# Heartland Regional Soil & Crop Improvement Association

**Serving members of soil and crop improvement associations in the counties of Huron, Perth, Waterloo and Wellington**

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**OSCIA**

**Mission Statement**

To communicate and facilitate responsible, economic management of soil, water, air and crops.

For more information visit www.ontariosoilcrop.org

**Inside This Issue:**



# Jake and Betty Kraayenbrink and Family

## Kraayenbrink Farms, Moorefield

**Kraayenbrink Farm**

Jake and Betty Kraayenbrink are raising 11 children, five boys and six girls on their farm in North Wellington County near Moorefield. In the past 20 years of their married life, the family as well as the farm operation has grown to its present state.

*Jake & Betty Kraayenbrink and Family*

Jake was raised on a 100 acre pig farm in the Port Lambton area. Betty came from the Aylmer area where her family is involved in the construction industry. She studied nursing and worked in the Tillsonburg area for five years. After graduation from Ridgetown College in 1983 Jake returned home to the family farm. In 1985 he entered into a partnership with his father on the 100 sow, farrow-to-finish operation. In the same year, an 80 sow farrow-to-finish operation came for rent in the neighbourhood which Jake proceeded to rent. Jake also worked for Kerrwood Farms which has Sombra clay. He learned many valuable

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lessons, in particular, he learned about working with the land and timing operations to the soil conditions. In 1987 Jake married Betty. Jake and Betty decided to purchase their current 100 acre farm in 1988. The farm had several barns set up for finishing pigs and was converted to a 125 sow farrow-to-finish operation. They stocked the farm with High Health pigs from Vista Villa Farms of Walton. John Roefs of Ayton began farrowing all the sows on contract in 1998 and continues to contract farrow for Kraayenbrink Farms. In 2003 Ed Michel and his son Jamie, as well as Jake's brother Pete Kraayenbrink joined the operation. Today Kraayenbrink Farms operates two locations that are PRRS and Myco negative stock with a total of 850 sows farrow-to-finish.

*Kraayenbrink Farmstead — since 1988*

**High Health Risk Management**

To achieve high health and growth performance there is no flexibility on bio-security for this operation. The Kraayenbrinks estimate that the greatest risk of spreading pathogens is from trucks. A major disease outbreak would be the number one risk factor that would negatively impact their operation. All livestock trucks are prohibited from entering the farm so animal transfers are made at the roadside a distance from the farm. The Kraayenbrinks also need to deliver breeding stock to various farms each week. To reduce this risk factor an option is to wash, disinfect and dry their truck before returning home. This disinfection process is costly and requires a facility that can manage significant volumes of wastewater.

To address this, Kraayenbrinks modified their livestock truck with an aluminum catwalk and adjustable chute. The driver can unfold a catwalk along the side of the truck box using a hydraulic control in the cab,

*Truck with Catwalk & Adjustable Chute*

step from the truck cab , walk to the back of the truck and put on overboots without stepping onto the ground. With an electric winch, operated on the outside of the truck box, a plastic chute can be lowered to any height without touching the surface of the receiving truck or another farm chute. The Kraayenbrinks consider the trucking solution has greatly reduced the risk of loss due to disease outbreaks and protects the integrity of the herd health status. Another area of concern for Jake is soil stewardship and manure application.

**Manure Management**

The sandy loam of their current farm is considerably different from the heavy clay Jake had worked in Lambton County, but he remains cautious about soil compaction. To maximize yield they recognized they have to plant corn early, which on their farm is the last week of April. While conditions are suitable for planting corn, soil conditions are often not suitable for carrying the equipment for applying manure. In their equation, early planting outweighs delayed planting to fit in pre-plant manure application.

Prior to 2005, the whole farm was planted in corn. In 2005 the Kraayenbrinks planted soybeans. In 2006 they started a 3-way rotation of corn, soybeans, and winter wheat. With only 100 acres at the home farm they require more acreage to spread the manure from the pig operation. To avoid risk of bringing pathogens on-site they determined they had to buy their equipment, versus hiring custom applicators. They also had to find a way to spread manure at other sites.

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To prove to themselves and their neighbours that there is an economic value to manure, the Kraayenbrinks did an extensive trial on side-dressing manure. Sidedressing manure into corn gave a yield advantage of approximately 30 bushels. Dr. Bill Deen of the University of Guelph and Greg Stewart of the Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA) became aware of the trial and conducted a 3 year study on manure application at the Kraayenbrink farm.

The Kraayenbrinks consider manure a valuable resource. "Often times we farmers apply manure at our convenience, instead of timed for the crop needs or when soil conditions are more conducive to carrying the equipment".

***"Often times we farmers apply manure at our convenience, instead of timed for the crop needs or when soil conditions are more conducive to carrying the equipment."***

The Kraayenbrinks think that owning their manure equipment and using the side-dressing technique pays off for the following reasons:

1. Reduced risk of bringing disease pathogens onto the farm,
2. Reduced nutrient losses by applying nutrients when the crop requires them,
3. Reduced odour leading to more neighbourly relations in the community,
4. Increased yields by 30 bushels per acre,
5. A custom operator is not required.

**Side-Dressing Corn with Manure**

The Kraayenbrinks use a 4500 gallon Nuhn liquid manure tank with in-tank agitation equipped with a Nuhn Row-Crop Injector. The tanker has tandem radial 18-4 38 tires to fit into the 30" corn rows. The injector is a 2 bar S-tine Kongskilde. It takes 160 horsepower to pull it. The manure tanker straddles 4 rows of corn and the tractor straddles 2 rows so they are not traveling in the same rows. They side-dress 3,500 to 4,000 gallons of hog manure when the corn is at least 25" high or when the corn row is filled in. The application unit travels at 6 to 7 miles per hour. When they spread on the home farm they can fill and spread one acre in 13 minutes. This requires one person on the tractor with the manure tanker and injector and a second person at the loading area. They use 80 lb of dry starter 30-10-10 and credit the manure at 150 lb of nitrogen. The corn yield averaged over the past five years is 161.62 bushels per acre.

*Row Crop Injector*

**Research Results from Deen and Stewart**

From 2003 to 2005 Dr. Bill Deen from the University of Guelph and Greg Stewart corn specialist with Ontario Ministry of Agriculture, Food and Rural Affairs ran a field experiment comparing side dressed hog manure with UAN. The objectives of the study were to evaluate side dressing of liquid hog manure versus UAN in terms of fertilizer nitrogen equivalent, yield response, grain protein, soil compaction, and end of season soil nitrates. Below are the findings:

- In-row soil bulk densities measured at 5cm and 20cm depth were not increased as a result of traffic by the liquid manure tank
- Soil nitrate levels of both the 2000 and 4000 US gal/ac manure treatments measured post harvest (November 10) were comparable to soil nitrate levels associated with UAN applications of 60-180 kg N /ha.
- Available nitrogen in liquid hog manure was equivalent to nitrogen from UAN (Figure 8) in terms of corn yield response
- Grain protein content was not increased by liquid hog manure application in comparison to UAN fertilizer treatments
- Soil and root disturbance associated with manure injection operations did not reduce yield

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**Figure 8 Corn Yield Response to UAN and Liquid Hog Manure (0, 2000, And 4000 Gallons/Ac) Applied at the Knee-High Stage, Wellington County, 2004 (Deen & Stewart)**

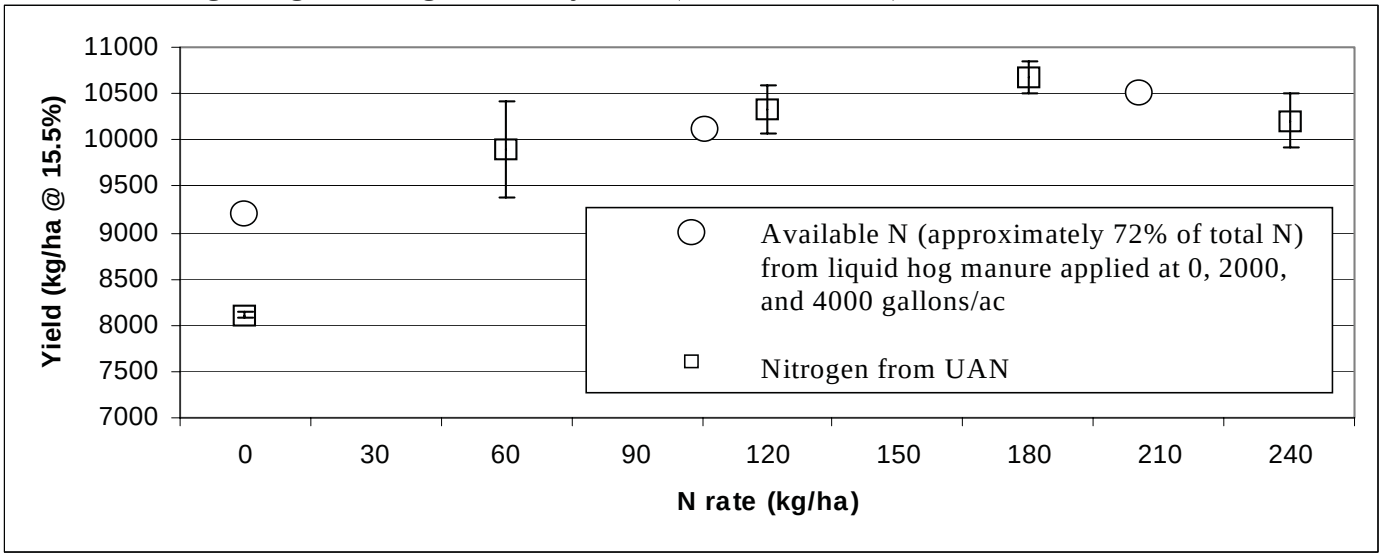


Table 7 shows that the nitrogen needs of a corn crop can be met solely with side dress manure applications as evidenced by the corn response to manure and variable rates of fertilizer N compared in this study. Side dressing manure into a standing corn crop results in better utilization of applied manure since it is applied during the period preceding rapid N accumulation in the corn plant. Available N is not added to the system during the early part of the season when soil compaction, denitrification, leaching and other factors may contribute to reduced availability of manure N and loss in N use efficiency. (Deen & Stewart)

**Table 7. Corn Yield, N Equivalence and Available N Associated with Sidedress Hog Manure Rates.**

| Treatment | Year 2005 | | | |
|---|---|---|---|---|
| | **Rate (gal/ac)** | **Available N (kg/ha)** | **Fertilizer Equivalent N (kg/ha)** | **Grain Yield (t/ha)** |
| **Manure 1** | 2526 | 122 | 149+ | 10.29 |
| **Manure 2** | 5266 | 255 | 149+ | 10.27 |

**Investment Cost**

An investment cost is associated with this technique. Dennis Nuhn of Nuhn Industries in Sebringville was contacted for the tanker and injection equipment costs. Philip Hurst of GeoTech in St. Jacobs was contacted for the flow controller cost. Below are the current costs for the equipment modifications.

| Equipment | Cost |
|---|---|
| **Nuhn** Tanker – 5000g Magnum 120" track row crop In tank mixing and volume control | $27,000 |
| Injector – 30" 6 tooth S tine | $10,500 |
| **GeoTech** Flow controller – provides better control of flow, indicates and records actual flow (an added feature for reducing potential liability) allows variable rate | $12,000 |
| Add mapping feature<br>and GPS system | $3,500<br>$2,500 |

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In conclusion the Kraayenbrinks state "the present state of our family and farm business was possible with much support from others, by doing the day to day tasks, and depending on the provisions from the Lord of Heaven and earth. Taking care of details and making each part of the operation efficient is important. In the barn, that means pigs with excellent health and genetics. In the fields, that means recognizing the opportune time of preparing the seed bed, planting, seed selection, spraying, applying manure, maintaining soil health, and minimal compaction."

*Special thanks to the Kraayenbrink family for giving their time to this article and to Wellington Soil and Crop for nominating this family for the newsletter profile.*

# Comments from the Regional Communication Coordinator

This winter has been busy with several local and regional events and regional projects. I hope that you enjoy reading about them in this issue and that they will spark your interest in what is planned for this spring and summer.

The Heartland executive is planning a summer bus tour. We would appreciate any input you might have about things that interest you. You will be notified with a mail out and in the June newsletter, so be sure to attend with your family and friends.

If you have not renewed your membership yet please do that right away so that you don't miss any newsletters or event notices. You will notice your membership status on your mailing label. If it doesn't show 2007 you need to renew.

Thank you to the newsletter sponsors who help out with the newsletter costs and support agriculture in the Heartland Region.

Cheers Ruth Knight RCC Heartland

# Comments from the Regional Chair

Heartland Region covers a vast area stretching from Mt. Forest and Wingham at the north end to Waterloo, St. Marys and Hensall in the south. Finding ways to connect Soil and Crop members spread throughout the Region is a daunting task. At our last Heartland executive meeting on January 12th we attempted to come up with some ideas that would bring producers from this widespread zone together. We would encourage anyone with ideas to come forward and by all means let us know. Input from all parts of Heartland is critical if we are to find an opportunity to share information that is interesting and accessible to all members. I'm sure there are great things happening around the Region this spring.

After the annual meetings, the Perth and Wellington executives have settled into the business of coming up with ideas to get projects and events rolling. Wellington is planning a soybean project with Horst Bohner. Perth has some information meetings that sound quite interesting. I would like to encourage anyone in Waterloo and Huron to take advantage of the opportunity to revitalize the executives in these counties. It would be really beneficial for everyone to find an event to bring Heartland together. We want you to know as your Regional executive our thoughts are revolving around this challenge and our ears are open.

Best wishes for a SAFE and positive spring season.
Stuart Wright

# Comments from the Provincial Director

**Are You Ready For Prosperity?**

We really haven't had to think about that one for a while have we? Who would have thought last spring or mid summer that we would even peak at an optimistic outlook! How quickly times change, and how quickly they can change again. Most of us have hunkered down into a survival mode, perhaps with a little too much grouch and resignation. We have been trying to make things happen for so long that we get a little discouraged.

The first thing that is needed this spring is an attitude adjustment. Management decisions that have been made to survive are important but may not be the best decisions for this year. We are entering a time period when crop prices may allow us to be paid for our management skills and when there may be enough return to pay for extra inputs that we have been skimping on lately. The challenge is to determine which practices will bring us the most profit, which to keep and which to change.

The story of the seven good years and the seven bad years has been told over the ages. Now is the time to store the lessons learned from the bad years so that we can reap the profits. Our management has become sharper along with our pencils. Don't forget those lessons. Just because there is now more money projected from the crop, be sure to keep more for your own work. As each economist talks of the reasons for sustained higher prices for crops you just know that shortages of inputs and surpluses of optimism will lure the money out of our hands.

Stick to your plans. "High prices" may encourage you to grow crops that you don't like or don't suit your land. Be sure that you are making good decisions which will stand by you in years to come. Our dairy farmer neighbours usually have the best crops don't they. If you think about it they "stay the course". They make a decision on a good simple crop rotation that does well for them. This rotation looks after their soils, keeps their options balanced and returns a profit year after year. There are no snap decisions in this system, just tweaks. Don't sacrifice your long term goals to chase the present.

High prices for a crop only are useful if they are secured for the crop you are selling. It is possible to lock in a profit now in the marketplace. Maybe we should do it.

We will have the same land base again this year. There will be 43,560 square feet in each acre to capture sunlight and rain to draw the nutrients out of the ground and capture the energy in our crops. What we do along with weather and luck will determine how much profit will be in our accounts next Christmas. The worst thing is to think that you know what you are doing. At that point you stop asking questions of yourself and others. Reach out and share information. We may have just crossed over a line where things have changed – a paradigm shift as some say. Increased demand world wide may now support crop prices at a higher plateau. If this is true we need to be ready to challenge ourselves about what still works and what else do we need to do. We can't make opportunities happen but we need to be ready to recognize them when they occur.

And finally breathe deeply and remember that you do this because you love to farm. Don't squeeze the fun out of it for you or your family. As James tells Robert each morning, "Do the best you can to make it the best you can".

Joan McKinlay
OSCIA Provincial Director

# Huron County Soil and Crop Improvement Association

**HEARTLAND FORAGING ALTERNATIVES**
Submitted by Marv Eberle MILO PRO INC.

Thanks to combined efforts of Agriculture Environmental Renewal Canada Inc (AERC) in a joint venture with University of Guelph, Agriculture and Agri-Food Canada, Ontario Ministry of Agriculture Food and Rural affairs and ministries of other provinces, AERC has successfully launched a number of alternate crops to Canadian growers, specifically developed to meet growing and climatic conditions in Ontario. From our Research Facilities in Delhi, Ontario, we have successfully introduced forage sorghum silage hybrids and multi-cut forage sudan hybrid. Silage Hybrid nutritive value rivals corn silage when harvested at dough stage yielding more forage matter than corn silage. Sudan Hybrid is comparable to conventional forages and can be under seeded with alfalfa or planted as a cover crop. Sudan is recommended for silage, green chop, baleage, dry feed or for pasture and is noted for its excellent re-growth capacity and exceptional palatability with crude protein of 14-15%. The hybrids offered are safe to feed at all stages of growth over the growing season and after a frost.

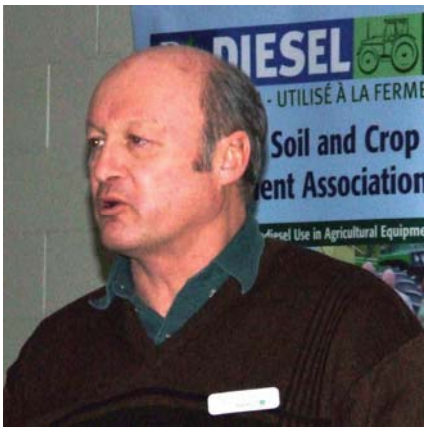
*Sorghum Grain CGSH 8*

NEW for 2007, Greenfield Ethanol will be accepting contracts from producers to their Tiverton location for our sorghum grain varieties. The purpose of this program is to evaluate the impact sorghum grain has on fermentation, distillation and bi-product (wet distillers grain) output in ethanol production. Contracts are available to growers in Heartland region. Grain Sorghum is a major feed ingredient in the U.S., Mexico, Argentina, Brazil and Japan. Feed value for sorghum grain will range from 92% to equal that of corn.

For more information please contact Marv Eberle at 1-519-808-9909 or email at meberle@odyssey.on.ca.

**Bayer CropScience OPTION 1-2-3 Trials**

Bayer CropScience and Ontario Soil and Crop Improvement Association cooperated on several sites in the province for a 'Farm Research Permits' project for a new corn herbicide. The corn herbicide is Option 1-2-3, an early post-emergent herbicide to apply on corn at the one- to three-leaf stage. One of the sites was located at the farm of Brian Dietz in Huron County near Seaforth. Rob Hill, territory sales manager for Bayer CropScience provided an overview of the research project at the Huron SCIA meeting on January 16th.




*Rob Hill*

Option 1-2-3 is a combination product with three active ingredients with different modes of action: Foramsulfron (Option –Group 2 herbicide), Flufenacet (Define – Group 15 herbicide), and Atrazine (Group 5 herbicide). The atrazine is not sold with Option 1-2-3 but is required for the tank mix. The recommendation is to add 0.7 litre per acre of atrazine per tank mix. A case of Option 1-2-3 treats 23 acres. At the one- to three-leaf stage of corn, flufenacet and atrazine provides contact and residual activity. Foramsulfuron will provide grass and broadleaf contact activity. To control grassy weeds and burn down broadleaf weeds it is very important to apply at the right time. The optimum timing is when the weeds are at the three- to four-leaf stage and actively growing.

The Farm Research Permit sites were evaluated 21 days after treatment comparing an untreated control and Option 1-2-3. At the Dietz site the comparison also included Battalion as herbicide treatment. Conclusions on Option 1-2-3 is that it is an one-pass residual weed control when tank mixed with atrazine for one- to three-leaf stage of corn. The three active ingredients are economical at $24 per acre and adding atrazine brings the cost to $30 per acre.

# Wellington County Soil and Crop Improvement Association

The Wellington Soil and Crop held their annual meeting on December 6th at Wellington Place in Fergus.

The guest speaker was Stan Malcolm from Granton. He spoke about his experience working with farmers in the Ukraine. He has consulted in the former Soviet Union since 1993 and operates a small business in Ukraine.

*Stan Malcolm*

Ukraine has been a nation only twice in the 20th century. In 1991 the Ukraine declared independence and they held their first ever free election in 2005. Ten years after the fall of Communism the people in agriculture are still starving. The country "pays" a salary to farmers but they are not paying them. The system of social ownership of property did not work and the privatization process in the Ukraine is not without its challenges. Each person in the Ukraine owns 4-5 ha of land by certificate yet the properties have never been officially surveyed. Without adequate resources and training to utilize the land base, some of the people determined that land ownership is another burden imposed by the government. So the former communist chiefs agreed to rent the land and effectively still control the land. There is also no foreign ownership of land allowed.

The capital city of Kiev is the same latitude as Winnipeg. The agricultural productivity is very low in comparison to Canadian standards yet the land has a great potential to be as productive. The fields are huge and square and there are no stones except near waterways. In comparison to Canadian productivity the yield of wheat is 30%, and the productivity of dairy cows is 10%.

There are several reasons for low productivity and poverty is the result. The average income is 80 dollars per month. The machinery is not kept undercover and the mentality is, if they don't own it they don't care. Of course few people have been accustomed to owning very much. Equipment decisions are not based on quality and equipment is engineered along the same style as military equipment. The equipment is very poor and there are no grease guns to properly maintain them.

The idea of productivity and efficiency is not part of the culture. Tasks are not organized, the result is that 20 people in Ukraine complete the equivalent of what 1 Canadian does. Men of authority carry guns. Workers take direction and carry out their work without questioning authority. The work is completed with no concept of choosing appropriate field conditions for the type of work such as seeding into wet soils because they were instructed to do that task that day.

Concerns with poverty and war override any concerns about preserving the environment. The effect of Chernobyl is evident with areas of the country radioactive. The equipment from the former Soviet Union does not have any emission controls. Raw sewage is dumped into sea.

There is one bright spot in Stan's assessment. The Ukrainians take care of their children and they teach their children business. There is hope for a better future.


**Steven & Sandra Eastep Receive Plaque**
Harold Rudy, Pat Lee and members of Wellington Soil and Crop Improvement Association acknowledged the contributions of Steven and Sandra Eastep. The Easteps have spent many hours working for Soil & Crop Improvement Association at the local and provincial level.

# Perth County Soil and Crop Improvement Association

Perth County Soil and Crop hosted their annual meeting on January 18th at the Milverton Community Centre.

Neil Aitchison of Harriston provided light hearted entertainment for the Perth Soil and Crop members. Following a delicious meal Neil gave his audience a workout with a generous portion of laughter. This is because Neil compares laughter to 'inner jogging' and apart from its healthy side effects it is useful in other ways, as Neil's life story can attest to. He shared many of these tidbits.

*Neil Aitchison*

Neil realizes that people's fear of public speaking is second only to dying. This is related to people's fear of failure. To use laughter in conjunction with public speaking adds to people's fear of foolishness and nonsense. "It really is too bad that so many people equate failure and nonsense to dying because we fail so often." As a young student in school Neil did not take well to math and science so Neil acted foolish as a defense mechanism against the teachers. He learned at a young age he could fail and not die. When he went to college he discovered radio broadcasting and found something he could excel at. This led him to a career in radio followed by theatre and public speaking.

Neil grew up in a rural area and appreciates the qualities of rural people that give them a leg up on everyone. "They know how to relate, stop and visit and smile without encouragement. The best way for you to be sure people know what you mean is to smile. Smiling is the first step to laughter and laughter is important to living. We are a long time dead so it is important to live. If by chance you die today would you like what the person reading your eulogy would say? If not, change the way you are living because you don't know how much time you have left to change it."

Neil quoted Aristotle "we are what we repeatedly do, therefore excellence is not an act it is a habit" Neil observed that people live up to or down to what you expect of them. "From that, one can conclude that making excellence a habit and expecting great things from ourselves and others around us, and having fun will help us all LIVE a fuller LIFE."

**Perth Info Day March 9th**

Perth SCIA held their annual info day on March 9th at Rostock. The agenda included a mix of topics including raising pigeons by Dave Wagler and Shelley Mason of Pigeon King International and Organic Crop by Hans Hachler. Greg Lougheed gave a presentation on Biodiesel .

Pigeon King International is seeking farmers who will raise their breeding stock of pigeons. The pigeons are raised primarily for the racing and show market and others go to the meat market. The company is offering ten year contracts.

The contract requires a minimum of 100 pairs of birds. A pair costs $200 to $500 per pair and the offspring will be purchased at $25 each. One hundred and fifty pairs will produce 1000 babies per year at a cost of $5 per baby.

The birds require 10 square feet per pair. The facility needs to be adequately vented, free of drafts near the nest boxes and provide 16 hours of light (natural or artificial). The pairs require 2 nest boxes. The birds need an area to perch, and fresh water for drinking and bathing. A variety of feed rations have been used by different producers including turkey and pig ration.

*Dave Wagler & Shelley Mason*

# Farm$mart Agricultural Conference 2007

FarmSmart is an agricultural conference is a partnership between OMAFRA, Golden Horseshoe and Heartland Regional Soil and Crop Improvement Associations, the University of Guelph and is supported by industry sponsors.

The FarmSmart conference was held on January 20, 2007 in Rozanski Hall at the University of Guelph. Over 500 participants attended and in total over 700 people were involved in the conference. The 2007 theme was "Ontario Agriculture From a Global Perspective". With approximately 49 sessions held throughout the day the topics included crop and livestock productions, alternative energy, business management, general interest and others. The program also included a Youth Program which attracted over 35 rural youth. The kids had the opportunity to make ice cream, potato chips, and view the inside of a live cow's stomach. They toured the University Space program and got to design a greenhouse for Mars.

**Noel McNaughton Managing Change**

Noel McNaughton of Alberta spoke about Managing Change. He summarized his statements into 5 key points.

**Key #1 Know what you want in your life.** Setting and recording a goal for your life as well as your farm can be the beacon that pulls you forward in difficult times and helps you change. Noel emphasized that it is important for us to see that we are spiritual beings having a human experience versus human beings having a spiritual experience.

**Key#2 Communicate** with your spouse and your family with "I" statements versus "you" statements. Noel stressed that it is important to share with your family what your situation is and let the family help figure out what to do. Discussing tough subjects can be made easier by using the 3 minute technique. One party speaks for 3 minutes using "I" statements while the other party listens. While one person is speaking the other person may not speak at all. Then the people switch for another 3 minutes until they come to agreement that they have said all they want to say.

**Key #3 Farming and ranching is about catching sunshine and putting it in the bank.** The solar chain has 3 links: energy, conversion, and marketing. The sunshine provides energy. The plants capture the energy. We harvest and convert the energy into a marketable product. The chain is as strong as the link within it, therefore think about how your farm can capture as much solar energy as possible, convert it with machinery or livestock into a product, and develop a good marketing strategy.

**Key #4 PLAN.** If you want to make $1000 per hour you have to plan. It is something you just cannot hire someone else to do. The first step in the PLAN is to make a profit. The steps in the financial plan are 1) gross income, 2) minus 40% Profit, 3) pay expenses. There are 3 types of expenses: A- expenses the will generate new wealth and will address one of the weak links in the solar chain, B- inescapable expenses such as land and machinery and C- maintenance expenses. The second step in the PLAN is to do a gross profit analysis on every enterprise on the farm. Use the income and only the variable costs connected to the enterprise. The enterprises that don't generate a profit have to be eliminated. This approach helps to take the emotions out of the decision making process.

**Key #5 Plan, Monitor and Re-plan.** Evaluate each decision to see whether the outcome will move you towards your written goal. Three important questions to ask when deciding on what action to take in every situation are: 1) Am I addressing a symptom or the cause of the problem? 2) Am I addressing the weakest link in the life cycle of this organism and 3) Is there another way to address the problem to get a bigger bang for my buck?

Noel acknowledges there are other steps to fill in the gaps but concludes with the following: "Pay attention to your life - this too shall pass and remember everything turns out okay in the end, if it is not okay, then

## FarmSmart Youth Tour

Submitted by Deanna Deville OSCIA

Thirty FarmSmart Youth had an active day with hands on presentations. The first presentation was in the Department of Food Science. Your high school guidance councillor may not suggest a career in Food Science, but this area of study has so much to offer. Are you interested in chemistry, biology, microbiology, engineering, biotechnology, or physics? If yes, then food science is for you.

Dr. Yada described what makes potato chips so crispy crunchy and delicious. It starts with a good potato breeding program that results in good storage, yield, and frying properties. Did you know that the Yukon Gold potato variety was founded at the University of Guelph? The potato chip industry is a 14 billion dollar industry and supplies 18 large bag/person/year in Canada. Potato chips have high amounts of vitamin C and can be good for you when eaten in moderation, and with a healthy diet. Did you know that potato chips taste different in Toronto than they do in Vancouver? What contributes to their flavour is the different oil that they are fried in such as peanut oil or canola oil or olive oil. Dr. Yada handed out potato chips for the youth tour to taste test!


Dr. Doug Goff also from the Department of Food Science prepared a home-made batch of ice cream for the youth to perform a taste comparison with store brands. Dr. Goff discussed taking a raw product of milk and with a lot of science turning it into a product like ice cream in the grocery store. We discussed fat air and ice which all give the ice cream its structure. Dr. Goff showed us how air bubbles and ice crystals look under a microscope. Dr. Goff encouraged the group that drinking milk and eating ice cream is a great way to get calcium in.

After morning snacks, we visited the on-campus dairy barn, and Dr. John Walton. Dr. Walton showed the group fistulised cows, and described nutrition research that was taking place. He also gave a demonstration to the group on dairy cow reproduction technology, and had an interactive demonstration of how AI is performed. Our group had several questions for Dr. Walton, and didn't mind smelling like a dairy barn while standing in line with the adults for lunch.

After lunch and listening to the Conference Guest Speaker Ronald Wright, it was off to learn how to grow plants if we lived in space. We met Dr. Mike Dixon, at the Environmental Biology Department. We discussed what are the special conditions in a space greenhouse environment. Since Mars is 65 million kms from Guelph, it would take 6 months of travel to arrive. Once there we could not live in a carbon dioxide environment, therefore we would need a shelter to live in. Any sealed structure used to live in, would need to be a renewable life-support systems based on plants and micro-organisms to produce enough air and food. Dr. Nixon and his team study how plants grow, and how waste is recycled. After the presentation, we toured through the Controlled Environmental Systems Reproach Facility to see the plant growth chamber where research is conducted.

This concluded our tour learning some of what the University has to offer prospective students. We thank all of the presenters for their effort to make the Farm Smart Youth tour a success!

# Biodiesel

Biodiesel has been around since 1843, much longer than petroleum diesel fuel. Greg Lougheed of Lougheed's Fisheries in Owen Sound is involved in the production and retail of 100% biodiesel. Lougheed's biodiesel is made from commercial soybean and canola oil margarines, some palm oil and other off-spec oil based food products. They retail biodiesel for use in furnaces, oil water heaters, tractors, and automobiles. Biodiesel is animal or vegetable oil which has been chemically converted to methyl ester diesel. Vegetable oil cannot be used directly in diesel engines. Biodiesel can be used in all diesel engines up to 20% blend with petroleum based diesel with no modifications.


*Greg Lougheed*

Some of the limitations of biodiesel are:

- **it acts as a good solvent**. Biodiesel above 20% will clean residue out of a fuel system which will require more frequent filter changes until the residues are flushed out. Thereafter, filter changes will be required less frequently.
- **it breaks down rubber** at blends above 20%. For vehicles that predate 1993, rubber fuel lines will need to be replaced with synthetic rubber. Newer equipment has already been manufactured with synthetic rubbers.
- **it will gel at temperatures below 5 Celsius.** In the winter, 20% biodiesel is the maximum recommended blend to prevent gelling. Diesel additives only work with the petro diesel portion but the biodiesel is a different composition. There is no additive to prevent 100% biodiesel from gelling.

The advantages of biodiesel are:

**Environmental benefits**.

- Biodiesel is a **renewable** resource.
- It provides 80% **reduction in cancer causing and other emissions**. This is a big concern for people who use open cab tractors.
- There is a **very mild smell** from fuel and exhaust and no black smoke.
- Biodiesel is **non-toxic** and will break down if spilled on the ground. It is "more biodegradable than sugar and less toxic than table salt" (US National Biodiesel Board)

**Safety**

- Biodiesel **does not burn** the skin the same as petroleum diesel. Some people use it to clean parts and it is very good at stripping off paint.
- Biodiesel is **non flammable**. It has a very high flash point, 186 Celsius and is not classified as flammable therefore permits are not required for carrying biodiesel. It is considered very safe in the home and it smells good making it favourable among some local insurance companies for use as furnace and water heater fuel.

**Engine performance**

- Biodiesel provides **lubrication**. At 5% blend biodiesel the engine will experience 35% **less wear** on parts. Ultra low sulfur diesel has lubrication problems so US manufacturers add biodiesel to increase lubrication. Canadian government is mandating biodiesel blends in all diesel and furnace oil in 2012 because of problems with ultra low sulfur diesel fuel.
- For some uses, engines will burn **4 to 8 % less fuel** even at 5% biodiesel blend and will have more torque. The fuel efficiency is more enhanced when the engine is worked hard such as pulling heavy loads.

**Raw Oil for Biodiesel**

As an incentive, in 2002 the Canadian government exempted biodiesel from road tax but other incentives and regulations will be required to make biodiesel

*(Continued from page 12)*

more viable from raw oil. Canola makes some of the best biodiesel because it yields 40 to 48% oil and its cold gel point is minus 20 C. Eight acres of canola will yield 235,000 litres of oil. Soybean will yield only 12 to 18% and must be degummed. With current prices of canola oil at 80 to 85 cents per litre it is economically not viable to use raw canola oil for making biodiesel. The alternative is to crush canola and rent it to restaurants to recover expenses then make it into biodiesel which costs approximately 18 cents per litre. Other ways to reduce the cost of stock oil is to use non-spec oil seed or food industry waste oil as is the case with Lougheeds. Other alternatives include recovering oil from distillers grain generated by ethanol production. The extraction squeezes out the water and fat making a better feed ration as well as eliminates water and reduces transportation costs. There is an estimated 8000 tons per week of distillers grain which will be available. Also restricted animal matter can be enzymatically treated to convert protein to nitrogen and recover the oil for biodiesel production. Many of these alternatives take materials out of the waste stream thereby providing other environmental benefits.

**On-Farm Production Systems**

Greg Lougheed is involved with Georgian Biofuels, which is a project to promote on-farm production of biodiesel. Georgian Biofuels wants to complete the loop with a group of farmers to grow the crop, crush, manufacture and distribute biodiesel. The reactor systems can be scaled up or down. The systems can produce 3600 litres of biodiesel in 900 litre batches in four hours. The equipment cost is $40,000 to produce 800,000 to 1.2 million litres annually or 18000 litres a week. The purchase of reaction systems includes delivery, setup, training and tech support. They will be on-site to run a batch through so that the purchaser can see how it is done. The waste from the reactor systems is 20%, mostly glycercine which can be land applied, sold to greenhouses or sold as a dust suppressant for roads. The reaction requires a supply of methanol. This should not require any special insurance since most farms have fuel on site which is already covered on their policies. In order to sell biodiesel a metering system will have to be devised. The options include: a meter pump, which is very costly or totes with a sight glass as is used by Lougheeds. Weighing the fuel will help to verify metering systems. Summer blending is easy, winter blending requires a special device and must be done in a heating space.

Georgian Biofuels is also cooperating with Ridgetown Campus of the University of Guelph to test the reactors. Also the biodiesel from various feedstocks is undergoing verification for ASTM testing. By 2008 Canada will develop a standard for biodiesel. Then the automobile manufacturers will have more confidence in accepting biodiesel under warranty programs and producing more automobiles with diesel engines. In Europe 60% of vehicles are run with diesel engines. For more information you can contact www.greatfish.ca or Lougheed's 519-376-1586.


**Heartland Biodiesel Demonstration Project**

This project is now wrapping up after one year. The data for tractor useage, fuel consumption, daynometers and oil tests will be compiled at Agriculture and Agrifood Canada and reported on later this year.

The cooperators have so far indicated that the use of biodiesel in their tractors did not present any major difficulties. There might be some problems with getting a continuous supply for the requested blend but that will be resolved with time as demand increases and more suppliers come on stream.

Heartland would like to thank Craig Martin and Wintermar Farms of Breslau for participating in this project.

# Greencover Canada Demonstration Projects

The Greencover Canada program is a five-year, $110 million federal initiative to provide financial and technical assistance to producers to implement land use farming practices that offer economic and environmental benefits. There are 10 on-farm demonstration projects funded under the technical assistance portion of the Greencover Canada program that will measure the performance of Beneficial Management Practices (BMP) at various locations across Ontario.

Two of the projects are located within the Heartland Regional Soil and Crop Improvement Association (SCIA), one in Huron County, coordinated by Maitland Valley Conservation Authority and the other in Perth County, coordinated by the Upper Thames River Conservation Authority. Ruth Knight the Regional Communication Coordinator for Heartland Region (SCIA) visited the two project sites in November and December of 2006.

The Maitland Valley Conservation Authority project is located south of Belgrave on the farm of Murray and Wilma Scott. The Scott Municipal Drain is a cold water stream which runs across the Scott farm. A fish hatchery is located immediately downstream of the farm and sediment is a serious concern for the fish hatchery. The purpose of the project is to reduce sediment; protect water quality and quantity and aquatic habitat.

Various techniques are being used to protect disturbed banks using natural channel design, retain runoff and control entry to the stream, and control field drainage and remove nitrates. The following techniques are included in the project:

- **Sediment control berms** control soil erosion. In the past, sediment entered the open municipal drain and impacted water quality. Tile will outlet into existing wetland.
- **Surface water diversion berms** along watercourse to carry surface water and sediment into the newly constructed wetlands.
- **Grassed waterways** carry surface water from the steep slopes and from the upper end of the watershed. An emergency outlet waterway carries the water to the top end of the open ditch where it flows through a sediment trap.

*Sediment Control Berm*

- **A waterway crossing** –at the top end of the grassed waterway provides access into the field.
- **A wetland drainage system** provides sufficient storage to handle storm events and filter the water out slowly.

*Outlet Control Box*

- **A wetland outlet control box** allows the owner to control the release of water from field tiles or the wetland into the watercourse.
- **The wetland** captures surface water and sediment before it enters the drain. It also stores water and helps to maintain groundwater base flows.
- **A dispersion sandwich** is a pit filled with wood chips. The wood chips help to reduce the level of nitrates in the water before it enters the watercourse. Field tile water is collected at the top of the farm (upslope) and directed into a dispersion sandwich before entering the watercourse.

Other improvements will include **tree planting** in 2007 to further protect the area.

*(Continued from page 14)*

The Upper Thames River Conservation Authority demonstration project is located on four sites within the watershed. The purpose of the project is to demonstrate innovative techniques to restrict livestock from watercourses. Restricting livestock will control stream bank erosion, enhance aquatic areas and protect water quality and quantity.

The following techniques will be demonstrated:

- **Pseudo "Texas Gate"** (described below) along sections of the stream to determine if cattle will respect this type of barrier
- **Natural channel design** to move sediment and narrow the channel
- **Stream bank planting** of selected shrub and tree species to enhance diversity, provide shade and improve aesthetics.

One of the four sites is on Fish Creek at the property of Norm and Cindy Bilyea on Perth Line 151 just north of Granton. Fish Creek is subject to flash floods and maintaining permanent fencing is challenging because spring ice flow and flood events during the pasturing season takes out permanent fencing. Various techniques will provide low tech alternatives that farmers can implement using on-site materials or materials they can access from other areas of their farm.

During the site visit in late December, project manager Craig Merkley and his crew were drilling holes in the ground along the top of bank and pounding 5-foot lengths of willow taken from trees on the site. Hawthorn bushes from the site will be relocated along the top of bank to further deter livestock from entering the water course. Next spring the willows should sprout and begin to establish a living barrier to the watercourse.

The "Texas Gate" is made with sections of log gates approximately 4-feet by 6-feet. The gates consist of a cedar log frame as a base with pine log crosspieces. The crosspieces are spiked to the base logs. The sections are anchored to the ground using airplane cable which is anchored into the ground with a duck anchor, a 6-inch section of pipe cut on an angle. The cable is looped into a centre hole in the top of the pipe, which is pounded into the ground. When the cable is pulled tight the pipe lifts to a right angle and is secured underground. The other end of the cable is wrapped around the base and crosspieces of the gate sections. In the past re-bar was used to secure the sections but ice and water action lifted the sections out of place. This winter will be a test for the cable with duck anchor technique.

*Pseudo Texas Gate*

An alternative water supply is needed when the cattle do not have access to the watercourse. Water will be taken from the watercourse and pumped to nose pumps. The area over the piping and areas of high flow will be protected with rock aprons. A rock apron is rock placed over a textile to secure the soil and reduce soil erosion. Alternate shade using live plantings will also be provided.

Greencover Canada is part of the Agricultural Policy Framework, a federal-provincial-territorial initiative that provides financial and technical assistance to help producers improve water quality in streams, rivers and lakes, adopt sustainable land use practices, reduce greenhouse-gas emissions and enhance fish and wildlife habitat. The program is delivered in Ontario under a partnership between Ontario Soil and Crop Improvement Association (OSCIA), Agriculture and Agri-Food Canada (AAFC) and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

# National Soil Conservation Week April 15th to 21st, 2007

**Wet Harvest Leaves Soil Erosion Challenges for this Spring and Beyond!**

Adam Hayes and Anne Verhallen, Soil Management Specialists, OMAFRA

The fall of 2006 will probably go down as one of the most difficult harvest seasons for a wide range of crops. In Ontario, there are numerous fields with deep ruts, compacted sections or even fields that were not harvested as winter closed in. A common question this winter has been what approach to take to rehabilitate these fields. Some growers used light fall tillage in between rain storms to fill in and cover over any damage. Others have left the ruts to mellow over winter, whether by plan or because the soil was just too wet. In some cases this spring this means we are looking at using tillage to repair ruts in no-till fields and certainly more primary tillage than many fields/areas have seen for a while.

The greater use of tillage and the reduction in cover cropped acres due to wet planting conditions means that we have more fields bare this winter and less crop residue will be covering and protecting fields. The potential for all types of soil erosion; wind, water and tillage, is much greater this year. It will be critical to maintain as much residue as possible on the soil surface during tillage operations and to use the least amount of tillage possible to achieve good crop establishment.

*Cover crops and crop residues are some of the keys to preventing wind erosion. Wet fall conditions in 2006 prevented much cover crop planting.*

Well we've been here before. In the winter of 2005/2006 the PFRA commissioned The Soil Resource Group to review the current knowledge on soil erosion in Ontario. Much of the soil erosion research dates back to the 1970's and '80's. This is the data that helped to push forward funding and support for erosion control measures like reduced tillage and no-till, windbreaks and erosion control structures. Current programs like the Environmental Farm Plan (EFP) have their origins in this early erosion work. There is a value in looking back – our soils have not changed, they may have improved under the last 15 to 20 years of reduced tillage but like the saying goes, "Those that ignore history are doomed to repeat it".

Research has shown that you can expect a 23 to 30 bu/acre loss of productivity on average for corn when 15 cm of soil has been lost due to erosion. Erosion has a direct on farm cost that was estimated for Ontario to be upwards of $68 million and an additional $100 million annually of off-farm damage due to sediment.

Soil erosion is often a matter of soil that has been rearranged within a field. Hills and slopes have lost nutrient rich topsoil while low areas have accumulated deep deposits of this moved soil. The result, a field with inconsistent fertility and water holding ability

*Ruts and heavily compacted areas from the fall 2006 harvest will need some careful tillage to get those areas ready for spring planting.*

that is less productive overall and less resilient to stress. This is a concern in any year but will become more of a concern in the future. The climate change models suggest that we can expect to see more extreme and unpredictable weather. We are more likely to see more heavy thunderstorms and extended periods of either drought or wet conditions. We can expect to see more soil erosion because of what climate change will bring in terms of rainfall intensity.

We can expect that weather changes are only part of the pressures that climate change will bring to bear on our soil resource. The interest in renewable fuels will force some crop rotation changes and can be expected to leave less crop residues in many cases. Now is the time to take another look at what we learned about preventing soil erosion in the 1980's to ensure a productive future!

# Research Projects Proposed for 2007

The following research proposals have been submitted to OSCIA as major grant projects.

**Perth Soil and Crop** submitted a proposal to compare the yield and return from grain sorghum to corn. The research will evaluate the yield and economic potential of grain sorghum compared to corn for the ethanol market.

Greenfield Ethanol, of Tiverton is offering contracts in 2007 for the delivery of grain sorghum at a price of $0.15/bu over C.B.O.T. No. 2 corn with Tiverton delivered basis. Agriculture Environmental Renewal Canada (AERC) has developed grain sorghum varieties that are early maturing, 100 – 110 days, suitable for southwestern Ontario. Yield trials indicate 4 – 5 t/ha of grain are possible. Grain sorghum is frost sensitive, is suitable for planting in late May to June after the risk of frost. Sorghum is more drought tolerant than corn, and can also withstand water logging. This project proposes to conduct preliminary economic comparison between sorghum and corn. Milo Pro Inc. will supply the grower with certified seed and is projecting a production cost of $221 /ac.

**Huron Soil and Crop** has submitted a proposal to compare the performance of niche market class dry beans to standard bean classes for maturity, seed quality, yield, suitability for direct harvest, % "Pick", and economic return. These niche market bean classes will be compared to the standard bean types: White, Black, Cranberry, and Kidney.

Higher prices for corn and soybeans combined with lower prices for traditional market classes of edible beans have placed dry beans at an economic disadvantage. Bean dealers have been pursuing other higher value opportunities in a number of bean types including Adzuki beans, Small Red Mexican, black soybeans, pink, and Cannario. Contract acreage is available for several of these types, however the yield, seed quality and potential returns from these types, relative to standard dry bean types is unknown. This research is intended to help producers make informed decisions as to the potential returns and opportunities from these bean types.

Anyone interested in participating in these projects should contact Horst Bohner OMAFRA.

# Coming Events and Info Sources

**MARCH 2007**

**22** **Huron-Perth Women for the Support of Agriculture** Day Workshop Mitchell Legion. Come and Hear the Mennonite Story and Make Your Own Easter Decoration. Contact Erica Kiestra 519-229-6071 e mail kiestra@quadro.net

**22** **Centre for Applied Renewable Energy** Solar Energy Info Night, 7 pm. Pre-register call 519-887-2694 or e mail info@cfarhuron.ca

**23** **Ontario Hemp Alliance Annual Meeting**, 10 am - 3 pm, Grace Presbyterian Church 50 Finkle Street, Woodstock. Registration $20 includes Lunch (soup & sandwich) Contact: 519-655-6277

**APRIL 2007**

**3&4** **London Swine Conference**, London Convention Centrel Further details www.londonswineconference.ca

**3** **Ontario Farm Animal Council & AGCare** Joint Annual Meeting, Guelph Place; 492 Michener Road http://www.ofac.org/annual_meeting/agm2007.php

**10-12** **Huron Perth Agr & Water Festival** Seaforth Fairgrounds. Further details contact Steve Bowers 519-482-3428

**11-14** **Growing the Margins ENERGY Conservation and Generation for Farms and Food Porcessors CONFERENCE AND EXHIBITION,** London Convention Centre, Further details at www.gtmconf.ca

**12,13** **Ontario Farmland Trust "Places to Grow...Food",** University of Guelph Speakers: Elbert Van Donkersgoed, Dr. Wayne Caldwell, Dr. Stewart Hilts www.farmland.uoguelph.ca

**19** **Centre for Applied Renewable Energy** Wind Energy Info Night, 7 pm Pre-register call 519-887-2694 or e mail info@cfarhuron.ca

**26** **Huron Perth Women for the Support of Agriculture** Annual meeting " Who Needs a Vacation—Giver Yourself a Break" Dr. Ken Schonk—The Humour Man, Mitchell Legion 8 pm Contact Erica Kiestra 519-229-6071 e mail kiestra@quadro.net

**29– May 1** **Caring During Crisis: Animal Welfare During Pandemics and Natural Disasters,** University of Guelph, Details at http://www.ovc.uoguelph.ca/conference/caringduringcrisis

**JUNE 2007**

**8-10** **Great Canadian Outdoor Expo**, Woodstock http://www.greatcanadianoutdoorexpo.com

**23-26** **2007 Joint American Forage and Grassland Council & NEBSCA Conference**, State College, Pennsylvania http://www.afgc.org/mc/page.do?sitePageId=42837

**FARMCHOICES Website Captures Career and Business Planning in One Place**

www.farmchoices.ca the website designed for Canadian farm families and workers allows users to assess their skills and explore career and business options for growth and change. Also available in CD-ROM and workbook formats. For more information contact Rob Black, Executive Director, The Centre for Rural Leadership, 519-826-4204.

**OMAFRA to do a survey in March 2007**

Purpose: To determine best practices used by producers to increase their competitiveness, maintain food safety and protect the environment.
Compass Inc. has been contracted to contact 6000 producers by phone or email
Questions related to the producer survey, contact Michael Toombs, Director, Client Services Branch 519-826-3781 or michael.toombs@ontario.ca

**OSCIA News & Views**

You can keep up-to-date on OSCIA and other events by subscribing to OSCIA News & Views. Go to OSCIA home page http://www.ontariosoilcrop.org/
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|---|---|---|---|---|
| HURON | Clinton | Tues., March 6<br>10am – 3pm | Tues., March 13<br>9am – 3pm | Lois Sinclair<br>519-357-3146<br>huron@ontariosoilcrop.org |
| | Clinton | Tues., March 20<br>10am – 3pm | Tues., March 27<br>9am – 3pm | |
| | Clinton | Mon., April 2<br>10am – 3pm | Tues., April 10<br>9am – 3pm | |
| | Clinton | Tues., April 24<br>10am – 3pm | Tues., May 1<br>9am – 3pm | |
| | Clinton | Tues., May 15<br>10am – 3pm | Tues., May 22<br>9am – 3pm | |
| | Clinton | Tues., June 19<br>10am – 3pm | Tues., June 26<br>9am – 3pm | |
| WELLINGTON | Husky Equipment at Alma | Tues., Mar. 6<br>10am – 3pm | Tues., Mar. 13<br>9am – 3pm | John Benham<br>519-846-3394<br>wellington@ontariosoilcrop.org |
| | Husky Equipment at Alma | Tues., Mar. 20<br>10am – 3pm | Tues., Mar. 27<br>9am – 3pm | |
| | Husky Equipment at Alma | Wed., Apr. 4<br>10am – 3pm | Wed., Apr. 18<br>9am – 3pm | |
| WATERLOO | Linwood | Mon., Mar. 19<br>9:30am – 3pm | Thur., Mar. 22<br>9:30am – 3pm | Franklin Kaines<br>519-742-4591<br>waterloo@ontariosoilcrop.org |
| PERTH | Rostock | Wed., Mar. 21<br>10am – 3pm | Wed., Mar. 21<br>9am – 3pm | Mary McIntosh<br>519-393-6232<br>perth@ontariosoilcrop.org |
| | Rostock | Tues., Apr. 17<br>10am – 3pm | Tues., Apr. 24<br>9am – 3pm | |
| | Milverton | Wed., May 2<br>10am – 3pm | Wed., May 9<br>9am – 3pm | |
| | Milverton | Wed., June 13<br>10am – 3pm | Wed., June 20<br>9am – 3pm | |

**Call or email your local OSCIA Program Representative to register for a workshop in your area, or call 1-800-265-9751.**

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