



Another grueling extension season roles to a close, just as spring starts to peak up over the horizon. Of course, a new month means a new edition of Hort Snacks for your informing pleasure.

In this edition, you'll find lots of things to help you to catch up on all of the things/events that you didn't have time to attend during extension season (since weather is always questionable and unpredictable). You'll find links to PDFs and PDFs and even more PDFs, all from 3 horticulturally-minded workshop series and a conference held in the first half of March. You'll also find links to past webinars and a few other goodies to get you thinking about the past and the future.

You'll note the absence of a direct market fruit and vegetable price survey report in this edition. In order to bring the greatest value, there needs to be a good amount of data, which is currently lacking. We've left things open a bit longer, so that you can share what you have with others. Please take the time to do so, as it is very important.

As you move towards spring, please feel free to contact us at any time to share your thoughts, ideas, suggestions for this newsletter or anything else related to growing the horticulture industry in Alberta (and beyond, of course). In the coming fiscal year, we are focused on identifying industry-growth priorities for each industry sector, so that we can focus our efforts on assisting with that. So, feel free to share that as well. And, enjoy the sunshine (when it is there).

Rob Spencer/Dustin Morton, Commercial Horticulture Specialists  
 Alberta Ag-Info Centre, Alberta Agriculture and Forestry  
 310-FARM (3276)

## FEATURED PODCAST

Farmer to Farmer podcast  
<http://www.farmertofarmerpodcast.com/>

### *In this edition of Hort Snacks*

- Featured Podcast .....1
- Things to do / Things to think about .....2
- STOPPED Reminder .....2
- Upcoming Conferences / Workshops .....3
- Registration open for Open Farm Days 2017 .....3
- Mental Snacktime – Drawing on Past Experiences .....3
- In Case You Missed Them – Hort Snacks Webinars .....4
- AFFSchool 2017 Topics and Presentation Links .....4
- Presentation links - Strawberry Production, Potato Post-Harvest Management & Problem Pests Workshops .....5
- Q&A .....6
- REMINDER - AB DMkt Fruit/Veg Prices – 2016/2017 ...6
- Choose Your Own Adventure – Learning from Past Experiences .....7
- Insect of the Month – SWD .....8
- Disease of the Month – Frost Injury .....9

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

### *Strawberries*

- Plan plant pickup, field layout, planting labour
- Remove straw mulch when new growth appears (centre of crown)
- Application of some nitrogen (as growth commences → 10-20 lbs actual N/acre – end of April or early May)
- Herbicide application (e.g. Devrinol) prior to bloom, if it was not applied in the fall
- If planting both June bearers and Day-neutrals, plant Day-neutral strawberries first, as soon as you can work the land (maybe 3<sup>rd</sup> week of April).
- Deblossom newly planted June bearers for season
- Frost protection of June bearers (if required)
- Replenish bare or lightly covered spots with straw mulch

### *Raspberries*

- Thin floricanes raspberry canes and remove winter damaged material
- 2<sup>nd</sup> application of nitrogen (month end?) (20-40 lbs actual N/acre)
- Herbicide application (e.g. Devrinol), if it was not applied last fall
- Mowing to ground and removing last year's cane growth from primocane-type raspberries

### *Saskatoon Berries*

- Pruning / Thinning
  - Dead, diseased, low-spreading branches, branches larger than a Loonie – before bud break
- Complete pruning for rejuvenation / regeneration, if not completed

### *Black Currants*

- Prune branches over 4 years old (can be done on a rotational basis)
- Application of nitrogen fertilizer at end of month (or early May), starting in 3<sup>rd</sup> year → ~50 lbs/ac actual N

### *Vegetables*

- Depending on the crops that you are growing, you might start your transplants for those that require 6-8 weeks to grow.
  - Delay / stagger seeding to allow for hardening and multiple planting dates
- Depending on your production systems and equipment, prepare fields and lay plastic mulches
- Make pre-planting incorporated herbicide applications at mid or end of month for registered crops (follow label instructions for timing and rates)
- Plant earlier, cool season crops (depending on weather conditions)

### *General*

- Soil sampling / testing, if this was not done in the fall
- Finalize planning of plant layouts
- Plan your advertising timing
- Solidify your summer schedule – planting, spraying, irrigation, etc.
- Planning of marketing schedule
- Irrigation (as necessary)

### *Pest Monitoring / Management*

- Begin scouting for insect pests and diseases
- Strawberries
  - Start scouting for strawberry clipper weevil, when temperatures exceed 18°C
- Raspberries
  - Application of lime sulphur fungicide (22%) for spur/cane blight control
- Saskatoon berries
  - Application of Decis at green tip to bud elongation stage
- Black Currants
  - Make insect control applications at bloom

## NEWSLETTER USE RESTRICTIONS

Please feel free to share all or portions of this newsletter with other interested parties.

If you want to use content from this newsletter in other media, please request permission before doing so.

**REMEMBER – Alberta's Elm Pruning Ban is in place from April 1<sup>st</sup> to September 30<sup>th</sup>** [www.stoppeded.org](http://www.stoppeded.org)



## Upcoming Conferences / Workshops

### April 2017

- **Getting into On-Farm Sales**  
April 4, 2017 – Agri-Food Business Centre – Leduc, AB  
[More Info](#)
- **Food Safety at the Farmers' Market Webinar**  
April 5, 2017  
[More info](#)
- **Troubleshooting Shelf Life**  
April 11, 2017 – Airdrie Agriculture Centre – Theatre Room – Airdrie, AB  
[More info](#)
- **Marketing Essentials – Intro to Marketing**  
April 12, 2017 – Airdrie Agriculture Centre – Theatre Room - Airdrie, AB  
[More info](#)
- **Food Labelling for Farmers' Markets**  
April 12, 2017 – Airdrie Agriculture Centre – Sheep Room – Airdrie, AB  
[More Info](#)
- **Food Labelling for Farmers' Markets**  
April 13, 2017 – Agri-Food Business Centre – Leduc, AB  
[More Info](#)
- **Marketing Essentials – Storytelling**  
April 19, 2017 – Airdrie Agriculture Centre – Airdrie, AB  
[More info](#)

### May 2017

- **Canadian Produce Marketing Association (CPMA) Conference & Trade Show**  
May 9-11, 2017 – Metro Toronto Convention Centre – Toronto, ON  
<http://convention.cpma.ca/>

### June 2017

- **14<sup>th</sup> International Conference of the European Industrial Hemp Association (EIHA)**  
June 7-8, 2017 – Maternushaus – Cologne, Germany  
<http://www.eiha-conference.org/>
- **Early Ripening Haskap Tour**  
June 23, 2017 – Horticulture Field Lab – Saskatoon, SK  
[www.fruit.usask.ca/extension.html](http://www.fruit.usask.ca/extension.html)
- **Greenhouse Canada Grower Day 2017**  
June 21, 2017 – Holiday Inn – St. Catherines, ON  
<http://www.greenhousecanada.com/grower-day/>

## Registration for Open Farm Days 2017

### NOW OPEN!

The initiative provides an opportunity to support local food producers, educate consumers about agriculture, and generate additional tourism in your area. **This year's event is the weekend of August 19-20, 2017.**

For further information or to **register by May 31<sup>st</sup>** please go to <http://albertafarmdays.com/host-farms-2017>

## Mental Snacktime – Drawing on Past Experiences

- “You gain strength, courage, and confidence by every experience in which you really stop to look fear in the face. You are able to say to yourself, 'I lived through this horror. I can take the next thing that comes along.'” – Eleanor Roosevelt
- “Character cannot be developed in ease and quiet. Only through experience of trial and suffering can the soul be strengthened, ambition inspired, and success achieved.” – Helen Keller
- “No man ever steps in the same river twice, for it's not the same river and he's not the same man.” – Heraclitus
- “It is only by making the past alive again for a person that a true growth in the present is facilitated. If the past is cut off, the future does not exist.” – Alexander Lowen
- “To move in the forward direction is to be strong and positive enough to bury every negative experience in the past.” – Edmond Mbiaka
- “People's behavior depends upon their current situation and past experience.” – Jenil Kanani
- “While winners were fully engaged with writing some great chapters in their lives, failures were busy trying to edit their past negative experiences.” - Edmond Mbiaka

## In Case You Missed Them – HortSnacks-to-Go: 2016/2017 Winter Webinar Series

- October 17, 2016 - [The Ins and Outs of Cut Flowers on the Prairies](#) – Barb Stefanyshyn-Cote
- November 21, 2016 - [Making Your Garden Centre 'Kiss My Aster' Proof](#) – Amanda Thomsen
- December 12, 2016 - [Season Extension on the Prairies](#) – Adithya Ramachandran
- January 16, 2017 - [Carrot Crop Integrated Pest Management](#) – Dr. Rick Peters
- January 30, 2017 - [Drip Irrigation Management](#) – Rebecca Shortt
- February 27, 2017 - [Small Scale Hydroponic Lettuce Production](#) – Bob Purton
- March 20, 2017 - [Greenhouse Biocontrol Update](#) – Suzanne Wainwright-Evans

# Alberta Farm Fresh School 2017 – Farm to Market Conference

## – A Selection of Topics and Speakers with Presentations

### Day 1

- [Flying Your Flag – Showcasing Your Unique Self](#) – (647KB) – Christie Pollack – Christie's Gardens & Greenhouses
- Practical Predator Management in Orchards – [Bird Deterrents](#) – (226KB) – Marsha Gelowitz – Solstice Berry Farm
- [Banker Plants: Greenhouse Concept with Field Applications](#) – (1254KB) – Nadine Stielow – Thiels Greenhouse
- [Small Farm Tools Panel](#) – (679KB) – Doug Edgar (Edgar Farms) / Bob Stielow (Power Equipment Centre / Garry Willisie (Willisie Equipment))
- [Planning Special Events at Farmers' Markets Panel](#) – (816KB) – Melisa Zapisocky (SWEFM) / Korien Sampson (Morinville) / [Special Market Events](#) – (608KB) – Colleen Schoeninger (Drayton Valley)
- [DIY – Spotted Wing Drosophila Monitoring / Management](#) – (1644KB) – Robert Spencer – AAF
- [Problem Pests in Strawberries & How to Management Them \(Anthracnose & Tarnished Plant Bug\)](#) – (545KB) – Robert Spencer – AAF
- [Customer Service and Relations](#) – (679KB) – Christie Pollack – Christie's Gardens and Greenhouses
- Season Extension Research Project / Olds College Ag Innovation Project – Greg Rekken – Olds College
- Meeting Customer Requirements for Moving into Wholesale – Kellie Jackson – AAF
- Simple Shoulder Season Technologies – Cold Climate Extension – Daniel Chappel – Country Thyme Farm
- [Hot and Spicy – Growing Garlic in Alberta](#) – (717KB) – Jackie Chalmers – New Oxley Garlic
- Labelling – Nutritional – Bruce Marshall – Nutrilitical
- [Disaster Recovery Panel](#) – (508KB) – Melisa Zapisocky (SWEFM) / Elna Edgar (Edgar Farms)
- Beyond the Traditional: Alternative Farming Techniques – Mary Ann Stephansen / Les Brunelle – Applejack Ranch
- Beyond the Farmers' Market – Selling Direct to Retail – Lindsay Sutton – AAF
- [Farmers Market Booth Merchandizing](#) – (1421KB) – Jenny Berkenbosch – Sundog Organics
- [Strawberry Varieties](#) – (38KB) – Blaine Staples – The Jungle Farm

### Day 2

- [The Power of Your People: Know Your Ideal Customers Inside Out](#) – (907KB) – Cyndi McLean – Brand Your Genius
- Soil Fertility – Testing – Allan Crawford – UFA
- [Branding & Promotion Using Traditional Print Media](#) – (948KB) – Randy Brososky – Group of Rogues
- Predator Control for Livestock – [Coyote Control](#) – (3876KB) / [Mouse Control](#) – (992KB) – Phil Merrill – AAF
- [Packaging Panel](#) – (699KB) – Green Munch / Friesen Plastics / CKF Inc / Pacific Injection Moulding
- [Good Website / Bad Website: Beyond the Online Brochure](#) – (1790KB) – Cyndi McLean – Brand Your Genius
- Panel – Marketing Direct to Chefs & Restaurants – Nicola Irving (Irving Farm Fresh) / Rieley Kay (Cilantro & Chive) / Deb Krause (Vesta Gardens)
- [Water for Horticulture Crops](#) – (698KB) – Robert Spencer – AAF
- Best Practices in Market Management Panel – Agatha Grochowski (St. Albert) / Melisa Zapisocky (SWEFM)
- Pasture Protein – Shannon Ruzicka – Nature's Green Acres
- [Growing Brassicas in Canola Country](#) – (1199KB) – Rony Erdmann – Erdmanns Gardens and Greenhouses
- [Social Media Sucks! \(Until You Get It Right\)](#) – (1806KB) – Cyndi McLean – Brand Your Genius
- Farm Animal Care: Safe & Human Handling Techniques – Dr. Melissa Moggy – AFAC
- Holistic Farm Design – Takota Coen – Deep Roots Design
- [Stop Hitting Nails with a Running Chainsaw, Blindfolded](#) – (816KB) – Randy Brososky – Group of Rogues

Click on the presentation topics to be access a PDF version of the presentation. Please note that not all presentations are available. Please do not copy, distribute, or duplicate the presentation files, without first seeking and obtaining the consent of the presenter.

## Strawberry Production Workshop – Topics with PDFs of Presentations



- [General Requirements and Strawberry Biology](#) – (347KB) – Robert Spencer – AAF
- [Strawberry Varieties](#) – (38KB) – Blaine Staples – The Jungle Farm
- [Strawberry Production – June-bearers – Establishment Year](#) – (905KB) – Robert Spencer – AAF
- [Strawberry Production – June-bearers – Bearing Years](#) – (1500KB) – Robert Spencer – AAF
- [Day Neutral Strawberry Production](#) – (2606KB) – Blaine Staples – The Jungle Farm
- [Strawberry Pests](#) – (1207KB) – Robert Spencer – AAF

Click on the presentation topics to be access a PDF version of the presentation. Please do not copy, distribute, or duplicate the presentation files, without first seeking and obtaining the consent of the presenter.

## Potato Post-Harvest Management Workshops 2017 – Topics and Speakers with PDFs of Presentations



- [Storage Design](#) – (1484KB) – Paul Kok / Jake Hoogland – Omnivent / Bigstone Creek Ventures
- [Optimising the Storage Environment](#) – (1074KB) – Paul Kok / Jake Hoogland – Omnivent / Bigstone Creek Ventures
- [Tuber Physiology & Physiological Disorders](#) – (352KB) – Robert Spencer - AAF
- [Managing Bacterial and Viral Diseases of Potatoes](#) – (2239KB) – Dr. Michael Harding – AAF
- [Roles and Benefits of the Potato Growers of Alberta](#) – (169KB) – Patti Lamb / Deb Hart – PGA
- [Managing Fungal Diseases and Novel Diseases of Concern to the Potato Industry](#) – (1752KB) – Dr. Michael Harding – AAF
- [Tips for Scouting and Diagnosing Post-Harvest Diseases of Potatoes](#) – (204KB) – Dr. Ron Howard – RJH Ag Research Solutions
- [On-Farm Biosecurity for Potato Producers](#) – (395KB) – Dr. Ron Howard – RJH Ag Research Solutions
- [Information Resources](#) – (157KB) – Robert Spencer – AAF
- [Storage Potential of Old and New Potato Varieties](#) – (1025KB) – Dr. Michele Konschuh – AAF

Click on the presentation topics to be access a PDF version of the presentation. Please do not copy, distribute, or duplicate the presentation files, without first seeking and obtaining the consent of the presenter.

## Problem Pests of Horticulture Crops Workshops – Topics with PDFs of Presentations



- [Symptoms and Signs – Diagnostic Process](#) – (507KB) – Robert Spencer – AAF
- [Problem Pests of Fruit Crops](#) – (1346KB) – Robert Spencer – AAF
- [Problem Pests of Potato Crops](#) – (1183KB) – Robert Spencer – AAF
- [Problem Pests of Tree/Shrub Crops](#) – (3019KB) – Robert Spencer – AAF
- [Problem Pests of Vegetable Crops](#) – (1312KB) – Robert Spencer – AAF
- [Separating Fact from Fiction – Management](#) – (294KB) – Robert Spencer – AAF

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**Q: Do you have a method for making current season plans that applies past experiences? How do you avoid past mistakes?**

**A:** Yes. I use a data management platform for all my clients, that is available for others in need. It's an online/offline data management tool called Agri data solutions (ADS ). Call me for more details if you want. But most of my clients are on it and I can very easily recall all the happening from last year on it at any time in any place.

**A:** Yes, better planning and spending time better on doing preventative.

**A:** At Salisbury Greenhouse, we take very detailed notes on how every crop faired. A few of us meet in June and discuss every detail for every crop (big or small) from the seeding/sticking dates, quantities, what greenhouse they grew in, factors such as where they were retailed on the floor, etc. Then we alter as needed when we start all over again! Detail, detail detail!!!

**A:** We try to keep track of all the hours for each plot and then look at our return on investment; if it don't pay, we adjust accordingly.

**A:** We try to keep things on a steady keel, reviewing what worked, what did not from past seasons. If something was found wanting we try to improve the procedure as we go along.

**A:** I keep written records of most things I do. I use these logs to make plans and I can tweak things that haven't worked in the past.

**A:** We use a yearly spreadsheet that has dates on it, and recommendations from past experiences. We go over all past year's info in February/March...when we are feeling keen for spring, but have not much to do yet.

**A:** By keeping a record or log of past activity and looking back on it, I've been able to side step most mistakes.

**Next Month's ? → [Looking back on past seasons, are there any noticeable differences with spring now, versus spring in the past?](#)**

**REMINDER – Berry & Vegetable Price Survey**

Having price information is valuable for people of all experience levels, to use as a reference against your own pricing and to compare against when calculating your cost of production and setting your prices.

Each year, I put a call out to producers, asking them to share what they were charging for their fruit and vegetable crops the past season (both u-pick and pre-pick for FM), as well as any price changes that they anticipate for the coming season. From that, I assemble average prices (as well as the range) to share with the industry. **IT IS THAT TIME** of year again, as experience has shown that earlier is better for everyone involved.

For those readers that get this newsletter electronically, I sent out the formal request in a separate, direct email. I had hoped to publish the summary in the April 2017 edition of Hort Snacks but it will now be May. For those that get this by hard copy, please feel free to send in your information by mail, fax or give me a call. **THERE IS STILL TIME TO SHARE!**

The following is an outline of the type of information I need.

Crop	Upick price	Pre-pick price	Farmers Market Price	Unit of measure for each market (e.g. per pound; per head/bunch)
Examples of Crops wanted	<b>Fruit</b> – strawberries, raspberries, Saskatoon berries, black currant, sour cherries, Haskap, chokecherries, other fruit; <b>Vegetables</b> – beets, carrots, radishes, rutabagas/turnips, corn, cabbage, broccoli, cauliflower, Brussels sprouts, kohlrabi, kale, spinach, lettuce (head and/or leaf), cucumbers (pickling, slicing), potatoes (baby, regular), rhubarb, peas, snap peas, snow peas, beans, tomatoes, onions, garlic, Swiss chard, winter squash, zucchini, pumpkins, etc.			

## Choose Your Own Adventure - Learning from your past experiences

Life seems to be a bit of a game. In it, everything revolves around TIME. In this instance, I'm not referring to TIME as that finite commodity that we never have enough of, but rather TIME in the sense of EXPERIENCE.

We spend most of our TIME (lives, careers, etc.) blundering through it, stumbling from one EXPERIENCE to the next, doing the best we can in the TIME that we have to spend in that particular moment, before we stagger to the next event.

I might be unique in my own EXPERIENCES, but perhaps not. They typically progress as follows:

- 1) Arrive at the event
- 2) Not recognize most of what needs to be done and feel woefully unprepared and under-skilled for the task
- 3) Blunder through anyways, breaking a few eggs, legs and scratching some paint
- 4) Feel relief that this was not a fatal experience
- 5) Move onward to the next event, without making or taking TIME to reflect on what I learned from it
- 6) Repeat the cycle.

Sound familiar? Probably.

When I was somewhat younger, I enjoyed reading Choose-Your-Own Adventure books. In them, the idea is that you make decisions for the characters (main or otherwise) at different junctions in the book, which takes you different places and changes the course of the storyline and, in many cases, the eventual final outcome of the story. It was fun to freely (and without consequence) jump forwards and backwards through the storyline, seeing what one slight change could do to the life of a character.

Sometimes, in life, after a bit of time and some adverse repetition (through force of habit), it is possible to learn from experiences and become more efficient. When we take a minute to reflect on life and our time spent within it, we quickly recognize patterns and we see where things repeat. We can objectively recognize errors and places where we might have chosen a slightly different path and gotten an entirely different outcome. There are several keys to success in this process.

- 1) Take time to reflect (sometimes this means forcibly tearing a chunk of time out of the schedule and MAKING time). Don't just think about what you've experienced, but truly contemplate what worked and what didn't work.
- 2) Write down some notes. Document the positive and negative outcomes.
- 3) Make plans for the future, when this type of experience comes around again. In some cases, it won't look exactly the same but it'll be similar. In other cases, it'll be exactly the same, so use the plans made in the calm moments to be more efficient.
- 4) Recognize your growth. See when you have made some progress and celebrate a little.

As you look at the potholes that sprinkle the roadway of your life, you need to remember the bumps AND the fact that you have passed them. See the distance you've come. Build on what you've experienced and keep on moving forward. Take time to reflect and make plans. EXPERIENCE only come with TIME, so make the most of it.

# Spotted Wing Drosophila

*Drosophila suzukii*

## Crops Affected:

*Domestic fruit hosts* = strawberry, raspberry, blueberry, cherries, peaches, plums, nectarine, honeysuckle, apricot, blackberry, table grape, hardy kiwi;

*Wild fruit hosts* = elderberry, dogwood, Oregon grape, currant, mulberry, etc.

*Potential other Alberta host crops* – sour cherries, black currant, Haskap / Blue honeysuckle

## Life Cycle:

- Higher risk host crops = softer skinned fruit; later season crops
- Adults = 2-3 mm light yellow-brown flies with red eyes
  - Males have a single black spot on the end of each wing
  - Females have no spots but have a distinctive, saw-like ovipositor (egg-laying device)
- Adults may be present from June until November (in some areas) – present year round in warmer areas (e.g. BC)
  - Prefer warmer conditions (20-30°C)
- Females lay eggs inside intact, ripening fruit
  - Lay over 350 eggs; Eggs develop into larvae in 1-3 days
  - Larvae hatch and feed within the fruit, maturing within approximately 2 weeks
  - Pupae stay within or on fruit for up to 2 weeks
- May be spread by windblown adults (shorter distances) or transportation of infested fruit (long distances)
- Overwinter as adult flies
  - Not known to overwinter in Canadian Prairie conditions, however definitely possible in certain microclimates (next to buildings with heat leakage, etc.)
  - Can tolerate high heat and cold winters

## Symptoms:

- Females saw through intact flesh to lay eggs
  - Results in pinprick-sized holes visible in the soft areas of the fruit
- Larvae feeding within the fruit
  - Fruits soften and collapse when feeding is occurring
  - Rate of collapse is accelerated by multiple larvae
- Fruit becomes unmarketable
- Diseases may develop in infested fruit

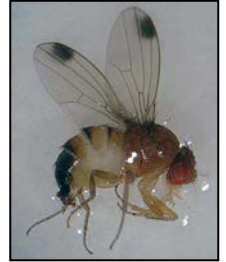
## Monitoring:

- Monitor for adults using baited traps from mid-May onward
- Traps are baited with apple cider vinegar OR yeast and sugar
- Traps are placed in different areas where adult flies might be found
  - Producing fields
    - May rotate traps into different crops as they reach maturity
  - Locations with ripe fruit – e.g. waste/cull areas; market areas
- Fruit can also be tested for infestation

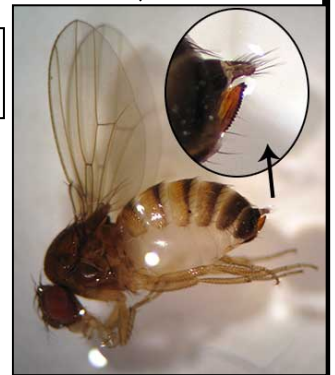
## Management:

- Monitor to determine the presence and changes in numbers of adults
- Ensure good sanitation in fields
  - Clean up leftover or fallen fruit
    - In field, in storage, on equipment
  - Bury 12 inches deep, freeze or solarise infested fruit
- Cool harvested fruit quickly to slow larval development
- Apply registered insecticides to control adult flies
  - Apply if trapping indicates presence
    - May need to reduce transfer of populations to later crops
  - Product Choice
    - Most effective active ingredients = pyrethroids, organophosphates, spinosads
    - Neonicotinoids are not effective

# INSECT OF THE MONTH



Adult male SWD – Note wing spots –  
Photos by Sheila Fitzpatrick - AAFC



Adult female SWD – Note saw-like ovipositor  
– Photos by Sheila Fitzpatrick - AAFC



Fruit damaged by SWD – Note sunken flesh, oviposition holes, larvae & pupa  
Photos by BCMAF, OMAFRA, OSU





## Frost Injury

**Causal Organisms:** Not biotic – caused by exposure to cold environmental conditions

**Crops Affected:** all crops are susceptible to some degree, depending on growth stage, crop type, etc.

**Disease Cycle:**

- May occur in either spring or fall (or any other season), when environmental conditions shift from above to below zero
- May be either a general drop in temperature or the movement of cold air into lower areas, resulting in localized damage
- ???

**Symptoms:**

- Highly variable – depends on severity of temperature drop, duration of exposure to frost conditions, sensitivity of plant part(s) to cold and other conditions
- Branches may fail to leaf out or flower
  - Leaf and/or flower buds may fail to break or open
- Growing tissues may appear somewhat wilted and somewhat darker in colour, turning brown or black as tissues die
  - Tissues may have a water-soaked or papery appearance (depending on the plant part)
  - Damaged areas may dry up after a period of time
- Internal tissues may have blotchy discolorations
- Frozen tissues may become soft, spongy and watery, often eventually developing secondary infections (such as bacterial soft rots)
- Tissues or the entire plant (all parts) may be damaged or completely killed
- Flower buds and fruit may not develop properly
- Apparently undamaged flowers may have a brown or blackened centre
- Flowers or fruit may abort and fall off

**Management:**

- Ensure that plants are planted on a slight slope, to allow cold air to drain off and not collect in an area of the field
- Avoid blocking the flow of cold air, creating a frost pocket
- Avoid low areas or depressions that are prone to cold air collection
- Plant hardy or frost tolerant plants
- Avoid late plantings
- Plant perennial plants in areas that are somewhat slower to warm in the spring, preventing premature emergence and dormancy break
- Apply sprinkler irrigation to protect sensitive plants for short periods of frost
- Cover crops with row or field covers – may provide a small amount of protection, depending on thickness of material
- Harvest crops prior to frost, if possible
- If frost tolerant plants (such as cole crops) are exposed to frost, allow them to slowly and completely prior to harvesting
- Grade out frozen or damaged product

[Protection against Frost Damage – Agdex document](#)



Above - Frost damaged Saskatoon berries (green fruit stage) – frozen fruit = pink/purple discoloration – drop off when touched



Right - Damaged chokecherry flowers – note – slight brown discoloration



Above / Below – Frost damaged chokecherry bush – growing points brown, wilted & dying

