



The only truly fall month is winding to a close. With that close comes a new edition of Hort Snacks, jam-packed with information for you.

In this edition, you will see that there are many, many extension events for you to choose from, whether in-person or on-line, in province or outside Alberta, on many different topics. You'll want to register for the Hort Snacks webinars, as they promise to be quite interesting.

Inside, you'll also find a couple of strawberry-related pieces, one on overwintering strawberries and another on some of the things that were observed at the first day of the August ISS and NASGA 2016 bus tour. Along with these articles, you'll find plenty of other tidbits on pests, news items and the like.

Hopefully the weather is treating you kindly as you wind down harvest, wrap up your growing season and prepare for winter.

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**FEATURED WEBSITE**  
**Southern Region Small Fruit Consortium**  
<http://www.smallfruits.org/>  
 A wide range of information resources related to small fruit production, including IPM and production manuals, etc. which might be adapted for use.

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## THINGS TO DO / THINGS TO THINK ABOUT THIS MONTH

### **Strawberries**

- Apply herbicides prior to freeze-up and incorporate with water (see pesticide labels for details)
- Straw mulch application is also a requirement for good winter survival of strawberries
- Strawberry plants will shift into dormancy after 3 to 5 frosts in the  $-5^{\circ}\text{C}$  range. A protective layer of straw can be applied at this point. Temperatures of  $-7^{\circ}\text{C}$  can cause some crown or bud damage therefore straw should be applied prior to these temperatures.
  - Clean wheat or rye straw should be applied at a 10-15 cm (4-6 inch) thickness over the rows
  - Producers having difficulty finding wheat or rye straw can substitute barley, oat or flax, if necessary.
  - Straw is often applied in late October or even early November – however recent experience suggests that an earlier application (perhaps mid-October), with careful monitoring of temperatures, may be better than following a general calendar rule.

### **Raspberries**

- Complete spent cane removal of florican raspberries
- Remove weeds from within row area

### **Saskatoon berries**

- Remove weeds from within row area

### **Vegetables**

- Complete harvest of any unharvested crops
- Consider the quality of the produce that is being placed into storage – frozen, damaged, diseased produce will not improve in storage – be harsh when it comes to culling
- If cover crops have not been planted for soil conservation, think of other ways to prevent soil erosion due to wind, water, etc.
- Consider ways of disposing of cull piles – they harbour disease, insects, and other potential problems, plus are unsightly

### **How much straw??**

#### **(The eternal strawberry question)**

- To apply 4-6 inches of straw over rows
  - 2-3 tons/acre (4.6-6.7 t/ha)
  - 120 small square bales / acre
  - 10-12 large round bales / acre
- Apply 4 inches over each row and then 1-2 inches over 4-5 rows

### **General / Other**

- Sample soils in existing and future berry and vegetable fields
  - Depth
    - 0-6 inches & 6-12 inches for strawberries
    - 0-6, 6-12 & 12-24 inches for raspberries and Saskatoon berries
    - 0-6 inches & 6-12 inches for the majority of vegetables; for deep-rooted perennial vegetables, also sample 12-24 inches
- Ensure good soil moisture prior to freeze up
- Apply registered herbicides
- Once herbicide and mulch is applied there is nothing to do until spring? → NOT!!
  - This is the best time of year to make plans for changes in varieties, check in/out procedures, promotional activities, etc. as it is still fresh in your mind.
  - By waiting another month or 2, your memory will not be as fresh and things may be forgotten. Plan your winter timetable now to make the best use of services that may be available.
  - Make notes of things that must be done and when you can do them, e.g. strawberry transplanter needs new fingers; order additional herbicides, etc.
- Ensure sprayers and other equipment are repaired and ready for next year
- Winterize sprayers and other equipment
- Repaint signs if necessary

### **MENTAL SNACKTIME – Finishing**

“Focus on the journey, not the destination. Joy is found not in finishing an activity but in doing it.” – Greg Anderson

“Do not plan for ventures before finishing what's at hand.” – Euripides

“Finishing races is important, but racing is more important.” – Dale Earnhardt

“Getting organized in the normal routines of life and finishing little projects you've started is an important first step toward realizing larger goals. If you can't get a handle on the small things, how will you ever get it together to focus on the big things?” – Joyce Meyer

## Upcoming Conferences / Workshops

### October 2016

- **2016 Wood Waste Recycling Workshop & Expo Event**  
Oct 1, 2016 – Red Deer, AB  
[www.awwra.ca](http://www.awwra.ca)
- **Canadian Greenhouse Conference**  
Oct 5-6, 2016 – Scotiabank Convention Centre, Niagara Falls, ON  
[www.canadiangreenhouseconference.com](http://www.canadiangreenhouseconference.com)
- **Explore Local Webinar – NAFDMA & Farm Direct Marketing**  
Oct 12, 2016
- **PMA Fresh Summit International Convention & Exposition**  
Oct 14-16, 2016 – Orange County Convention Centre, Orlando, Florida, USA  
<http://www.freshsummit.com/>
- **Hort Snacks-to-Go Webinar – Cut Flowers**  
Oct 17, 2016
- **Getting Into Farming – Information Session for the Aspiring Farmer**  
Oct 18, 2016 – Airdrie Agriculture Centre – Airdrie, AB  
To Register – call Registration Desk – 1-800-387-6030  
[AAF Coming Events](http://www.aaf.ca/coming-events)
- **Agri-Food Processors Lenders Conference**  
Oct 20-21, 2016 – Holiday Inn & Suites – Nisku, AB  
[AAF Coming Events](http://www.aaf.ca/coming-events)
- **ISA Prairie Chapter – Urban Forest/Natural Forest – Interface of our Green Infrastructure**  
Oct 30-Nov 1, 2016 – Sheraton Hotel – Red Deer, AB  
<http://www.isaprairie.com/2016-annual-conference>

### November 2016

- **Productivity Improvement 101 – Intro to Lean**  
Nov 2, 2016 – Airdrie Agriculture Centre – Airdrie, AB  
[AAF Coming Events](http://www.aaf.ca/coming-events)
- **Saskatchewan Green Trades Conference**  
Nov 2-3, 2015 – Saskatoon Inn, Saskatoon, SK  
<http://www.saskgreenhouses.com>
- **Explore Local Webinar – Market Channel Overview**  
Nov 9, 2016
- **Getting into On-Farm Sales Workshop**  
Nov 15, 2016 – Leduc, AB
- **Green Industry Show & Conference**  
Nov 17-18, 2016 – EXPO Centre at Northlands Park, Edmonton, AB  
Pre-conference Workshop  
Nov 16, 2016 – Edmonton area  
[www.greenindustryshow.com](http://www.greenindustryshow.com)
- **Hort Snacks-to-Go Webinar**  
Nov 21, 2016
- **Potato Growers of Alberta Annual General Meeting**  
Nov 21-23, 2016 – Fairmont Banff Springs Hotel – Banff, AB  
[www.albertapotatoes.ca](http://www.albertapotatoes.ca)
- **Getting into Local Food Workshops**  
Nov 22, 23, 24, 2016 – Lethbridge/Airdrie/Parkland, AB
- **5th Canadian Food & Drink Summit**  
Nov 28-29, 2016 – Toronto Downtown Marriott Eaton Centre – Toronto, ON  
<http://www.conferenceboard.ca/conf/foodsummit/default.aspx>

## Upcoming Conferences / Workshops

### December 2016

- **Marketing Essentials for Local Food Workshop**  
Dec 1, 2016 – Stony Plain, AB
- **2016 North American Strawberry Growers Association (NASGA) and North American Raspberry and Blackberry Growers (NARBA) Joint Meetings**  
Dec 4, 2016 – joint reception – Grand Rapids, Michigan  
Dec 5, 2016 – educational sessions – Grand Rapids, Michigan  
Dec 6, 2016 – educational sessions with GLEXPO 2016
- **Great Lakes EXPO Farm Market Bus Tour**  
Dec 5, 2016 – Grand Rapids, Michigan  
<http://bustour.greatamericanmediaservices.com/>
- **Great Lakes Fruit, Vegetable and Farm Market Expo**  
Dec 6-8, 2016 – DeVos Place Convention Centre – Grand Rapids, MI  
[www.glexpo.com](http://www.glexpo.com)
- **Getting into Retail Workshop**  
Dec 6, 2016 – Lacombe, AB
- **Productivity Improvement – Advanced #1**  
Dec 7, 2016 – Airdrie Agriculture Centre – Airdrie, AB
- **Explore Local Webinar – Business Planning**  
Dec 9, 2016
- **Hort Snacks To Go Webinar – Season Extension**  
Dec 12, 2016

### **SAVE THE DATE**

The **Alberta Farm Fresh School (From Farm to Market)** is set for March 2-3, 2016 at the Pomeroy Inn & Suites in Olds, AB (on Olds College campus). This conference is offered jointly by Alberta Farm Fresh Producers Association (AFFPA) and the Alberta Farmers' Market Association (AFMA). Watch [www.albertafarmfresh.com](http://www.albertafarmfresh.com) for details.

FYI, planning is underway for a half day Strawberry Production Workshop for New Growers to be held before the School. There may also be a Strawberry Industry Roundtable the Wednesday evening.

### **Explore Local**

#### **– A few Webinars for 2016/2017**

**Oct 12, 2016 – NAFDMA & Farm Direct Marketing**

**Nov 9, 2016 – Market Channel Overview**

**Dec 9, 2016 – Business Planning**

**Jan 11, 2017 – Marketing Meats**

**Feb 15, 2017 – Marketing and Storytelling**

**Apr 12, 2016 – AHS & Food Safety**

### **Canada-Alberta Job Grant**

The Canada-Alberta Job Grant (CAJG) is a funding program where employers and government share the cost of training new and existing employees to increase their knowledge and skills to meet the needs of Alberta's changing economy.





## HortSnacks-to-Go: 2016/2017 Webinar Series



To register call Dustin Morton  
at 780-679-1314 or email at  
[dustin.morton@gov.ab.ca](mailto:dustin.morton@gov.ab.ca)

### **October 17 (3 PM MST) –**

#### **Barb Stefanyshyn-Cote, Black Fox Farm & Distillery**

Barb and her family operate Black Fox Farm and Distillery, a cut flower farm and distillery located just outside Saskatoon, SK. Barb discusses how they got started, the trials and tribulations of cut flowers, and what they've learned along the way.

### **November 21 (3 PM MST) –**

#### **Amanda Thomsen, Kiss My Aster**

Amanda is the thrift shopping, Ryan Gosling loving punk behind the gardening blog 'Kiss My Aster'. This renowned author, speaker and garden diva will be discussing ways of making your garden centre Kiss My Aster-proof to ensure your clients come back year after year.

### **December 12 (3 PM MST) –**

#### **Adithya Ramachandran, Kaleidoscope Gardens**

Adithya and Jennifer own and operate Kaleidoscope Gardens near Dundurn, SK. This small farm has invested heavily into season extension and will be discussing how they've used it to open up their market to new crops and extend the season of traditional crops.

### **January 16 (3 PM MST) –**

#### **Rick Peters, Agriculture and Agri-Food Canada (AAFC)**

Rick is a research scientist studying fungal diseases of carrots and other vegetable crops in Prince Edward Island. He will be looking at the ins and out of integrated pest management in carrots from seed to harvest and everything in between.

### **January 30 (3 PM MST) –**

#### **Rebecca Shortt, Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAF)**

An expert in irrigation management, Rebecca will discuss irrigation scheduling with drip irrigation and how to get the most bang for your buck from your irrigation system.

### **February 27 (3 PM MST) –**

#### **Bob Purton, Kangro Gardening**

Kangro Gardening is a five acre market garden just outside Yorkton, SK. Bob's transition to hydroponic lettuce production was not without challenges and he'll discuss his approach as well as his successes and failures.

### **March 20 (3 PM MST) –**

#### **Suzanne Wainwright-Evans, Buglady Consulting**

Suzanne has been working with biological control agents for nearly 20 years and is well known in the greenhouse industry. She'll be discussing some recent trends she's seen in greenhouse pest control as well as perennial issues everybody deals with in their operations.





**OBSOLETE COLLECTION CAMPAIGN**

# Return your unwanted or obsolete pesticides and livestock medications

Farmers: safely dispose of your unwanted agricultural pesticides and livestock/equine medications from **October 3-7, 2016** at one of the following locations, *for no charge*.

### Monday, October 3

Innisfail	Central Alberta Co-op Ltd 403-505-1467
Edberg	Edberg Crop Management 780-877-0003
Westlock	Crop Production Services 780-349-4525
Smokey Lake	Crop Production Services 780-656-4343

### Tuesday, October 4

Provost	Richardson Pioneer 780-753-2511
Alliance	Alliance Seed Cleaning Association Ltd 780-879-3927
Lacombe	Parkland Fertilizers 403-782-2232
Barrhead	Neerlandia Co-op 780-674-2820

### Wednesday, October 5

Saint Paul	Andrukow Group Solutions 780-645-5915
Lavoy	Richardson Pioneer 780-658-2408
Athabasca	McEwen's Fuels & Fertilizers 780-675-9500
Camrose	Crop Production Services 780-672-3025

### Thursday, October 6

Vermilion	Crop Production Services 780-853-4711
Thorhild	North Corridor Co-op (Thorhild) 780-398-3975
Leduc	Leduc Co-op 780-986-3180
Wainwright	Andrukow Group Solutions 780-842-3306

### Friday, October 7

Legal	Sturgeon Valley Fertilizers 780-961-3088
Viking	Andrukow Group Solutions 780-336-3180
Drayton Valley	UFA 780-621-0313
Lloydminster	Crop Production Services 780-871-4601

\* Obsolete pesticides and livestock/equine medications will be accepted from 9 a.m. until 4 p.m. at each site on the date indicated.

Program supported by:



For more information, please call CleanFARMS at 877-622-4460 or visit [www.cleanfarms.ca](http://www.cleanfarms.ca)

# Getting into Farming Information Session *For the Aspiring Farmer*

## Session topics include:

- Overview of Agriculture
- Business Planning
- Personal Assessment
- Financial
- Land
- Resources/Education

**Tuesday, October 18, 2016**

**Airdrie – Agriculture Centre**  
97 East Lake Ramp NE, Airdrie, AB

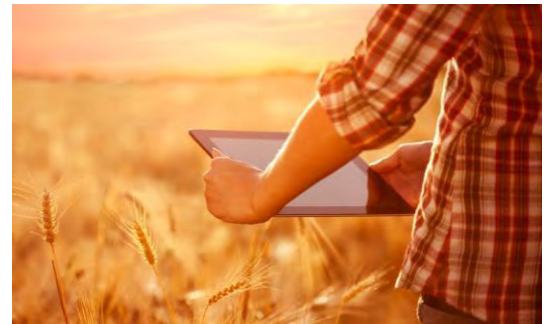
## **Time**

**9:00 a.m. to 3:30 p.m.**  
(registration starts at 8:30 a.m.)

**Cost: \$25/person** (includes lunch)

**Registration deadline: October 11, 2016**

***To register call the Agriculture and  
Forestry Ag-Info Centre  
at 1-800-387-6030***







# Pricing Principles

## Moving to Retail

Planning on selling to retail? Expand your understanding of the costs related to setting a profitable price.



## Attend this workshop if you are looking to:

- Price your products for profit
- Understand the components of pricing for the retail market
- Understanding retail buyers needs

## Registration Information

**Dates:** January 24, 2017

Agri-Food Business Centre  
6547 Sparrow Drive, Leduc, Alberta

**January 26, 2017**

Agriculture Centre  
97 East Lake Ramp NE, Airdrie, Alberta

**January 31, 2017**

Grande Prairie, Venue TBC

**Time:** 9 a.m. - 3:30 p.m.

Registration starts at 8:30 a.m.

**Cost:** \$25 per person

(includes snacks, lunch and GST)

To register  
call the **Ag-Info Centre** at

**1-800-387-6030**

## Overwintering Strawberries

Strawberry plants are not considered to be very hardy, especially when they are compared to some of the other plants that we grow. Our extremely cold and often windy winters can lead to significant damage to strawberry plants if we don't take steps to protect them.

In the shorter days of late summer, June-bearing strawberry plants set up the branch crowns and flower buds that will form next year's crop. They prepare themselves for winter by gradually acclimatizing as they are exposed to the changing climatic conditions of late summer and fall. They continue to photosynthesize and accumulate nutrients and resources required to carry them through the winter and get started in the spring. According to research, it is suggested that strawberry plants take six to eight weeks to fully acclimate or develop a tolerance to cold conditions. A range of factors affects cold tolerance, such as general plant health, plant age, cultivar, degree of acclimation and other environmental conditions like light and moisture.

Acclimation begins as the days begin to shorten and continues as plants are exposed to cooler daytime (~10°C) and night-time temperatures (~0°C). Eventually, plants will become fully acclimated following several (3-5) hard frosts (-5°C). At this point, leaves around the plant crown will start to flatten and will no longer be photosynthetically active.

Strawberry plants can be damaged when temperatures reach -6°C to -9°C, with injury increasing as temperatures drop. When temperatures reach into the negative mid-teens, plant crowns will likely be severely damaged and by -20°C, plant crowns will likely be dead without a protective insulating layer. The duration of the temperature conditions will play a role in the amount of injury, with longer durations being more injurious.

Even when full acclimated, plants are not tough enough to survive what Mother Nature throws at us each winter. If enough snow is supplied and it lasts throughout the winter, this can provide excellent protection from winter conditions. However, we often do not receive sufficient snow cover to protect strawberry crowns. Add to this the fact that enough snow is rarely received prior to, or lasts throughout, the periods of time when damaging conditions are present (e.g. fall and spring). The application of straw mulch is a common practice, as this provides a consistent insulating layer over the plants for the duration of the winter. Mulch should be applied as soon after plants are acclimated as possible, or prior to when damaging conditions are present.

In Alberta, conditions in fall can be variable, to say the least. It is important to apply straw mulch once plants have completed acclimation, but also prior to the onset of damaging cold conditions. It is also important to wait for plants to acclimate prior to application, as premature application can result in less cold tolerant plants. Unfortunately, as the past number of years has demonstrated, using the calendar and a rough guess as to dormancy may endanger the survival of the plants. You are better off closely monitoring temperature conditions in the crop, in order to be able determine when plants are ready to be covered, rather than relying on a calendar. Sometimes (e.g. fall of 2009), the transition of cold to very, very cold can be very sudden and the window for straw application can be narrow. There have been reports of fairly significant winterkill within the past 5-10 years.

Hard frosts may cause a small amount of damage, but can perhaps be made worse when they are followed by warmer temperatures that slow the move into dormancy. In extreme cases, warm conditions may cause plants to slip completely out of dormancy and start regrowth. When temperatures plummet, plant injury is more severe. Straw cover is designed to buffer temperature changes and protect the plants from these swings in temperature. It also protects from excessive drying and desiccation, which is closely tied to winter injury.

It bears consideration to look at perhaps applying straw earlier in the year, perhaps as early as mid-October, rather than waiting until late-October or into November, as numerous temperature fluctuations may have occurred, damaging and weakening the crop. Sometimes the window for straw application is very short, even if you are watching closely.

### For specific environmental data:

[Environment Canada – Canadian Climate Data Search on-line](http://climate.weatheroffice.gc.ca/climateData/canada_e.html) - view historical climate data (up to current time) for various weather stations across Canada ([http://climate.weatheroffice.gc.ca/climateData/canada\\_e.html](http://climate.weatheroffice.gc.ca/climateData/canada_e.html))

### How much straw?? (The eternal strawberry question)

Clean wheat or rye straw should be applied at a 10-15 cm (4-6 inch) thickness over the rows. Producers having difficulty finding wheat or rye straw can substitute barley, oat or flax, if necessary.

- Apply 4 inches over each row and then 1-2 inches over 4-5 rows

To apply 4-6 inches of straw over rows

- 2-3 tons/acre (4.6-6.7 t/ha)
- 120 small square bales / acre OR 10-12 large round bales / acre



## Learnings and Observations from the International Strawberry Symposium 2016 / North American Strawberry Growers Association (NASGA) Bus Tour

I've been attending some form of the bus tour as many years as I have been able for a number of years. It is fascinating to see both the differences and similarities between production at home on the Prairies and production elsewhere. At a quick and superficial glance, it is easy to assume that "things are just too different" and then dismiss the potential for learning from the farms visited and adapting techniques, ideas and practices to your own operation.

This year was no different. There were lots of differences, but there is no reason that a number of the things that the growers on the Ile d'Orleans outside Quebec City are doing can't be potentially tried out in some form in Alberta.

### Stop #1 – Ferme Onésime Pouliot – Guy and Danielle Pouliot

This operation represents a family that has been on the island for 11 generations, with the current owners being the 7<sup>th</sup> generation on this farm. They grow a range of crops, including strawberries, raspberries, blueberries, as well as sweet potatoes. They are conducting a lot of their own research, trialling new technologies for both strawberries and raspberries. They grow mainly day neutral strawberries, but also have many plants in soilless culture, both in high tunnels and in a table top system. They have a lot of raspberries in containers, under high tunnels.

Photo by Robert Spencer



This farm runs with approximately 150 employees, using largely Mexican workers, which gives them stability for the farm. They work with 3 other farms to sell cooperatively to the 3 big chains. They each have their own customers, but they deal with the big guys together.

L'Ile d'Orleans represents approximately 20-30 percent of Quebec's strawberry production, with Quebec producing over 50 percent of the national strawberry production.

They are working to try and fill the production gap that they have in the growing season. They use a range of varieties and technologies to meet the harvest demand from May to October. They grow a range of June-bearing varieties, including Jewel, Sonata, Cabot, St Laurent, Malwina, Darselect, etc. They only grow Seascape day neutral strawberries. They don't grow Albion. They grow various June-bearing plants both as matted rows and on plastic. They started producing their own plugs in 2005. Plugs are all day neutrals.

The plug nursery was started in 2005, for their own use, but expanded to production for other growers by 2010. They are producing approximately 800,000 plants. They start in mid-July, cutting the runners and planting into 75cc trays. The plants are grown under shade netting for the first 3 weeks, after which it is removed. Five-week old plants are planted on raised plastic mulch beds at the end of August. They are given 2 months to root and are then covered with an insulated cloth cover for early winter and also to speed up growth in spring. Harvesting happens from early/mid-June to October.

In their operation, they are looking at a number of different technologies to try and improve production and fill the gaps. They are testing/looking at biostimulants, as well as irrigation and fertility research. They are working on projects to try and control verticillium, thrips, anthracnose, including alternatives to chemical pesticides, such as biocontrols, metallic/reflective mulches, border attractants, etc.

We were able to visit their high tunnel raspberries, in which all of the plants were being grown multiple years in large pots/containers. They were growing some in 1.8L sized pots, which were put into nursery storage. The main producing plants were in larger 7-10L (I think) pots, from which they would get about 4 years of production. In addition to the standard high tunnels, they were also testing plants under "umbrellas", rather than high tunnels. This included raspberries in pots, as well as a number of table top strawberry production systems, testing fertility regimes, varieties, and other technologies and practices.



**Ferme Onésime Pouliot plug nursery** – note shade cloth covering newly planted plugs



**High tunnel raspberries** – plants are in larger containers, but otherwise look very similar to in-ground HT raspberries



**Umbrella raspberries** – plants are in medium-sized containers, are put into storage for winter and are covered by a partial covering, as opposed to a full high tunnel covering. They get the benefits of a high tunnel, as well as the ease of installation, without the cost of the structure.

**Tabletop strawberries** – plants are grown under umbrellas on chest-high, narrow tables/benches (for ease of picking), in containers, with drip irrigation. They are covered by umbrellas, which increase growth and protect from rain.



Photos by Robert Spencer



### **Stop #2 – Les Fraises de l'Île d'Orleans – Andre Gosselin**

This farm has also been in the same family for quite some time. Approximately 30 years ago, the brothers started their current path. They have 5 small farms of about 50 acres each. They grow matted row strawberries, but also 10 hectares of day-neutral strawberries, along with 20 acres of raspberries and strawberries under high tunnels. He is a professor of greenhouse production. When he learned that fumigants were going to be phased out, he started slowly making the move to soilless culture.

They grow 2 types of strawberries. There are about 5 acres of table top strawberries, which are planted late April to early May, in order to get an early crop, and then they go full production after a short break. They are shooting for production of about 700-1000g per plant per season. The soilless media is steam sterilized and then reused for the soilless raspberries. Autumn Britain plants are planting in 10L pots with 2 plants per pot. They are completely cut down at the end of the season and then covered with cloth. Plants are planted with E/W orientation to deal with the predominant winds. They use binder twine to keep things mostly upright, with a loose chain to maintain the distance between the strings.

They follow a nutrient regime that was developed in France. They give more nitrogen to the strawberries at the beginning of the season. On the island, there is lots of water that falls in the centre of the island. This is collected in lakes and then piped underground, with outlets every 300-400 feet.

The raspberries are covered with a couple of different covering systems, to reduce the heat. They were using a special German system ([www.voen.de](http://www.voen.de)). They do mass trapping for Spotted Wing Drosophila (SWD) outside of high tunnels, but none inside, on the premise that they don't want to lure any in.

Their field strawberries are in raised beds with plastic and low tunnels (e.g. caterpillar system from Dubois). They find that the covers are a real crop saver when they are going to get a bigger rain event, which makes the labour to put them on and off worth it. They are still fumigating (as it is still permitted), but they are testing alternatives to fumigants, such as biologicals such as crucifer cover crops. They are using some raised beds but with a drainage pipe in the middle, which captures water that they then filter and recirculate. It is also a German technology.

### **Stop #3 – Ferme François Gosselin – Louis Gosselin**

The original farm grew mostly potatoes and a short season of strawberries. The current owner bought the farm in 1987 and now works with his son, wife and daughter-in-law and their focus is mostly strawberries. They have 120 acres of cultivated land. They harvest from June until the end of October, picking every day. They only grown Seascape day-neutrals, but also do some June-bearing for the start of the season, including Jewel, Cleary, Stella and Malwina. They have approximately 115 employees in summer, with most from Mexico and Guatemala, from April to mid-November.

They market the berries themselves, with 90 percent of them going to the main grocery chain warehouses into Montreal, Toronto and the NE United States. They are also members of an organization called Les Petits Fruits d'Orleans, which promotes together and represents about 400 acres.

Their June-bearing strawberries are grown with 2 types of plant systems. They use bare root and frigo plants, as well plug plants. The bare root plants are planted at the start of June, with a small crop at the end of July. Plugs are planted at the end of August and early September for early spring production. Frigo day-neutral plants are planted as early as possible, usually at the end of April, with an early crop in June and a heavier, late crop from August to October.

They are undertaking a number of partnered research projects with the government of Quebec. One project involves creating a berry yield prediction model, where they are attempting to accurately estimate how many berries that they will have in 3 weeks. They are also testing slow release fertilizers and water supply/distribution within a raised bed system.

[Yield Estimator Report PDF](#)



**High tunnel raspberries** – grown in soilless media; they use chains and baler twine to keep rows upright and tidy



**High tunnel, table top strawberries** – grown in soilless media in about 1 gallon containers, with a complete nutrient delivery through drippers



**Umbrella raspberries** – Using a German cover technology (Voen). Covers have folds and what appeared to be vents in the layers.

**Field strawberries** – typically raised beds with plastic mulch. Also using Caterpillar low tunnel system from Dubois to increase growth and protect from heavier rains. Trying some German technology with drainage pipes down centre of raised beds, with water collected, filtered and recirculated.



Photos by Robert Spencer



One interesting technology that they use is steam treatment of their straw to control weeds. They have a 40HP boiler running, along with 5 hoses and steel injector rods. They punch the rods into the bales (large round) and run the steam for about 20 minutes. The straw is then used immediately, not typically stored, although it can be if necessary, with some loss in quality.

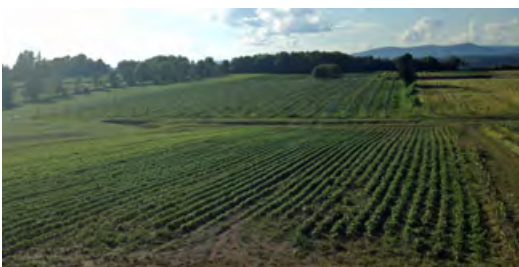
#### Stop #4 – Polyculture Plante

This multi-generational farm (at least 2 working on it at the moment) has about 240 acres in total, with strawberries as their main crop. They have approximately 25 acres of day-neutrals, 55 acres of June-bearing, 2 acres of blueberries, 6 acres of raspberries, 30 acres of corn, 4 acres of tomatoes, 25 acres of apples (7000 trees), 4 acres of pumpkins and 15 acres of beans. They have 5 full-time employees, one agronomist on the farm and approximately 85 employees during the summer, including about 63 Mexican workers.

They have a processing plant that makes apple cider, jams, jellies and maple syrup. The processed product is for retail sales, representing about 25 percent of sales. They run a farm market, which opens at the beginning of June and closes at the beginning of November, as well as using the public market in Quebec, with similar times. They also deliver to a bunch of places in Quebec. They use different packaging for the farmers market versus for retail, with more sizes. They do a little bit of u-pick for their June-bearing strawberries and apples, but not the other stuff.



**Ferme Francois Gosselin strawberry fields** – they are testing a large number of varieties, as well as technologies for fertilizer (slow release), water uptake and movement within raised beds, as well as yield estimation programs.



**Polyculture Plante** – fields of strawberries, apples, etc. are a part of the farm's offerings. Their farm market is simple, but quaint, with a bakery off to one end. They sell a large number of processed and fresh products at this market, as well as in Quebec City.

Photos by Robert Spencer

## In the News / Interesting Articles

- [Where in the canopy does SWD lay eggs?](#) – Tunnel Berries article
- [An Overview of Hydroponic Nutrients for Every Grower](#) – Upstart University article
- [Why Industrial Farms Are Good for the Environment](#) – NY Times article
- [Greenhouse Structures: It's All In The Planning](#) – Growing Produce article
- [Monitoring food security in countries with conflict situations](#) – HortiDaily article
- [Fatal attraction: companion planting technique controls wireworms in potatoes](#) – Farm Focus article
- [8 Ways To Facilitate Learning In The Field](#) – Growing Produce article

## In the News / Interesting Articles

- [Learn About Biological Controls In The Greenhouse In A New Online Course](#) – Greenhouse Grower article
- [The Buzz About Urban Farms](#) – The Voice of Agriculture article
- [Gardening as a child may lead college students to eat more veggies](#) – U of Florida article
- [Helicopter drone used to drop self-destructing predatory bugs on strawberry crops](#) – ABC Rural article
- [Still many challenges to grow plants in space](#) – HortiDaily article
- [UV Light Adds Flavor to Out-of-Season Greenhouse Tomatoes](#) – ACHS article
- [How An Energy Audit Of Your Greenhouse Can Save You Money](#) – Greenhouse Grower article



**Q: What sustainable practices do you employ in fall to help enrich your land?**

A: Incorporate organic matter

A: Greenery returned to garden soil

A: Fall is the best time to add organic matter to the soil, whether in the form of compost or composted manure, etc. Due to the volume of material that is typically required to be effective, fall applications are best; as they can be piled on after the crop has been taken out and then incorporated afterwards. Cool conditions in fall and early winter also slow down volatile losses and things tend to stabilize more quickly. Additionally, the nutrients will be available in the spring when fields are too wet to work, but stuff is ready to go.

At the same time, early fall is a good time to take out perennial weeds, as systemic herbicides can be more effectively moved back within the weeds as they prepare for dormancy. Also, the potential for possibly hurting the crop is perhaps a little lower. – Robert Spencer (AAF)

Next Month's ? → [What criteria do you use to select winter educational programs or activities?](#)

[Pest Management Regulatory Agency \(PMRA\) – Electronic Label Search Engine](#)

Search the database for electronic labels



# Brown Marmorated Stink Bug

*Holyomorpha halys*

# INSECT OF THE MONTH

## Crops Affected:

Wide host range (over 300 plants) – berry crops, grapes, stone and pome fruit, peppers, tomatoes, corn, ornamental tree and shrub plants, etc.

## Life Cycle:

- In northern areas, overwinter in buildings or structures (e.g. houses, woodpiles)
- In some regions where they are established, they can “gather” indoors in fall/winter
- Typically a single generation per year
- Tend to hitchhike from other regions in containers, vehicles, etc.
  - NOTE – BMSB was detected in a shipment of RVs in central Alberta in 2012
- Adults are large insects, 12-17 mm long and 8mm wide
  - Emerge in May to June as it warms up (if overwintered)
  - Marbled brown/grey backs (dorsal) and pale undersides (ventral)
  - Pinkish forewings (when extended) – hidden
    - Distinctive identifying characteristics of BMSB adults
      - Two white bands on antennae
      - Smooth “shoulders” that don’t protrude forward
      - Inward-pointing white triangles alternating with dark areas that run along the edge of the abdomen
- Pale-green, barrel-shaped eggs are laid in clusters of 20-30 on leaf undersides from early June until late July / early August
- Multiple (5) instars of nymphs develop
  - Each instar is somewhat different – ranging from red and black early instars to grey/brown later stages
- May move between different host crops – highly mobile

## Symptoms:

- Nymphs and adults can cause injury through insertion of piercing/sucking mouthparts
- Feeding results in necrotic spots at the initial site
- Other damage symptoms might include
  - Discoloured/deformed fruit
  - Abortion/abscission of berries
  - Death of buds
  - Stippled leaves
  - Missing, shrivelled or punctured seeds/kernels
  - Sap flow or discoloured bark in trees

## Monitoring:

- Regular monitoring for tell-tale signs
- Watch for signs of the insect or symptoms
- Watch for winter aggregations (mass groupings of adults) in/on structures

## Management:

- Monitoring for early detection and monitor throughout season into fall/winter
- Ensure clean, pest-free plant material
- Pesticide application (broad-spectrum) can be somewhat effective in the short term
  - Most new pesticides are less effective as they don’t have long residual times

## Additional Sources of Information

[Brown Marmorated Stink Bug - OMAFRA info](#)

[BMSB – OMAFRA – ID Postcard](#)

[Brown Marmorated Stink Bug – Penn State info](#)

[BMSB “Have You Seen This Bug” – British Columbia Ministry of Agriculture](#)



Brown Marmorated Stink Bug adult  
Photo by Jennifer Read - NRCan

## Rhizosphaera Blight or Needle Cast

*Rhizosphaera kalkhoffii*

**Crops Affected:** Colorado blue spruce, white spruce, Norway spruce –host species vary in susceptibility; Other species of the pathogen may affect other host species (e.g. pine, etc.)

### Disease Cycle:

- Most severe damage occurs in younger trees, however trees of any size may be affected
- Fungal disease overwinters on infected needles on the tree, including both living and recently killed needles
- Spore producing fruiting bodies are produced in the spring
  - These appear as lines of tiny, black spots
- Around the time of bud break, in the presence of moisture, spores are released
  - Spores are spread by moisture splash to infect new needles on lower branches
    - If conditions are favorable, all needles may be infected and infection can occur at any time within the season
  - Spores enter the stomata of the needles and typically germinate within approximately 48 hours, however this can take longer
- Disease development continues over the course of a year, with symptom development occurring slowly, often the year following infection
- Symptom development on previously infected needles increases in the following years

### Symptoms:

- Symptoms often develop from the bottom of a tree to the top, from the inside outward
- Previously infected needles will become discoloured, including yellowing, mottling, reddish/purple or brown colour development, depending on the stage of development
- First year needles may start to discolour (turn yellow) in mid to late summer, with older needles also turning colour at any point in the season
- Older, previously infected needles may turn brown or purplish-brown
- Tiny, black spots are visible with a hand lens on the needles, arranged in neat, straight lines
- Older, infected needles typically “cast” or fall off in the summer, at least a year after infection
  - Canopies of infected trees may appear thin, with fewer needles
  - Branches/trees may have bare patches
- Lower branches may die within 3-4 years of severe infection

### Conditions Favouring Disease Development:

- Extended periods with moist conditions
- Temperatures around 25°C (77°F)

### Management:

- Some host species are more resistant than others (e.g. Norway spruce = more resistant than Colorado blue spruce)
- Ensure plants are kept healthy by ensure that they have adequate water and nutrients
- Avoid sprinkling the needles of trees with water – water the soil, not the leaves
- Ensure good air circulation around the trees through adequate spacing, pruning and the control of weeds around the base of trees
- Regular and early monitoring for symptomatic needles can help to identify issues early on, allowing for protective management practices
  - Watch for fruiting bodies on 2 year old needles
- Fungicide applications in early spring (as new needles are ½ to ¾ of the length of mature ones) can effectively protect new growth, resulting in a gradual reduction in diseased material
  - Treatments may need to be repeated – either again in spring or perhaps in fall
    - Use only registered treatments
- Removing infected and dead and/or dying branches can reduce pathogen loads to some extent, however tree shape will be affected
  - Pruning is typically done in dormant season and/or in dry conditions

#### Rhizosphaera needle cast-infected needles

(Photo by Paul Bachi, University of Kentucky Research and Education Center, Bugwood.org)



#### Rhizosphaera needle cast

(Photo by Joseph OBrien, USDA Forest Service, Bugwood.org)