



Welcome to another edition of Hort Snacks. January through March always seems like a bit of a blur, since there are so many things to take in in the way of extension offerings. At the same time, this is typically the time for people to get away and take a bit of break prior to the greenhouses getting fired up and the pre-season activities getting underway. Well, enjoy it. It is a time when there is so much creativity and enthusiasm in the air.

In this edition of Hort Snacks, you'll see a vast array of workshops and conferences and webinars for you to take in, depending on your needs and interests. If you can't make the events that you see, try reaching out and get some of the material that is covered sent to you. Or take in a webinar after the fact. Most of the webinars are recorded and saved for at least a short time for people to make use of. If you can't get information, you aren't trying hard enough.

Also in this edition, you'll find a report of some things that some farm direct marketers are doing in Michigan. They are doing many things to connect with their customers and themselves, with the purpose of being more successful than ever before.

On the pest management front, there are various items to meet your needs. There are several events on offer in February and March that you might want to take in, such as the Farm Fresh School, the Potato Health Management Workshop and the IPM workshop, to name just a few.

Regardless, take this time in the winter to recharge your batteries and refill your idea tank, prior to starting the intense busy season. If you have ideas and input, we'd love to hear it. We're working to integrate a bunch of your input from the recently completed survey, so hopefully you'll notice an improvement in the coming months. Happy learning!

In this edition of Hort Snacks

▪ Featured Website	.....1
▪ Things to do / Things to think about	.....2
▪ STOPPED reminder / Elm Pruning Ban	.....2
▪ Upcoming Conferences / Workshops	.....3
▪ Agritourism & Farm Direct Marketing – poster	.....4
▪ Navigating the Road to Retail Workshop – poster	.....5
▪ Alberta Farm Fresh School 2016 – poster	.....6
▪ Alberta Farm Fresh School 2016 – tentative agenda	.....7
▪ Potato Health Management Workshops – poster	.....9
▪ Some Things I Learned on the GLEXPO 2015 Bus Tour	10
▪ Q&A	.....13
▪ Google Groups – Hort Snacks Forum	.....13
▪ In the News / Interesting Articles	.....13
▪ Mental Snacktime – Investigation	.....13
▪ Insect of the Month – Different Mite Species	.....14
▪ Disease of the Month – Seedling Diseases of Greenhouse Ornamentals	.....18

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

Featured Website

**University of California IPM Pest Management
 Guideline Information**

<http://www.ipm.ucdavis.edu/PMG/crops-agriculture.html>

THINGS TO DO / THINGS TO THINK ABOUT THIS MONTH

- Plan to attend winter workshops / courses. At the same time, think about visiting another operation this summer [or attending some field day(s) or workshop(s)]
- Register for Alberta Farm Fresh School (agenda attached) – connect with fellow producers, get answers and ideas and share your own thoughts with others
- Plan field layout of fields to be planted
- Check / Clean / Maintain Equipment
 - irrigation connections, nozzles, filters, pump injectors
 - sprayer nozzles, pumps, filters, lines, etc.
 - planters, seeders, etc.
 - harvesters and tractors
- Check / Update signage
- Finalise plans and dates for advertising during season
- Plan for planting equipment and labour

- Prune Saskatoon berries (as able)
- Prune or mow primocane raspberry plants to the ground (as soon as can get to)
- Continue to monitor strawberry plant winter survival. Order extra if necessary.

- Ensure memberships in organizations are up to date (inclusion in websites, guides, etc.)
- Review production record notebook
 - Fertilizer response?
 - Pesticide response/efficacy?
 - Application dates
 - Pesticide applicator license update?
- Roundtable discussion with everyone involved in your operation
 - Review errors – irrigation, fertilizer, pest management, staffing
 - Collect ideas for improvement, whether it is diversification, streamlined processes, new and interesting ways to reach customers, whatever. Pick a couple to try out and put whoever contributed the idea in charge of it.
- Inventory
 - Pesticide / fertilizer storage – What do you have? Has anything expired? Does everything have the proper labels? Is everything stored correctly?
 - Containers – picking boxes, containers, pails, bags, etc.
- Complete order of fertilizer, pesticides, picking/packing containers, etc.



Keep Alberta Dutch Elm Disease Free

- Do not bring firewood into Alberta
- Elm Pruning Ban is April 1 – September 30
- Elm trees from a DED infected province can not be shipped into Alberta

STOPDED
SOCIETY TO PREVENT DUTCH ELM DISEASE

Alberta

For more information call 310-0000 and ask for 403-782-8613
www.STOPDED.org

Elm Pruning Ban in Alberta

- Pruning and sanitation is an essential part of Dutch Elm Disease prevention
- Pruning of elm trees is legal in Alberta from October 1 to March 31
- The disease vectors (European elm bark beetles) are not active between these dates
- Proper pruning is very important – consult a professional arborist to determine the nature and extent of pruning required

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.

Upcoming Conferences / Workshops

February 2016

- **31st Annual North American Farm Direct Marketing Association (NAFDMA) Convention**
Jan 31 – Feb 6, 2016 – Abbotsford, BC
<http://www.farmersinspired.com/Convention/>
- **Social Media Bootcamp**
Feb 2, 4, 2016 – Lethbridge / Grande Prairie, AB
To register – 1-800-387-6030 – See [Coming Events](#)
- **Explore Local Webinar – Track & Measure for Improved Performance in Your Market**
Feb 9, 2016
- **Getting Into Farmers Markets**
Feb 10, 2016 – Peace River, AB
To register – 1-800-387-6030 – See [Coming Events](#)
- **Ontario Berry Growers Association Annual Meeting**
Feb 16, 2016 – Niagara Falls, ON
www.ontarioberries.com
- **Getting into Retail**
Feb 17, 2016 – Airdrie Ag Centre – Airdrie, AB
To register – 1-800-387-6030 – See [Coming Events](#)
- **Ontario Fruit & Vegetable Convention**
Feb 17-18, 2016 – Scotiabank Convention Centre – Niagara Falls, ON
www.ofvc.ca
- **Hort Snacks-to-Go Webinar – On-Farm Field Trials**
Feb 22, 2016
- **Agritourism & Farm Direct Marketing**
Feb 23 (Leduc) / Feb 24 (Airdrie) – Sparrow Drive Bldg (Leduc); Airdrie Ag Centre (Airdrie)
To register – 1-800-387-6030 – See [Coming Events](#)
- **Navigating the Road to Retail**
Feb 24, 2016 – Olds Provincial Building - Olds, AB
Register [on-line](#)
- **Alberta Farm Fresh School 2016 / Organic Alberta Conference**
Feb 25-26, 2016 – Pomeroy Inn & Suites – Olds, AB
www.albertafarmfresh.com
- **International Potato Technology Expo**
Feb 26-27, 2016 – Eastlink Centre - Charlottetown, PEI
www.potatoexpo.ca

Upcoming Conferences / Workshops

March 2016

- **Potato Health Management for Fresh Potatoes**
Mar 1, 2, 3, 2016 – Coast Lethbridge / Lacombe Memorial Centre / Executive Royal Hotel (Leduc)
To register – 1-800-387-6030 – See [Coming Events](#)
- **Marketing on a Shoestring Budget Webinar**
Mar 8, 2016
- **94th Canadian Horticultural Council (CHC) Annual Meeting – “Growing a Better Tomorrow”**
Mar 8-10, 2016 – The Westin Ottawa – Ottawa, ON
www.hortcouncil.ca/
- **Getting Into Farmers Markets**
Mar 9, 2016 – Medicine Hat, AB
To register – 1-800-387-6030 – See [Coming Events](#)
- **2016 Manitoba Direct Farm Marketing Conference**
Mar 11-12, 2016 – Portage-la-Prairie, MB
www.directfarmmarketing.com
- **Canada Blooms 2016**
Mar 11-20, 2016 – Direct Energy Centre – Toronto, ON
www.canadablooms.com
- **Hort Snacks to Go Webinar – Encouraging Beneficial Insects**
Mar 21, 2016
- **Hort Snacks in the Weeds: Invasive Species ID Workshop**
Mar 22, 2016 – Crop Diversification Centre North – Edmonton, AB
To register – 1-800-387-6030 – See [Coming Events](#)
- **What’s Eating You?: Taking Biocontrols & IPM to the Next Level**
Mar 23, 2016 – Thiel’s Greenhouse – Bruderheim, AB
To register – 1-800-387-6030 – See [Coming Events](#)
- **Hort Snacks at Night – Greenhouse Energy & Waste Management**
Mar 29 (Grande Prairie) / Mar 30 (Bruderheim) / Mar 31 (Redcliff)
To register – 1-800-387-6030 – See [Coming Events](#)

April 2016

- **Canadian Produce Marketing Association (CPMA) Conference & Trade Show**
April 12-14, 2016 – BMO Centre – Calgary, AB
<http://convention.cpma.ca/>

AgriTourism and Farm Direct Marketing Workshop



Featuring

Mark Saunders and Angela Grant of Saunders Farm

9:00 a.m. – 3:30 p.m.

February 23, 2016; 6547 Sparrow Drive, Leduc, Alberta

February 24, 2016; Main Floor, 97 East Lake Ramp N.E., Airdrie, Alberta



Mark and Angela will guide participants through this hands on agritourism and farm direct marketing workshop. They will help farms leave with tangible ideas and plans for their businesses.

Topics Include

- **Customer Service**
- **Staff Management and Training**
- **Pricing for Profit and Sustainability**
- **Marketing**
- **Products** (farm dinners, events etc.)

Cost: \$25 (plus GST)
(includes lunch and refreshments)

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

1-800-387-6030

For further information about the workshop contact Colin Gosselin at **780-968-3518** or colin.gosselin@gov.ab.ca

Mark and Angela lead the award-winning Saunders Farm near Ottawa, Ontario. Originally a strawberry U-pick operation, the farm has grown and redefined what a family farm can be. They have had over one million guests, and now welcome nearly 60,000 people each year to their Haunting Season. Mark and Angela are also active leaders with the North American Farmers' Direct Marketing Association.

Navigating the Road to Retail

Demystify the regulations, standards and contract requirements for selling fresh produce.



Are you a producer of fresh vegetables or fruit? Are you expanding to the retail market channel? Are you confused about the requirements? This workshop is for you.

This half-day workshop is for Alberta vegetable and fruit growers who are interested in the retail, grocery or food service market channels and have questions about the regulations and standards. Connie Kehler, from Herb, Spice and Specialty Agriculture (HSSA) Saskatchewan will give an overview of the options, and what programs such as on-farm food safety and certified organic bring to your business.

There will be presentations about on-farm food safety programs, including examples of Canada Gap and GACPs (Good Agricultural Collection Practices) and organics followed by an interactive learning session.

Participants will consider the challenges, potential benefits and actions they will have to take to make the move into retail.



Wednesday, February 24, 2016

1:00 p.m. to 4:30 p.m.

Basement Boardroom, Provincial Building,
5030-50 Street Olds, Alberta

\$20 to register.

Space is limited so register early!

This workshop is provided to compliment the joint 2016 Organic Alberta & Alberta Farm Fresh Conference on February 25 and 26 in Olds, Alberta.

Register online by Friday, February 12, 2016.



Alberta Farm Fresh Producers Association & Organic Alberta present...

Taking Your Farm to the Next Level



organic
ALBERTA

A two-day conference for conventional and organic producers to learn, network and build capacity in fruit, vegetable, livestock and grain production and marketing.

A trade show will be held both days. A business/conversation room will be running for specific companies to discuss their needs with participants. New Venture Coaches will be on-site to work with participants who want to flesh out their business ideas.

February 25 and 26, 2016

Pomeroy Inn & Suites, Olds College Campus

Registration – 8 a.m.

Sessions 8:45 a.m. – 5 p.m.

Day 2: 8 a.m. – 4:30 p.m.

Participants will:

- Access industry specific information and data
- Obtain resource materials
- Receive support to move forward
- Connect with peers
- Meet industry suppliers and contacts

For more information contact: Alberta Farm Fresh Producers Association – 403-558-0189
info@albertafarmfresh.com or Organic Alberta – 1-855-521-2400 info@organicalberta.org

Early Bird Registration Deadline: February 12, 2016

AFFPA / OA presents ... "Taking Your Farm to the Next Level" – Tentative Agenda

Thursday, February 25, 2016 – Day 1				BUSINESS / CONVERSATION ROOM	TRADESHOW	NEW VENTURE CONSULTATIONS
Ballroom A	Ballroom B	Ballroom C	Pool Room			
8:00 – 8:45 am REGISTRATION		8:45 – 9:15 am OPENER - Expanding your network & connections				
9:15 – 10 am PLENARY - How to Make a Small Farm Successful – <i>Rebecca Thistlethwaite (author/farmer/sustainability consultant)</i>						
10 - 10:30 am – COFFEE BREAK & TRADE SHOW						
10:30 – 11:55 am						
Strawberry Production – Soup to Nuts – <i>Robert Spencer (AAF)</i>	Practical Crop Planning & Rotation for Vegetable Production – <i>Mike Kozlowski (Steel Pony Farms)</i>	Organic 3.0: The Next Phase of Organic Development – <i>Becky Lipton (OA)</i>	Grazing & Planning for Drought – <i>Abe Collins</i>	TBD		
12 noon – 12:30 pm – LUNCH		12:30 – 1:30 pm – Annual General Meetings (AFFPA / OA)				
1:30 – 2:25 pm						
Strawberry production on plasticulture – <i>Blaine Staples (The Jungle Farm)</i>	Packaging Options and Regulations – <i>Lindsey Sutton (AAF) / CFIA speaker</i>	OA AGM (continued) Updates and news from the organic industry		TBD		
2:30 – 3:25 pm						
Weed Control Options for Vegetable Crops – <i>Janice Shelton (Sand Springs Ranch)</i>	Adopting Effective Practices for the Growing Farm & Processing Business – <i>Jody Marshall / Irvings Farm / Organic Box</i>	Weed Management in Grain Production – <i>Katherine Stanley (UofS)</i>	Better housing and pasture systems for poultry – <i>Daniel Chappell (Country Thyme)</i>	TBD		
3:30 – 4:00 pm – COFFEE BREAK & TRADE SHOW						
4:00 – 4:55 pm						
Pest ID – Know your Enemies – <i>Robert Spencer (AAF)</i>	Local Food – Perspectives on Where it is Going	Soils – Bringing Soil Science Back to the Farm – <i>Abe Collins, Daniel Chappell (Olds College), Wally Hamm (ProCert Organic Systems)</i>	Canadian Organic Standard Update and Revisions – <i>Amy Kremen (Canadian Organic Growers)</i>	TBD		
5:00 – 5:30 pm		Networking & Trade Show				

5:30 – 6:30 PM – Dinner & Awards (Cash Bar Available)

7:00+ PM – Informal Mixer / Social hosted by Young Agrarians – Olds College

AFFPA / OA presents ... "Taking Your Farm to the Next Level" – Tentative Agenda

Friday, February 26, 2016 – Day 2				BUSINESS / CONVERSATION ROOM	TRADESHOW	NEW VENTURE CONSULTATIONS	
Ballroom A	Ballroom B	Ballroom C	Pool Room				
8:00 – 8:30 am REGISTRATION		8:30 – 9:25 am PLENARY – A Deep Soil Legacy: Growing Deep Topsoil Catchments					
9:30 – 10:25 am							
Practical Integrated Pest Management – Dustin Morton (AAF)	How to Make Your Farm Customer Friendly – Blake Hall (Prairie Gold Pastured Meats) / Tam Andersen (Prairie Gardens & Adventure Farm)	Green Manure Management – Joanna McKenzie (Organic Agriculture Centre of Canada)	Small-scale Pork Production – Rebecca Thistlethwaite (author/farmer/sustainability consultant)	TBD			
10:30 – 11 am – COFFEE BREAK & TRADE SHOW							
11 am – 12:25 pm							
Newer Fruit Crop Production - Sour Cherry & Haskap / Blue Honeysuckle – Robert Spencer (AAF)	Transitioning to Organics – HORT/MEAT – Brian Luce (Lucends Ranch) / John Mills (Eagle Creek Farms) / Stuart McMillan (Organic inspector)	Grain Producer Panel: Crop Rotation Design – Steve Snider (Little Red Hen Mill) / Jim Schoepp (Home Grown Foods) / Ward Middleton (Midmore Farms) / Tim Hoven (Hoven Farms)	Meat Regulations – Mark Miller (AAF)	TBD			
12:30 – 1:30 pm – LUNCH & TRADE SHOW							
1:30 – 2:25 pm							
Spotted Wing Drosophila (& Other New Threats) – Robert Spencer (AAF)	Innovations on the Horizon - Hoops, Houses & Aquaculture – Greg Rekken (Olds College) / Daniel Chappell (Country Thyme) / Dr. Nick Savidov (UofL)	Grain Buyers Panel	Beef Cuts that Appeal – Marty Carpenter (Canadian Beef Centre of Excellence) / Abe van Melle (CBCE)	TBD			
2:30 – 3:25 pm							
Basic to Fancy Post-Harvest Handling & Storage – Ron Erdmann (Erdmanns Gardens & Greenhouse) / Rod Bradshaw (Beck Farms)	Building the Next Generation of Farmers – Young Agrarians	Transitioning to Organic Grain Production – Stuart McMillan (Organic Inspector) / Amy Kremen (Canadian Organic Growers) / Scott Olson / Melisa Zapisocky (OA)	Prairie Organic Grains Initiative: What's in it for You? – Karen Snethun (OA) / Iris Vaisman (OA)	TBD			
3:30 – 4 pm – COFFEE BREAK & TRADE SHOW							
4 – 4:25 pm PLENARY – Where are all the young farmers?							

4:30 PM – Conference ends

Potato Health Management for Fresh Potatoes

March 1, 2016

Coast Lethbridge Hotel & Conference Centre
(526 Mayor Magrath Drive South, Lethbridge, AB)

March 2, 2016

Lacombe Memorial Centre (5214 50th Avenue, Lacombe, AB)

March 3, 2016

Executive Royal Hotel (8450 Sparrow Drive, Leduc, AB)

This workshop will provide fresh/table market potato growers with information on the impact, identification and management of several significant diseases and pests of potato in Alberta, as well as the importance of seed and varietal selection for pest management in fresh/table potatoes.

Registration – 8:30 a.m.

Sessions 9:30 a.m. – 3:30 p.m.

Limit of 2 registrants per farm operation

Cost = FREE

Lunch and snacks provided

Each farm operation will receive a copy of the manual Potato Field Guide.

To register, please call 1.800.387.6030

Registration deadline: February 23, 2016

Some Things I Learned on the GLEXPO 2015 Farm Market Bus Tour

Every tour that I attend and every farm operation that I visit provides me with at least one good nugget of information or idea that I can take home and share with someone else (sometimes, it is just for me). No matter the focus of the operation, there is something to be taken away from seeing someone else's operation.

In this year's 2015 Great Lakes EXPO Farm Market bus tour, participants had the opportunity to tour six different operations, ranging from high level agritourism/agritainment operations to micro food hub-esque facilities. It was very interesting to see how each place presented their "something special" to us and to their customers and clients.

A. Krupp Farms – Comstock Park, Michigan

Pleasant store front with view of the fields

Krupp Farms is a 4th generation farm specializing in strawberries, raspberries and asparagus, although they've added a number of other agritourism activities, such as a petting zoo and ice cream shop. Their fall and winter seasons are spent running a travel agency specializing in tour groups.

- This operation has a lot of staff on the payroll, and most of them are teenagers to early adults. But what is impressive is their level of retention. Their philosophy is to pay well, reward good efforts and encourage them to work together to get the job done. They do fun things to lighten the mood (e.g. White shirt Wednesdays – to mock the owner). The best pickers and workers are carried over to other, more delicate crops.
- They have a lot of customer/employee contact, which they feel builds rapport. Employees are there directing parking, running the checkouts, marking rows, etc.
- They cross market their farm and picked product with their travel agency, which has really increased uptake of their off-season tours and feeds back to the farm. They have the logo of the travel agency on their picking flats and offer coupons for the farm on the travel website.



B. Carlson-Arbogast Farms – Howard City, Michigan

Carlson-Arbogast Farms now has its 5th generation taking a lead in farm operations, with their focus on dry bean production, especially speciality dry beans (e.g. cranberry and mayocoba beans). They've diversified their products to sell more into direct markets, although they are primarily wholesale bean producers.

- They've added smaller packaging to increase their opportunities to sell into retail markets.
- Their culls and splits are either put back onto the fields or sold to dog food companies for the protein.
- All of their beans are stored in mini-bulk totes.

Packages of dry beans for retail



Mini bulk totes of different types of dry bean



C. Farm Country Cheese House – Lakeview, Michigan

This operation creates speciality artisan-style Amish cheeses. They collect the milk from over 100 Amish family farms in the region, in the classic milk can container, but have a very rigorous and controlled system for maintaining quality and safety in their product, while protecting the customs and culture of their farmers.

- They sell their product through retail channels; however food service markets are increasing.
- Increasing their cold room capacity.
- Employees come from within their farm groups and much of the training is passed from generation to generation.
- Both the company and the farms can make a living, so both sides work hard to ensure that rules and regulations are followed.

Photos by Robert Spencer

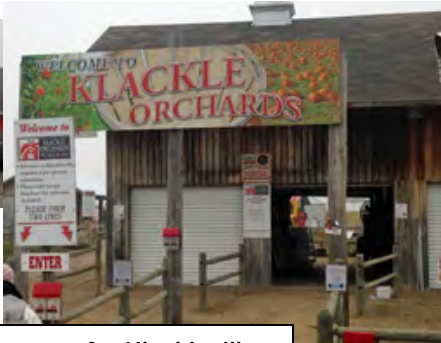


Some Things I Learned on the GLEXPO 2015 Farm Market Bus Tour – continued

D. Klackle Orchards – Greenville, Michigan

This operation has more agritourism/agritainment options than a top-of-the-line Swiss Army knife. If you want to be entertained, educated and wowed, just stop at this place and spend a few hours. Along with the traditional apple orchards and pumpkin patches, you'll find a Cornucopia Farm Market, tours galore, pumpkin carriage and various types of wagon rides (planes, cows, etc.), a carousel, education stations, themed towns and then some. They also have a sports complex (Pavilion Activity Center). It is epically overwhelming.

- They offer a wide range of activities for groups, whether school, corporate, family birthdays, etc. Admission includes some produce (e.g. ¼ peck of apples), plus access to Klackleville and other parts of the farm.
- They bring the whole farm experience, from fun to education, all mixed together.



Entrance for Klackleville

Entrance to market – apple pathway

Hand cleaning station – boxes for jugs



Rolling signage boards



Information area with lots of features



Decorative store front area in Market



Barnyard chalkboard



Apple harvest game area



Educational apple cleaning activity



Playground area



Educational farm area with activities



Moveable fire pits



Checkerboard table with sippy cup pieces

Photos by Robert Spencer

Some Things I Learned on the GLEXPO 2015 Farm Market Bus Tour – continued



Another playground area



Tour de Donut signage



A train of barrel planes



A selection of local product and art for sale



Indoor playing field in the Pavilion Activity Centre

E. H&W Farms – Belding, Michigan

This family business has evolved over the years to include fresh apple packing, as well as all things tart cherry, including cherry concentrates, dried fruit, pits and more. Their year round farm store sells a wide range of local product and art.

- They sell as much local product as they can get. This includes a wide range of art, as well as honey, maple syrup, sauerkraut, snacks, etc.
- They use the dried pits from their sour cherries as fuel for their houses (4-5 houses worth of fuel).

Photos by Robert Spencer

F. Vander Mill – Spring Lake, Michigan / Grand Rapids, Michigan

This burgeoning hard cider mill has continued to grow from a modest 5000 square feet facility to a new, massive facility, capable of increasing their hard cider production to way over 1 million gallons annually (many, many times what they were producing). Their new facility will allow their customers to visit, taste, eat, all while watching/observing their production from "on high".

- They focus on producing a quality product that is consistent and recognized in the industry and in their customer base. They ensure that the quality starts in the fresh, raw apple product and carries through their system.
- They partner with their apple producers to provide the apples types that will be worth something down the road. There is long-term planning involved.
- They decided to invest in a land in a neighbourhood/area that is experiencing excellent growth (more expensive) and will see their customer base come to them, rather than build outside of the city.

Q&A

Q: How do you care for your employees? What makes you a great employer?

A: I try to treat my employees with respect. I realize it is hard to pay them what they are really worth, so I try to do other things throughout the season like impromptu barbecues or ice cream. I try to take those who are returning next year to courses and trade shows and the government allows me to spend up to \$500 on physical gifts for them, so I try to remember them at Christmas. This year I was able to take one employee with me to the PW Roadshow and Westland Trade show and show her a great time in Banff with a stay in the Banff Springs Hotel, in part courtesy of Westland. We had a great time building a friendship as well. I try my best to ask for their input even if I still go with my own ideas, and I try to keep them up to date on the happenings for the coming season. I believe it is important to keep them involved and engaged. When you don't you lose them.

A: By working with them

Next Month's ? → [What is one product that you sell that is going to change in price \(up or down\) this year? Why?](#)

Google Groups – HORT SNACKS FORUM

Google has all sorts of different features and tools. One that I ran across a couple of years ago is [Google Groups](#).

You can essentially create and join common interest groups or discussion forums and share information and ideas back and forth. You can alter the settings to get forum updates all the time, daily, weekly or whatever.

A couple of years ago, we created a **HortSnacks Forum**, tied to this newsletter. Anyone can submit posts (questions, comments, etc.) via Google or via email. To submit a question (or post), either log into the group using a Google account or simply send an email to hortsnacks-forum@googlegroups.com and it'll send it to all members.

You can reply from email or from Google.

To subscribe to the group, send an email from your email account to subscribe+hortsnacks-forum@googlegroups.com

Try it out today!

Interesting News & Articles

- [The One Poisonous Thing That Really Prevents Success](#) – Inc.com article
- [The surprising truth about the "food movement"](#) – Washington Post article
- [5 Undeniable Ways Gardening Helps Cleanse the Mind, Body & Soul](#) – Rimol's Greenhouse blog
- [The Ins and Outs of Substrates](#) – Enza Zaden article
- [Organically Speaking: The Marketing Language of Organic Food](#) – Scientific American Blog Network
- [How To Retain Motivated Young Growers At Your Greenhouse Operation](#) – Greenhouse Grower article
- [Weed blasting offers new control method for organic farmers](#) – Fruit & Vegetable article
- [New \\$130 million project aims to cut food waste from fields to tables](#) – Reuters.com article
- [MIT's Food Computer: The Future of Urban Agriculture?](#) – Spectrum IEEE article
- [How to Reduce Storm Damage to your Greenhouse & High Tunnel](#) – Rimol Greenhouses article
- [How To Start A CSA](#) – Growing Produce article
- [Ten things to watch in fast moving consumer goods for 2016](#) – HortiDaily article
- [Exclusion Fence Technique for Cabbage Maggot Management in Brassica Vegetable Crops](#) – AAFC Pesticide Risk Reduction program article

MENTAL SNACKTIME – Investigation

"Doubt, indulged and cherished, is in danger of becoming denial; but if honest, and bent on thorough investigation, it may soon lead to full establishment of the truth." – Ambrose Bierce

"Wisdom is not acquired save as the result of investigation." – Sara Teasdale

"In the discovery of secret things and in the investigation of hidden causes, stronger reasons are obtained from sure experiments and demonstrated arguments than from probable conjectures and the opinions of philosophical speculators of the common sort." – William Gilbert

"What are facts but compromises? A fact merely marks the point where we have agreed to let investigation cease." – Bliss Carman

"We live in an age of universal investigation, and of exploration of the sources of all movements." – Alfred de Vigny

Various Mite species

Range of different species within the families Tarsonemidae, Tetranychidae, as well as other groups – pests and beneficials

Crops Affected: wide range of crops affected, depending on the species of mite; some species are predatory mites

Life Cycle:

- Tiny (almost microscopic; less than 1mm), 4-8-legged (usually 8-legged), soft-bodied creatures related to ticks and spiders (in the class called arthropods)
 - Feed by piercing and sucking
 - Attack developing tissues (growing points, flower buds), as well as leaf surfaces
 - Some species are beneficial, attacking various stages of insect and mite pests
- 4 life stages – eggs, larvae, nymphs, adults (largest)
- Eggs
 - Laid singly on leaf undersides, in flower buds, unfolded leaves, in soil (for some species)
- Larval and nymph stages
 - May or may not resemble the adult stages
 - May develop within a protected area, such as a gall
- Most mites have multiple generations per year
 - Rate of population development dependent on environmental factors such as temperature, day length, etc.
 - Hotter, drier conditions often increase the rate of development

Symptoms:

- Vary depending on species
- Yellowing or stippling, discolouration, bronzing, leaf stunting, malformation, and other related symptoms may be observed
- The presence of silk webbing is often evident as populations increase
- Galls of different sizes, colours and types may be observed for some species

Monitoring:

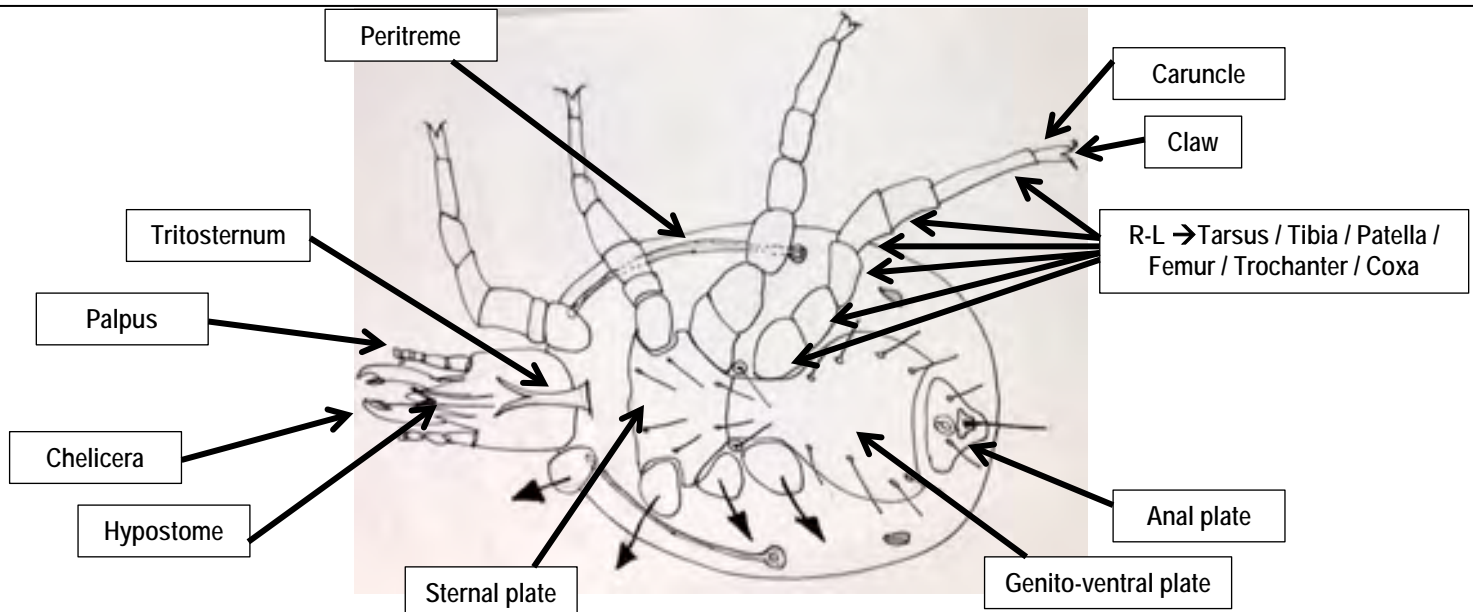
- Monitor for insect presence, as well as symptomatic tissues
- Movement of mites in a symptomatic area will appear as if grains of sand are moving
 - A magnifying glass/hand lens or microscope will likely be necessary to see and identify mites

Management:

- Range of management options are available for use, including chemical and biological controls
- Chemical controls must be specific, as mites are not insects and require different active ingredients
- A number of biological controls (including predatory mite species and other predators) are available for use and can be quite effective

Diagram of an adult mite – body parts labelled (not all parts labelled)

– NOTE: parts are drawn in general form, not specifically or to scale; some parts are shown singly, but occur in pairs (e.g. legs, etc.)



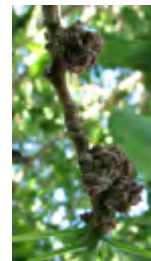
Description of Various Mites Species

PEST SPECIES – Not a comprehensive list

Common Name (<i>Latin Name</i>)	Host species	Characteristics	Feeding location	Symptoms / Damage	Other Feature(s)
Spider Mites					
2-spotted Spider Mite (<i>Tetranychus urticae</i>)	Many hosts (field / greenhouse orchard / ornamental)	0.5mm long; pale yellowish-green (may be orange to brown to black); 2 distinctive symmetrically located black spots on either side of the body	Undersides of leaves	Brownish-dry areas on lower leaf surfaces; Entire surface becomes dry and brown; Bronzed leaves;	Create a tangle of fine silken webs on leaf underside
Carmine Spider Mite (<i>Tetranychus cinnabarinus</i>)	More common in vegetables than ornamentals	Closely related to TSSM; bright red (adults)	Undersides of leaves	Widespread leaf yellowing and leaf drop	Quantities of webbing will be produced as populations develop
Lewis Mite (<i>Eotetranychus lewisii</i>)	Often on poinsettias	Closely related to TSSM; have a few small spots on the back;	Undersides of leaves	Yellow stippling; the upper surface of leaves turn light coloured and develop a bronzed appearance;	Quantities of webbing will be produced as populations develop
Broad Mite (<i>Polyphagotarsonemus latus</i>)	Wide variety of crops	0.1-0.3mm;	Tight, newly emerging foliage and flower buds	Distorted, thickened and twisted growth at the top of the plant and in the flowers	Eggs have a distinctive appearance – small bumps on surface
Bulb Mite (<i>Rhizoglyphus spp.</i>)	Flower bulb crops	White body; 0.5-1mm long; short, reddish-brown legs	Below-ground plant parts	Feeding scars turn brown and die; aboveground parts may appear yellow and stunted	Wounds represent disease entry points
Cyclamen Mite (<i>Phytonemus pallidus</i>)	Greenhouse plants; strawberries	0.25mm; pinkish/orange & shiny;	Young, unfolding leaves in plant crown	Stunted, malformed leaves; plants have flattened appearance; small, dry fruit with seeds standing out	Abundant egg masses appear as white mass on leaf midvein
Tomato Russet Mite (<i>Aculops lycopersici</i>)	Greenhouses (or outside in milder regions) – Solanaceous plants	0.2mm long / 0.05mm wide; only 2 pairs of legs at all stages;	Leaves, stems and fruit	Yellowing, curling and wilting of leaves; bronzed appearance; flower abortion; fruit deformation; plants may eventually die	Aggregations of mites on stems, leaves and fruit = beige or bronze appearance
Spruce Spider Mite (<i>Oligonychus ununguis</i>)	Spruces; balsam fir, Douglas fir, Eastern white cedar; juniper	Oval; dark green to dark brown; Up to 0.5mm long	Needles and young shoots	Discolouration of the foliage; webbing will be apparent; trees may be weakened; foliage may fall prematurely	
European Red Mite (<i>Panonychus ulmi</i>)	Tree fruit; grapes; raspberries	0.2-0.4mm (females larger); oval; velvet-brown to brick red coloured; a number of white spots at the base of hairs on the back	Lower leaf surface (preferred)	Off-colour foliage; becomes bronzed as increases in severity;	Develops most rapidly in hot temperatures
Gall Forming Mites (<i>Eriophyes spp</i> <i>Aceria spp.</i>)	Range of host species (depends on mite species)	0.2mm; worm-like; 2 pairs of legs		Bladder-like or pocket galls on upper leaf surfaces or fuzzy growths (erinea) on upper or lower leaf surfaces	Galls and erinea may be colourful
Poplar Bud Gall Mite (<i>Aceria parapopuli</i>)	Northwest poplar; poplar hybrids	Cigar-shaped; 0.2mm long; 2 pairs of legs; range from greenish-white to dark reddish orange	Buds or expanding leaves – feed on surfaces and then within galls that are formed	Twig and bud surfaces with feeding sites will form large (up to 4cm), unsightly, dark-green, fleshy galls (cauliflower-like) that become hard, dark-red and corky	Mites may remain in the galls for several years; Galls are persistent

PEST SPECIES continued					
Common Name (<i>Latin Name</i>)	Host species	Characteristics	Feeding location	Symptoms / Damage	Other Feature(s)
Purple Erineum Maple Mite (<i>Eriopyes calaceris</i>)	Mountain maple; speckled alder	Worm-like; 2 pairs of legs; 0.2mm long	Leaf surfaces	Erinea (fuzzy growths) form on the upper or lower leaf surface (depends on species)	Erinea may be colourful
Maple Bladder Gall Mite (<i>Vasates quadripedes</i>)	Silver maple	Worm-like; 2 pairs of legs; 0.2mm long	Leaf surfaces	Bladder-like galls on upper surface of leaves	Erinea may be colourful
Ash flower gall mite (<i>Aceria fraxiniflora</i>)	Ash	Worm-like; 2 pairs of legs; 0.2mm long	Male flowers (which become galls)	Persistent unsightly galls form in the place of male flowers	
BENEFICIAL / PREDATORY BIOLOGICAL CONTROL MITES					
Common Name	Latin Name	Pest species controlled	Appearance	Comments	
Predatory mite (Persimilis)	<i>Phytoseiulus persimilis</i>	Mites of Tetranychus spp. (Spider mites) – controls all stages	Pale-salmon to bright orange-coloured; pear-shaped; long legs	Rapid movement; voracious predator; requires pests (food) to survive – dies out without pests Likes a bit of humidity – doesn't love very hot and dry conditions (above 30°C, below 60%RH); Very rapid population development (2x TSSM)	
Predatory mite (Californicus)	<i>Amblyseius californicus</i> (a.k.a. <i>Neoseiulus californicus</i>)	Spider mites; broad mites; cyclamen mites	Tan-coloured; similar size to TSSM / <i>P. persimilis</i> – 0.5mm;	More tolerant of dry temperatures; can survive longer without mites than <i>P. persimilis</i> (feeds on other pest species, pollen, etc.) Develops more quickly and remains active at higher temperatures; less affected by low humidities Best used alone in low population areas or in high population areas (hot spots), as it will feed on other predatory species	
Predatory mite (Fallacis)	<i>Amblyseius fallacis</i> (a.k.a. <i>Neoseiulus fallacis</i>)	Spider mites; tomato russet mites; European red mites; spruce mites; pacific mites	Similar to <i>A. californicus</i>	More tolerant of pesticides; can survive on other pest species and pollen if mite pests aren't present; active at lower temperatures; compatible with other mite predators; Produces 2x eggs as some other species (e.g. <i>Typhlodromus pyri</i>); can overtake a pest population	
Predatory mite (Andersoni)	<i>Amblyseius andersoni</i>	Spider mites; broad mites; cyclamen mites; gall mites; European red mites; tomato russet mites	Beige coloured; less than 1mm;	Wide range of temperature tolerances; feeds on all stages; also feeds on other food sources; Best used prior to large pest population development;	
Predatory mite (Cucumeris)	<i>Neoseiulus cucumeris</i> (a.k.a. <i>Amblyseius cucumeris</i>)	Thrips; broad mites; cyclamen mites; tomato russet mites	0.5mm; clear white;	Tough, flexible predators; slower to develop at lower temperatures; doesn't interfere with other predators	
Predatory mite (Swirskii)	<i>Amblyseius swirskii</i>	Thrips larvae; whitelfy eggs/larvae; broad mites; cyclamen mites; tomato russet mites	Beige/pink; droplet shaped; short legs;	Tolerant of high temperatures;	
Predatory mite	<i>Gaeolaelaps aculeifer</i> (<i>Hypoaspis</i>)	Larvae of Sciarid flies; bulb mites	Brown; up to 1mm;	Applied to soil; Slow and steady reduction in pest population	

BENEFICIAL / PREDATORY BIOLOGICAL CONTROL MITES continued				
Common Name	Latin Name	Pest species controlled	Appearance	Comments
Predatory mite	<i>Strateolaelaps scimitus</i> (formerly <i>Hypoaspis miles</i>)	Larvae of Sciarid flies; other soil-dwelling stuff	Brown; up to 1mm;	Applied to soil; slow and steady reduction in pest population
Predatory mite	<i>Gaeolaelaps gillespiei</i>	Fungus gnats; thrips;	0.4mm; tan coloured;	Surface-oriented predator (doesn't go digging); good on coco-fibre mats and rock wool;
Predatory mite (TP)	<i>Typhlodromus pyri</i>	European red mites; TSSM	Pear-shaped; minute; creamy white colour (but colour may depend on colour of prey in their guts)	Can survive in early season on other food sources; move actively over surface of plant; cannot typically overtake an actively expanding pest population;
Predatory mite (ZM)	<i>Zetzellia mali</i>	Rust mites; European red mites; TSSM	Bright yellow (may have reddish tint);	Survives on other food sources, but will not reproduce without host prey; doesn't eat many prey beyond its preferred prey species (picky eater); Slow to explore and spread
Western Predatory Mite	<i>Galendromus occidentalis</i> (a.k.a. <i>Typhlodromus occidentalis</i> or <i>Mesoseiulus occidentalis</i>)	Spider mites;	0.5mm; teardrop or pear-shaped; 4 pairs of legs; vary from cream to green to red (depends on recent food source)	Active hunters; some strains will go dormant when day lengths drop below 11 hours; can be used in a wide range of crops; tolerates low humidity (not below 30%RH) and higher temperatures if RH is higher
Predatory mite	<i>Amblydromalus limonicus</i> (a.k.a. <i>Typhlodromalus limonicus</i>)	Larval stages of thrips; eggs/larvae of whitefly; some mite species	Beige/pink; droplet shaped; short legs; difficult to distinguish from some other species	Found in the corners of main veins, lateral veins and in flower buds;
Predatory mite	<i>Macrocheles robustulus</i>	Pupae of thrips; eggs/larvae/pupae of Sciarid flies; eggs of some other species; other pests	Brown; 0.6-0.8mm;	
Not a comprehensive list				
Note: Not all pest species may appear in Alberta (indoors/outdoors) or on all species listed – use as a general guideline				
Note: Not all predatory mite species may be available for use in Alberta				



Above – Two-spotted spider mite infested strawberry plants
 Note – dry/bronzed leaves; webbing; moving grains of sand on leaf surface
 Photos by Robert Spencer



Above – Galls caused by Poplar Budgall Mite
 Photo by Robert Spencer

Left – Bladder galls on maple leaf
 Photo by Robert Spencer

Seedling Diseases of Greenhouse Ornamentals

Causal Organism(s): *Various species of Pythium Rhizoctonia, Fusarium*

Crops Affected: Wide host range – most crops

Disease Cycle:

- Soil borne pathogens
- Young seedlings are most susceptible
- Typically associated with climatic conditions which are not conducive to vigorous plant growth
- May occur in greenhouse or field conditions

Symptoms:

Pre-emergence Decay

- Seed rot / decay
- Plants fail to emerge – bare areas planting
- No obvious surface symptoms – often attributed to poor quality seed

Post-emergence Decay / Damping Off

- Seedlings show sign of attack – at the soil level or on underground parts
- Lesions may be visible on above ground tissues near the soil surface
- Tissues become soft, spongy and water-soaked
- Stems become girdled and collapse - plants wilt and fall over
- Progresses quickly - plants may die overnight
- In some cases, plants may be slow to emerge or may be stunted, chlorotic or slow growing
- Older plants may show toughened collars but may not be killed – plants may be unmarketable
- *Pythium* species are typically associated with water-soaked lesions or grey-white mould and brown to black root rot
- *Fusarium* species can produce pinkish coloured masses of spores, with internal discoloration of the vascular tissues (in some cases)
- *Rhizoctonia* resembles *Fusarium*, although it does not produce spores and typically manifests at cooler conditions – root rots may have brownish sunken lesions

Management:

- Ensure growing media are sterile and free from disease
 - Select growing media that are well-drained, with good porosity and
- Ensure plants are grown in growing conditions that are conducive to rapid, vigorous, healthy growth
- If possible - avoid planting or growing in cool, wet conditions
- Ensure adequate plant spacing to allow good air circulation and light penetration
 - Provide some air movement to ensure that air doesn't become stale/stagnant
- Avoid overwatering, and waterlogged or poor drainage conditions
- Water plants to allow them to dry off early in the day (e.g. water in the morning rather than at night)
- Use production practices that promote good drainage of the seedbed – e.g. raised beds
- Ensure adequate crop rotations – may be difficult due to wide host range and pathogens involved
- Use treated seed or registered fungicidal seed drench / treatment



Declining greenhouse seedlings

Photo by Robert Spencer

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

Search the database for
electronic labels