



As harvest season draws largely to a close for most crops, here is another edition of Hort Snacks. The weather forecast (long-term – if you trust those sorts of things) looks to be moving in a cool, wet direction, but time will tell.

In this edition, there is lots of focus on getting crops ready for winter, or ensuring that plants are prepared to successfully handle the winter. Perennial plants represent a decent number of our crops, and keeping them alive and happy and healthy can be challenging. Hopefully some of the information presented will give you a few tips.

We are heading into a season where there are many opportunities for learning, whether online or through some form of in-person event. Take a look and choose one or some to take in. It will always be worth your while.

Have a happy harvest (if you aren't done yet) and best of luck for the winter "off-season". If you want to share how things went for you this past season, we welcome your reports. As we head into planning for the next year of Hort Snacks (our 10<sup>th</sup> year), feel free to share your ideas for things you'd like to know more about.

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**FEATURED VIDEOS**  
 MosaiCanada 150 Exhibition (a stunning horticultural masterpiece)  
[Dans les coulisses de MosaiCanada150 / Gatineau 2017](#)  
 The Canada150 Tulip  
["Canada150 Tulips are Blooming Across Canada's Capital Region"](#)

**NEWSLETTER USE RESTRICTIONS**  
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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

### **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

### **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

### **SAVE THE DATE**

The **Alberta Farm Fresh School** is tentatively set for **February 22-23, 2017** at the **Pomeroy Inn & Suites in Olds, AB (on Olds College campus)**. This conference is offered by Alberta Farm Fresh Producers Association (AFFPA). Watch [www.albertafarmfresh.com](http://www.albertafarmfresh.com) for details.

FYI, planning is underway for a day-long Sour Cherry & Haskap Production Workshop for New Growers (as well as some more advanced sessions later in the day) to be held before the School.

## Upcoming Conferences / Workshops

### October 2017

- Canadian Greenhouse Conference  
October 4-5, 2017 – Scotiabank Convention Centre, Niagara Falls, ON  
[www.canadiangreenhouseconference.com](http://www.canadiangreenhouseconference.com)
- Hort Snacks-to-Go Webinar – New Haskap Varieties & Fruit Breeding Pipeline  
Oct 16, 2017
- PMA Fresh Summit International Convention & Exposition  
October 19-21, 2017 – Ernest N. Morial Convention Center, New Orleans, Louisiana, USA  
<http://www.freshsummit.com/>
- ISA Prairie Chapter – Prairie Possibilities  
Oct 22-24, 2017 – Moose Jaw, SK  
<http://www.isaprairie.com/2017-annual-conference-moose-jaw>
- Essentials of Selling Local Food  
Oct 24, 2017 – Wildwood Recreation Complex – Wildwood, AB  
To Register – call Registration Desk – 1-800-387-6030
- Getting into Farming  
Oct 26, 2017 – Airdrie Ag Centre – Airdrie, AB  
To Register – Registration Desk – 1-800-387-6030
- Hort Snacks-to-Go Webinar – Eye-tracking Tech & Garden Centre Marketing  
Oct 30, 2017

### November 2017

- Explore Local Webinar – Navigating Online Food Sales Regulations  
Nov 1, 2017 – Part 1  
Nov 8, 2017 – Part 2
- Saskatchewan Green Trades Conference & Tradeshow  
Nov 7-9, 2017 – Saskatoon Inn, Saskatoon, SK  
<http://www.saskgreenhouses.com>
- Potato Growers of Alberta Annual General Meeting  
Nov 14-16, 2017 – The Sheraton – Red Deer, AB  
[www.albertapotatoes.ca](http://www.albertapotatoes.ca)
- Green Industry Show & Conference  
Nov 16-17, 2017 – BMO Centre at Stampede Park, Calgary, AB  
**Pre-conference Workshops**  
Nov 15, 2017 – Calgary, AB  
[www.greenindustryshow.com](http://www.greenindustryshow.com)
- Hort Snacks-to-Go Webinar – Using Biocontrols in Field-scale Fruit & Vegetable Crops  
Nov 20, 2017
- Explore Local Webinar – Exploring Food Hubs  
Nov 22, 2017

## Upcoming Conferences / Workshops

### December 2017

- Great Lakes EXPO Farm Market Bus Tour  
Dec 4, 2017 – Grand Rapids, Michigan, USA  
<http://bustour.greatamericanmediaservices.com/>
- Canadian Food & Drink Summit 2017: Measuring Performance, Taking Stock, Inspiring Action  
Dec 4-6, 2017 – Calgary Telus Convention Centre – Calgary, AB  
<http://www.conferenceboard.ca/conf/foodsummit/default.aspx>
- Great Lakes Fruit, Vegetable and Farm Market Expo  
Dec 5-7, 2017 – DeVos Place Convention Centre – Grand Rapids, Michigan, USA  
[www.glexpo.com](http://www.glexpo.com)
- Explore Local Webinar – Bringing Your Story to Life  
Dec 13, 2017
- Hort Snacks To Go Webinar – Soil Fertility & Soil Health  
Dec 18, 2017

### Hort Snacks to Go – Winter Webinar Series

Oct 16, 2017 – Dr. Bob Bors (U of Saskatchewan) – *New Haskap Varieties & Fruit Breeding Pipeline*

Oct 30, 2017 – Dr. Bridget Behe (Michigan State U) – *Eye-tracking Technology & Garden Centre Marketing*

Nov 20, 2017 – Ron Valentin (Bioline AgroSciences) – *Using Biocontrols in Field Scale Fruit & Vegetable Crops*

Dec 18, 2017 – Dr. Kate Congreves (U of Saskatchewan) – *Soil Fertility & Soil Health*

Jan 15, 2018 – Eric Doef (Doef's Greenhouses) – *Challenges and Successes of Larger-scale Greenhouses in Alberta*

Jan 29, 2018 – Dawn Boileau (Sunrise Gardens) – *Season Extension = Sustainable Farm*

Feb 12, 2018 – Chris Blanchard (Purple Pitchfork / "Farmer to Farmer" podcast) – *Nuts and Bolts of Running a Market Garden*

Mar 12, 2018 – Graeme Murphy (bioLogical Control Solutions) – *Crunching the Numbers on Biocontrols in Bedding Plant Production*

### Explore Local

– A few Webinars for 2017/2018

Nov 1 & 8, 2017 – *Navigating Online Food Sales Regulations – Part 1 & Part 2*

Nov 22, 2017 – *Exploring Food Hubs*

Dec 13, 2017 – *Bringing Your Story to Life*

Jan 24, 2018 – *Human Resource Essentials Online Toolkit*

Feb 7, 2018 – *AHA Food Regulation for Farmers' Markets*

Feb 14, 2018 – *Creating Top Notch Job Descriptions*

Mar 7, 2018 – *Image-Driven Marketing*

Mar 21, 2018 – *One Producer's Online Store Experience*

Mar 28, 2018 – *No Fear Farm Finance*

Apr 4, 2018 – *Farm Direct Marketing Trends in Alberta*

April 18, 2018 – *The AB Employment Standard Code & You*



**HortSnacks-to-Go:**

# 2017/2018 Webinar Series

To register: Email [dustin.morton@gov.ab.ca](mailto:dustin.morton@gov.ab.ca)

**Time:** 1:30 PM **Cost:** Free



## October 16, 2017 – Dr. Bob Bors

Dr. Bors is an assistant professor at the University of Saskatchewan where his research focuses on prairie hardy fruit breeding. He'll be discussing some of the new haskap varieties they're working on and new innovations in the pipeline.

## October 30, 2017 – Dr. Bridget Behe

Dr. Behe is a professor at Michigan State University and will be discussing the practical implications of her research using eye tracking technology in garden centres and how owners and operators can capitalize on this.

## November 20, 2017 – Ron Valentin

Ron is Bioline AgroSciences technical lead for North America and will be discussing how other areas of the world are using biological controls in field scale vegetable and fruit crops and how Alberta producers can take advantage of this growing area.

## December 18, 2017 – Dr. Kate Congreves

Crop fertility is a balancing game; soil fertility, fertigation, top dressing, foliar fertilizer, the list goes on. Dr. Congreves research focuses on soil health and fertility and she'll break down each of these and how best to manage your crops growth.

## January 15, 2018 – Eric Doef, Doef's Greenhouses

Eric is the second generation of growers at Doef's Greenhouses in Lacombe, Alberta. Doef's own an 11 acre state of the art greenhouse in Alberta and will talk about the challenges and success of growing at that size in the Alberta climate.

## January 29, 2018 – Dawn Boileau, Sunrise Gardens

Dawn and her partner Kate own and operate Sunrise Gardens in Onoway. Dawn and Kate have invested heavily into season extension and Dawn will discuss how this has allowed them to shrink their acreage while still sustaining the farm.

## February 12, 2018 – Chris Blanchard, Purple Pitchfork

Chris is the host of the popular "Farmer to Farmer" podcast and a former farmer. He'll be discussing the nuts and bolts of running a market garden including risk management, making a living, and working for the farm you want.

## March 12, 2018 – Graeme Murphy, bioLogical control solutions

Graeme is an advocate for biocontrol solutions for common pest problems and will focus on the cost and economics of biocontrol in bedding plant production.

Growing Forward 2 

A federal-provincial-territorial initiative









*invites you to:*



# Essentials of Selling Local Food

**This one-day workshop is for people interested in learning more about selling food direct to consumers and potentially transitioning into retail sales.**

## Content for the Day

### Setting the Stage

- Learn about the local food opportunity and the different farm direct marketing channels, their benefits and challenges.
- Discover the scope of the retail market, market drivers and the pros and cons of accessing the retail market opportunity.

### Overview

- Meet the Agriculture and Forestry specialists available to assist you as you establish your food business.
- Hear about the regulations that apply to your food business.
- Alberta Health Services will share the Food Regulation requirements as well as safe food handling practices.
- Learn everything you need to know as you assess the retail food market.
- Receive insights into the Yellowhead County Local Food initiative.

## Registration and Information

**Date:** Tuesday, October 24, 2017

**Time:** 8 a.m. - 4 p.m.

**Registration deadline:** October 17, 2017

**Location:** Wildwood Recreation Complex  
4904 51 Ave, Wildwood



**Cost:** \$23.75 + GST

Lunch and refreshments provided  
Payment options: Visa, MC or cheque

**Register by October 17 at**

<https://eservices.alberta.ca/essentials-of-selling-local-food.html>

**or call 1-800-387-6030**

GST exempt or AF employee? Please call 1-800-387-6030 to register

### For more information:

Delores Serafin

Alberta Agriculture and Forestry

780-427-4611 (dial 310-0000 first for toll-free access in Alberta)

[delores.serafin@gov.ab.ca](mailto:delores.serafin@gov.ab.ca)

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



## Session topics include:

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

**Thursday, October 26, 2017**

## **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 23, 2017**

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



## Enhancing Winter Survival in Horticulture Crops

Many horticulture crops are perennial, with a significant amount of the total production returns achieved beyond the first season. Some crops are maintained for 2 to 3 seasons (e.g. strawberries), whereas other crops may grow for 5 to 10 years before being harvested (e.g. nursery crops). Ensuring that crops survive the harsh Alberta winters will protect against lost investments.

Generally over-wintering of all plants involves the same basic guidelines:

### Use hardy plant material

Plant species and cultivars vary in their relative hardiness; their ability to withstand winter temperatures and in some parts of Alberta, winter Chinooks. Careful consideration must be made prior to selection of varieties or cultivars.

[Canadian Plant Hardiness Zone Maps](#) – select from a choice of interactive maps or PDFs

### 1. Ensure excellent plant health throughout the growing season

Plants that are healthy and have minimal stress are generally less susceptible to winter injury. Proper cultural practices include:

- Ensuring that plants are well established if transplanted (up to 6 weeks before soil freeze up)
- Ensuring adequate moisture throughout the growing season
- Avoiding excess applications of fertilizers, especially late in the summer
- Ensuring plants are healthy and free from disease and pests.

### 2. Ensure that plants have acclimated prior to harsh winter conditions

Acclimation involves the gradual shutdown of plant parts and an overall increase in the ability to withstand decreasing temperatures. Winter hardy plants respond to environmental signals, such as changing day length and decreasing temperatures. The following factors can affect the ability of a plant to acclimate.

Plants that are native or have been bred in a different climatic region may be adapted to longer frost free periods or greater heat units and may not react to environmental signals and acclimate prior to winter.

An excess or un-timely application of nutrients (particularly nitrogen) may result in a resurgence of growth late in the season or a failure of plants to acclimate.

Excess water (irrigation or precipitation) late in the summer may result in late acclimation of plants.

### 3. Prevent desiccation and moisture stress

Many types of winter injury are a result of a deficiency of moisture in plant tissues. Desiccation leading to winter injury can be prevented by:

- Ensuring that there is adequate moisture in the root zone. Roots of many plants are active to soil temperatures of 5°C. A slow and heavy application of water should be applied after deciduous trees have lost their leaves, prior to covering strawberries and prior to freeze up of the soil. Roots are not active once the soil is frozen so watering is not necessary.
- Protecting plants from winds using shelterbelts. This can also increase snow accumulation, which may insulate plants.

### 5. Protect sensitive plant parts from extreme temperatures

Plant parts are not equal in their ability to withstand extreme winter temperatures. Despite the ability of many plants to acclimate, some damage can occur if additional protective measures are not taken. These can include:

- The use of snow fencing and shelterbelts to reduce winds can help build up an insulating snow cover, protecting plants
- Using straw or bark mulches to cover whole plants or root systems
- Protecting roots system in pots i.e. container-grown nursery crops require winter protection that insulates against the cold temperatures, such as covering with snow, straw, insulating foam etc.

### 6. Protection of sensitive plant parts from temperature fluctuations

Winter damage often occurs when temperatures fluctuate or when there are rapid and extreme changes in temperature (e.g. Chinooks in Southern Alberta). When conditions improve (i.e. increase in temperature), plants begin to lose their acclimation, which leads to a resumption in growth and the emergence of sensitive plant parts. If cold winter conditions resume after a period of warm conditions, plant injury can occur. This is particularly a problem in flowering tree or shrub species (e.g. Saskatoon berries).

Bright winter sunlight can cause localized warming of plant tissues, triggering water flow, which can later freeze and the ice crystals cause tissue damage. Desiccation of plant tissues in this circumstance is important also – damage would be hard to distinguish in either case but it mostly happens on the south and west sides of plants. Protection of susceptible plant parts can be accomplished using paints or trunk wraps, although this general practical in a commercial operation.

Mulches can protect plants by buffering temperature fluctuations. Mulches should be left in place until spring air temperatures have stabilized (i.e. frosts have passed).

The use of any type of over-wintering strategy should be adjusted based on suitability for the plants and cropping system. Some crops require special care in over-wintering.

*Strawberries* - Fifteen to twenty cm (6-8 inches) of clean (weed/disease free) straw is typically applied once day-neutral strawberry plants are dormant in late fall. This layer is maintained until new growth is observed in the spring. June-bearing strawberries should also be covered at the same time as above.

*Container-grown nursery crops* - Nursery crops (trees and shrubs) grown in containers have special winter management requirements in order to prevent winter injury. Management includes:

- Prevention of physical damage (breakage of limbs, etc) due to being blown over in high winds. This can be accomplished through the use of guy lines, consolidating containers (self-support), burying containers or laying containers on their sides under shelter or in groups.
- Protection of sensitive roots by burying &/or consolidating containers, using mulches &/or micro-foam blankets to insulate, or placing containers in a sheltered location (hoop house, barn, storage, etc.) with insulation or covering.



## Getting Plants Ready for Winter

Ensuring the survival of perennial plants can be challenging, at times. But considering a few key points may help to make a difference.

### 1. Dormancy is good

Plants that have the time to shut themselves down and essentially prepare themselves for winter, are more likely to survive the winter, especially if they can be prevented from an early emergence from that dormant state. A little stress (water, nutrients, etc.) in late summer, before things get drastically cold, may help some plants to make a move towards dormancy.

### 2. Trim off the old and dead

Dead wood (or leaves) serves no purpose to the healthy growth and survival of an active plant. Similarly, old leaves tends to be inefficient and ineffective and should probably be removed along with the dead stuff. For crops such as strawberry, giving a haircut at renovation can encourage the plant to replace the leaves in the spring, or will at least clear the way for it.

### 3. Hydration

Plants that have sufficient water inside their tissues will generally come through the winter better, particularly if they have sufficient time to package that water up in a safe way. So, generally, giving the plants a drink up until winter is a good rule of thumb, but it is a fine line between topping up their tanks and encouraging them to keep growing actively when they should be shutting down. On the safe side, give them a drink but don't drag it out. Give them enough but not too much. Clear as mud?

### 4. Out of the wind

Some plants will be fine as long as they aren't constantly being drained of moisture by drying winds in winter. A light cover, a wind break or some other barrier will be sufficient to give tough plants the edge that they need. Other plants will benefit from a more substantial cover. But as a general rule, keep the wind off plants as much as possible during the winter.

### 5. Winter coat

Some plants will weather anything that our winters throw at them, which is great. Other plants will benefit from a bit of assistance, such as encouraging a deeper layer of snow over them, putting on a cover or applying a nice, aerated layer of straw over the top of them. All of these serve the purpose of providing additional insulation to overwintering plants, as well as protecting them from fluctuations in temperature that can nudge them out of dormancy, to their peril.

### Garlic – Fall versus Spring Planting

It is the eternal dilemma of many producers. Do you plant in the fall or in the spring? When it comes to a perennial crop like garlic, it is perhaps extra important, as you have to weigh the advantages versus potential crop loss risks, as you are overwintering the crop. Here are some points to consider when growing garlic.

<i>Spring Planting</i>	
<b>Advantages</b>	<b>Disadvantages</b>
Reduced risk of winter injury	Bulbs must be chilled to break dormancy prior to planting
Plant survival is ensured	Poor spring conditions can delay planting, resulting in delayed plant development, poor bulbing and reduced yields
No over-wintering required	Some storage losses can occur
<i>Fall Planting</i>	
<b>Advantages</b>	<b>Disadvantages</b>
Bulb dormancy is overcome by cold winter temperatures	Delayed fall planting can result in reduced clove survival due to winterkill
No spring-planting delays	Winter protection is required if snowfall is not sufficient
Plant growth commences early in spring	
Potential for higher yields and larger bulb sizes	

#### **Tips for Fall Planting:**

- Planting date is determined by the average date of the first fall frost
- Delayed planting will reduce winter survival
- Winter protection
  - Cover with straw if snow cover is thin, winter thaws occur or if wind protection is not adequate
  - A minimum of 6 inches (15 cm) of snow is required for winter protection

## In the News / Interesting Articles

- [Expanding population puts pressure on food production](#) – LSU article
- [The view from here: Canada's agriculture and agri-food sector](#) – Ag150 - AAFC video
- [The state of Canada's agricultural sector](#) – Ag150 article
- [Ten Tips for a Tip-Top Harvest](#) – SpudSmart article
- [Could chili peppers become the hottest new thing in weight loss?](#) – ASU article
- [Top Alternative Crops GenNext Growers Should Consider](#) – Growing Produce article
- [How to Successfully Integrate Biocontrols Into Greenhouse Floriculture Production](#) – Greenhouse Grower article
- [Meeting the environmental challenge of growing food crops](#) – Urban Ag News
- [Silicon: a Biocontrol Agent that Boosts Plant Immunity](#) – Growing Produce article

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

Search the database for electronic labels



## MENTAL SNACKTIME – Tying Up Loose Ends

“About the time we can make the ends meet, somebody moves the ends.” – Herbert Hoover

“We look at life from the back side of the tapestry. And most of the time, what we see is loose threads, tangled knots and the like. But occasionally, God's light shines through the tapestry, and we get a glimpse of the larger design with God weaving together the darks and lights of existence.” – John Piper

“Life's not perfect. Some loose ends may never get trimmed up and tidied.” – Hoda Kotb

“Then I felt too that I might take this opportunity to tie up a few loose ends, only of course loose ends can never be properly tied, one is always producing new ones. Time, like the sea, unties all knots. Judgements on people are never final, they emerge from summings up which at once suggest the need of a reconsideration. Human arrangements are nothing but loose ends and hazy reckoning, whatever art may otherwise pretend in order to console us.” – Iris Murdoch

“It is the loose ends with which men hang themselves.” – Zelda Fitzgerald

**Q: What are some of the critical tasks that you carry out in fall? Why do they have to be done in fall, rather than another time of year?**

**A:** We blow out raspberries leaves in fall. It's a big advantage in controlling spider mites in next year's crop. Also, spreading Casoron in fall has to be done in raspberries, and all other herbicides that has to be done in fall. Plus, there is more time in fall.

**A:** Harvest. Remove and dispose of any diseased plants and leaves. Till and amend the soil. Sow seeds for spring. Chop healthy foliage and apply to the soil. Collect leaves for mulch and apply. Prepare composts: pile and trench. Wait for Spring!

**A:** Fertilise, split tubers if needed, plant bulbs such as tulips or garlic

**A:** Renovate strawberries, clean out and store filtration system for irrigation, lift mulch and drip tube, cultivate ground, lay plastic for early spring planting, winterize sales area, winterize greenhouses, pick and store onions, squash, leeks, celery, pumpkins, clean up play area equipment and put into storage, cover strawberries with straw

**A:** Spraying out perennial weeds and grasses that have snuck into the bushes (Roundup works best in the fall). Blowing out water lines, planting grass, planting hardneck garlic, planting tulip bulbs.

**A:** We prune Saskatoons in the fall and apply herbicide as needed. Raspberries are tilled around and moose deterrent fences are put up. As well this year, our commercial kitchen is very busy getting ready for fall and x-mas markets

**A:** Harvesting, mulching plants, garden bed cleanup & infrastructure build for the spring

**Next Month's ? → [How do you evaluate and "score" a season? What determines whether it has been successful or not?](#)**

## Raspberry Sawfly

*Monophadnoides geniculatus*

**Crops Affected:** all caneberry crops (raspberry, blackberry, loganberry) and possibly gooseberry

### Life Cycle:

- Adults emerge in spring
- Lay eggs at flowering in leaf tissues
- Larvae feed for 2-3 weeks on leaf undersides, flower buds, young fruit, growing shoots and tender bark of new growth
  - Particularly destructive on primocanes due to lush growth later in season
- Drop to ground and overwinter in a cocoon
- Pupation occurs in spring
- 1 generation per year

### Symptoms:

- Adult are small, black insects with a yellow band on their abdomen and clear wings
- Larvae are light green caterpillars with white bristles, which can reach 10-18 mm in size
  - Typically difficult to see larvae on leaves due to their colouration and feeding location
- Larval feeding on the leaves produces small, elongated holes between the leaf veins
- Heavy infestations results in skeletonized leaves (veins intact)

### Monitoring:

- Visually inspect leaves in June
- Determine the number of larvae present
- Determine whether skeletonization is occurring and if controls are required
- Damage by raspberry fruitworm larval early season feeding on fruiting cane laterals can be confused with raspberry sawfly damage, which is mainly on new primocane growth

### Management:

- Vigorous plantings can tolerate a fair amount of feeding and damage before controls are required
- Chemical controls are available if significant damage is occurring



Raspberry sawfly feeding damage – Note elongated holes between veins – light skeletonization

Photo by Robert Spencer



## Scab of Root Vegetables – Carrots/beets

*Streptomyces scabies*

**Crops Affected:** carrots, beets, potatoes, turnip, radish, parsnip

### Disease Cycle:

- Scab pathogen is a fungus-like bacterium
- Persists in the soil for years
- Typically infects during the early stages of root and tuber development, via the lenticels
- Colonizes several layers of cells

### Symptoms:

- May cause damping off in some situations
- Symptoms are typical of that observed on potato tubers (most common)
  - Abnormal growth of the host cells results in corky tissues that are darker than the healthy tissues
  - Round, irregular, brown lesions form on the surface – typically less than 1 cm across
  - Scab lesions may be either shallow and superficial or raised and erupting
  - Individual lesions may come together to form a group of scabs

### Conditions Favouring Disease Development:

- Severity and nature of symptoms depends on:
  - Strain of *Streptomyces*
  - Variety
  - Soil organic matter content
  - Crop rotation practices
  - Weather conditions
  - Moisture availability
- Dry conditions at or after potato tuber formation can increase incidence, as levels of antagonistic bacteria are reduced; it can be assumed that this would be similar for other crops.
- Soil pH can influence scab formation – more alkaline soils (over pH 5.5) tend to have a higher tendency towards scab
- Points of injury (insects, etc.) or immature lenticels are where the pathogen enters

### Management:

- Controls are rarely required in most root crops, as scab is superficial and tends to be fairly minimal or limited in these crops
- Carefully consider crop rotations, maintaining longer rotations if scab is an issue in host crops and ensuring a good separation between host crops, particularly potatoes and other root crops
  - Rotate to include grains and grasses to break the disease cycle
- Consider adjusting soil pH, either through the use of acidifying fertilizers
- Ensure soils have good moisture holding capacity and that crops have adequate moisture throughout the growing season