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## Welcome to “ON Organic”

*Hugh Martin, Organic Crop Production Program Lead, OMAFRA*

They predicted a hot dry summer but in June we had double normal rainfall in most areas with many rainy days to delay some planting and weed control activities. Each winter farmers prepare a plan for their spring and summer activities but your plan always needs to be flexible enough to deal with years like this. Is July the start of the hot dry weather??? Summer still has a long way to go. Two diseases we once again have to watch are late blight in tomatoes and potatoes and downy mildew in cucurbit vine crops. Neither are widespread in Ontario at this point but need to be watched as both can be devastating if they hit your farm early. This is more information in this newsletter and in last months issue.

Enjoy the summer and I hope you enjoy the July 2010 issue. Thanks to the contributing authors and to OCO and EFAO and others who pass it on to other colleagues in the organic sector. We always appreciate your comments.

Subscription to this newsletter is easy and no cost. For details go to the webpage: <http://www.omafra.gov.on.ca/english/subscribe/index.html#organic>

The newsletter is also posted on the OMAFRA website at: <http://www.omafra.gov.on.ca/english/crops/organic/news/newsorganic.html>

The French version of these newsletters is available at: <http://www.omafra.gov.on.ca/french/crops/organic/news/newsorganic.html>

The OMAFRA Organic pages are linked from: <http://www.ontario.ca/organic> and <http://www.ontario.ca/biologique>

## The ON Organic Team

Hugh Martin – editor, OMAFRA, Organic Crop Production Program Lead  
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## Late Blight Update July 2010

Michael Celetti, Plant Pathologist Program Lead – Horticulture Crops/OMAFRA  
Janice LeBoeuf, Vegetable Specialist/ OMAFRA

Late blight caused by *Phytophthora infestans* has been confirmed on either tomatoes or potatoes in Michigan, New York, Connecticut, Pennsylvania, Maryland, Kentucky, Louisiana, Florida and Manitoba. There have been no confirmations or reports of late blight in either tomato or potato in Ontario so far this year. However, with the disease so close to Ontario, it is a matter of time before this disease shows up.

The infected plants in many states were destroyed as soon as they were identified. The original source of the disease this year has not yet been identified. However there is a good chance that the disease may have over-wintered in infected potato tubers carried over from 2009.

### Recognizing Early Downy Mildew Symptoms in Cucurbits

by Michael Celetti, Plant Pathologist Program Lead – Horticulture Crops, OMAFRA

Recognizing early symptoms of downy mildew can make a big difference in controlling the spread of this disease, both in the field and between fields. Downy mildew symptoms first appear as small yellow patches or spots on the top side of leaves. There is usually no distinct



Figure 1. Small yellow "greasy" spots (circle) on the topside of leaves is often the first symptom of downy mildew infection.

border around the yellow spot which sometimes takes on a "greasy" appearance (Figure 1). During prolonged wetness periods the disease eventually moves into young expanding leaves of plants.

Under moist conditions, the lesion on the underside of the leaf develops a buff, purple or grey downy growth immediately below the light yellow patches observed on the top of the leaf. This downy growth on the underside of infected leaf surfaces usually appears in the mornings after a period of wet weather or when conditions favour dew formation. When conditions become dry, the underside of the lesion may be speckled with black sporangia (spores) (Figure 2).



Figure 2. Sporangia (spores) on the underside leaf surface appears as black specks.

As the disease progresses, the lesions expand and the yellow patches become necrotic and brown. On most cucurbit hosts, the lesions appear irregular but on cucumber, they often are angular and confined by the leaf veins (Figure 3). Lesions are sometimes invaded by secondary pathogens such as soft rot bacteria or other fungi.



Figure 3. Expanding lesions are often restricted by leaf veins giving the lesion an angular or square

From OMAFRA HortMatters newsletter  
<http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2010/14hrt10a1.htm>

## iGAP—Interactive Good Agricultural Practices

by Jan Schooley, On-Farm Food Safety Program Lead, OMAFRA

iGAP is a CD produced by the OMAFRA On-Farm Food Safety Team. It is a resource for all farms, whether already on a food safety program or thinking about getting started in food safety practices. iGAP is a common sense approach to farm food safety.

When you open the iGAP CD you will be able to access a number of food safety tools. The interactive version of OMAFRA's AdvantageGAP manual offers a set of practices that can be used in any farm setting: General Farm, Livestock and Poultry, and Crops. It offers workable solutions for high risk farms. As a producer, you can work through an interactive format to explore how to evaluate food safety risks on your farm, to determine what practices apply to you and how to improve your existing practices. The manual also offers a section on how to get started in food safety. iGAP helps producers understand the basic good agricultural practices associated with food safety on the farm.

But iGAP goes beyond an interactive food safety manual. iGAP offers information on traceability, complete with videos of farms that have adopted traceability practices. You will hear from farmers in both the livestock and crops industries how they have implemented traceability practices and how those practices have affected their profitability. iGAP also gives you the opportunity to assess your practices against a set of best practices. In the 3-2-1 Assessment you will be able to view your areas of highest risk and then determine what practices will reduce risk in those areas. You will be able to print a report of risks on your farm with corresponding suggestions for improvement. You will also find a full set of templates for recording your practices – templates that you can use in any farm food safety program. iGAP also contains sanitizer videos that show the use of various sanitizing materials for postharvest use in crops so you can determine what practices best suit your farm. You will also find a series of FactSheets related to farm practices that affect on-farm food safety. The Factsheets on manure talk about how to properly compost it to reduce pathogens and provide guidelines for safe temporary field storage. Factsheets on irrigation and water quality discuss good irrigation practices to improve food safety, safe use of water for livestock and how to look for a well site.

Safe use of medications and sharps for livestock and poultry and the prevention of broken needles are also included.

iGAP also offers contact information if you need to talk to someone about food safety on your farm. It is a tool you can use at your convenience, a workable, common sense tool that will help you address and reduce food safety risks on your farm. Call Jan at 519-426-5694 or Sandra at 519-826-3289 to find out where you can get your iGAP.

### Food Safety Tip

Pathogens such as E. coli and Salmonella survive well in the soil. When you are harvesting directly into market containers in the field make sure that the containers do not pick up any soil that could contact the produce. Prevent them from having direct contact with soil by setting them on a barrier, such as a tarp or pallet. Straw is not a barrier. Remember not to stack containers on top of one another if there has been any contact with soil.

### Feeding and Weaning Dairy Calves

A calf drinking large volume of milk can double its growth rate during the first 2 months of the milk feeding period. Weaning this animal may present some challenges.

by Mario S. Mongeon, Livestock Specialist, OMAFRA

Traditionally in conventional systems, dairy calves fed milk have received 8 to 10 percent of their birth weight per day. In other words, a calf with a birth weight of 45 kg would have received 4.5 litres of milk per day. This was a typical feeding regimen when calves were housed individually and received 2 meals of milk per day. In recent years, things have changed substantially on many farms. With the advent of computerized feeding systems for calves, *ad-libitum* feeding, group housing and so on, most calves now consume a greater amount of milk. It is not uncommon for some calves to receive up to 12 litres per day.

During the milk feeding period, calves are now expected to double their birth weight in a 2 month period. Holstein calves are expected to reach 90 kg at 2 months of age. In order to achieve this goal, substantial amounts of milk need to be fed to the calves. Automatic systems

come in handy since the number of meals needs to be increased.

In a recent study, an automated milk feeder was used to evaluate 2 milk feeding regimens: a limited milk allowance regimen (up to 4 litres of milk per day); and, the ad libitum regimen (up to 24 litres per day).

The calves that were allowed free access to milk drank on average about 8 litres of milk per day during the first 3 weeks in 12 visits to the feeder per day. The calves on the restricted diet drank half the amount of milk in twice as many visits and spent a lot more time at the feeder. This significantly affects the efficiency of the automated feeder since fewer calves can be hosted by the system.

Furthermore, the concentrate consumption during the first 3 weeks of life was not significantly different between treatments, suggesting hunger in the calf group receiving the lower level of milk.

From week 3 to week 6, the calves increased their consumption of milk to about 10 litres per day, getting one litre per visit while the calves on the restricted regimen got 4 litres but they visited the feeder twice as often as the other group. During that period, the calves receiving low volumes of milk consumed significantly more concentrate, suggesting that these animals increased the concentrate intake in order to compensate for the lack of milk.

Increasing the liquid portion of the diet reduces concentrate intake during the milk feeding period. This may lead to reduced weight gain and even weight loss at weaning time, offsetting the benefit from the greater amount of milk fed earlier on. A specific weaning strategy may need to be implemented since the days following weaning are a stressful period for the calf. Minimizing stress will improve overall performance and will prevent an offset of the gains from greater amount of milk fed.

A recent study, where calves were weaned at 6 weeks of age was conducted in British Columbia. Although in an organic system, calves should receive whole milk until 3 months of age, the findings highlighted by this research project are of great interest for organic dairy producers.

This research project evaluated the impact of different weaning methods on calves weaned at 6 weeks of age. In that study, a groups of calves fed large mounts of milk was used to evaluate the impact of abrupt weaning compared to gradual weaning. Four different weaning

duration treatments were evaluated: 22 days, 10 days, 4 days and abrupt weaning. Before weaning, every calf was allowed to drink up to 12 litres of milk per day. The first lesson learned from this trial is that when calves receive a substantial amount of milk, abrupt weaning is the least desirable strategy. Gradual weaning is a far better option since as the amount of milk offered decreases, concentrate consumption increases. Weaning calves over a 10 day period appears to be the best option to optimise weight gains. A long 22 day weaning period will have a detrimental effect on weight gain. A short 4 day weaning period appears to be insufficient to stimulate increased concentrate and forage intake.

Since on organic dairy farms calves are weaned at an older age, the optimal duration of the weaning period may be different, depending on the dry matter intake of these animals at weaning time. Nevertheless, abrupt weaning is probably not the best option anyhow. Gradual weaning was not a popular method some years ago when feeding was done by hand. Fortunately, with computerized feeding systems, we can now program the feeder in order to decrease the milk allocation for a specific animal over a preset time period. Furthermore, these automated feeders can provide several meals per day to calves in order to optimise growth rate as well as animal welfare.

If gradual weaning is done by hand, a good feeding chart is quite handy. Some producers use a dry eraser board to record milk quantities to be fed to each animal. Especially when it comes to gradual weaning, memory alone may not be enough to know where each calf it at in terms of quantities.

#### Objectives for the First 2 Months of Life

Double calf birth weight by day 60 of life  
Mortality < 5%  
Morbidity (treatment) < 10%

T.F. Borderas, A.M. de Passillé, J. Rushen. 2009. *Feeding behaviour of calves fed small or large amounts of milk*. J. Dairy Sci. 92:2843-2852

B.C. Sweeney, J. Rushen, D.M. Weary, A.M. de Passillé, 2010. *Duration of weaning, starter intake, and weight gain of dairy calves fed large amounts of milk*. J. Dairy Sci. 93:148-152

## Directories of Organic Farms and Food Businesses

by Hugh Martin, Organic Crop Production Lead,  
OMAFRA

While there is not single complete list of Ontario organic farms, here are some of the directories that I am aware of that list organic farms in Ontario as well as some organic retailers and processors. Note: The author has no knowledge of the current organic status of each establishment. Some lists may also not be up to date or complete.

### Canadian Organic Growers Directory

Searchable by keywords and by distance from a given location. Farmers, Processors, Retailers and other members of the value chain are included.

<http://www.cog.ca/directory/>

### Organic Council of Ontario Directory

Searchable by location, keyword and category of business. Includes Farmers, Processors, Retailers and other members of the organicvalue chain.

<http://www.organiccouncil.ca/dirresults.sz>

### Community Supported Agriculture: Ontario Directory

A directory of many CSA's in Ontario that is searchable by Town, City or county location. Other info on CSA's on site as well. <http://csafarms.ca/index.html>

### Farmers' Markets Ontario

Features a list of 157 Farmers Markets in Ontario. There is also other info on farmers markets featured on the website. <http://www.farmersmarketsontario.com/Markets.cfm>

### Organic Trade Association Online Directory

Includes a list of food ingredients and suppliers for processing and of food companies from across North America. <http://www.ota.com/directories.html>

### Planet Friendly - How & Where to Buy Organic

<http://www.planetfriendly.net/organic.html#food>

### Organic Farms & Markets

<http://www.consumerhealth.org/links/organic.html>

## List of Organic Certification Bodies

by Hugh Martin, Organic Crop Production Lead,  
OMAFRA

I frequently get inquiries for who certifies organic farms and businesses. The CFIA maintains a complete list on their website of all CBs that are accredited to the Canadian Organic Regime at <http://www.inspection.gc.ca/english/fssa/orgbio/cbliste.shtml>

There is more information on organic certification, links to the standards and a list of the major organic certifiers operating in Ontario on the web at <http://www.omafra.gov.on.ca/english/crops/organic/certification.htm>

There are other links to organic certification, regulations and standards found at these links.

- <http://www.inspection.gc.ca/english/fssa/orgbio/orgbioe.shtml>
- [http://www.cog.ca/about\\_organics/organic-standards-and-regulations/](http://www.cog.ca/about_organics/organic-standards-and-regulations/)

### Organic Certifiers in Ontario

#### Pro-Cert Organic Systems Ltd. (formerly OCPP/ Pro-Cert Canada Inc.)

Phone: 705-374-5602

E-mail: [Infoebo@pro-cert.org](mailto:Infoebo@pro-cert.org)

#### Ecocert Canada

Phone: 519-265-3319

e-mail: [simon.jacques@ecocert.com](mailto:simon.jacques@ecocert.com)

#### QAI - Quality Assurance International

Tel: 519-821-5457

E-mail: [jcuff@nsf-isr.org](mailto:jcuff@nsf-isr.org)

#### CSI - Centre for Systems Integration

Phone: 1-800-979-9015

Email: [csi-east@storm.ca](mailto:csi-east@storm.ca)

#### OCIA - Organic Crop Improvement Association Canada

Phone: 450-346-3835, Fax: 450-346-3835

Email: [ahoude@ocia.org](mailto:ahoude@ocia.org)

## Herbicide Injury - What Should I Do Now?

by Leslie Huffman - former Weed Management Specialist (Horticultural Crops), OMAFRA

Your scout reports odd-looking plants in one area of the field. You suspect that herbicide drift is the cause. What are your first steps?

### Diagnose the problem:

- Possible causes: Disease, insect, nutrient deficiency, herbicide carryover, environmental stress - may be similar to herbicide drift.
- Patterns in the field:
- Worse next to the spray source, less damage across the field.
- Patchy? Check soil pH. If of low or high pH, test for herbicide carryover.
- Weed symptoms in crop and fence lines:
- Evidence of spray application: wheel tracks, boom patterns, overlap on headlands - neighbouring fields, lawns, ditches, etc.

### Contact the appropriate people:

- Talk to your neighbour or sprayer operator. Ask what was sprayed, when it was applied, (and who did the application).
- Contact your regional Ministry of the Environment office - MOE officers can do a site visit, take samples of tissue and soil, and have them analyzed for the suspect herbicides. Where appropriate, the offending applicator may face charges under the Pesticide Act.
- Contact your insurance adjustor, and advise the applicator to contact theirs.

### Document all details of the problem:

- Collect spray records (yours - to prove it wasn't your sprays) and the offending applicator.
- Collect weather records (temperatures, wind speed, wind direction, rainfall - for the date of application)
- Take photos (many). Record date and location on each photo. Repeat photos several times through the season.
- Document yield loss: Choose a similar planting (same age, cultivar, rootstock, etc.) Document yields and quality from the damaged area, and from an undamaged area.
- For perennial crops (eg. vineyards, orchards, asparagus, berries): Document the effects for several years after the damage occurred.

## Harvest and Storage Strategies to Minimize Fusarium 2010

by Helmut Spieser - Environmental Engineer, OMAFRA

If you are harvesting wheat that has some Fusarium infected kernels, there are some strategies that will blow out many of the infected kernels in the field and arrest the further development of this disease in storage. There is no rescue treatment available to combat the Fusarium that exists now in the wheat fields. Careful harvesting, drying and storage strategies are the farmers' best way to maximize grain quality. Following these suggestions will eliminate most of the infected kernels and stop the further spread of Fusarium infection in the harvested wheat.

- Harvest early, at 18% moisture content or higher
- Use high fan speeds to blow out infected kernels
- Immediately dry infected grain over 16% M.C. in a heated air dryer to stop the spread of infection

### When to Harvest

Harvest should not begin above 18% moisture content if significant Fusarium is present. Higher moisture grain reduces the ability to blow out the lighter Fusarium-damaged kernels.

### Harvest Speed

Reducing your combine travel speed when harvesting may reduce Fusarium levels. This slower combining speed allows for increased separation of the grain by allowing the increased air blast time to separate the good kernels from the infected kernels.

### Fan Speed

Many of the Fusarium-infected kernels are small, shrunken and lighter than sound kernels. It is possible to blow a large proportion of these Fusarium-damaged kernels out the back of the combine by increasing the fan speed to deliver an air blast above normal ranges. Testing at Ridgetown in 1996 found that high fan speeds blew out a significant percentage of tombstone kernels caused by primary Fusarium infection. There was a tenfold decrease in Fusarium-damaged kernels in the grain sample when fan speeds were operated to deliver maximum air blast. Operating cleaning fans at these high speeds causes an additional loss of good kernels, up to 2 bushels per acre (0.13 t/ha). This small yield reduction is insignificant if the crop can be made marketable, rather than being downgraded to feed, sample or salvage. To

adjust your own combine, start at maximum fan speed and check the harvest sample. Reduce the fan speed if necessary and again evaluate your harvest sample for Fusarium-Damaged Kernels (FDK). Table 2 shows the effect of different fan speeds on wheat yields.

**Table 1** Maximum Recommended Air Temperatures for Drying Milling Wheat<sup>1</sup>

Dryer Type or End Use	Maximum Temperature	
	°C	°F
Non-recirculating batch dryers	60	140
Recirculating batch dryers	60-70	140-158
Cross-flow dryers	60	140
Parallel-flow dryers	70	158
Seed Wheat	40	104

<sup>1</sup> Copyright: Farm Drying of Wheat, Canadian Grain Commission, Sept 1992

<sup>2</sup> Wilcke, William F., Hellevang, Kenneth J. Wheat and Barley Drying, FS-5949-GO, 1992. University of Minnesota, Extension Service

### Chaffer Setting

Consider adjusting the cleaning sieves (chaffer) to a more wide-open setting. This directs the air blast vertically, slowing the rearward movement of the grain mass and aiding cleaning and separation. Caution must be used to keep wheat heads and straw pieces out of the grain sample if the chaffer is opened.

### Maximum Drying Temperatures

A number of different types of dryers can be used to dry wheat with heated air. To maintain milling quality you should follow the recommendation on Table 1 Maximum Recommended Air Temperatures for Drying Milling Wheat. The baking quality of wheat is damaged if the temperature of the grain reaches 60°C (140°F) for any significant length of time. The kernel temperature of the grain is not the same as the plenum temperature of the dryer. Kernel temperature should be measured by putting a sample of grain in a steel can and placing the thermometer in the centre of the sample. When heated air dryers are used, it is a worthwhile precaution to have samples evaluated to ensure the dried grain meets market standards.

**Table 2** Effect of Different Fan-Speeds on Wheat Yield

	Fan Speed (rpm)			
	1,160	1,220	1,280	1,330
	Sieve Setting: (¼")			
Good kernels on ground: (per ft <sup>2</sup> )	16	31.6	35.2	43.6
Loss: (bu/ac)	0.83	1.58	1.76	2.18
Loss at 60 bu yield: %	1.38	2.63	2.93	3.63

Case International 1644, Harus Wheat, Essex County, July 17, 1996.

Travel speed 4.2 mph. Rotor speed 880 rpm. Source: Dr. Art Schaafsma, University of Guelph, Ridgetown College, 1996.

From OMAFRA CropPest Newsletter  
<http://www.omafra.gov.on.ca/english/crops/field/news/croppest/2010/07cpo10a1.htm>

## Black Rot Considerations for Organic Growers

### Excerpt from Dr. Wayne Wilcox's Grape Disease Notes, 2009

Black rot is probably the “Achilles heel” for organic grape production in the East. In the only good trial that we’ve run with copper, it provided 40% disease control when applied at 2-week intervals, versus essentially 100% control with Nova. That being said, towards the end of the wet 2006 season I visited an organic grower who had suffered severe losses to BR in several previous wet seasons, anticipating that I’d see more of the same. But I had to search to find a black rot berry. What had he done? Implemented a rigorous program to remove mummies during pruning, and sprayed copper once a week throughout much of the growing season. This was hard on some of the hybrid vines and runs counter to the thinking of many with a “sustainable” orientation (after all, copper is an element and doesn’t break down into anything else, so it stays in the soil forever), but it did control the disease in an organically-acceptable manner.

Therefore, although we’d love to have a magic bullet (or even a good slingshot), the simple fact remains that

sanitation and cultural practices form the absolutely critical first (and second and third....) line(s) of defense for growers who wish to produce grapes organically. So if this means you, you'll need to pay strict, bordering on religious, attention to limiting inoculum within the vineyard. Ideally, this would include removing or burying (tillage, mulch) any mummies that you might encounter at the site. At the very least, it is imperative that all mummified clusters be removed from the trellis during pruning. And if you're able to patrol the vineyard from 2 to 6 weeks after cap fall and prune out any affected clusters before they allow the disease to spread, all the better (spores for disease spread are dispersed by rain primarily within the canopy, so should pose little risk of causing new infections if said clusters are simply dropped to the ground).

From the OMAFRA Tender Fruit and Grape Report:  
<http://apps.omafra.gov.on.ca/scripts/english/crops/agriphone/article.asp?ID=1848#organic>

## Postharvest Handling and Storage of Cole Crops

by Dr. Jennifer DeEil, Fresh Market Quality Program Lead, OMAFRA

### Broccoli

#### Quality Indices:

- dark or bright green closed florets
- compact head (firm to hand pressure)
- cleanly cut stalk, good color

#### Physiology:

- high respiration rates
- freezes at  $-1^{\circ}\text{C}$ , becomes dark and translucent
- very low ethylene production
- extremely sensitive to ethylene, floret yellowing (e.g. 2 ppm at  $10^{\circ}\text{C}$ , reduces shelf-life by 50%)

#### Cooling:

- usually rapidly cooled by liquid-icing the field-packed wax cartons
- hydrocooling and forced-air can also be used, but temperature management is more critical

#### Storage Requirements:

- low temperature extremely important,  $0^{\circ}\text{C}$
- relative humidity  $>95\%$
- shelf-life 21-28 days in optimum conditions (14 days at  $5^{\circ}\text{C}$ , 5 days at  $10^{\circ}\text{C}$ )

#### Modified Atmosphere Packaging:

- benefits with 1-2%  $\text{O}_2$  and 5-10%  $\text{CO}_2$  at  $0-5^{\circ}\text{C}$
- extreme gas levels and/temperature fluctuations result in offensive off-odors and off-flavors

### Cauliflower

#### Quality Indices:

- firm compact head of white to cream-white curds
- crown of well-trimmed, turgid green leaves
- absence of yellowing due to sunlight exposure
- no 'ricy' appearance (loose or protruding floral parts), this is a sign of over-maturity

#### Physiology:

- relatively high respiration rates, but less than broccoli
- freezes at  $-0.8^{\circ}\text{C}$ , water-soaked and grayish curd and/or wilted crown leaves
- very low ethylene production
- extremely sensitive to ethylene; discoloration of curd, accelerated yellowing, and detachment of leaves

#### Cooling:

- forced-air or vacuum can be used

#### Storage Requirements:

- low temperature extremely important,  $0^{\circ}\text{C}$
- relative humidity 95-98%
- storage NOT recommended for more than 3 weeks, for good visual and sensory quality
- storage for more than 3 weeks or at temperatures higher than  $0^{\circ}\text{C}$  leads to increased wilting, browning, yellowing of leaves, and decay

#### Modified Atmosphere Packaging:

- offers moderate or little benefit
- 2-3%  $\text{O}_2$  and 3-5%  $\text{CO}_2$  at  $0-5^{\circ}\text{C}$  delays leaf yellowing and onset of curd browning by few days
- injury from low  $\text{O}_2$  ( $< 2\%$ ) or elevated  $\text{CO}_2$  ( $>10\%$ ) may only be evident after cooking, when curds turn grayish, extremely soft, and emit strong off-odors

### Cabbage

#### Quality Indices:

- firm, compact, relatively heavy head with turgid green leaves
- harvested too early, loses excessive weight in storage due to wilting
- harvested too late, heads are more white and may have internal damage resulting from frost

### Physiology:

- moderate respiration rates, 1/2 of cauliflower
- freezes at - 0.8°C, water-soaked and/or wilted leaves
- very low ethylene production  
extremely sensitive to ethylene, leaf yellowing and leaf abscission

### Cooling:

- vacuum or forced-air can be used

### Storage Requirements:

- low temperature extremely important, 0°C
- relative humidity 95-100%, good air circulation
- storage duration varies dramatically with cultivar; early cabbage (harvested in summer) 3-4 weeks; late/winter cabbage (harvested in fall) 3-7 months

### Controlled Atmosphere (CA) Storage:

- benefits with 2-3% O<sub>2</sub> and 3-6% CO<sub>2</sub> at 0-5°C
- may be held in CA for up to 10 months
- extreme gas levels may result in off- odors and flavors

From OMAFRA HortMatters Newsletter

<http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2010/15hrt10a3.htm>

## **OMAFRA is seeking stakeholder input on its proposal to modernize Regulation 384 - Honey and Regulation 378 – Grades - Fruit and Vegetables under the Farm Products Grades and Sales Act**

Notice of the two proposals were posted today on the government's Regulatory Registry. The Registry website, <http://www.ontariocanada.com/registry/> provides a link to an OMAFRA webpage where the stakeholder information paper and relevant legislation is available. The information paper provides a description of the proposal and sets out the ways feedback can be submitted to the ministry. We are meeting with organizations to facilitate feedback and will also provide notice for the OMAFRA Connects / Connexion MAAARO newsletters for broader producer information and feedback. Comments must be received by August 8, 2010.

Pamela Young  
Manager, Foods of Plant Origin  
Food Inspection Branch  
519-826-4379

Beverley Alder  
Manager, Legislative Policy Unit  
Food Safety and Environmental Policy Branch and  
Ontario Ministry of Agriculture, Food and Rural Affairs  
519-826-3241

## **Lavender: A Crop Without Pests?**

**by Sean Westerveld, Ginseng and Medicinal Herbs Specialist, OMAFRA and Melanie Filotas, Specialty Crops IPM Specialist, OMAFRA**

Lavender is increasingly becoming an important crop in Ontario as growers attempt to capture the agri-tourism market. Because the crop is native to warmer and drier climates, growers often focus most of their attention on adapting to the Ontario climate through variety selection, site selection, improving drainage, and pruning. Pest management is not often considered an important aspect of lavender production, and many growers do not regularly scout their fields. In fact, many consider lavender as being a crop with no pest issues. No plant is completely resistant to all pests. To date we have found several pests and diseases attacking lavender in Ontario including powdery mildew, septoria leaf spot and spittlebugs. More pests are likely to develop as acreage grows. Recently, two insect pests have been identified causing damage on lavender in a greenhouse, the garden fleahopper and the four-lined plant bug. These are not new pests to Ontario, but have not been reported on lavender before. In a greenhouse environment, insects that are not normally a pest of a particular plant species can attack that plant if there are no other host plants available for them to feed on. In both cases, it is likely that the pests were introduced to the greenhouse when mother plants were brought inside in the fall. In the absence of other host material, the insects fed exclusively on the lavender.

In the past few weeks, four-lined plant bugs have also been found causing damage on lavender in the field. Damage does not often occur on all plants, but can be severe on individual plants. Growers should monitor for the presence of this insect and rate varieties for the susceptibility to this pest.

For the complete article and photos go to OMAFRA HortMatters newsletter  
<http://www.omafra.gov.on.ca/english/crops/hort/news/hortmatt/2010/15hrt10a4.htm>

## Should We Cut Hay In The Morning Or Afternoon?

by Joel Bagg, Forage Specialist, OMAFRA

Can hay nutrient quality and sugar content be improved by cutting in the afternoon rather than in the morning? There has been a great deal of conflicting information about AM/PM cutting in the farm media that has created some confusion and controversy.

### The Case For Afternoon Cutting - Photosynthesis

During the day, forage plants convert sunlight into sugars by photosynthesis. Sugars and starch are produced faster than they can be translocated to root and crown reserves, so at the end of a sunny day, the plant sugar content is at its maximum. During the night, the plant continues translocating sugars from the leaves, and also uses up some of the sugars for respiration. As a result, the sugars contained in the harvestable forage will be at their minimum in the morning, before photosynthesis begins again. It therefore would seem reasonable that cutting late in the day would maximize the highly digestible non-structural carbohydrates (ie sugars and starches) and palatability of the hay. Some research has shown this to be the case.

### The Case Against Afternoon Cutting - Plant Respiration

When a forage plant is cut, it doesn't know it's dead yet. It still thinks it has a fighting chance. Initially, plants on the top of the swath receiving sunlight will even try to continue photosynthesis, until limited by lack of moisture. Respiration using up soluble sugars continues until the plant is sufficiently dry that plant metabolism slows and eventually stops. The longer the drying period, especially the initial phase down to about 60-65% moisture, the greater the respiration losses.

It really doesn't matter to the cow what the sugars were at cutting. Forage quality is determined after harvest and storage at the feed bunk. Overnight respiration losses of sugars can be greater than what is gained by waiting to cut in the afternoon. Research has shown this to be the case in New York and Wisconsin. Confused?

### Drying Conditions, Humidity & Night Time Temperatures

The conflicting research results appears to be related to climate and the weather during the drying time of the studies. Overnight respiration losses are greater with higher humidity and temperatures. The original research showing the benefits to afternoon cutting was conducted in the western US, including Idaho and Utah. These locations have ideal, fast drying conditions with low humidity and intense sunlight. Remember, this is the part of the world where they bale in the evening with some dew on to avoid excessive leaf loss. They also have cooler nights, which reduces respiration.

### Ontario Hay Making Weather Can Be Challenging

Contrast this with Ontario and our neighbouring provinces and states, where we struggle with high humidity, warmer nights, and the ever present threat of rain. Our overnight respiration losses are potentially much greater. There is some research in the northeastern US and Quebec that shows some potential advantage to afternoon cutting. This is more likely with exceptionally good drying condition (sunny, low humidity, lower swath density, etc). For example, the typically faster drying conditions of a lighter second-cut with excellent July weather may improve the conditions where the added sugars more than offset the added respiration losses. However, in the real, on-farm world of Ontario haymaking, will this be consistent enough?

Cutting late in the day also adds another day to the necessary weather window of good drying without any rain. If you check our weather records, I doubt whether this is very often a good risk. Rain-damage, or advanced maturity from delayed cutting because the weatherman can't promise us the extra day, can easily offset any intended advantage. I'm not sure that Ontario farmers very often have the luxury of delaying cutting in an effort to potentially improve sugar content. Also, many farmers cut in the morning to spread the workload, because baling usually takes place in the afternoon.

### Morning Cut "Haylage In A Day"

There is considerable interest in improving haylage quality by cutting in the early morning with wide swaths to speed wilting and then chopping it later the same day. Cornell University research shows this approach significantly improves fermentation and digestible energy. Even though sugars are at their minimum when cut in the morning, losses of these sugars to respiration are also minimized with rapid wilting and no overnight respiration losses. Similarly when making dry hay,

cutting with a wide swath likely does more than cutting in the afternoon to improve forage digestible energy. (Refer to "[Wide Swath Haylage](#)".  
[http://www.omafra.gov.on.ca/english/crops/facts/w\\_s\\_haylage.htm](http://www.omafra.gov.on.ca/english/crops/facts/w_s_haylage.htm)

### Bottom Line

In my opinion, the time of day to cut forage for dry hay, is when you've figured out you've got a good chance to get it made before the next rain. Unless you have excellent, extended drying conditions forecasted, this likely means cutting in the morning. For improved hay quality, dry it and make it as fast as you can. Use the tools - cut a wide swath, condition properly, and make strategic use of tedding, rotary rakes, or windrow invertors. (Refer to "[Making Marketable Hay Without Rain Damage Or Mould](#)".  
<http://www.omafra.gov.on.ca/english/crops/field/news/croptalk/2008/ct-0908a6.htm>

From OMAFRA CropTalk Newsletter  
<http://www.omafra.gov.on.ca/english/crops/field/news/croptalk/2010/ct-0610a7.htm>

## Hay Tips

### by Joel Bagg, Forage Specialist, OMAFRA

Remove large hay bales from the field as quickly as possible. Minimizing tractor and wagon traffic before regrowth occurs prevents alfalfa crown damage and subsequent yield loss. The cost of indoor storage is only a small proportion of the total cost of producing hay, and is easily recoverable by maintaining forage quality and minimizing spoilage losses. Proper hay storage ventilation is important so that moisture can continue to dissipate from bales. The use of pallets prevents spoilage of the bottom row of bales. Hay intended for the horse market should not be allowed to sun bleach. Hay stored outside should be properly covered with bale tarps to shed rain and snow to minimize spoilage losses. Wicking of moisture can be very significant, so use pallets or crushed stone to keep them off the ground. Six inches of spoilage around the outside of a round bale represents 20% of the volume of a 5 foot diameter bale, and 25% of the volume of a 4 foot bale.

## What Makes A Successful Grazing Program?

### by Jack Kyle, Grazing Specialist, OMAFRA

Promoting good grass growth is the most important part of a successful grazing program. Improved grass growth is critical to get the most livestock production from the pasture. If you manage the grass on your farm to get maximum growth and then optimize the harvest of this growth, you will achieve significant results. Productive pastures can produce 500 to 600 pounds of gain per acre.

With any annual crop we take great steps to get optimum growth and plant development. We select varieties, fertilize to crop needs and control pests. Harvest does not happen until the crop has reached the ideal harvest stage.

Let's think about these same things, but from a grazing or pasture perspective.

### Species

How species are managed is as important as what species are present in the pasture. Species differ somewhat in their growth habits, but all species can provide both good quality and quantity of forage. Manage your pastures to the advantage of the species present. Grasses should initially be grazed when the third-leaf is fully emerged. This will be an earlier calendar date for orchard grass than brome grasses. Clovers and alfalfa will break winter dormancy early and be ready to graze shortly after the grasses. Trefoil is late to break winter dormancy and consequently is not going to provide pasture until late in the spring.

### Fertility

Fertility is important for good plant growth. Grasses will respond to nitrogen applications in late spring. Livestock manure produced by the grazing animals assists in providing fertility. If evenly distributed across the pastures, this manure will enhance the forage growth.

### Optimum Stage At Grazing

The optimum harvest time for pasture grasses is after the third-leaf has emerged and before the seed head has emerged. Harvesting at this time allows for the plant to

accumulate significant livestock feed and replenish root growth and reserves. Once the grass has been grazed, then it is time to let it regrow until it has reached the third-leaf stage again. This re-growth will take about 25 to 40 days or more, depending on the season. The regrowth will be faster in the spring with the cooler temperatures and adequate moisture, and will be slower during the hot, drier summer.

## Fence

A rotational grazing system allows you to manage the grass for optimum forage production. Consequently there will be significantly more forage for your livestock. When livestock are being moved to fresh forage on a regular 1-5 day basis, a single or double strand electric fence will be adequate to control your cattle. Fencing allows you to control your livestock and prevent the re-grazing that limits forage production. A well managed grazing system will provide productive pastures on your farm.

From OMAFRA CropTalk newsletter

<http://www.omafra.gov.on.ca/english/crops/field/news/croptalk/2010/ct-0610a5.htm>

## Is Organic Still Growing?

by Hugh Martin, Organic Crop Production Program Lead, OMAFRA

What is the future and growth of organics? Twenty years ago people assumed that organic was just a fad and in a few months the consumer's interest in organic food would pass. At that time North American organic food sales were just over \$1-2 billion per year. In 2009, retail sales of organic food were approximately \$25 billion in the United States and \$2 billion in Canada.

### Growth In Organic Food Sales

Organic sales grew at 17 - 22% per year from the early-1990's to 2007. When the economic recession hit in late-2008, organic sales reduced in growth, but most sectors continued a lower level of steady growth. Fresh fruit and vegetables and fresh meats maintained the best growth, while processed foods grew the least. Overall growth in the US organic sector was over 5% in 2009.

### Market Share

Organic foods have become a small but significant part of the mainstream marketplace. In the United States, 3.7% of

all foods being sold are organic. In Canada, the market share is lower but considered to be over 2%. Up to 80% of our organic foods are imported compared to approximately 30% for all foods, due to limited organic farm production and food processing capacity. Organic farm production levels vary by commodity, but approximately 1.4% of our total farm production is organic. About 25% of the Ontario farm gate value of organic is fresh fruits and vegetables, 30% is grain and forage crops (for processed foods and livestock feeds), and 45% is livestock production (dairy, eggs, pork, beef, etc).

### Consumer Demand

Organic food sales weathered the economic storm of 2008-9 reasonably well. From early indications, it appears that growth will improve in 2010. Consumers have proven that they want the choice of buying some organic products. About 5% of consumers are core organic consumers that chose to buy a significant amount of organic products. About 55% of consumers buy a few organic products that may be favourite products or may just be a new product on the shelf that catches their eye. Both groups continue to buy more when high quality organic products are available. Organic consumers also want to buy local organic products that are grown in Ontario.

### Organic Production Opportunities

I have always said that organic production is not for everyone. Organic production systems require a high level of management that is information intensive, especially during transition period when learning the new production system. Do not underestimate the differences in the production systems. Marketing requires more effort and labour needs can increase. The transition to organic takes time and effort to learn a new production system, but is an investment in your future business.

When I visit organic farms and businesses in Ontario, I see good managers that are very successful and glad they made the change. I also see some managers who have not yet been able to put all the pieces together and their business is suffering. If you want to get into organic, take time to do your research and develop a good business plan on how to get there. Talk to other organic farmers who are successful and join some of the associations or attend their meetings and summer tours.

From OMAFRA CropTalk Newsletter <http://www.omafra.gov.on.ca/english/crops/field/news/croptalk/2010/ct-0610a4.htm>

**Thinking about renewable energy  
or farm energy projects  
and looking for a place to start,  
try these excellent online resources**

**Farm Energy Online**

The purpose of this website is to assist farmers and food processors with a path, information, tools and resources to assess the renewable energy opportunity in their business. They're striving to offer value from project start to finish by providing information and discussion platforms like this web-site and our blog.

**Renewable-energy and Energy-efficient Technologies (RET) Screen International**

RETScreen International Clean Energy Decision Support Centre seeks to build the capacity of planners, decision-makers and industry to implement renewable energy, cogeneration and energy efficiency projects. This objective is achieved by: developing decision-making tools (i.e. RETScreen Software) that reduce the cost of pre-feasibility studies; disseminating knowledge to help people make better decisions; and by training people to better analyse the technical and financial viability of possible projects.

**Smart Energy Decision Assistance Centre**

The Smart Energy Design Assistance Center (SEDAC) provides advice and analyses to increase economic viability through the efficient use of energy resources. Determine the financial impact of your energy saving investment project with SEDAC's [Energy Project Economics Calculator](#).

**Canadian Organic Standards  
for Aquaculture**

Last week, the Canadian General Standards Board released a [draft version](#) of the latest Canadian Organic Standards for public review.

<http://www.tpsgc-pwgsc.gc.ca/cgsb/prgsrv/stdsdev/nsa/pubrevdoc/pubrevdoc-e.html>

**Other Sector Events**

COG Events Calendar:

[http://www.cog.ca/news\\_events/events-calendar/](http://www.cog.ca/news_events/events-calendar/)

EFAO Summer Events:

<http://www.efao.ca/pages/events.html>

FarmStart Events:

<http://www.farmstart.ca/current-events-workshops/>

**Links to Organic Agriculture Information**

**Organic Council of Ontario (OCO)**

<http://www.organiccouncil.ca>

**Canadian Organic Growers (COG)**

<http://www.cog.ca>

**OMAFRA Organic Agriculture**

<http://www.ontario.ca/organic>

**Ecological Farmers Association of Ontario (EFAO)**

<http://www.efao.ca>

**Organic Agricultural Centre of Canada (OACC)**

<http://www.oacc.info>

**Agricultural Information Contact Centre: 1-877-424-1300**

**E-mail: [ag.info.omafra@ontario.ca](mailto:ag.info.omafra@ontario.ca)**

**Northern Ontario Regional Office: 1-800-461-6132**

**[www.ontario.ca/omafra](http://www.ontario.ca/omafra)**

# UNIVERSITÉ DE GUELPH

## ORGANIC MEADOW CO-OP

ORGANIC CROP SYMPOSIUM AND FIELD CROP DEMO DAY

*YOU ARE WELCOME TO OUR NEXT EVENT AT THE ALFRED CAMPUS DAIRY FARM  
CO-ORGANIZED BY ORGANIC MEADOW CO-OP AND THE UNIVERSITÉ OF  
GUELPH –ALFRED CAMPUS*

**August 20, 2010, 1:00 pm**

At the College farm, 31 St Paul, Alfred KOB 1A0

Come to see and talk about:

Planting soybean into rolled winter rye.  
Sudangrass and Japanese millet as pasture and silage.  
Chicory and bird's foot trefoil as medicine crops for cattle.  
Digested manure as corn fertilizer.  
Pastureland management.

### COFFEE AND COOKIES PROVIDED!

Participation required 10\$

FOR MORE INFORMATION CALL

Fabrice Roche  
Simon Lachance

819 507 0907  
613 679 2218 ext 601