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## Welcome to “ON Organic”

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

Welcome to the August 2009 issue of ON Organic. It has been an interesting summer. It has been wetter than normal in many areas but some farms have had dry spells. Temperatures have been cooler than in recent years but we are only about 100 - 150 heat units behind the 30 year averages in most areas. This is good for many of the cool season crops, but has delayed harvest on many crops. Disease outbreaks of downy mildew in cucurbits and late blight in potatoes and tomatoes have been of some concern, especially in organic where we have few tools to effectively control these diseases. I hope you are having a good season.

Thanks to Ecological Farmers Association of Ontario (EFAO) and Organic Council of Ontario (OCO) for forwarding this on to their email lists, and I encourage you to share it with other colleagues who may find it useful. As always we welcome 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/news-organic.html>

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

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

## The ON Organic Team

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# Canada Organic Regulations

By Hugh Martin, Organic Crop Production Program Lead

Most of the discussion around the new organic regs has been well circulated and was included in our July issue. Most of the links to the new regs and associated documents can be found on the CFIA Canada Organic Office (COO) website at <http://www.inspection.gc.ca/english/fssa/orgbio/orgbioe.shtml>.



In July they also posted the COO Operating Manual at: <http://www.inspection.gc.ca/english/fssa/orgbio/man/orgbiomane.shtml>

This is a fairly long detailed document that contains the policies and procedures for activities applicable to the Canada Organic Regime (COR). The manual provides overview of the procedure to be followed when CFIA and CVB enter into an Agreement, the accreditation and the certification procedures. The goal in producing this manual is to provide a structure so that services are delivered in a consistent and efficient manner. In other words this document explains how the CFIA will work with the CVBs and CBs to enforce the new regulations.

<http://www.inspection.gc.ca/francais/fssa/orgbio/man/orgbiomanf.shtml>

On a related note the 2009 revisions to the Canadian Organic Standards were balloted in June 2008 and it appears that most revisions were accepted. These will now be finalized and approved by the Standards Council of Canada later this fall. There were some details on these changes reported in the Summer edition of the COG magazine The Canadian Organic Grower. A number of these were for clarification or to make the Canadian standards more equivalent to the US and EU standards. In this vein some new products were added to the Permitted Substances List.

## Growing Forward Business Development Programs

By Rob Gamble, Finance and Business Structures Program Lead/OMAFRA

The following is a summary of the Growing Forward Business development Programs. More information can be found on the [OMAFRA website](http://www.omafra.gov.on.ca/english/about/growingforward/busdev.htm) (<http://www.omafra.gov.on.ca/english/about/growingforward/busdev.htm>) or the [OSCIA website](http://www.ontariosoilcrop.org/) (<http://www.ontariosoilcrop.org/>).

Growing Forward Business Development for Farm Businesses incorporates self-assessment and goal setting with a range of cost-share advisory services and skills development opportunities to help reach your farm business goals.

Applicants must meet the program eligibility criteria and adhere to all program terms and conditions and project claim submission deadlines to qualify for cost share. **All cost-share funds are available on a first come, first served basis up to the available annual funds of each year of the program.**

Individual Ontario producers, beginning farmers, and members of a group enterprise such as a corporation or partnership are eligible to apply for cost share if they satisfy the following criteria:

1. Have attended a GYFP workshop, and have had their Action Plan(s) Reviewed and Signed-off by OSCIA representative.
2. Be a Legal Farm Entity and possess a valid Farm Business Registration Number (FBRN) or equivalent

The Growing Forward Business Development for Farm Businesses is delivered by the Ontario Soil and Crop Improvement Association (OSCIA). For information concerning workshop schedule or eligibility criteria please contact your local OSCIA Representative or Ontario Soil and Crop Improvement Association at 1-800-265-9751 or the OSCIA website <http://www.ontariosoilcrop.org/cms/en/Programs/GYFP09.aspx?menuid=104>

## Growing Your Farm Profits Workshop

The Growing Your Farm Profits workshops are available free of charge for all Ontario producers, including farm families and farm management teams.

The workshop provides a planning process and resources to maximize your farm business long-term goals.

Participants are not asked to share personal or financial details with the facilitator or other participants. The two-day workshop will give you the tools needed to assess your business:

- Review current farm management practices, systems, knowledge and skills
- Understand how planning provides the framework for effective decision making
- Prioritize goals for the farm business' future
- Identify resources that can help meet these goals
- Build on the farm business' strengths and
- Write an Action Plan to improve farm management skills and knowledge.



## Growing Forward

### Action Plan Review and Sign-off

After the Growing Your Farm Profits workshop, you and your management team will be able to develop an Action Plan for your farm business, start the planning process and begin to access the resources needed to achieve your goals. Based on the needs identified in your signed-off Action Plan, the farm business may be able to access cost-share funding opportunities. As an eligible farm business you may choose to participate in one or several areas.

### Farm Financial Assessment

Based on your Action Plan, you may require access to a professional Farm Financial Advisor who will review past financial performance, analyze your current business situation, discuss objectives, and help you identify options to meet your farm business profitability goals.

**Note: If your business is experiencing financial difficulty you may be able to access the Farm Financial Assessment without completing the Growing Your Farm Profits Workshop.**

The program covers up to \$2400 of eligible costs to hire an advisor to complete an Assessment. The participant pays \$100.

A Farm Financial Assessment includes:

- A review of past financial performance
- An analysis of the current farm business situation,
- A ratio analysis and assessment of liquidity, profitability, solvency and repayment capacity
- The identification of options to meet the farm business profitability goals

### Agriculture Skills Development

Farm business owners that identify the need in their Action Plan will be able to access cost-share funding to take farm related training and skills development intended to support greater farm business viability.

A list of farm-related skills and training opportunities is available on the OSCIA website. Eligible participants will receive cost share funding for up to 50 per cent to a maximum of \$3000.

Eligible costs include:

- Tuition
- Textbooks
- Travel expenses

### Advanced Business Planning

Advanced Business Planning services are available on a cost-share basis to help meet the business planning needs specified in your Action Plan. You may work with an advanced planning consultant to focus on business management goals such as succession, marketing, diversification, expansion and/or feasibility plans. Eligible farm businesses may receive cost-share funding for up to 50 per cent to a maximum of \$8000.

Eligible costs are items that support the advanced business planning needs specified in the Action Plan. A list of advanced planning consultants can be found on the [OSCIA website](#).

### Business Plan Implementation

To help you implement elements of your Advanced Business Plan, you may receive cost-share funding assistance for one-time non-capital costs. Eligible participants will receive cost share funding for up to 50 per cent to a maximum of \$3000.

Eligible costs may include soft (non-capital) costs of implementing:

- Specialized contracts
- Business agreements
- Legal documentation
- Licensing agreements
- Trademarks and/or patent registration
- Certification.

*Growing Forward – Best Practices Suite is a federal-provincial-territorial initiative, that supports the development and implementation of best practices in four key areas: Environment and Climate Change; Food Safety and Traceability; Business Development; and Biosecurity. Participants are encouraged to develop strategies across all areas to meet their business goals through information sessions, workshops, training and technical assistance.*

From the OMAFRA newsletter [The Ag Business Update](#)  
<http://agbusinessupdate.wordpress.com/>

## Pasture: The Green Gold

### Intensive pasture management, a farm experience

**Mario S. Mongeon, Livestock Specialist, Project Lead, Organic Livestock Production**

On June 25th, the Organic Meadow's Francophone Organic Dairy Farming Club met for the third time this year. The day was dedicated to intensive grazing management. We were fortunate to have a warm, sunny and dry day for a change!

The day started with Kornel and Olga Schneider, owners of Ferme La Rêveuse (Dreamers Farm). They first explained the name of their farm, chosen because owning a farm in Canada was a dream they had prior to moving to Canada from Switzerland. Located in Curran in Eastern Ontario, this 75 cow operation is not certified organic. With an excellent PowerPoint presentation they explained the evolution of the farm during the last 15 years. They went from a traditional, extensive Canadian pasture model to an efficient intensive grazing system. As their grazing system evolved and became more efficient, Kornel explained how less and less dependant on corn and grain they had become. Their feeding program is now 95% pasture/forages.

All their pasture surfaces are grazed by one of the three groups of animals: the milking cows, the dry cows and the replacement herd. All the animals are outside year-round and the animals have access to a cover-all type shelter. Kornel mentioned that they preferred to invest their money in an efficient, state of the art milking parlour rather than investing in a building where cows would wait to be milked.

Calves are raised in a group until six months of age. Heifers receive 6 to 10 litres of milk per day during 3 months in a feeding system designed by the owner and similar to a commercially available system.

The free stall barn on packed bedding (straw) provides a clean and dry area for the milking herd. According to Kornel, there are no major reproductive or locomotive problems in the herd. Hoof trimming is seldom required.

Kornel and Olga are very keen observers of animal behaviour and base their decisions on cow needs rather than what is best for the owners. As they mentioned during their presentation, success is the sum of many little things, done the right way. This approach generates a production of more than 8,900 litres per lactation per cow, with a very limited amount of concentrate but a substantial focus on forages and pastures.

We toured the pasture after the Power Point presentation. We saw some newly established stands, seeded with a

precision broadcasting seeder, imported from Europe. The uniformity of the stand was truly amazing. The experts present indicated that this was the best stand they ever saw. All the fields, including the older ones were very clean and lush. The Schneiders limit the use of herbicides to a minimum but fields are sprayed to control weeds when needed. The pastures are seeded with various types of mix but they are mainly composed of brome grass, perennial Ryegrass, timothy, Huia white clover, ladino and red clover. They have more than 100 acres dedicated to the dairy cows on pasture. The pastures are on the fields closest to the barn, usually believed to be the most valuable on a farm.

Kornel and Olga say that the secret is to provide a fresh strip of pasture a minimum of twice daily, at the right vegetative state and the proper height. They apply the rule 'from nose to knee' to prevent overgrazing. With time and experience, the confidence level in the grazing system increases and one can manage with flexibility. The Schneiders do not have a precise grazing plan: all is done according to the weather, pasture growth and maturity as well as mood of the day! When we visited the farm, it was estimated that the pasture ready for grazing contained about 3300 kg of dry matter. There are waterlines running along the fence lines in order to make water available in every paddock. They do not have fixed paddocks, their flexible fencing system allow them to change the size of the paddocks according to their needs.

Using a formula developed in Québec and based on a 150 day grazing season on 100 acres of pasture, 70 cows producing 29.7 kg of milk per day at 4% butterfat with only 1.7 kg of corn, it was calculated that this herd is producing 26 kg of milk per day from pasture. This is more than 2700 kg of milk per acre or \$2000 in gross revenue.

I was particularly impressed by the cleanliness of the animals as well as the body condition of both the cows and the heifers. Although the day was fairly warm, the cows were grazing actively in the new strip provided around noon. A striking point was also the relatively low number of flies present.

When we returned from the field, we were welcomed by a copious meal prepared by Olga and featuring various home made breads, home made sausages and delicatessens, salads, cakes and other goodies.

After this feast, Robert Berthiaume (Ag Canada) had the task of keeping us awake with an excellent presentation on his ongoing research projects, conducted at the Organic Research Center in Alfred.

Then Hubert McLelland (retired from MAPAQ) made a presentation on a network of graziers that he led a couple of years ago in Eastern Ontario-Western Québec. This network

is no longer active because of financial constraints but many participants felt that they would like to see a similar initiative undertaken by the group.



An ingenious homemade fencing system.

Handmade steel loops are attached to an ABS plastic pipe with pipe clamps and the ABS section is then inserted on a T-steel post. According to Kornel Schneider, simplicity and efficacy of the fencing system is the key to efficient intensive pasture management.



Cows doing what they do best: converting grass into money.

## Are You Using Cover Crops?

By Hugh Martin, Organic Crop Production Program Lead

Each species have their unique management demands and specific benefits to be matched with the needs of the soil and your next crop in that field.

Using cover crops is a basic tenement of organic production and crop rotations. They are essential to maintain good organic matter in the soil and to build soil nitrogen by using legume cover crops before crops that have high nitrogen demand. Mid summer is an excellent time to plant these immediately after harvest of your main summer crop. There are a number of choices for which cover crop to use. I personally find red clover to be a favourite as being easy to grow, inexpensive seed and good benefits for dry matter production and nitrogen fixing. Rye or buckwheat are often used for their ability to smother out weeds germination after the tillage needed to plant the cover crop. Buckwheat and oilseed radish however can have an everlasting volunteer effect if you do not till the crop in before it sets seed. Rye, oats or red and sweet clovers are good to create biomass and organic matter, depending on when they are planted. Each species have their unique management demands and specific benefits. Here are some links to more information on cover crops.

**Cover Crops** – a set of OMAFRA infosheets on various species and their benefits and management needs - [http://www.omafra.gov.on.ca/english/crops/facts/cover\\_crops01/covercrops.htm](http://www.omafra.gov.on.ca/english/crops/facts/cover_crops01/covercrops.htm)

**Soil Management: Building a Healthy Soil** – section from 2009 revised OMAFRA Agronomy Guide <http://www.omafra.gov.on.ca/english/crops/pub811/8building.htm>

**Managing Cover Crops Profitably (3<sup>rd</sup> Edition)** – excellent publication (244 pages) available for \$19 USD or online (PDF 4.6 MB) <http://www.sare.org/publications/covercrops.htm>

**Midwest Cover Crops Council Website** – links to information from Ontario and US Midwest states. <http://www.mccc.msu.edu/>

Cover Crop Seed Suppliers <http://www.omafra.gov.on.ca/english/crops/resource/covercrp.htm>

This is not an exhaustive list and is not only organic but can be a start if organic seed is not available.

# Managing Late Blight in Organically Produced Tomato and Potato

By Beth K. Gugino, Penn State Vegetable Pathologist,  
Adapted from two articles written by Margaret Tuttle  
McGrath, Department of Plant Pathology and Plant-  
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Late blight is a potentially very destructive disease that fortunately occurs very sporadically in most areas of the northeastern US most growing seasons. Typically potato is the main crop affected because infested tubers are the main source of initial inoculum. Infected tomato transplants are another potential source. Late blight can destroy a crop if unmanaged. The pathogen is well named: 'Phytophthora' in Latin means 'plant destroyer'. Affected foliage tissue is quickly killed. Impact is especially great when stems are infected because all tissue above this point will die. Additionally tomato fruit at any stage are susceptible. This disease can be explosive especially under favorable conditions because the pathogen can produce a lot of wind-dispersed spores and it can cycle very quickly, progressing from infection to new lesion (spot) producing spores in 6 to 7 days. Some strains of the pathogen under ideal conditions take less than 3 days to go from spore landing on a leaf to visible spot, and just one more day until spores are being produced on the spot. Many images of symptoms are available on the internet to assist with identification. Images from Meg McGrath are posted at:

[www.hort.cornell.edu/department/Facilities/lihrec/vegpath/photos/lateblight\\_tomato.htm](http://www.hort.cornell.edu/department/Facilities/lihrec/vegpath/photos/lateblight_tomato.htm) or [www.hort.cornell.edu/department/Facilities/lihrec/vegpath/photos/lateblight\\_potato.htm](http://www.hort.cornell.edu/department/Facilities/lihrec/vegpath/photos/lateblight_potato.htm)

## Steps for managing late blight in organically produced tomato and potato:

1. **Tomato:** Use transplants produced in an area where late blight is not developing on plants inside or near the greenhouse. Some strains of the late blight pathogen can infect petunia and some solanaceous weeds such as bittersweet nightshade. Inspect transplants carefully before planting to ensure none have symptoms of late blight.

**Potato:** Use certified seed. Inspect them to ensure none have symptoms of tuber blight. Infected tubers used as seed or not destroyed from the previous crop are considered the primary source of initial inoculum for late blight in the northeast.

2. Control volunteer tomato and potato plants as well as solanaceous weeds, in particular hairy nightshade and bittersweet nightshade, which are also susceptible.
3. Regularly inspect tomato as well as potato crops, which are also susceptible, for symptoms of late blight. Most extension offices provide diagnostic services.
4. Check local extension newsletters each week for information about late blight occurrence. Note that during cloudy conditions spores of the late blight pathogen can survive being dispersed in wind currents long distances (miles!) because they are protected from the killing effects of UV radiation. Rain can bring these spores down on to plants far from the affected plants that were their source.
5. When there is a risk of late blight occurring and fungicide applications are going to be used as a component of management, apply approved copper fungicides on a regular preventive schedule. Late blight is difficult to control, especially when fungicides are not applied before disease onset. Thorough spray coverage is critical since copper is a contact fungicide. See section at end if any fungicide will be used.
6. **Tomato:** If symptoms of late blight are found in isolated areas in a planting, it may be possible to save the crop. Success depends on how early in disease development symptoms are found, how many infections are present that have not yet resulted in symptoms (spore germination to symptom takes about 1 week), how quickly and thoroughly diseased tissue will be removed, environmental conditions, proximity to other gardens or farms where late blight is developing, and what management steps will be taken. Immediately remove affected plant tissue. It is best to do this in the middle of a sunny day after the leaves have dried when there will be fewer spores and those dislodged in the process will likely be exposed to UV radiation. Put affected tissue in garbage bags, dig a hole and bury it, or put it in a pile and cover with a tarp. Heat that develops from sunlight hitting the tarp will quicken death of plant tissue and the pathogen. Inspect plants daily thereafter for a week in order to find any additional affected plants that develop symptoms, then return to inspecting at least once a week. Apply copper fungicides every 7 days as indicated on the label until final harvest or the crop is destroyed. It is not possible to control late blight by solely relying on removing affected tissue. Even when rain is not occurring, dew over night can provide a sufficient leaf wetness period for infection. Especially when conditions are favorable it may not be possible to control late blight with copper. Monitor disease development and be prepared to jump to step 8 below.

**Potato:** If symptoms of late blight are found in isolated areas in a planting, promptly pull up affected plants and cover them in place with a tarp or dig a hole and bury them. Heat that develops from sunlight hitting the tarp will quicken death of plant tissue and the pathogen. It is best to pull plants in the middle of a sunny day after the leaves have dried when there will be fewer spores and those dislodged in the process will likely be exposed to UV radiation. Inspect plants daily thereafter for a week in order to find any additional affected plants that develop symptoms. Apply copper fungicides until vine kill. It is not possible to control late blight by solely relying on removing affected tissue. Even when rain is not occurring, dew over night can provide a sufficient leaf wetness period for infection. Especially when conditions are favorable it may not be possible to control late blight with copper. Monitor disease development and be prepared to jump to step 7 below.

Tubers in an affected area could be dug. They should be held in a dark, dry, warm (at least 65F) place for a week, then inspected for symptoms of tuber blight before marketing.

Do not hill potatoes that remain in the field in an effort to protect the tubers because the pathogen can be easily spread on equipment, and the root pruning that will occur may stop plant growth for several days.

7. Work in affected fields last. Clean equipment between fields.
8. When late blight starts to become severe the foliage should be destroyed to eliminate the planting being a source of spores for other tomato or potato plantings on the farm or other farms.

**Tomato:** Propane flamers are a good way to quickly kill foliage, but are not suitable where tomatoes are grown with straw or plastic mulch or trellised. This is an obligate pathogen that needs living host tissue to survive. To initiate plant death, go through the planting and cut all main stems at the base, then come back through and cut stems further up in the canopy. Disturb foliage as little as possible to minimize the amount of spores dislodged. It is best to do this work in the middle of a sunny, preferably calm day after any moisture on leaves has dried to minimize the quantity of spores and also their likelihood of survival in the process. Next remove trellising line and stakes, then flail chop.

The late blight pathogen cannot survive on stakes, therefore it is not necessary to trash or even disinfect the stakes to manage this disease. Stakes should be disinfected however, especially if bacterial diseases also developed in the planting.

**Potato:** It is especially important to vine kill when late blight is developing on stems because from this location spores can more easily be washed down to tubers than from leaves. Destroy foliage in the middle of a sunny, preferably calm day after the leaves have dried to minimize the quantity of spores and also their likelihood of survival in the process. Propane flamers are a good way to quickly kill foliage. Flail chopping is another option.

Applying copper fungicide to protect stems that remain from late blight is not recommended because conditions are much less likely to be favorable for infection once all the foliage is removed.

Harvest tubers after foliage has died but before significant rainfall is predicted. Waiting two weeks to harvest after vine kill is considered to provide an adequate time for spores to die. Rain can wash spores down to tubers. And tubers should not be harvested when wet. Infection is more likely to occur when soil temperatures are cool (below 54F). Avoid bruising and skinning while harvesting. As described above under 5, tubers from an affected field should not be marketed until checked for blight. Prompt marketing is recommended. If stored, cool down quickly and provide good ventilation in storage.

9. **Tomato:** Fruit from an affected field can develop symptoms after harvest and thus should be inspected just before marketing.

**Potato:** Destroy any affected tubers. This is how the pathogen survives over winter. Recommended methods include chopping, burial, burning, spreading on fields where they will freeze completely over winter, or feeding to livestock. Promptly destroy any volunteer potatoes in subsequent years. These can be a source of the late blight pathogen.

#### **Additional Information About Copper and Other Fungicides.**

OMRI-listed fungicides labeled for late blight include Sporatec, Companion, OxiDate, and copper. (*note that copper is the only one of these registered for this use in Canada, HM*) Check with local organic certifying agency to determine what products are approved. There is limited data from replicated experiments on efficacy for late blight of products approved for organic production. Copper has provided some control where other products have failed. However, copper is not considered very effective because it has provided poor control in efficacy experiments where excellent control was achieved with conventional fungicides. Poor efficacy, combined with the fact that established spots, being

uncontrollable with copper, will continue to produce spores, plus the explosive nature of late blight, is why a preventive spray program is recommended including by organic growers in areas where late blight occurs regularly.

Before using any fungicides read the label. Note that the 'signal word' for copper fungicides is 'danger'. The signal word assigned to a pesticide is based on how harmful it might be if swallowed, inhaled, or exposed to skin or eyes of the person handling it. Danger is assigned when the pesticide is highly hazardous by at least one of these routes of entry into a person. The other signal words used for pesticides are 'warning' for moderately hazardous chemicals and 'caution' for slightly hazardous chemicals. In the precautionary statement on pesticide labels is a section on 'hazards to humans', which explains how the product could affect someone exposed to it. This is followed by the 'personal protective equipment' (PPE) that is needed when mixing and applying the pesticide. Hazards for copper fungicides are: "Corrosive. Causes irreversible eye damage. May cause skin sensitization reactions in certain individuals. Do not get in eyes or on clothing. Harmful if swallowed or absorbed through the skin. Avoid contact with skin." Also 'avoid breathing dust.' for some formulations. PPE that applicators and other handlers must wear when using copper is: long-sleeved shirt and long pants, chemical-resistant and waterproof gloves, shoes plus socks, and protective eyewear. First aid information is also provided on labels for accidental exposure; know this in advance to avoid delay in treatment. There are also important 'Agricultural Use Requirements' described on labels. This includes the 'restricted-entry interval' (REI), which is 24 hours for copper, what PPE is required for anyone who enters and will contact anything treated before the end of this interval, which for copper is the same as for applicators, and what precautions must be followed after an application, which for copper includes having an eye flush container at the WPS decontamination site for workers entering the field for 7 days after treatment. Note that fruit cannot be harvested during the REI. EPA's Worker Protection Standard for Agricultural Pesticides (WPS) is a regulation that must be complied with on farms where any pesticide is used, including those approved for organic production. Under this regulation, all agricultural workers on the farm must receive pesticide safety training, decontamination supplies, notification of pesticide applications, access in a central location to a log of pesticide applications plus information about these pesticides, any required personal protective equipment, and emergency medical assistance when needed. Restricted-entry intervals must be adhered to. Also, pesticide safety posters must be displayed.

Labels also specify how often the product can be applied. At this time, most copper fungicides are labeled for use every 5 or 7 to 10 days or 'as needed depending on disease severity'.

This is interpreted (by state pesticide regulators, company regulators, and organic certifiers) to mean these fungicides can be applied more frequently than every 5 or 7 days since these labels do not have restrictive statements about a minimum interval or maximum amount that can be applied to a crop. Copper fungicides are exempt from tolerances. However, more frequent applications generally are not considered necessary, even following rain, because these products are formulated with adjuvants that help keep them on the leaf. More explicit description with a defined minimum application interval is anticipated on future labels following re-registration. Labels need to be checked on new product containers for changes such as this before using. It is especially critical where copper is being applied frequently to test soil regularly to ensure this is not resulting in an unacceptable accumulation of copper. Before applying copper more frequently than every 5 or 7 days it is advisable to confirm with the certifier that this is permissible.

When using any pesticide note that it is a violation of Federal law to use the product in a manner inconsistent with its labeling.

From Pennsylvania Weekly Vegetable Disease Update <http://www.ppath.cas.psu.edu/EXTENSION/VEGDIS/VegDiseaseUpdates/Pennsylvania%20Vegetable%20Disease%20Update%2007.27.09.doc>

## Hairy Nightshade, a Weed Susceptible to Potato Late Blight

Eugenia Banks, Potato Specialist/OMAFRA

Late blight, caused by the fungus *Phytophthora infestans*, is a devastating disease of potatoes. If left uncontrolled under cool, wet weather, it can destroy a potato field in a few days. The primary hosts of the late blight fungus are potatoes and tomatoes, but hairy nightshade, a weed belonging to the same family as potatoes and tomatoes (Solanacea), is also infected by the late blight fungus.

Hairy nightshade is an annual weed that germinates in early summer. Mature plants are about 60 cm tall. The foliage is spreading and covered with fine hairs. Plants feel clammy or sticky when handled. The flowers are white with yellow centers and look like potato flowers, but are only one fourth the size. The seed balls that form look like the green seed balls that form on potatoes, but they are also smaller. Seed balls turn yellowish-brown to brown at maturity.

This season, hairy nightshade has been observed growing along the edges of many potato fields and in hedgerows across the province. Potato scouts should look for this weed and destroy it wherever they find it. Otherwise, hairy nightshade infected with late blight could serve as a source of inoculum all season.

## OMAFRA Newsletter Articles

### Fusarium or Bulb & Stem Nematode?

By Jennifer Allen, Vegetable Crop Specialist, OMAFRA, Guelph

This season a number of garlic growers have complained about yellowing and dieback of leaves. Tip yellowing and dieback in alliums, including onions, garlic, chives and shallots can be caused by abiotic factors such as plant overcrowding, drought, salt stress, wind desiccation and occasionally ozone damage. As well, these symptoms can be caused by biotic factors like Fusarium basal plate rot (*Fusarium oxysporum cepae*) and the notorious bulb & stem nematode (*Ditylenchus dipsaci*).

Both Fusarium and bulb & stem nematode are soil organisms capable of surviving for long periods of time. Both can enter healthy bulbs directly, or through new or old wounds such as those caused by insect injury, pink root infection, or cultivation injury. Spread occurs season to season through infected soil or via contaminated sets or cloves. Within infected fields, affected plants can be either localized or scattered throughout the field. Although it is not believed that bulb-to-bulb movement in storage is significant, this may be a concern for garlic growers who store bulbs for garlic seed stock.

Roots and basal plates can be infected at any age. In the case of *Fusarium*, symptoms include a gradual yellowing and dieback of leaves. When infected plants are pulled the roots are pinkish-brown and if cut vertically, a discolouration of the plate is evident. Optimum disease development occurs in wet soils when soil temperatures reach 25 to 28°C. Bulb & stem nematode on the other hand usually result in a sudden yellowing and dieback of leaves. When pulled, portions of the roots are completely missing and there is often a separation of the basal plate from the cloves.



If you suspect you have either of these organisms, have some samples tested. It's the only way to be sure and to implement mitigation measures for next year's crops.

For full details and pictures see OMAFRA Vegetable Update at <http://apps.omafra.gov.on.ca/scripts/english/crops/agriphone/article.asp?ID=1717>

## Events

### New Crops, Old Challenges - Tips and Tricks for Managing New Crops!

Simcoe Vegetable and Alternative Crop Open House  
August 18, 2009 at 1:30 pm (Rain date Thursday, August 20, 2009)

Crops featured include: Chia (salvia grain), bitter melon, kohlrabi, luffa, celtuce, gobo (Japanese Burdock), goji, tomatillo, gourds (bottle, hairy, winter), yard long beans, edamame, skullcap, fenugreek, calendula, edible chrysanthemum, tahtsai, ethnic varieties of eggplant, peppers, cucumber, basil, sweet potatoes.

Other plots and hands-on demonstrations on alternative crops:

- Pest management and sprayer technology: discuss with provincial specialists
- Cover crops: opportunities to save your nitrogen dollars
- Current nitrogen research conducted by the University of Guelph

Enjoy refreshments, meet with other producers and take the opportunity to talk with University of Guelph staff and OMAFRA specialists.

Please RSVP by August 14<sup>th</sup> by calling 519-426-7127 Ext. 323

August 19-20, 2009 - Ontario First Nations Agri-Food Conference, University of Guelph, Guelph, Ontario Details at <http://www.indianag.on.ca/Agenda-Conference-revised.pdf> and Registration form at <http://www.indianag.on.ca/5-Registration%20-%20Conference.pdf>

## 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)**