ON Organic

September 2012

Welcome to "ON Organic"

Evan Elford, New Crop Development Specialist, OMAFRA

As summer comes to an end and autumn harvest begins we have the opportunity to celebrate organic farming and food during Organic Week which takes place from September 22-29, 2012. To learn more about Organic Week events happening in your area please visit the website at www.organicweek.ca.

Coinciding with Organic Week will be the second Ontario Organic Dinner Party hosted by the Organic Council of Ontario (OCO), happening on September 27 at the Carrot Green Roof. The third dinner party will take place at the Garden Party Farm on October 14. For more information and to purchase tickets please visit the OCO website at www.organiccouncil.ca/dinnerparty.

On a separate note, a reminder to all interested researchers to submit their Letter of Intent (LOI) to the Organic Agriculture Centre of Canada (OACC) for the Organic Science Cluster II which will run from 2013-2018. The proposal submission deadline has been extended to October 15, 2012. For more details on the call for LOI's please visit the OACC website at www.organicagcentre.ca/OSC2.

As always we welcome your comments and any suggestions for topics in the newsletter.
Thank you once again to our contributing authors and to EFAO, OCO and others who pass along our newsletter on a regular basis.

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In This Issue...

The ON Organic Team

HORTICULTURE

Diagnosing Nematode Problems in berry crops

Michael Celetti, Plant Pathologist Program Lead (Horticulture Crops), OMAFRA

Nematodes are microscopic eel-like worms that live in soil and water. Most soil dwelling nematodes are beneficial organisms that play a role in the breakdown and release of nutrients from organic matter.

Several species of nematodes live and feed on plant roots. These plant parasitic nematodes possess a hollow stylet, which is forced into plant cells. Enzymes are injected to decompose the cell content. The nematode withdraws the partially digested cell contents through the stylet.

Root lesion nematode is the most common nematode pest on strawberry and raspberry. During the growing season, root-lesion nematodes live and feed inside plant roots. When the plants and roots die in the autumn, they move out of the root into the soil.
On raspberries, dagger nematode is another important nematode pest, because it is a virus vector.

Signs of nematode injury: In raspberries, nematode feeding causes plants to decline over time. Canes get shorter and weaker. Plants are poorly rooted and can be easily pulled from the soil. Primocane growth becomes sparse.

Nematode-infested strawberry fields show uneven growth across the field. Plants are stunted or weak in patches, next to apparently healthy vigorous plants. Some varieties are more susceptible than others to nematode damage. New plantings decline more quickly than normal.

Roots of infected plants may show brown flecking, larger brown lesions, or black root rot. *(Figure 1)* Nematode feeding can cause young white roots to be stubby and swollen, or excessively branched.

Figure 1:
Strawberry roots showing flecking and brown lesions caused by root lesion nematode

Nematodes are often associated with soil borne diseases, such as verticillium, or black root rot. Damage caused by root lesion nematodes provides infection sites for disease causing fungi.

Sampling for nematodes: Nematode populations can be estimated by sampling soil, and plant roots. The samples can be processed at the Pest Diagnostic Clinic in Guelph, 519-767-6256. For submission forms and a fee schedule, visit their web site.

Late summer and fall are good times to sample soil for nematodes. Populations are generally highest in May-June and September-October. However, nematode samples can be collected any time as long as the soil is not frozen.

Soil should be sampled approximately 8 inches deep using a 1inch-soil diameter soil core probe, or narrow-bladed shovel. Discard the top 1-2 inches of soil. Include the feeder roots of the crop in the soil sample, since this is where many nematodes live. Do not sample the roots of dead plants since the nematodes will have already died or moved away from dead roots into the soil.

Mix soil cores thoroughly but gently in a bucket. Place a sub-sample (1/2- 1 litre) in a plastic bag. Keep cool and out of direct sunlight during transportation to the diagnostic lab.

To diagnose a problem during the growing season, take 8 to 10 soil cores from areas where plants are unhealthy, or along the margin of a severely affected area. Another 8 to 10 soil cores from areas of healthy growing plants should be sampled separately for comparison.

To estimate nematode populations in a field, soil cores should be taken within the row of actively growing plants to obtain samples that contain feeder roots. Walk in a Z, W or M pattern across the field. The soil sample should represent no more than 2.5 ha.

The chart below is a guide of how many cores are necessary to make up a representative sample. Separate samples should be taken from different soil types.
Interpreting sample results: Economic thresholds for nematodes are based on pre-plant soil populations that can build up to damaging levels during the growing season.

Area	Number of soil cores/sample
< 500m^2	8 - 10
500 m^2 - 0.5 ha	25 - 35
0.5 ha - 2.5 ha	50 - 60

Nematode management options in organic production are more preventative than curative and therefore organic growers should consider implementing management practices before reaching the following thresholds.

Strawberry: Control nematodes if populations exceed the economic threshold of 500 nematodes per kg/soil.

Raspberry: The threshold for root lesion nematode on is 1000 nematodes per kg of soil.
The threshold for dagger nematode is 100 nematodes per kg of soil.

Nematode control: A nematode control strategy could include

- Crop rotation with non-hosts for several years
- Planting a root lesion nematode suppressive cover crop such as some Canadian forage pearl millet and oilseed radish varieties
- Cultivation

When planting a nematode suppressing cover crop be sure to obtain a variety that suppress nematodes since some varieties can actually increase or maintain root lesion nematode populations.

Root lesion nematode suppressing cover crops do not eliminate nematodes completely but can reduce population levels when cropped for two or more years.

For information on cover crops see OMAFRA publication 811, Agronomy Guide, or the Cover Crops Index page on the OMAFRA website.

(From OMAFRA newsletter Ontario Berry Grower)

Spotted Wing Drosophila - Implications for Ripening Wine Grape Crops

Wendy McFadden-Smith, Tender Fruit & Grape IPM Specialist; Hannah Fraser, Entomology Program Lead (Hort), OMAFRA

Spotted wing drosophila (SWD) has been identified in all grape growing regions of Ontario, and adult flies have been trapped in Niagara and PEC vineyards. While SWD larvae have been detected in berry crops, they have not been identified in grapes in Ontario to date.

The problem is that the reports on susceptibility of wine grapes are different depending on whether the vineyard is on the east or west side of the continent. In Oregon and Washington State, grape cultivars Pinot noir, Riesling and Merlot were exposed to SWD starting pre-harvest (17-22º Brix) in lab and field trials. No adults were detected in either case, indicating that SWD larvae died within the fruit and could not complete a generation in grape in either Oregon or Washington. Trap counts in the monitored vineyards in this region reached no more than 6 SWD per trap with most weeks having only 1 or 2 flies.

However, SWD was found in Foch in Rhode Island August 21 (no indication of the stage of maturity or whether there was injury present) and researchers at Cornell University's Hudson Valley lab suspect they found SWD in Seyval, Vignoles and Foch fruit collected August 24. They found larvae inside and on the surface of what appeared to be soundfruit and the breathing tubes (respiratory horns) for eggs were observed protruding from pinpoint wounds in the berries, which suggests SWD (other Drosophila species do not lay their eggs under the skin of healthy fruit). The larvae are being reared to adults because it is very difficult to determine the species of Drosophila from larvae. Until the adults develop, this presence of SWD cannot be confirmed. The NY researchers found an increase in SWD trap counts in the past 2 weeks with 11 flies per trap in the wine grape planting at the Hudson Valley Lab.

(Photo credit Peter Jentsch, Cornell University)

Figure 1:
Respiratory horns of suspected SWD egg in a pinpoint wound in Seyval blanc from Hudson Valley, NY

As of August 21, the highest trap catch in wine grapes in Ontario has been 5 and SWD larvae have not been identified in grapes. However, our season is behind that of Hudson Valley and Rhode Island so it is likely that numbers in vineyards will increase as the fruit ripens. Numbers have been very high in other crops and in unmanaged areas with wild hosts; populations tend to build as the season progresses. These flies are reported to be most active at 20ºC. Research has also shown that SWD are attracted to injured berries so fall rains that cause berry splitting may also attract SWD. Whether this will have more impact that our regular swarms of vinegar flies is unknown.

In fact, a lot is unknown about the impact of SWD in eastern vineyards. The susceptibility of hybrid varieties was not tested in the west coast studies. The conditions during our sometimes lengthy pre-harvest period and the more optimum temperatures for SWD development during that time may mean that our vineyards will be under more pressure than west coast vineyards. Trap catches reported in the east with respect to berries and stone fruit have been a lot higher than those reported in the west so far.

What should you look for? Look for signs of SWD in early maturing varieties. There are no overt symptoms of SWD presence other than a droplet of juice that may leak from the berry where the eggs were laid. Female SWD can lay eggs through the skin of berries through a pinpoint hole that they cut with their saw-like ovipositor. They do not require a wound the way other vinegar flies do. The breathing tubes shown in the image are visible only with a microscope or a minimum 16X hand lens. The NY researchers found SWD breathing tubes in fruit that was sound with a possible hint of sour rot. It's likely that the wound from egg laying allowed sour rot organisms to enter.

What can you do? Due to the foresight of the SWD team and the OMAFRA minor use coordinator, we have a few organic products available for SWD management in grapes.

The table below summarizes the organic products available for SWD and other pre-harvest grape insect pests. Before applying any of these products, consult with your certification body to confirm they are permitted for use and with your processor to determine if there are different pre-harvest interval requirements.

Product	Rate	Application interval	Max applications/year	Re-entry Interval	Pre-harvest Interval
Entrust 80W	109 g/ha	5 days	3	4 days for mechanical harvest on grapes and 9 days for hand labour and hand harvest on grapes	4 days for mechanical harvest 9 days for hand harvest
Pyganic	4.65L/ha	5 days	8 (NOT recommended for resistance management)	12 hr	0 days

The residual activity of these products isn't well defined.

- Entrust has a shorter residual activity but may be acceptable for organic vineyards.
- Pyganic is an organic option listed as having good knockdown activity (compared to excellent for conventional products) against SWD but it has little residual activity. The label recommends that the final mix be buffered to a pH of 5.5 - 7.0. While up to 8 applications are labelled for this product, the longevity of it from a resistance point of view will be shorter with frequent applications.

Fruit that was thinned at veraison is not likely to provide a breeding site for SWD; however, fruit that is thinned from now to harvest, particularly if it has sour rot, is very likely to harbour not just SWD but other vinegar flies that can move sour rot organisms into fruit as they ripen. If sour rot or Botrytis becomes a problem and crop must be dropped, remove it from the vineyard or cultivate it into the soil in the row middles.

At this point, we do not know whether SWD will be a threat to wine grapes in our region. Given the fact that this insect can cause injuries to fruit when it lays eggs which may in turn provide entry points for sour rot organisms, it is wise to do as much as possible to minimize the impact of this pest with good sanitation of late-season thinned clusters and use of registered organic products that has some activity against SWD.

For more information about Spotted Wing Drosophila in Ontario, visit the OMAFRA web page: www.ontario.ca/spotted wing

For images of grape berry damage in the Oregon and Washington studies, refer to: http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/19525/em9021.pdf

(*From OMAFRA newsletter HortMatters)*

Brown Marmorated Stink Bug in Ontario: What Growers Need to Know!

Hannah Fraser, Entomology Program Lead (Hort), OMAFRA

A well-established population of brown marmorated stink bug (BMSB, *Figure 1*) has been detected in Hamilton, Ontario (see Hort Matters Volume 12 Issue 25). Dozens of nymphs and adults (*Figure 1)* were found in buckthorn located within a wildlife sanctuary and along parts of the Bruce Trail (Niagara escarpment). The large number of individuals collected through informal methods indicates the pest has likely been present in the area for several years. Field surveys conducted in Ontario (2011-2012) have not yet identified BMSB in crops, but growers should be on the look-out for the pest. It is quite likely there are other areas in Ontario with BMSB, but they may not have reached populations that are easy to detect.

(Photo credit: Jennifer Read, NRCan.)

Figure 1:
Brown marmorated stink bug adult

BMSB has a very wide host range and it is likely present on other plants in the landscape, but most of the individuals we collected over the last two weeks were found in buckthorn (mostly because it was so easy to find them on these plants that we targeted our searches there). This insect obviously uses buckthorn as a reproductive host, so anyone interested in looking for it at this time of the year might consider using this as a sentinel plant.

Growers should also be looking for signs of stink bug damage and follow-up with scouting. In tomatoes and peppers, damage appears as cloudy spots on the surface of the fruit, and as spongy pithy masses of tissue underneath. In apples, late-season damage by stink bugs is easily confused with bitter pit; damage occurring very close to harvest may not be apparent when the fruit is put into storage (*Figure 2*).

(Photo credit: USDA-ARS)

Figure 2:
BMSB damage in apples

We need to have a better understanding of the distribution of BMSB in Ontario. If you think you have found BMSB, contact the Agriculture Information Contact Centre at 1-877-424-1300 or email ag.info.omafra@ontario.ca.

(From OMAFRA newsletter HortMatters)

FIELD CROPS & FORAGES

Short Husks & Exposed Leaves

R. L. (Bob) Nielsen, Agronomy Dept., Purdue University

Periods of severe stress can do all sorts of strange things to crops. One oddity that has been reported by a number of folks this year is often described as "ears outgrowing their husks." The phenomenon is the result of stunted husk leaf development combined with fairly normal ear (cob) elongation.

The primary symptom is that the ears elongate beyond the end of the stunted husk leaves, resulting in exposed kernels that are subject to insects, birds, and weathering effects. Kernels damaged by these factors are subject to fungal infection and the development of ear moulds. If high percentages of ears are thus affected, then overall grain quality can be compromised to the point that grain buyers may discount or "dock" their prices accordingly.

The development of stunted husk leaves and exposed ears seems to be related to combination of severe stress before or during pollination that is then relieved in the initial weeks following pollination. The most common combination of conditions that results in this oddity is severe heat and drought stress that is then relieved by cooler temperatures and rainfall.

The stunting of the husk leaves is akin to that which can occur in the whole plant when subjected to lengthy periods of heat and drought stress. The potential for husk leaf expansion and elongation seems to be permanently restricted while the ear (cob) is able to continue elongation upon relief of the stress.
While the combination of heat/drought stress relieved by cooler temperatures/rainfall seems to be the common thread among reports of ears outgrowing their husk leaves, other combinations of severe stress followed by sudden relief may also result in the stunting of husk leaves.

The photos on page 6 *(Figures 1—6)* illustrate an example of stunted husk leaves from an area of a field in eastern Indiana in 2011 that was particularly drought-stricken compared to other, less stressed areas of the field. This field had also experienced severe root lodging about 10 days prior to pollination, which likely added additional stress on the developing ears for a period of time. Husk leaves of affected plants were about 2/3 the length of the ear itself and about half that of the husk leaves of the "normal" ears. Ear (cob) lengths of the "normal" and "stressed" ears were relatively similar; though kernel number and size were smaller on the "stressed" ears.

The ears below are from a field in northeast Indiana that experienced severe drought in 2012 that stunted husk leaves and cob length, but late rains were sufficient to allow the stunted ears to still elongate beyond the even more stunted husk leaves.

(*see Figures 1—6 on page 6)*

Figure 1:
Comparison of normal husk coverage and ears with stunted husk leaves

Figure 2:
Comparison of husk leaf lengths with normal and stressed plant

Figure 3:
Comparison of ear w/ normal husk coverage and ear with stunted husk coverage

Figure 4:
Damaged kernels on exposed end of ear.

Figure 5:
Ears outgrowing husk leaves. Northeast Indiana, 2012

Figure 6: Ear outgrowing husk leaves. Northeast Indiana, 2012

(*From OMAFRA newsletter Crop-Pest)*

LIVESTOCK

Ageing Beef More (or Less) Gracefully

Tom Hamilton, Beef Program Lead, OMAFRA

While consumers may value a wide range of attributes when deciding what type of beef to buy, they are united in what the most important quality is when they eat it - tenderness! My Grandfather, who was a butcher, passed down this quote to my Dad: "a tough steak is dear at any price." My Dad added his own nugget of wisdom regarding beef quality: "if I need a steak knife to saw through the meat, I don't want that steak."
Retailers deal with the sharp end of the beef supply chain, and they know that tough beef hurts sales and long term customer relationships. One of the main methods of improving beef tenderness after slaughter is ageing - a time period when the carcass or sections of it are refrigerated to allow natural enzymatic breakdown of tough fibres within the muscle tissue.

The effect of the length of the ageing period has been extensively investigated, but most research has focused on the loin and rib-eye muscles. It had been assumed that all muscle cuts responded similarly to extended ageing, but some early research had shown that this is not necessarily true.

An experiment at the Agriculture and Agri-food Canada Lacombe Research Centre, reported by Juarez et al, investigated the effect of extended ageing on 6 different sub-primal cuts. The meat was from a commercial abattoir and was shipped directly to the research station. Research staff sliced 1 inch thick steak retail cuts from the wholesale cuts which represented the various parts of the carcass *(Table 1 and Figure 1).* Samples were stored at either 1° or 5°C to evaluate the effect of cooler temperature on tenderness and flavour. Samples were cooked and evaluated weekly, starting on arrival (0 days of ageing), and up to 56 days of ageing.

Table 1. Meat cuts evaluated

Retail Cut	Wholesale Cut
Striploin	Loin
Blade-eye	Chuck
Outside round	Outside round
Inside round	Inside round
Eye of round	Outside round
Chuck tender	Chuck

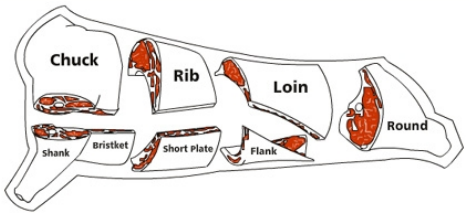
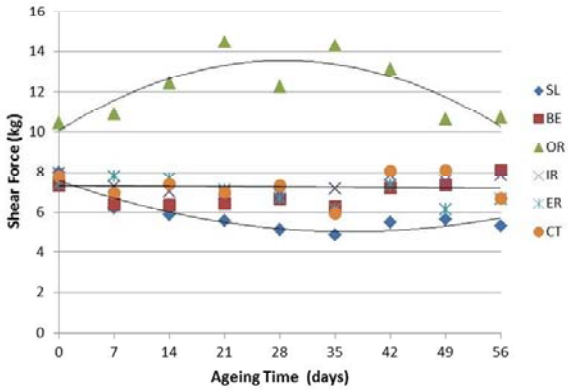


Figure 1. Sub-primal cuts of beef

After cooking, the samples were cooled and placed in a cooler at 1°C for 24 hrs, after which cores were taken and measured for the force required for a blade to shear across the meat fibres (Warner-Bratzler shear force). A higher shear force means that the meat would be tougher to chew.

Tenderness

Storage temperature did not affect shear force for any cut. However, ageing significantly reduced shear force for the striploin, blade-eye, eye of round and chuck tender (see Fig. 2). Surprisingly, the outside round showed a significant increase in shear force over time, up to day 21, and then trended downwards until day 49, when it was similar to day 0. In contrast to this, the shear force for the inside round did not change with ageing time. The reductions in shear force for the eye of round and chuck tender were not great, and did not reach values significantly lower than day 0 until day 35. Shear force decreased over time in a linear manner for striploin, blade-eye and eye or round up to day 35, after which values tended to stabilize. The chuck tender experienced a decline in shear force until day 35, with subsequent measures showing up and down trends.



SL = striploin; BE = blade-eye; OR = outside round; IR = inside round; ER = eye of round; CT = chuck tender

Figure 2:
Effect of Ageing on Tenderness

Why didn't all of the cuts show increased tenderness over the ageing period? The authors propose that for muscles which initially showed increased tenderness with ageing, followed by a period of increased toughening, loss of moisture within the tissue could be one cause of the

increase in toughness. Decreased moisture loss leads to increased cooking times, since heat transfer rate is reduced as water content decreases. Increased cooking time would lead to even more moisture loss and subsequent toughening of the meat. Another factor may be related to the collagen connective tissue in the meat. The presence of moisture helps to soften the connective tissue during cooking, so low levels would inhibit this softening effect. For cuts which undergo initial toughening, followed by increased tenderness, enzymes which become active only late in the ageing process may be the cause.

Sensory Evaluation

A trained sensory panel evaluated cooked steaks from each of the cuts at each of the ageing times. The panellists gave scores for initial tenderness (first bite), overall tenderness (after 25 chews) and for intensity of beef flavour and off flavour (10 -20 chews). Ageing increased initial tenderness scores for striploin and blade-eye, and overall tenderness scores for striploin, blade-eye and eye of round. Ageing decreased tenderness scores for outside round and inside round. No ageing effect was found for initial tenderness scores for outside round, inside round, eye of round and chuck tenders, and overall tenderness scores for chuck tender. In general, flavour intensity scores decreased as ageing time increased, while off flavour scores increased with ageing.

Discussion

These results show that the process of ageing is not uniform with increased time, and different sub-primal cuts showed dramatic differences in response to ageing. For example, ageing decreased the force needed to shear cores from striploins up to 35 days, after which additional ageing had no effect, while the outside round needed considerably more shear force with ageing up to 35 days, after which shear force decreased, becoming equivalent to the initial value by day 49. In contrast, ageing did not affect the shear force for the inside round. Increased ageing resulted in an overall negative effect on the flavour of the meat.

While these finding are important for all players in the beef processing and retailing sectors, it is particularly relevant to branded beef value chains that have the ability to prescribe specific ageing and marketing strategies for different sub-primals. In concert with this, it is important to realize that increased ageing of some cuts is actually detrimental to quality, while for others increased ageing incurs storage costs without producing benefits.

[i] Juarez, M., Larsen I.L., Gibson,L.L., Robertson, W.M., Dugan, M.E.R., Aldai, N. and Aalhus, J. 2010.Extended ageing time and temperature effects on quality of sub-primal cuts of boxed beef. Can. J. Anim. Sci. 90: 361-370.

(*From OMAFRA newsletter Virtual Beef)*

SOIL MANAGEMENT

Biofumigation

Margaret Appleby, IPM Specialist, OMAFRA

Biofumigation is defined as suppression of soil-borne pests and pathogens by the use of plants that contain inhibitory chemicals. The plants can be harvested as rotation crops or ploughed back into the soil as green manure.

The fumigate properties of these crops have been known for a long time, recently has had a closer look due to the phase-out of the methyl bromide and other fumigants under the international Montreal Protocol. Advances in biopesticides with fumigant properties and application technology make this an economical possibility for commercial agriculture.

Plants in the mustard family, such as mustards, oil seed radish and rapeseed and Sorghum species such as sudangrass and related species, Pearl Millett have shown the potential to serve as biofumigants.

How do they work?

Plants from the mustard family produce chemicals called glucosinates in the plant tissue. The glucosinates contained in the roots and foliage are released when it is cut or chopped, then are further broken down by the enzyme myrosinase to form isothiocyanates that behave like fumigants. These are the same chemicals that are released from metam-sodium(Vapam) commonly used as a chemical fumigant. Sorghums produce a cyanogenic glucoside compound called Dhurrin that breaks down to release toxic cyanide when the plant tissue is damaged.

Mustard, oil seed radish crops and sorghums have been shown in Ontario to have good activity against soil borne nematodes that damage horticultural crops. Work to assess the effect these crops on disease complexes associated with tomato vine decline and apple replant disease is ongoing.

When using biofumigation, a plan is key to get the best return on your investment. You need to implement the 3 R plan: the right seed, right time and the right way.

The right seed

Some mustards and sorghums are better than others for their biofumigant activity. Work is being done globally to screen species/varieties for their biofumigant potential.

In Ontario has found that the following work best: Mustards- Cutlass Mustard; Sudans/Sorghums - Sordan 79, Trudan 8; Pearl Millet - CFPM 101; Marigold - Crackerjack, Creole; Oilseed radish - Adagio, Colonel

The right time
For mustards it is possible to have two crops per season. You can plant in late April to early May and then again in mid-late August using in a firm seedbed using a seed drill and pack after planting. For Pearl millet it is critical to get a good stand with no weeds.

The right way
Since most mustard and oilseed radish varieties are alternate hosts for some nematodes, the key to using them is mowing to release the fumigant-like compounds. Be prepared to mow before the plants go to seed. Chopping and mangling is really what is needed to release the fumigant-like chemicals held within the plant tissues. Good chopping is critical for incorporation.

Incorporate the chopped plant material as soon as possible after mowing, i.e. within an hour or two at most. Two tractors in the field work best.

After cover crop chopping and incorporation, the soil may need rolling or a light packing to seal the surface and help to hold the biofumigation action. If soil conditions are dry, you may need to irrigate to seal in the fumigant. Basically, if you can smell rotting cabbage, you are losing some of the effective materials.

For pearl millet be prepared to mow 2 to 3 times. Mow millet when it reaches 1 to 1.5 metres, leaving at least 15 cm of millet stubble to ensure regrowth. Mowing will help to encourage deeper rooting and will also keep the millet actively growing. Pearl millet will grow to over 2 metres if allowed. The residue can become quite resistant to breakdown if allowed to grow to that height. Frost in the fall will kill the millet if you have not already worked the cover crop under.

Don't forget to soil sample for nematodes and soil pathogens before using biofumigation and repeat several weeks after incorporation-you need to measure to manage!

(From OMAFRA newsletter Ontario Berry Grower)

Managing Cover Crops for Weed Control and Crop Establishment

Anne Verhallen, Soil Management Specialist (Hort), OMAFRA

Cover crops get used for a wide variety of reasons from soil improvement and protection to pest suppression and nitrogen cycling. A recent article in Weed Research (online 12 Aug 2012) draws some interesting conclusions about green manure crops and incorporation.

Here are some givens. Freshly tilled, bare, moist ground usually seems to instantly have a coating of emerging weed seedlings. Tillage and freshly killed plant materials promote the growth of bacteria and fungi in the soil as they feast on the nutrients released from the plant juices.

In this study soil with and without field incorporated green plant material was compared to examine the weed seedling emergence. The soil was seeded with various weed species to ensure a consistent weed seed bank. It was observed that soils with a green manure incorporated reduced seedling emergence for 0 to 4 days after incorporation by an average of 30%. Several pathogenic fungi were isolated from seeds in the treated soils. The conclusions of the study were that incorporation of fresh green manure reduces the first flush of weed seedlings after tillage due to pathogens acting on weed seeds and seedlings.

Another way to look at the study - it confirms the old advice of working down green manure and avoiding planting for several days as the green plant tissues breakdown.

(From OMAFRA newsletter HortMatters)

Interpretation Corner

Evan Elford, New Crop Development Specialist, OMAFRA

From time to time I receive questions from organic producers regarding production requirements that are not clearly defined under the Canada Organic Standard. In an ongoing effort to better understand the application of the organic standard, questions posed to the Organic Standards Interpretation Committee (SIC) and their accepted answers will be included in this section of the newsletter. The Organic SIC is an advisory body set up by the Canadian Organic Office (COO) with representatives from the organic sector in Canada. A full listing of Q & A's posed to the SIC are available on the Canadian Food Inspection Agency's (CFIA) website (www.inspection.gc.ca) and on the Organic Federation of Canada's (OFC) website (www.organicfederation.ca).
Please note that some certification bodies may have additional requirements to the Canada Organic Standard and you should always contact your certification body for clarification.

Livestock Production
Section 6.8: Livestock Living Conditions

Question: Please clarify the outdoor space requirements for poultry. Can a flock be split so that use of the outdoor area is rotated between groups? If so, does the total area required diminish? (37)
Answer: While the standard allows for exceptions to the outdoor access requirements, (temporary confinement) the total area available for birds outdoors must allow for the entire flock to be outside at the same time without exceeding the densities set out in 6.8.11.2 - for all poultry.

Crop Production
Section 5.3: Seeds and Planting Stock

Question: Can non-organic common seed be used if organic common seed is not available? (17.2)
Answer: For the purposes of 5.3.2.1, common could be considered a varietal distinction subject to the exceptions to the use of organic seeds. See also section 3 Definition of commercial availability.

Eco Farm Day 2013: Call for Presentations

Last year's 2012 edition hosted Steve Beauchesne from Beau's All Natural Brewing Company as the keynote speaker on the theme of Vibrant Family Businesses in Organic Agriculture, with 12 excellent workshops, over 35 exhibitors, and over 250 participants. The Saturday evening gala featured Lucy Sharratt from the Canadian Biotechnology Action Network on the subject of GM alfalfa. The programs and presentations of the last 5 years are available online at www.ecofarmday.ca.

The next conference is scheduled for Saturday, February 23rd, 2013, in Cornwall, Ontario. The theme of Eco Farm Day 2013 is "Water - Emerging Issues for the Organic Producer".

Eco Farm Day is pleased to announce the keynote speaker for 2013: **Maude Barlow on the subject of "Water - Emerging Issues for the Organic Producer"**. Maude Barlow is the National Chairperson of the Council of Canadians and chairs the board of Washington-based Food and Water Watch. In 2008-2009, she served as Senior Advisor on Water to the 63rd President of the United Nations General Assembly and was a leader in the campaign to have water recognized as a human right by the UN. She is also the author of dozens of reports, as well as 16 books, including the international best seller *Blue Covenant: The Global Water Crisis and The Coming Battle for the Right to Water*.

Call for Presentations: anyone with a good educational subject or experience to share with organic farmers, processors, businesses, and enthusiasts is invited to submit a presentation topic. There is excellent research happening in organic agriculture and food in Canada. There are also many lessons learned as operators improve their performance. While we like to attract presentations linked to the theme of water, we are also open to useful educational material.

What information can you offer to organic farmers and food businesses to help them improve their overall performance? A workshop presented elsewhere in past years is still relevant. It is valuable to recycle some workshops to include new material and to offer to people who missed previous presentations. Perhaps you know of a presenter or subject. Perhaps you attended an interesting workshop recently that we need to know about.

(Call for Presentations—Continued on page 11)

Eco Farm Day 2013: Call for Presentations (cont'd)

A donation of speaking time to COG Ottawa is most appreciated. Otherwise, Eco Farm Day offers a speaker's fee of $200 for each workshop. This can be paid cash or exchanged for an exhibit space for your business or institution. As many speakers are fairly local, Eco Farm Day does not normally pay for traveling; however, opportunities exist to fund distant speakers of particular interest to our audience.

Please send your referral or your own contact information and an abstract to Tom Manley:

Tom Manley
Chair – Eco Farm Day
1 Union Street, Berwick, Ontario K0C 1G0
Tel 613-984-0480
Fax 613-984-0481
E-mail: tom@homesteadorganics.ca

Funding Opportunities

Limited Time for New Cost-Share Opportunities with the Canada-Ontario Environmental Farm Plan

New cost-share opportunities exist under the Best Management Practices (BMPs) category of the Canada-Ontario Environmental Farm Plan. The funding is available to commercial greenhouse, landscape nursery and vegetable farms and must meet the following eligibility requirements:

- *Be a legal farm entity with a unique Farm Business Registration Number (FBRN) or equivalent;*
- *Have a Third Edition Environmental Farm Plan (EFP) deemed appropriate through peer review;*
- *Have selected a BMP from the eligible list in this brochure that relates directly to an action identified in their EFP, an defectively moves a "1" or "2" rating towards a "3" or "4" (best rating); and*
- *Will authorize a declaration stating that the farm business in the 2011 year included a commercial greenhouse floriculture farm, commercial greenhouse vegetable farm, commercial landscape nursery farm or commercial vegetable farm, involved in the production of a horticultural crop (s).*

Cost-shares are set at either 30 per cent or 50 per cent, up to the BMPs category caps during the 2012 cropping year. **Applications are being accepted beginning July 19, 2012 on a first come, first served basis** with a Growing Forward maximum contribution per legal farm entity of $30, 000. Invoices dated September 15, 2011 or later will be accepted with a project claim submission deadline of December 15, 2012.

For more information contact the Ontario Soil and Crop Improvement Association by mail at 1 Stone Road West, Guelph, Ontario N1G 4Y2, telephone: 1.800.265.9751 or visit their website at www.ontariosoilcrop.org.

Agricultural Management Institute (AMI) Event and Speaker Funding

The AMI currently has funding for speakers and events related to farm business management. Registered organizations, associations, and groups located in Ontario can apply for up to $5000. For more information on the funding program and to download an application form, please visit the AMI website at www.takeanewapproach.ca/

Organic Science Cluster II – Call for Letters of Intent

The Organic Science Cluster II is currently accepting Letters of Intent (LOI) from researchers to participate in, and have proposals screened for, the anticipated second round of science clusters under Canada's Growing Forward II policy framework, a Federal-Provincial-Territorial funding initiative.

The Organic Science Cluster is an initiative by the Organic Agriculture Centre of Canada (OACC) and the Organic Federation of Canada (OFC) to address research needs in the organic sector. The deadline for LOI submission has been extended to October 15, 2012. For more information and updates, please visit the Organic Science Cluster II website at www.oacc.info/osc2.

Weed Control in Organic Agriculture
A 13 week online course provided by the University of Saskatchewan's Centre for Continuing Education & Distance Education. The course will focus on weed biology, principles for organic weed management in field crops, and various practical weed management techniques for organic production systems.
Cost: $399 +GST and materials
For more information please visit their website at http://ccde.usask.ca/weedcontrol or contact Jill Turner by email at jill.turner@usask.ca or telephone at 1.306.966.1382.

Sustainable Urban Agriculture
Several courses in sustainable urban agriculture are available at the University of Guelph during the Fall 2012 semester. Courses include theories and principles of sustainable urban agriculture, sustainable urban crop production, naturalising and restoring urban gardens and many more. For more information please visit the Sustainable Urban Agriculture website at www.urbanhort.ca or through the University of Guelph main page at www.uoguelph.ca.

Journée d'Atelier Agricole -2012- Agricultural Workshop Day
Date: September 27, 2012
Location: Campus d'Alfred, University of Guelph
The Ontario Ministry of Agriculture, Food and Rural Affairs, in collaboration with Université de Guelph-Campus d'Alfred is organizing the first edition of the 2012 Agricultural Workshop Day. This bilingual event is organized for agricultural producers in Eastern Ontario. This day is schedule to be held on Thursday, September 27th on the farm of Campus d'Alfred. All presentations and workshops will be presented in French and/or English with simultaneous translation.

Program agenda includes:

Exhibition Space
Exhibition space and presentation hall will allow participants to meet and discuss with stakeholders and agricultural suppliers from Eastern Ontario. Exhibitors are invited to present their new product lines. Outdoor exhibition space will also be made available.

Presentations
Dr. Trevor DeVries (University of Guelph) will present information on new concepts in heifer management.

Dr. Tom Wright (OMAFRA) will speak about those challenges facing dairy producers caused by the dry climatic conditions experienced during the summer.

Dr. Elsa Vasseur (University of Guelph) will discuss the Canadian Code of Practice and a recent study related to dairy cow comfort.

Lunch
A BBQ lunch will be served. This meal will include hamburgers, salads, desserts and refreshments.

Practical Workshops
In addition to the above, a series of practical workshops will be held during the course of the day on the farm of the University of Guelph – Alfred Campus. These workshops will include:

- Tips and Trick to reduce somatic counts (Guy Seguin, DFO)
- Pasture Management: Why and How? (Jack Kyle, OMAFRA);
- Dairy manure analysis for ration adjustment (Renée Bergeron, University of Guelph and Mario Mongeon, OMAFRA);
- Milkhouse Waste Water Treatment Solutions (Anna Crolla and Chris Kingsley, University of Guelph);
- What's New in Dairy Heifer Management (Viviane Bielman, University of Guelph).

Project Research Summaries
During the course of the day, participants will have to opportunity to meet with dairy researchers and learn about their work. They will also have the chance to ask questions on the latest research in dairy production. Participants stand to benefit from the most recent research results and have information which they may be able to apply on their farms.

- Effects of Tanniferous Forages and Harvest Time on Feeding Behaviour of Dairy Cattle
- Winter outdoor access: cow preferences, environmental and economical constraints
- Effects of pest flies on the behaviour, stress and productivity of dairy cows on pasture
- Treatment of Dairy Farm Washwaters using Horizontal Sub-surface Flow Constructed Wetlands
- Biogas Production from the Dry Fermentation of Poultry Manure with Co-substrates
- Decentralized Wastewater Treatment of Nitrogen and BOD through Hybrid Constructed Wetlands
- Associations between herd-level feeding management practices, feed sorting and milk production in free-stall dairy farms
- Effect of milking and feed delivery frequency on the feeding behaviour of dairy cattle
- Effect of early management factors on development of feeding behaviour in calves
- Associations of herd- and cow-level factors, cow lying and standing behaviour, and risk of elevated somatic cell count in free-stall housed lactating dairy cows

For more information concerning sponsorship of this event or registration, do not hesitate to contact Mario Mongeon mario.mongeon@ontario.ca.

Learning Opportunities (cont'd)

Bio-Dynamics Workshop 101 & Pot Luck Lunch
Date: Saturday October 27th, 2012, 9am-4pm
Location: The Farm of Chris and Gabi Boettcher, 44046 Moncrieff Road, Brussels, Ontario

A 'how-to' workshop and discussion for farmers and gardeners wishing to get started using bio-dynamic preparations 500 (horn manure), 501 (horn silica) and Barrel Compost (BC). This workshop is geared toward those who have heard of the theory of bio-dynamics and would like more practical help.

Chris Boettcher and Uli Hack will discuss what, when and why of spraying the preps. We will mix the preps, stir and apply them to field and garden, weather permitting. A compost pile will also be inoculated. Bring all your questions and concerns!
Note: For farmers who are interested in field spraying, the speakers will discuss equipment, nozzle settings and any modifications that may be needed. (Feel free to bring your sprayers along for hands on modification suggestions)

Cost: Donation to the BD Society
Pot Luck: Don't forget your dishes, cutlery, cups etc., along with your pot luck dish.
The workshop will be held in a heated shed.
Registration: Please register no later than October 25th. To reserve a space in the workshop or for further information, call the BD Society Secretary, Laurie McGregor at 519-426-9021 or e-mail her at lmcgregor@sympatico.ca

Conferences and Events

International Plowing Match and Rural Expo
Date: September 18-22, 2012
Location: Roseville, Ontario
For more information please visit www.plowingmatch.org or call 519.631.1234 Toll free: 1.800.661.7569
Email eventadmin@plowingmatch.org

BioFach America - All Things Organic
Date: September 20-22, 2012
Location: Baltimore, Maryland, USA
For more information please visit www.biofach-america.com

Organic Week
Date: September 22-29, 2012
Organic Week is a national celebration of organics in Canada. Events will be held across the country to highlight the benefits of organic agriculture.
For more information and a listing of events in your area please visit the website at www.organicweek.ca

Ontario Organic Dinner Party Series
Dates: September 27 & October 14, 2012
Location: Carrot Green Roof and the Garden Party Farm
For more information and to reserve tickets please visit the Organic Council of Ontario website at www.organiccouncil.ca/dinnerparty or call 519.827.1221.
(*For detailed information see page 14)*

CanBio Annual National Conference and Trade Show
Date: October 12-13, 2012
Location: Delta Chelsea Hotel, Toronto, Ontario
For more information please visit www.cdea.ca/event/canbio-annual-national-conference-and-trade-show

2012 Eastern Ontario Local Food Conference
Date: November 22, 2012
Location: University of Guelph, Kemptville Campus.
This year's theme is **"Collaborating for Success"**. A keynote address will be given by Terry Ackerman entitled **"Collaborating for Success – the Value Chain Model and Profitability"**. This address will provide a practical guide to creating and building profitable value chains based on real life examples of successful value chains in Canada.

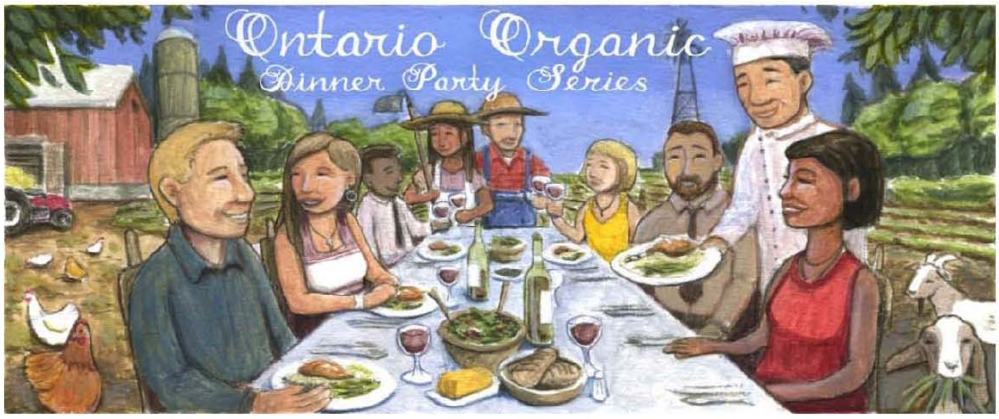
The purpose of this event is:

- To provide a forum for Eastern Ontario local food practitioners to network
- To address challenges to local food that are specific to Eastern Ontario
- To share technical information that will help to build the local food sector in Eastern Ontario

20th Annual Southwest Agricultural Conference
Date: January 3-4, 2013
Location: Ridgetown Campus, University of Guelph
For further information, please visit the website at www.southwestagconference.ca

32nd Annual Guelph Organic Conference
Organics…What's The Buzz?
Date: January 31-Feb 3, 2013
Location: University of Guelph
For further information, please visit the website at www.guelphorganicconf.ca

THE ORGANIC COUNCIL OF ONTARIO ANNOUNCES THEIR FIRST ANNUAL ONTARIO ORGANIC DINNER PARTY SERIES



August 16, 2012 - 9:00AM

The Organic Council of Ontario (OCO) is excited to announce the first annual Ontario Organic Dinner Party Series, a series of three "on-farm" dinners taking place at Frog Pond Farm, the Carrot Green Roof, and Garden Party Farm, September 15th, September 27th and October 14th, 2012.

Last year, OCO championed the Ontario Organic Roadshow that took place in 2011/2012 and concluded at the Green Living Show in April 2012. The Roadshow involved travelling to 15 food festivals and tradeshows across the province to share the good news about Ontario's organic sector, connect eaters with organic in their communities, and introduce the new Canada Organic logo and Foodland Organic brand.

Where the Organic Roadshow brought Ontario organics to the public, the Ontario Organic Dinner Party Series will bring the public to Ontario's organic farms for an opportunity to sit around the dinner table with Ontario's organic producers for an up-close and personal educational dinner experience. "Ontario's organic farmers are incredibly passionate about what they do and when you're able to hear first-hand their personal motivations for why they have chosen to farm the way they do, you can't help but be completely inspired and want to do more to not only support them, but to live life in a more sustainable manner over-all" says Elizabeth Stewart, who is the lead organizer of the dinner series.

Each dinner will involve a small farm tour or talk delivered by Ontario organic producers, a 3-course organic dinner featuring Ontario organics as well as an opportunity to meet and speak with OCO's Executive Director and some of OCO's Executive Board members on the state of organic agriculture in Ontario. OCO has also attracted some of Ontario's most accomplished Chefs in sustainable food artistry, including Chef Jeff Crump, Co-Author of *Earth to Table: Seasonal Recipes from an Organic Farm*, Executive Chef of the Ancaster Mill and Co-owner of the Bread Bar in Hamilton, ON. Also participating in the series is Chef John Robertson, Executive Chef of the Big Carrot in Toronto, ON, and Chef Christopher Jess, respected food activist and Chef Instructor for the Food School in Fergus, ON. OCO is currently working with these chefs to finalize the menus which will be posted on the event webpages and announced over social media once available – they are promising extraordinary menus from each of their chefs!

Jodi Koberinski, OCO's Executive Director, is confident in the Ontario Organic Dinner Party Series to deliver upon many of OCO's core objectives including facilitating connections between people working in the organic sector and connecting people to organic producers, informing Ontarians on the full value of organic, and by raising funds that will allow OCO to continue with their advocacy for Ontario organics.

Only 40 tickets will be sold for each dinner which went on sale last week to OCO's Co-farmer members. Tickets are now open to the public for purchase. From the positive feedback received to date, OCO is anticipating this year's dinner series to be a huge success and they look forward to expanding the series next summer. Their goal is to host dinners across Ontario, giving all Ontario organic producers an opportunity to showcase their farm and allowing Ontarians from all regions an opportunity to attend. All proceeds will help fund OCO's advocacy for Ontario organics which supports Ontario's organic sector and represents the values of Ontario's many organic enthusiasts.

Full details about the Ontario Organic Dinner Party Series can be found at www.organiccouncil.ca/dinnerparty. Tickets may also be purchased online or over telephone: 519-827-1221.

For Inquiries relating to this year's dinner series, or for how you can be involved in next summer's series, please contact Elizabeth Stewart by email: Elizabeth@organiccouncil.ca.

For media inquiries, please contact Julia Thomas by email: events@organiccouncil.ca

Foodland Ontario Organic

A Foodland Ontario marketing survey conducted in 2011 indicated that more than one-quarter of shoppers surveyed would buy organic more often if they knew it was from Ontario. To appeal to Ontario consumers who shop for organic products and help them to choose Ontario organic foods first, Foodland Ontario has a resource for producers and processors to identify their food as both certified organic and local.

Producers and processors who want to use the logo on their promotional and marketing materials will need to verify that their products are certified to the Canadian Organic Standard as well as meet the Ontario food definitions found on the Foodland Ontario website:www.foodland.gov.on.ca/english/industry/ind-definitions.html

For more information on how to get the Foodland Ontario Organic logo, contact OMAFRA's Agricultural Information Contact Centre at ag.info.omafra@ontario.ca or call toll free 1-877-424-1300.

Agricultural Information Contact Centre:
1-877-424-1300
E-mail: ag.info.omafra@ontario.ca
Northern Ontario Regional Office: 1-800-461-6132
www.ontario.ca/omafra

Links to Organic Agriculture Information

Organic Council of Ontario (OCO)
http://www.organiccouncil.ca

Ecological Farmers of Ontario (EFO)
http://www.efao.ca

Canadian Organic Growers (COG)
http://www.cog.ca

Organic Agricultural Centre of Canada (OACC)
http://www.oacc.info

OMAFRA Organic Agriculture
http://www.ontario.ca/organic

FarmStart
www.farmstart.ca