclos	Dates d'occupation	Type d'animaux	Nombre d'animaux	Nombre d'acres	Nombre total de jours-animaux	Jours animaux/acre et au total
1	10-12 mai	Vaches et veaux	50	4	100	25-25
1	28-30 mai	Vaches et veaux	55	4	165	44-69
1	1—3 juillet	Vaches et veaux	55	4	110	27-96
1	15—18 août	Vaches et veaux	50	4	150	37-133
1	28-30 sept.	Vaches et veaux	50	4	100	25-158

Figure 1 - Graphique en biseau – Jours-vaches de pâturage offerts par chacun des 12 enclos



Cultures de couverture d'intérêt et leur gestion

par Adam Hayes, spécialiste de la gestion des sols – Grandes cultures, MAAO et MAR

Cultures de couverture d'intérêt en fin de saison

Vous n'avez pas eu la chance de semer une culture de couverture après une culture céréalière? Vous avez récolté votre maïs à ensilage et vous voulez un couvert végétal durant l'hiver? Votre récolte de haricots comes-tibles ou de soya a été hâtive? Vous avez encore la possibilité de semer une culture de couverture pour protéger le sol durant l'hiver, l'enrichir de matière organique, produire un peu d'aliments pour les animaux ou améliorer la structure du sol.

À cette période de l'année, le choix d'une culture de couverture dépend en bonne partie de ce qui reste de la saison de croissance avant la date normale de la gelée meurtrière. Si la date prévue du semis tombe :

1. plus de six semaines avant la gelée meurtrière, il est possible de semer de l'avoine, du radis, du ray-grass annuel et un certain nombre de cultures de couverture semblables. Comme la période de croissance sera brève, veillez à obtenir la semence à bon compte, car le gain attendu sera inférieur à ce qu'il aurait été si la culture de couverture avait été semée en août;

2. moins de six semaines avant la gelée meurtrière, les seules possibilités sont le seigle et les céréales d'automne. Ces cultures poursuivront leur croissance tout l'automne et même au printemps si on le souhaite. Les autres cultures de couverture n'auraient pas le temps de pousser suffisamment pour procurer un gain appréciable.

N'oubliez pas les mélanges de cultures de couverture, car ils présentent parfois plus d'avantages que les cultures pures. Utilisez un semoir à grains pour une levée plus rapide.

Gestion de la croissance et destruction de la culture

Les cultures de couverture peuvent offrir bien des avantages, mais elles peuvent aussi engendrer certains problèmes si l'on n'y prend garde. Certaines cultures de couverture, surtout celles qui sont semées tôt, peuvent être très prolifiques, un point apprécié si elles sont destinées à nourrir les animaux. Par contre, si l'on n'a pas prévu le coup et qu'on ne l'a pas détruite à l'automne, la culture de couverture peut nuire à la culture suivante. Le tableau qui suit présente, pour un certain nombre de cultures de couverture, les pratiques de gestion préconisées pour l'automne ou le printemps suivant.

Tableau 1—Cultures de couverture—Pratiques préconisées

Culture de couverture	Stade de croissance	Pratique
Avoine	Hauteur de 1-2 pi (30-60 cm)	Détruite par l'hiver; ne laisse qu'une faible quantité de résidus
	Épiaison	Fauchage requis pour la gestion des résidus, de la maturité ou de la décomposition, ou pour la récolte si on veut la servir aux animaux
Radis oléagineux	Rosette	Meurt l'hiver après plusieurs nuits sous les – 3 °C
	Floraison	Fauchage requis pour éviter la montée à graines
Trèfle	Floraison	Travail du sol ou herbicides nécessaires à sa destruction
		Nota : si des mauvaises herbes sont en fleurs, coupez-les pour les empêcher de monter à graines
Seigle ou céréales d'automne	Tallage; aucune épiaison sans vernalisation	Travail du sol ou herbicides nécessaires à leur destruction

Carences en azote observées en 2013

– Est-ce la dose ou la source qui importe?

par Bonnie Ball, spécialiste de la fertilité du sol, MAAO et MAR

Les conditions humides du printemps et du début de l'été 2013 ont été responsables de carences en azote (N) dans de nombreux champs de maïs (photo 1). Lorsque l'ammoniac anhydre est injecté entre les rangs de maïs à l'aide de cou-teaux, la culture est plus uniforme et l'azote est plus facilement assimilable sous des conditions pluvieuses (photo 2).

Comment se produisent les pertes d'azote?

Dans des conditions pluvieuses, les pertes d'azote sont attribuables à deux phénomènes – la dénitrification et le lessivage (figure 1). Comme c'est l'azote des nitrates qui se perd, plus les quantités de nitrates présentes dans le sol sont importantes lorsqu'il pleut, plus il y a de pertes d'azote par l'un ou l'autre phénomène. La prédominance de l'un ou l'autre de ces phénomènes dépend du drainage.

Dans un sol bien drainé, les pertes d'azote sont principalement causées par le lessivage. Quatre-vingts millimètres (3 po) de pluie lessiveront d'une couche arable de texture légère la majeure partie de l'azote présent dans le sol sous la forme de nitrates. Si le sous-sol est pénétré par des racines, l'azote des nitrates demeure assimilable par la culture. Cependant, s'il pleut davantage, l'azote des nitrates se déplace plus profondément dans le profil de sol et devient hors d'atteinte des racines.

Dans un sol mal drainé, les pertes d'azote s'expliquent surtout par la dénitrification. La dénitrification est un phénomène de conversion des nitrates en azote gazeux (N₂) ou en oxyde de diazote (N₂O), lesquels sont libérés dans l'atmosphère (figure 1). La conversion se produit sous l'action de bactéries lorsqu'un sol est appauvri en oxygène (conditions anaérobies), c'est-à-dire en la présence de zones d'accumulation d'eau.

Continued on page 15

Carences en azote observées en 2013

– Est-ce la dose ou la source qui importe?

Continued from page 14



Photo 1 – Symptômes des carences en azote observées en 2013

Le troisième phénomène entraînant des pertes d'azote est la volatilisation. Dans ce cas, l'azote du sol est libéré dans l'atmosphère sous la forme de gaz ammoniac. L'urée est sensible à la volatilisation. L'azote de l'urée demeure fixé aux atomes de carbone. Durant la conversion de l'urée en ammonium, l'uréase sépare le NH_2 du carbone (figure 1). Jusqu'à la moitié de l'azote uréique peut être perdue par volatilisation si l'urée est laissée à la surface. Même l'urée épandue en bandes latérales est sensible à la volatilisation. Jusqu'au tiers de l'azote uréique appliqué en bandes peu profondes peut se volatiliser. Ce phénomène se produit parce que la conversion du NH_2 en NH_4 utilise jusqu'à deux ions H^+ . L'augmentation du pH qui résulte fait augmenter encore plus la quantité d'ammonium qui se transforme en gaz ammoniac.



Photo 2 – Maïs fertilisé avec de l'ammoniac anhydre en 2013



Figure 1 – Principales voies par lesquelles se produisent les pertes d'azote – dénitrification, lessivage et volatilisation

Réduction des pertes d'azote

Les pertes attribuables à la dénitrification et au lessivage peuvent être réduites

en limitant l'importance des réserves de nitrates (figure 2). Si un sol comporte en tout temps moins d'azote sous la forme de nitrates, la probabilité de pertes d'azote en cas de précipitations irrégulières diminue. L'inhibition de la nitrification est un moyen de limiter l'importance des réserves de nitrates. La nitrification est le phénomène de conversion de l'ammonium en nitrates sous l'action de bactéries. Les composés suivants inhibent la nitrification en ralentissant l'activité des bactéries nitrifiantes : le dicyandiamide (DCD); le 2-chloro-6-(trichlorométhyl)pyridine (la nitrapyrine); dans une moindre mesure, le thiosulfate d'ammonium (Franzen).

Les pertes attribuables à la volatilisation peuvent être réduites en limitant l'importance des réserves d'ammonium. En inhibant l'activité de l'uréase, on peut ralentir la conversion de l'urée en $\text{NH}_4\text{-N}$ (figure 2). Un inhibiteur courant de l'activité de l'uréase est le N-triamide de l'acide thiophosphorique (NBPT). On peut également ralentir la conversion de l'urée en NH_4 en recouvrant les granules d'urée d'un polymère (ESN – environmentally smart nitrogen). Le plastique ralentit l'entrée de l'eau dans les granules, ce qui ralentit la conversion.

L'ammoniac anhydre (82-0-0) se convertit en ammonium lorsqu'il est injecté dans le sol à l'aide de couteaux. Il inhibe la nitrification en tuant temporairement les bactéries présentes dans la bande d'injection. Ainsi, l'azote demeure plus longtemps sous sa forme ammoniacale, ce qui améliore le rendement dans des conditions pluvieuses. Dans une étude comparant le rendement et le mouvement des nitrates vers les eaux souterraines, on a comparé l'ammoniac anhydre, un engrais 28-0-0 à base de nitrate d'ammonium et d'urée (engrais NAU) et un engrais NAU combiné à un inhibiteur de nitrification.

Durant une année pluvieuse (116 mm de pluie en juin) et pour un sol à texture légère, une culture de maïs ayant bénéficié d'un épandage en bandes latérales d'ammoniac anhydre a donné un rendement de 19 boisseaux/acre supérieur à celui obtenu pour une culture ayant bénéficié d'un épandage en bandes latérales d'un engrais NAU. L'ajout de l'inhibiteur de nitrification DCD à l'engrais NAU a donné un rendement de 8 boisseaux/acre supérieur à celui obtenu avec un

engrais NAU employé seul. La concentration d'azote des nitrates dans l'eau du sol sous la zone racinaire (5 pi de profondeur) était de beaucoup plus grande là où l'engrais NAU a été employé seul (40 ppm) que là où l'on a appliqué un engrais NAU combiné à un inhibiteur de nitrification (NAU+DCD) (20 ppm), ou de l'ammoniac anhydre (10 ppm). La réaction des cultures était principalement attribuable à la diminution du lessivage là où la nitrification avait été inhibée (Ball Coelho, Roy 1999).



Figure 2- En restreignant la réserve de nitrates, on réduit les pertes d'azote par dénitrification et lessivage. En restreignant la réserve d'ammonium, on réduit les pertes d'azote par volatilisation.

Un engrais NAU (engrais à base de nitrate d'ammonium et d'urée) renferme 50 % d'azote uréique, 25 % d'azote ammoniacal et 25 % d'azote des nitrates. On peut donc dire que 25 % de l'azote (azote des nitrates) est immédiatement sujet à une perte par lessivage et dénitrification au moment de l'application; que 50 % de l'azote (azote uréique) est sujet à la volatilisation si l'urée est laissée à la surface; que 25 % de l'azote (l'azote ammoniacal) se convertira rapidement en nitrates dans des conditions humides et chaudes pour être ensuite sujet à la dénitrification ou au lessivage.

Pour certaines années, l'utilisation d'un engrais azoté stabilisé ou l'application de la bonne source d'azote au bon moment peut être très rentable. L'épandage en bandes latérales d'ammoniac anhydre permet d'éviter les pertes d'azote, car le moment de l'application coïncide avec la demande en azote des cultures. Tout l'azote est présent sous une forme ammoniacale, et la nitrification est ralentie par l'ammoniac anhydre. Plus les réserves de nitrates sont restreintes en tout temps, moins d'azote peut être perdu par dénitrification ou lessivage.

Les apports de phosphore dans la raie de semis du soya en valent-ils le coût?

par Horst Bobner, spécialiste du soya, MAAO et MAR

Depuis quelques années, les résultats des analyses de sol révèlent une diminution des concentrations de phosphore (P) et de potassium (K) dans les sols de l'Ontario. Dans certains cas, les teneurs observées limitent les rendements. Afin d'offrir les nutriments nécessaires au soya sans perdre de vue les contraintes du monde réel que sont le coût des fertilisants, les capacités matérielles et la facilité d'application, nous devons trouver de nouvelles façons d'aborder la fertilisation de cette culture.

On fertilise habituellement le soya en épandant en pleine surface puis en incorporant du P et du K. Cette méthode s'assortit de passages supplémentaires de la machinerie dans le champ. Bon nombre des semoirs pneumatiques utilisés de nos jours permettent d'appliquer de l'engrais directement dans la raie de semis. Cette possibilité a le potentiel de faire gagner du temps aux producteurs et de placer l'engrais dans la zone racinaire pour une absorption rapide.

Résultats des essais

Une étude a cherché à déterminer la viabilité économique des apports de phosphate monoammonique (PMA) (11-52-0) dans la raie de semis. L'étude a été menée sur 16 parcelles d'essai pendant quatre ans, soit de 2009 à 2012. Dans les sols de ces parcelles, les cotes d'efficacité des fertilisants allaient de faibles (concentrations de P et de K dans le sol supérieures à 16 ppm et à 120 ppm respectivement) à élevées. Il ressort de l'étude que c'est en appliquant 22,7 kg de PMA/ha (50 lb/ac) dans la raie de semis avec la semence de soya qu'on se donne la meilleure chance d'obtenir une bonne augmentation de rendement tout en évitant de brûler la culture. Vu les fortes probabilités de brûlure causées par le K, aucun apport de cet élément n'a été fait dans cette série d'expériences. On a évalué les densités de peuplement dans le but de mesurer les pertes attribuables à la brûlure de la semence causée par l'engrais. On a mesuré les rendements à la fin de l'année pour déterminer les rendements économiques. Les essais ont été reproduits sur trois parcelles mesurant chacune 6 m (20 pi) de large sur au moins 305 m (1 000 pi) de long. L'ensemencement des parcelles s'est fait avec un semoir pneumatique Kearney 15 po. Les résultats sont résumés dans le tableau 1.

L'utilisation de 22,7 kg de PMA/ha (50 lb/ac) avec la semence de soya dans la raie de semis est apparue comme une pratique raisonnablement sûre. En moyenne, la perte de densité de peuplement a été négligeable, s'établissant à environ 1 600 plants/ac. La perte la plus grande qui ait été enregistrée au cours des essais a été de 38 000 plants et a été causée par une sécheresse prolongée après les semis.

Moyenne obtenue pour les 16 parcelles	Traitement		
	Sans traitement	11,3 kg (25 lb) de P dans la raie de semis	Écart
Densité de peuplement (plants/ac)	144,008	142,382	-1,626
Rendement (boisseaux/ac)	50,9	52,3	1,4

Tableau 1 - Comparaison des rendements du soya avec un apport de PMA dans la raie de semis.

L'augmentation de rendement moyenne procurée par l'apport de

PMA a été de 1,4 boisseau/ac. Avec l'apport de PAM dans la raie de semis, les rendements sont allés de -1,1 à 6,2 boisseaux/ac. Les coûts d'application du PAM à raison de 22,7 kg/ha (50 lb/ac) ont été d'environ 17 \$/ac. À un prix de vente de 12 \$/boisseau, un gain de rendement moyen de 1,4 boisseau/ac représente un gain de 17 \$/ac. Il ressort par conséquent de cette étude que l'application de 22,7 kg (50 lb) de PMA/ac dans la raie de semis rapporte tout juste ce qu'elle coûte. Cependant, dans les sols pauvres, les gains ont été plus importants.

Les gains de rendement procurés par l'apport de PMA ne s'expliquent pas uniquement par la présence de sols pauvres en P. L'apport de PMA dans la raie de semis stimule aussi la croissance de la masse racinaire, ce qui peut faciliter l'absorption des éléments nutritifs. (Photo 1) Voilà qui peut expliquer pourquoi des gains de rendement ont été obtenus dans des champs plus fertiles.

Résumé

L'apport de PMA dans la raie de semis avec la semence de soya est une pratique raisonnablement sûre.

Cependant, la semence de soya est alors exposée à des risques de brûlure si une sécheresse s'installe après les semis ou dans les sols sableux. Les doses de PMA plus élevées sont à éviter, car elles feraient augmenter les risques de brûlure de la semence. Certains producteurs ont signalé des baisses de rendement consécutives à l'apport de PMA dans la raie de semis. Cette situation est probablement due à la brûlure de la semence. Cette méthode de fertilisation peut faire gagner du temps et de l'argent aux exploitants qui possèdent le matériel nécessaire. Elle est surtout indiquée pour les champs plutôt pauvres où le gain de rendement a plus de chances de compenser une réduction éventuelle de la densité de peuplement. Il est contre-indiqué de faire des apports d'engrais dans la raie de semis si le sol est sableux, car la semence est alors plus vulnérable à la brûlure par l'engrais.



Photo 1 - Plant de soya d'un champ non traité (à gauche) et plant d'un champ ayant reçu un apport de 22,7 kg de PMA/ha (50 lb/ac) dans la raie de semis (à droite). Remarquez la différence dans la masse racinaire et à quel point la plante ayant reçu l'engrais s'est développée.

Dr. Bob Bors Addresses 1st Annual Ontario HASKAP Day

By: Graham Gambles, Regional Communication Coordinator, North-Eastern Ontario Soil & Crop Improvement Association



Approximately 60 people made a point of attending the June 22/13 inaugural "Ontario Haskap Day" at the Boreal Berry Farm & Winery, located just south-west of the town of Warren in North-Eastern Ontario. This was a workshop developed by the Ontario Haskap Association. Dr. Bob Bors from the University of Saskatchewan, was the main draw for this event. He spent over 2 hours providing background on the Haskap, as well as providing tips on potential local and overseas marketing opportunities. A one hour walking tour of the Boreal Berry Farm provided hands-on interaction with a commercially grown Haskap crop.

Following are paraphrased comments made by Dr. Bors at the event:

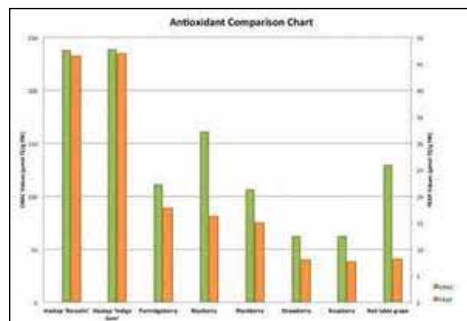
The Saskatchewan Fruit Program is easily accessible on the internet. In 2012, it had over one million visitors. The research facility works with more than just Haskap, with programs that include dwarf sour cherries, apples, grapes, and other cool weather fruiting crops. U of S has the largest collection of Haskap genetic stock in the world, despite only a decade and a half of research into this 5 century old crop. The original plants came from Japan and Siberia (Russia).

The Haskap is best suited to dry soils, but requires regular watering for the first 3 years, especially during droughty periods. In most soils, water is not required after the initial 3 year period as the roots are usually expansive enough by that time to supply

adequate moisture. Attempts at production on wet soils are less successful than on dry soils. On wet soils, even if there is above ground leaf/stem die-back, the roots do not necessarily die unless the plant is actually immersed in water for a period.

Haskap require specific pollinator plants for specific varieties. Most importantly, both producer and pollinator have to bloom at the same time! Note that Russian varieties are the first flowers to bloom, (about the same time as willows), and one month before the last frost. All wild bees in the area will swarm to Haskap fields as it is the first plant to bloom. It is noted that the Haskap will produce very good honey that could be specifically identified with the crop if fields are extensive enough in the future.

The plant produces three pairs of berries at each bud, so potential crops can be estimated by counting buds. Each berry has 2 ovaries inside the skin that seems to be thicker than that of the wild blueberry. The antioxidant component is stored in the skin. (Haskap are believed to have at least twice the anti-oxidant level of blueberries.)



Bors and his team have developed a number of crosses that have been released to the public, with more to come. "Tundra" and "Indigo Gem" have the best potential for commercial production. Tundra is especially suitable as it will drop its fruit at maturity without any "bleeding" (note that loss of juice at picking can result in the earlier development of decay in the fruit, resulting in a reduced shelf life.) Varieties that bleed at picking should be used specifically for home use or for immediate processing.

"Borealis" is seen as the ideal berry for home gardeners due to its size and taste, and because it hangs onto its fruit for an extended period of time, even when disturbed by wind and birds. The homeowner will always find some fruit on the

branches (however, the taste is altered by the heat of mid-summer.) Borealis will even go into the winter with dried berries available. Early in the season, it is challenging to pull off the fruit as they do tend to bleed, especially if not fully ripe.

The newest variety, "Aurora" is a pollinator for Boreal, Tundra, and the Indigo series. It is also identified as the sweetest of the series that Bors has produced. The Aurora fruit actually has the lowest acid level of any cultivar, and that factor gives the variety the "illusion" of the sweetest taste. The designed pollinator for the Saskatchewan offerings to this point has been another Bors cross called "Honey Bee".

Other Saskatchewan varieties are "Indigo Treat" and "Indigo Yum". More crosses are being produced, and taste testing by the public will take place on University grounds on July 19. (All you can eat for \$35!)

The original varieties from Japan (where the name "Haskap" originally comes from) are noted for mixed maturity and smaller yields per bush. Three Kilograms on a mature plant is said to be good. In contrast, Russian varieties (of which there are 35) can produce 4 to 7 Kg per plant, depending on maturity of the plant. However, the Russian varieties (referred to as "Blue Honeysuckle") tend to have long and skinny berries that are relatively small (.5 to 1 gm.) and tend to fall off the plant. By contrast, the newest Canadian varieties average 1.5 gram per berry, and may have some individuals weighing up to 3 gm. These varieties are all expected to produce fruit in similar quantities as the Russian varieties.

Both Japanese and Russian genetic stock is now being cross pollinated with Canadian genetic material. In Canada, the Blue Honeysuckle found in the wild is often located along the edge of wetlands. It is interesting to note that Bors cross-country research suggested that even the present day Aboriginal communities were unaware of these berries. This may be due to the fact that the wild fruit is much smaller than the crosses produced in Saskatchewan, probably only a tenth of the size of newly developed varieties. The U of S program is using the Canadian genetic stock to try to select for a more rounded commercial berry that would be easier to handle in picking machines.

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OSCIA NEWS

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

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ATTENTION SEED GROWERS

**CSGA Interprovincial will be held at
the Ottawa Hilton this Nov. 5-7
Keep posted for more information on
how to register.**

Message from the President - Henry Denotter



That time again, we are into the third quarter of the game. At least some years, the whole business of Agriculture can sure appear like a game.

I am thankful for some great teams out there to work with. The home team (Executive) made an outreach tour to the Ontario North East Region and got a first hand look at farming in the northern parts of the province. I was

impressed with the amount of field crop production in the New Liskeard/Earlton area and even more so, the enthusiasm of our members in this region. The twilight tour had over 200 in attendance with lots of networking opportunities and great food. A special thanks to Mack Emiry, NEOSCIA provincial director for the invitation.

A major summer event is the semi-annual directors' meeting hosted this year in Thunder Bay by the 1st Vice President, Allan Mol, his family and their local soil and crop associations. This was a great show case event and for the visiting crowd, featured some of the producers of the area and their strategies in crop and livestock production. One of my favourite stops was where the producer turned their cows into a standing green corn field, giving them 20 feet of the field at a time on which to feed – a good example of a producer thinking outside the box. Hockey fans were thrilled when NHL star, Eric Staal (North Carolina Hurricanes) showed up at his dad's sod farm to say hi!

We are definitely talking teamwork as the Guelph office team, in cooperation with OMAF staff has put the finishing touches to the GF2 agreement and then had me sign it. In this case I am only the water bottle carrier.

In observing the 2013 crops, all the experts are busy assessing the potential, saying how good or bad they look, but their final lines generally are that we should be all right. Total optimists!

This spring, I got on board as a farm co-operator providing the field and beekeeper for Tracey Baute and Art Schaafsma out of the Ridgetown campus to assist with their evaluation of insecticides and bee research.

The use of neonicotinoids is a controversial topic but I would encourage producers to read the media articles objectively and rely on science to provide the facts.

The bees on my farm? They are fine but they did give chase to the researchers who checked in weekly. The beekeeper tells me he has not seen any drastic changes in the hive. We will be looking for Tracey and Art's reports at the upcoming winter meetings.

Networking and thinking outside the box. These should be big goals for producers who lead the way with innovation, competitiveness, and market development - key goals of Growing Forward 2, now available to Ontario producers, processors, organizations and collaborations within our agricultural industry.

Henry Denotter, President, OSCIA



Advancing Crop Technologies with Grants to Regions and Counties/Districts

OSCIA has been fortunate to have an excellent partner in OMAF/MRA to sponsor field projects through the Regional Partner and Major Grants. Funding is made available to assist in on-farm field scale trials, typically covering costs such as labour, incremental inputs and services. OMAF/MRA Crop Technology staff are instrumental in organizing, supervising data collection and participating in analysis of results.

Funding is still available for the 2012-2014, grant agreement. Please contact your provincial Director or the provincial office for more details.

Contact information can be found on our website at: <http://www.ontariosoilcrop.org>

Partner grants bring together farmer cooperators throughout the Region who are keen to investigate new technology. For example, a Thames Valley Regional Partner Grant for three years, 2012-2014 entitled 'SMART Corn' (Strategic Management Adding Revenue Today) targets 10 farm cooperators, each with 2 to 3 replications in a field scale (minimum 1,000 feet long). Corn hybrids have tremendous yield potential that may respond to increased management, so the SMART trials will increase populations by 5,000 seeds per acre, provide an extra 50 pounds of N per acre as a side dress and a fungicide application at flowering. As with most field trials since 2003, results will be published in 'Crop Advances' and searchable by keyword or topic. SMART initiatives have already been undertaken for canola, wheat and soybeans and results are available in 'Crop Advances'.

Major grants are designed for individual counties/districts to set up as one year demonstrations to profile emerging issues. In 2013, examples include: 'Potential Benefits of Spring vs. Fall Seeded Legumes on Subsequent Crops' (Dufferin); 'Evaluating Cover Crop

Options Seeded in Standing Corn' (Dundas); 'Evaluating Oats & Rye as Cover Crops following Soybeans' (Elgin); 'Cover Crop Field Demonstration' (Grey); 'Soybean Cyst Nematode Survey' (Huron); 'Fall Sulphur on Winter Wheat' (Lambton); 'Proline Fungicide on Corn Silage to Reduce Mycotoxins' (Lanark); 'SMART Barley Project' (Leeds); 'Sulphur on Corn' (Middlesex); 'Assessing the Benefits of Agrotain Plus on Winter Wheat' (Oxford); 'Double Cropping Soybeans in Ontario' (Perth); 'Nitrogen Rates on Industrial Hemp Grain to Optimize Yield' (Renfrew); 'Testing Herbicides for Control of Invasive Species and Broadleaf Weeds in Pastures' (Victoria); 'Wellington Seeding Technology Education Day' (Wellington); and 'Evaluation of Corn Fungicide for Disease Control & Yield Enhancement' (Wentworth). Results of these Major grants will be reported at the OSCIA's annual meeting in February 2014, as well as published in next years Crop Advances.

Education grants, Project grants, Biomass Communication grants, and Seed & Feed Fair grants are additional opportunities to assist local associations with their costs in providing services to their membership. OSCIA appreciates the continued support of OMAF/MRA in jointly advancing crop technology.

New This Year: OSCIA has introduced the **Paired Regional Partner Grants** to assist two regional associations from different parts of the province to work jointly on field projects which investigate and validate innovative solutions for soil and crop management, in order to broaden the scope of research across two geographically diverse regions.

Grant guidelines are available on OSCIA's website at: <http://www.ontariosoilcrop.org/en/resources/grants.htm>

'Crop Advances' reports can be found on OSCIA's website at: <http://www.ontariosoilcrop.org/en/resources/cropadvances.htm>

Harold Rudy, Executive Director, OSCIA



ATTENTION SEED GROWERS! OSGA'S 2013 ANNUAL MEETING

When: December 3th, 2013

Where: Four Points Sheraton, London ON

RSVP by November 22nd

1-800-265-9751 ext.63152

or

amber.vandeppeer@ontariosoilcrop.org

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

- Must be an OSCIA Member in good standing and seen as a good ambassador for OSCIA;
- Each county/district may nominate one member to their region (See Nomination Form provided by your region);
- Each region will send their selection with a photo and biography to the Guelph office;

2. Photo/Video Contest taken through 2013

- Must be an OSCIA member in good standing; immediate family members are also eligible;
- Photo/Video to closely describe OSCIA's 'Mission';
- High resolution and submitted full size, unaltered with no photo editing;
- Video, not more than 3 minutes in length;
- A dropbox has been setup for the photo/video to be stored;
- 1st, 2nd, and 3rd place winners, for each category will receive prizes of \$300, \$200, \$100 respectively;
- OSCIA retains the rights to use all submissions, but the artist will be credited;

Please also note:

- 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>;
- Additional provincial promotion will be provided through newsletters and our website;
- Award certificates and roadside signs have been available provincially and the region may wish to recognize all county/district winners;
- A special certificate and additional recognition will be provided to the eleven regional recipients by the provincial association;
- Winners will be invited to the OSCIA Annual Meeting Banquet on Wednesday February 5, 2014;
- Compensation for travel will be provided to winners attending the OSCIA Banquet;
- Deadline for Provincial submission is November 30, 2013.

For more information please contact your Provincial Director.



VISIT OUR WEBSITES:



www.ontariosoilcrop.org

&

<https://oscia.wildapricot.org>

CANADA'S OUTDOOR FARM SHOW UPDATE:

**SYLVITE will sponsor the FREE brunch
again this year**

provided daily at the OSCIA tent from
8:30am-10:30am.

**NEW this year, BUNGE will sponsor
FREE lunch vouchers**

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

Updates will be posted on the website:

<http://www.ontariosoilcrop.org>



Seed Bytes - The Importance of Certified Seed

Three new videos on the importance of certified seed that have been added to YouTube (assembled by the Canadian Seed Growers' Association):

a) Melonie Stoughton-Ens, CGC

In this video, the Canadian Grain Commission's Melonie Stoughton-Ens explains how certified seed and identity preserved systems are used to ensure crop varieties deliver the unique characteristics food manufacturers are seeking when choosing ingredients for their products. <http://www.youtube.com/watch?v=lJmYh1mHgAc>

b) Todd Hyra, SeCan

In this video, SeCan's Todd Hyra explains how certified seed helps deliver the innovation needed for seed companies to provide farmers with new seed varieties that deliver better agronomic and yield performance as well as enhanced baking and brewing characteristics. <http://www.youtube.com/watch?v=A3UiuxKLxg8>

c) Peter Johnson, OMAFRA

In this video, Ontario Ministry of Agriculture cereals specialist Peter Johnson explains the benefits of certified seed. The benefits for food processors, millers and bakers include increased quality assurance, traceability and product innovation. <http://www.youtube.com/watch?v=s6Fa6kx4lg8>

Harold Rudy, Secretary Manager, OSGA





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

GYFP Workshop Schedule

All workshops 10am - 3 pm

Oct 25 & Nov 1 – GYFP – Massey
 Nov 19 & Nov 26 – GYFP – SSM
 Nov 20 & Nov 27 – GYFP – Thessalon
 Nov 29 & Dec 6 – GYFP – Mindemoya
 Dec 3 & Dec 10 – GYFP – Azilda
 Dec 4 & Dec 11 – GYFP – Wahnipitae
 Jan 4 & Jan 11 – GYFP – Verner – French
 Feb 4 & Feb 11 – GYFP – SSM
 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

Canada-Ontario Environmental Farm Plan (EFP)

Producers are invited to attend free EFP (Fourth Edition) Workshops to learn more about:

- Best management practices
- Develop an action plan for their farm
- Learn about cost-share funding opportunities

EFP Workshop Schedule

All workshops 10am - 3 pm

Oct 19 & Oct 26 – EFP – Huntsville
 Oct 22 & Oct 29 – EFP – Thessalon
 Oct 23 & Oct 30 – EFP – SSM
 Nov 2 & Nov 9 – EFP – Verner – English
 Nov 4 & Nov 11 – EFP – Massey
 Nov 5 & Nov 12 – EFP – Mindemoya
 Nov 7 & Nov 14 – EFP – Azilda
 Nov 8 & Nov 15 – EFP – Wahnipitae
 Nov 16 & Nov 23 – EFP – Powassan
 Nov 19 & Nov 27 – EFP – Earlton – English
 Nov 20 & Nov 28 – EFP – Cochrane – English
 Nov 21 & Nov 29 – EFP – Timmins – English
 Dec 2 & Dec 9 – EFP – Verner – French
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 Jan 9 & Jan 16 – EFP – Hearst – French
 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

Workshops Now Available

Register Online at www.ontariosoilcrop.org



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born, but what they grow to be."*

– J. K. Rowling

*"Faith is taking the first step, even when
you don't see the whole staircase."*

– Martin Luther King, Jr.

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

– Bob Hope

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a person who agrees with me."*

– Benjamin Disraeli

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

– Aristotle

*"Always bear in mind that your
own resolution to succeed is more
important than any one thing."*

– Abraham Lincoln

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Breaking Ground (in Northeastern Ontario)

Dr. Bob Bors Addresses 1st Annual Ontario HASKAP Day

Continued from page 17

The "Best Management Practices" for developing a Haskap orchard are yet to be determined. Weeds are a challenge as chemical control is still in the experimental stage. Producers should either plant into plastic, or be willing to hoe and rototill. Straw mulch has not been tried at the research site, but fine grained sawdust has produced some success.

There has been no fruit loss from rot while the berries are still on the plants. Some varieties will hold onto their fruit throughout the summer, and slowly allow a dry down to "raisin" status by fall. However, fruit that "bleeds" when picked must be used readily, for decay will occur if these varieties are left in the fridge for some time after picking.

Thrips are seen as a potential problem, but the early fruit harvest should allow for the avoidance of most insect pest problems. Bird control, especially for waxwings, is seen as the major concern. Bird netting should have holes of ½ inch or less. So far, there are no reports that the U of S varieties suffering from mildew in mid-season, although this disease is more common in the purely Russian varieties.

Haskap does not need much pruning as they do not sucker. When they reach full size, a grower might cut out a few of the older large branches at the bottom of the bush, AFTER harvest. There is no need to stake floppy stems as they do not "layer" in the manner of blackberries. To get full production, you want to have MANY trunks.

To achieve this goal, you normally plant Haskap deeper than other plugs or potted plants. A grower should place the plant in at least an extra inch (2.5 cm) of depth. This amount also reduces the amount of "lift" that can occur in clay soils over winter. In Japan, Haskap are planted at 45 degree angles to space out branches along the trunk. Bors has planted both plugs and potted plants HORIZONTALLY in order to provide more adventitious rooting and to get more shoots, thereby maximizing production. This is most easily done in bare soil with a one furrow plough. The plant is placed horizontal in the trench, then the root and most of the stem is covered by soil with the use of a hoe or rake.

When planting vertically into plastic, a regular tree planter will do nicely with the plugs. The aisle between the rows of plastic should be planted to a non-spreading grass such as a "bunchgrass". Definitely do NOT use "Creeping Red Fescue"

The only easier crop to mechanically

harvest is Raspberries. Some raspberry harvesters can be converted to use with Haskaps. A number of companies now make a mechanical Haskap harvester. They are worth about \$40,000, and require 40 acres to be economical. If you have a smaller operation, consider working with other producers in a co-op. The unit will require a 40 HP tractor to pull, and will need an 11 foot spacing between rows if the picker is mounted BESIDE the tractor. Over-the-row machines require only a 6 foot aisle.

With specific varieties, hand harvesting is quick and easily accomplished if the fruit can be shaken from the plant. Umbrellas or narrow plastic kids swimming pools are used to catch the fruit after it has been "tickled" off the bush. The action should not be too violent, but the loss of a few branches is insignificant. If the branches are not flexible, they should be removed anyway.



MARKETING:

Where a solid market has been established, current prices for the fruit range from \$10 to \$15 per pound. However, in the future when Haskap orchards are expanded and fully mature, and when mechanical picking is used, a good return is projected to be anything over \$1 per pound. This will allow for the product to be used widely in the food industry.

Here in Canada, restaurant cooks are eager to work with this new berry. Some cooks say that they are bored to be working continually with blueberries, as they have been for the past couple of decades. As producers develop a plantation, they should make a point of introducing both the public and the restaurant trade to this new product as early as possible. Promote by offering free product to grand openings, community events, and farmers markets. Cultivate a market for the product before you are swamped with over-production. People need to be

encouraged early before they will be attracted to a new self-pick operation.

Combine with other growers/companies for market research and development. (Bob Bors' wife is presently testing recipes and creating a Haskap cookbook that will soon be made available.) Haskap has already been noted as being milder in flavor when compared to blueberries. It works well with lemon, but NOT with cherry. If there are a number of growers in a certain location, develop a local conference and invite the public. An alternative is to piggy-back on an event that another group is having.

Haskap wine is the closest thing to wine made from grapes. It is very similar to red wine, although different yeasts give different qualities. Haskap yogurt has great potential as it possibly extends the shelf life of yogurt due to the high level of anti-oxidants. Haskap varieties that dry on the bush produce a blue final product. So do drying systems that do not involve heat. However, heated drying systems will produce a raisin that is black in color. Fortunately, Haskap nutrition remains the same all season long (unlike tomatoes)

There is great potential for exporting both fresh fruit and finished products to Japan, the original "home" of the Haskap. On the northern island of that country, Haskap would be considered to be the national equivalent of maple syrup or wild blueberries in Canada. Haskap has been used as a fresh fruit for at least 500 years, and as a part of commercial foods for a hundred years. Japanese Haskap is comparable to green tea for anti-oxidants, and it is known that Canadian sourced Haskap is higher in this highly important component.

There are a huge number of commercial Haskap products available in Japan, but it should be noted that they are identified as having no preservatives or artificial colors. However, it is believed that some wineries may "water-down" their product due to shortages of the fruit. Currently, wholesalers in Japan are willing to pay \$17 per kilogram (2.2 #) for fresh Haskap. This is similar to the wholesale price of wild blueberries in the Sudbury region during the drought of 2012.

If you are interested in joining the Ontario Haskap Association, contact Greg and Mira Melien at the Boreal Berry Farm and Winery at 748 Little Brule Road, Warren, Ontario, P0H 2N0.

Telephone: 705-920-7096

info@borealwinery.ca

www.borealwinery.ca

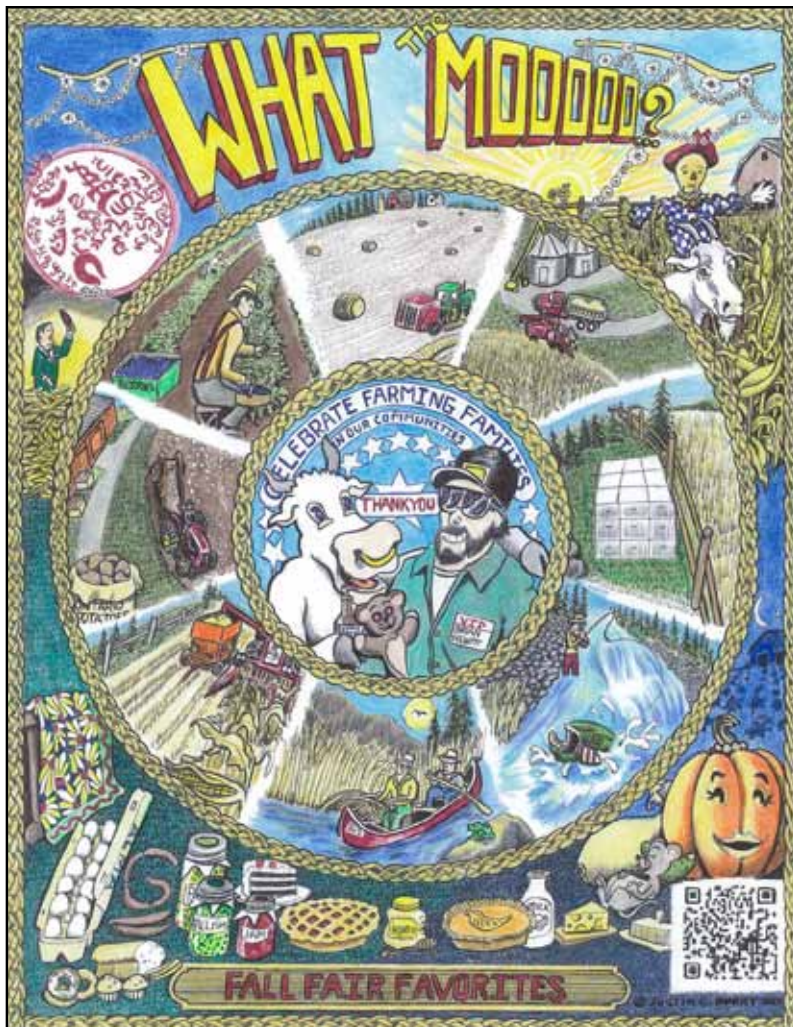
NEOSCIA

Bedstraw Infestation Expands in the North

by: *Graham Gambles, RCC, NEOSCIA*

The weed "Smooth Bedstraw" has expanded significantly in Temiskaming forage fields over the past year. As it is a severe competitor in stressed fields, it seems likely that the drought of 2012 was a boon to bedstraw survival and expansion. It has now been observed in mature alfalfa fields (probably introduced by contaminated mowers). In late June, it was very thick in low density grazing fields and even in small fields that were abandoned back in the early 90's. A second crop was observed in mid August. In fact, any land that was seeded to trefoil in the 80's probably has it. Although cattle eat green bedstraw, they try to avoid hay contaminated with the weed. Even if they do consume bedstraw, there are few nutrients in it. It was so thick that some farmers did not cut their fields this year, and some are selling this land. Watch what you buy, unless you are converting a field to cash crops!

However, all is not lost. The 3 year field trial developed by NEOSCIA in Temiskaming in 2009 was still available for observations this year. I have observed that 5 years after treatment, the plots sprayed with 100 millilitres per acre MILESTONE are visually clear of bedstraw (in the center - not at the edges where there is invasion from untreated plots.) MILESTONE is expensive at \$1733 per 10 litre jug, but we now know that it will clean a field of bedstraw for at least 5 years (and I would bet on 10!)



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

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Temiskaming Crop Coalition & GFO Annual Meetings

The GFO Provincial Board of Directors will meet in Temiskaming for a farm tour on the first week of July.

For information, contact Kevin Runnalls (TCC Booth) at the **Earlton Farm Show, April 5th & 6th, 2013.**

John Vanthof MPP/député

Temiskaming-Cochrane

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