



HORT SNACKS

Sometimes you blink (just for a millisecond) and another month is gone. If you are like me, you might ask “Where did the time go?” But then, after very brief reflection, you realize that you used it. It was jam-packed with work, errands, outings, trips, tours and maybe a bit of relaxing. Toss in eating and sleeping, and you have a recipe for a full month. Time flies when you are having fun.

Welcome to another edition of Hort Snacks. As is usual, as the summer draws to a close, there seems to be more and more to report on, hence, the extended edition. In this edition, you'll find reports from both the Fruit and Vegetable Field Day in August, as well as from my trip to Nova Scotia to attend the North American Strawberry Growers Association summer tour. Trips and tours are very eye-opening and I highly recommend taking in some of them periodically. Even if you are a well-established grower and don't plan on making any changes, seeing what others are doing will help you to refresh your view(s) on your own operation and perhaps provide perspective. Consider it a sort of “mental soil” loosening or “mental soil tillage”, if you will.

In most areas, it has been a fairly hot and sunny summer. The heat has been mostly good for most crops. I don't remember seeing combines going this early in recent years, which is nice to see. From what I've heard, hort crops were reasonable this year, however the big factor this year seems to be hail. I can't say that I recall a more hail-ridden summer. There has been lots of damage out there; hopefully many of you were spared or came through reasonably unscathed. Some of the most severe hail storms I've ever heard of have occurred this summer. If you will permit me to put it in another perspective, it is awe-inspiring and mind-numbing to consider the awesome power of the weather to keep some of those hail stones airborne as long as they are to generate such large size hail.

I hope that you have a great end of the summer and a good, open fall. If you have any thoughts, comments, suggestions, reports, ideas or anything that you'd like to share, feel free to send them in.

Rob Spencer, Commercial Horticulture Specialist
Alberta Ag-Info Centre, Alberta Agriculture & Rural Development
310-FARM (3276)

FEATURED WEBSITES

Savvyfarmer.com / Savvyfarmerlite.com

Pest Control Recommendation Tool (subscription or free versions) – searchable by crop & pest (insect, disease, weeds) – includes products, rates, labels, pictures, etc.

Alberta Food Consumer View website - an online resource that explores insights about the Alberta Consumer, their actions and their motivational behind food purchases

In this edition of Hort Snacks

▪ Featured Websites	.....1
▪ Things to Do / Things to Think About	.....2
▪ Farm Fresh Coupon Book	.....2
▪ Upcoming Conferences / Workshops	.....3
▪ Q&A	.....3
▪ Mental Snacktime – Candor / Candid	.....3
▪ Fruit & Veg Field Day – August 2012 – Report	.....4
▪ NASGA Summer Bus Tour 2012 – Report	.....6
▪ Insect of the Month – Non-Pest Pests – Wasps/Yellow jackets/Hornets, Hawthorn lace bugs	..... 17
▪ Disease of the Month – Leaf Scorch	..... 18

THINGS TO DO / THINGS TO THINK ABOUT THIS MONTH

Strawberries

- Good soil moisture must be maintained in June bearing strawberries to ensure maximum branch crown and flower bud formation (next year's production)
- Old weeds should be removed this month. Reducing the amount of foliage and trash will facilitate proper placement of herbicides later this or next month. Cultivation between rows to eliminate weeds, incorporation of straw and aeration of the soil should also be done
- Day-neutral strawberry producers often find irrigation for frost protection beneficial during fall months. Very often producers experience 1 or 2 frosty nights in late August-September followed by weeks of "Indian Summer"
 - Frost protection has proved invaluable during this brief period
 - Water releases heat as it freezes on the plant, thereby keeping the plant parts above freezing. Protection can be obtained down to approximately -6.6°C . At temperatures of -1°C at plant level frost may cause slight injury to open flowers. Medium injury may occur to open flowers at temperatures of -2°C . Producers should have accurate thermometers stationed throughout their field, especially in depressional areas
 - Irrigation should commence when temperatures at ground level reach $+1^{\circ}\text{C}$. Ice may not form immediately. Ice formation of 1 cm in thickness may form without serious damage to the plants. Irrigation should continue until the ice melts off the plants. A thermometer in the field at ground level in a location not frost protected may assist in determining field temperature
 - Field warming through the use of irrigation during periods of frost is a relatively inexpensive form of insurance. Much of the year's income can be wiped out in one chilly night. Straw mulch within the row is also a definite asset. Some producers find that fibre/fabric row covers are providing $1-2^{\circ}\text{C}$ frost protection

- Do not apply 2,4-D or Lontrel in September due to flower bud initiation. September is a good time to apply Devrinol or Sinbar to control winter annuals
- Strawberry growers should be making arrangements for obtaining clean rye or wheat straw for mulch this fall. Personally walking farmer's fields to decide how clean (free from weeds) the straw will be might be a good idea prior to purchase.

Apples

- Stop watering/irrigation to encourage shut down and winter acclimation. Apples will continue to grow if water is available

Raspberries

- Prune out spent or fruited canes, as well as weak or diseased canes
- Reduce irrigation this month to encourage hardening
- Consider fall herbicide applications in established plantings – some restrictions apply to certain products (e.g. Casoron)

Saskatoon berries

- Disease pruning and weeding
- If you are planning to rejuvenate (mow-off) your orchard next spring, do not use Casoron this fall

Vegetables

- Remove mature product and cool quickly to ensure maximum post-harvest life
- Field covers can be used to protect crops from fall frosts
- Curing of some crops (potatoes, bulb veg, pumpkins) can help in wound healing and post-harvest lifespan
- Fall planting may be done for some crops (e.g. garlic, spinach, etc.) – timing varies – too late can result in winter injury and poor survival

General / Other

- Mow grass and weeds around plantings to discourage mice as well as reduce insect and disease overwintering sites

Pest Management / Monitoring

- Monitor insects and control if necessary (to reduce overwintering stages)

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.

September 2012



Contact
Krista Miller
Executive Director
Alberta Farm Fresh
Producers Association

Alberta Toll Free:
 1-800-661-2642
All other calls:
 403-558-0189
Fax: 1-866-802-8059
Email:

kinfo@albertafarmfresh.com
www.albertafarmfresh.com



Important Dates:

- ⇒ Submit your coupon ideas to Krista Miller by **October 31, 2012**
- ⇒ Coupon books will be sold from **February 1–May 15, 2013**
- ⇒ Coupons are valid till **March 15, 2014**

Q&A

Q: What are some common post-harvest challenges and how do you avoid them?

A: In the introductory parts of the literature review of my MSc thesis, there is a whole section devoted to outlining how the vast majority of post-harvest problems are usually caused by issues that occur in the field long before harvest. Most could have been prevented or at least minimized by management measures applied in the field. This includes ensuring that crops have adequate moisture, nutrition, protection from attack by pests, etc. It also means that producers should pay attention to weather conditions at harvest and ensure that you try and handle product throughout the post-harvest period that is of the highest quality possible. – Rob Spencer (AARD)

A: Most post-harvest diseases occur due to neglect or attack during the season, which either occur or gain access to harvested product due to damage during harvest and/or post-harvest handling processes or due to incorrect storage. Careful calibration of harvesting and post-harvest handling equipment AND the people that are working in, on and around the equipment can help to reduce the amount of damage that occurs – Rob Spencer (AARD)

Next Month's ? → [How do you keep the fire burning – What do you do to maintain interest and enthusiasm about your business?](#)

MENTAL SNACKTIME

"Candor is a compliment; it implies equality. It's how true friends talk." – Peggy Noonan

"Candor is a proof of both a just frame of mind, and of a good tone of breeding. It is a quality that belongs equally to the honest man and to the gentleman." – James F. Cooper

"Innocence in genius, and candor in power, are both noble qualities." – Madame de Stael

"It is always well to accept your own shortcomings with candor but to regard those of your friends with polite incredulity." – Russell Lynes

"A "No" uttered from deepest conviction is better and greater than a "Yes" merely uttered to please, or what is worse, to avoid trouble." – Mahatma Gandhi

Upcoming Conferences / Workshops

September 2012

- **2012 Canada's Outdoor Farm Show**
Sept 11-13, 2012 – Woodstock, ON
www.outdoorfarmshow.com
- **5th World Congress of Agronomists & Agrologists**
Sept 17-21, 2012 – Quebec City Convention Centre, Quebec City, QC
www.worldagro2012.com/index.php/registration/?lang=en
- **CanWest Horticulture Show**
Sept 19-20, 2012 – Vancouver Convention Centre – Vancouver, BC
www.canwesthortshow.com

October 2012

- **10th Annual Canadian Urban Forest Conference**
October 2-4, 2012 – London Convention Centre, London, ON
<http://cufc10.ca/>
- **Canadian Greenhouse Conference**
October 3-4, 2012 – Scotiabank Convention Centre, Niagara Falls, ON
www.canadiangreenhouseconference.com
- **Creating Rural Connections 2012 – Regional Realities & Approaches**
Oct 11-13, 2012 – Olds College - Olds, AB
<http://www.ardn.ca/news-events/creating-rural-connections-2012/>
- **Fresh Summit International Convention & Exposition**
October 26-28, 2012 – Anaheim, California, USA
<http://www.freshsummit.com/>
- **HortiFair**
October 30 – Nov 2, 2012 – Amsterdam, The Netherlands
www.hortifair.com

November 2012

- **HortiFair**
Oct 30 – November 2, 2012 – Amsterdam, The Netherlands
www.hortifair.com
- **Explore Social Media (Level 1)**
Nov 1 & 6, 2012 – Grande Prairie, AB (limit 15) & Calgary, AB (limit 20)
www.agriculture.alberta.ca/comingevents
- **Saskatchewan Green Trades Conference**
November 9-10, 2012 – Saskatoon Inn, Saskatoon, SK
<http://www.saskgreenhouses.com/2012-conference.php>
- **Potato Growers of Alberta Annual General Meeting**
Nov 13-15, 2012 – Capri Convention Centre – Red Deer, AB
www.albertapotatoes.ca
- **Green Industry Show & Conference**
November 15-16, 2012 – Edmonton EXPO Centre at Northlands, Edmonton, AB
www.greenindustryshow.com

National Tree Day – September 26, 2012

National Forest Week – September 23-29, 2012

National [Organic Week](#) – September 22-29, 2012

Fruit & Vegetable Field Day – August 21, 2012

Another great and interesting field day was held this last month. To make up for the fact that there was only 1 field day this summer, the agenda was expanded to include morning and afternoon activities and tour stops. Participants met at Olds College, which hosted the morning activities, and were able to spend one hour in the Fruit Demonstration Orchard and one hour divided between an insect ID lab (run by Dr. Ken Fry – Olds College) and a disease ID lab (run by Dr. Mike Harding – AARD). Participants were also given time to visit the Arboretum, the apple variety orchard and to see espaliered apples and northern grapes.

Unfortunately, due to family medical concerns, we were not able to visit Pearson's Berry Farm. However, that meant that we could spend a good chunk of time at the Bowden Sun Maze / Eagle Creek Farms. There were lots of things to see and learn and questions were flying. Here are a few of the things that were picked up during the course of the afternoon.

Bowden Sun Maze / Eagle Creek Farms

- Used to be a farm that grew/raised traditional crops/livestock
- John started farming with Stan 7 years ago
- Doing things differently

Range of different activities / offerings

- U-pick flowers; u-pick vegetables; sunflower and corn mazes; range of ag-tourism activities
- High tunnels to protect some crops and to accelerate growth
- Greenhouse attached to chicken barn = minimal heating requirements, even in winter
- Grow a number of acres of seed potatoes
 - Have some demonstration rows of all the varieties they grow
- Raised trough strawberries
 - No bending (for giants or for the non-vertically enhanced)
 - Still working on the growing medium, fertility, etc.
 - Irrigated with drip system

Some production activities

- Looking towards organic certification – not just a price premium, but a belief
- All veg crops are irrigated with drip irrigation
 - More efficient use of the limited water that they have
- Use biodegradable plastic mulch to cut down on the weeds and moisture loss
 - Corn-based, therefore suitable for organics
 - Breaks down by the spring, so it can be rototilled in (if there is much left)

Labour

- Significant chunk of revenue (usually about 30%)
- Likes to use local labour to keep money in local area
- Has one foreign worker, but finds it tough
 - Has to maintain a 7 day a week, 12 hour a day workload for him
- Open more up until end of August (week days & weekends), then drops back to weekends for the maze once students go back to school



Bowden Sun Maze – Entrance



Entrance & Hours of Operation



Fun stuff for the kids



Bale maze outside of farm store



Mazes, animals and play area for kids



Tour group with Farmer John Mills



Aerial view of sunflower / corn maze



Farm store displays

Community Supported Agriculture (CSA)

- Started program 3 years ago
- Now up to about 300+ full family shares (mostly full shares, but some half shares)
 - ½ share = good for a couple plus 1 small kid
 - Full share = good for small to mid-sized family
 - Works out to about \$25 per week
- Markets almost exclusively to Calgary, as there is a large population and demand, without having to compete with other producers for more local customers
- Boxes delivered to number of locations in Calgary and other locations (farmers' markets, etc.)
- Provide veggies over about 14 weeks
- Advantages
 - People want a direct and closer relationship with the farmer
 - Grower gets the money up front, without having to carry all of the risk
 - Able to explain to customers some of the inherent risks
 - Able to sell stuff that might be graded out from the farmers' market product because of visual quality, but can explain to CSA customers that are still good and how to use different vegetables
 - Have the opportunity to talk directly to customers about use of veggies, etc.
 - Most customers understand (or come to understand) the risks that are associated with production (e.g. hail, crop failure, etc.)
 - Some loss of people each year that don't understand but they are replaced
- Have about 20 acres of production geared to supplying CSA
 - Multiple, sequential plantings to provide a supply throughout the season
 - Lots of greens
 - Wide selection of vegetables
 - Don't use synthetic pesticides
- Going for organic certification in coming years

Sunflower / Corn / Other Mazes

- Has 8 acre sunflower maze
 - Only one in Canada; 2 in USA
- Also have corn maze and a sunflower/corn mix
- Set up with multiple exits and different activity boards throughout the maze
 - Can exit every 15-20 minutes or spend up to 1.5-2 hours in the maze
 - Geared to families with 6-15 year olds
- Sees differences between organic sunflower maze and herbicide treated corn – better growth in sunflowers
- Sunflowers are cut and ground for chicken feed
- Working on a willow tree maze
- Has a bale maze



Sunflower maze (distance) + labyrinth



Chicken barn & greenhouse



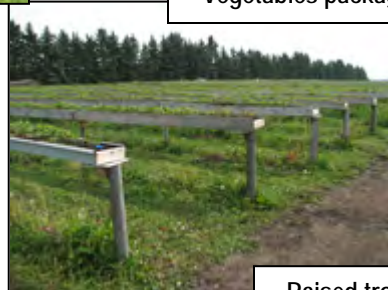
U-pick flowers & vegetables



Vegetables packaged for CSA customers



Tour group in U-pick garden



Raised trough strawberries



North American Strawberry Growers Association – Summer Bus Tour – Day 1 (August 14, 2012)

Burgess Baskets – Newport Station, Nova Scotia

- Started in 1990
- Ship across Canada and the USA
 - 6-7 million strawberry boxes
- Make a range of basket sizes and types
 - Different sizes and grades
 - E.g. u-pick berry, seafood, etc.
 - Some with lids



Stripping bark from raw logs

Front end

- Raw logs
 - Aspen = soft hardwood, with straight grain
 - Come from all across the Maritimes
 - 8 foot lengths
 - Cut for different product use so don't get much waste
 - Logs aren't soaked
 - Green wood
 - Used to have to steam the different species
- 2 ton lathe
 - Knife bar system
 - 7 inches to 63 inches long
 - Thickness and length are adjustable depending on need
- Go through 3 cord of wood per day
 - Doesn't leave wood in the yard for long – maximum 3 months
- Waste is chipped for organic mulch
- 1902 equipment – no contract service to fix – do it themselves
 - Make own parts since 2004



Wood lathe machine



Lathe being used to create thin pieces of wood



Assembling basket framework

Assembly of baskets

- Bushel baskets
- Hand arrange in 16 piece pattern
 - 3-4 bands
 - All bands "tied"/stapled down
 - Combine with wire handles
 - Quality controlled
 - Every basket looked at
- Each batch is 700
 - 700 every 6-7 hours (depending on weather)
- Attic system = hanging system = drying system
- Dozen drying rooms
 - Capable of drying 2100 per day
 - Heat dried at 120°
- Waste (veneer, etc.) used as organic mulch (chips) or logs, etc. used for firewood or solid bottoms



Basket framework assembly pattern



Rims for bushel baskets



Assembling ½ bushel baskets

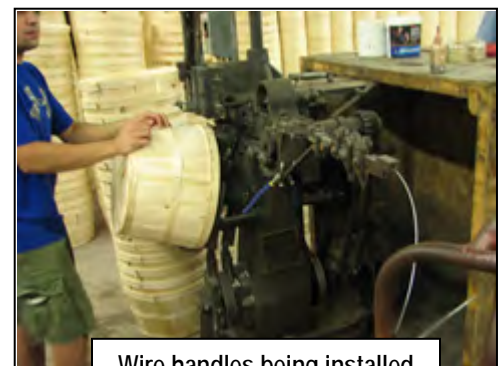
Photos by Robert Spencer



Range of basket products



Finished product



Wire handles being installed

NASGA Summer Bus Tour – Day 1 (continued)

Webster Farms – Cambridge, Nova Scotia

Background

- 3 brothers; 3rd generation family farm
- Grow strawberries, raspberries, rhubarb, dry bean, winter rye = revenue crops
 - Also grow cover crops / rotation crops
- Historically
 - Used to grow tobacco
 - Used to freeze strawberries – stopped 12 years ago
 - 1989 beef cattle – out
- Presently have 4 blocks
 - 1 = new last year
 - 1 = 9 years old – modified biennial
 - 1 = 3rd year – modified biennial
 - 1 = standard production

Modified Biennial Production System

- Plant and fruit when canes get at least to 2nd wire
 - This year – left to be only vegetative
- 2nd year = biennial production
- Then go to alternate bearing production
 - Full back and forth after that
 - Take out after less than 10 years
- Fruit every second year to reduce labour
 - Mow all and suppress vegetative canes in fruiting year
 - ?? – suppressing veg canes in fruit year = not enough to support cane?
- Plays with a lower plant density (~10-12 canes/foot)

Varieties

- Nova = production variety for them
- Do some testing of Andrew Jameson's varieties
- Trying other varieties because of varietal lifespan
- Tried Encore, Octavia
 - Encore wouldn't release from core if not quite ripe
 - If too ripe = bleeding interior

Trellis System

- 3 wire; fixed V-trellis
- Round posts + 2 boards to keep trellis wire straight – tighten
 - Round posts want to twist
- Drip irrigated
 - Now put drip line up on the lowest wire, about 1 foot off of the ground
 - No worry of off season mowing

Yields

- Previously 4-5K pints per acre; now 12-15K pints per acre
- 99% wholesale
- 1 week of raspberry u-pick
- Strawberries = different

Management system

- Drip, trellis, biennial system
 - Lots of manual labour
- Agro-K fertility program
- Nitrogen → 85 units per field acre but concentrated in 4 foot of row
 - Split over 2 applications
 - Late April and early May
- Ignite herbicide

Photos by Robert Spencer



Elevated drip irrigation system allows easy off-season mechanized mowing



3-wire V-trellis system – round posts are supplemented with boards to hold posts straight when wires are tightened

NASGA Summer Bus Tour – Day 1 (continued)

- Mowing – trellises stay in place
 - Bush mower – weed whacker
 - Also brush mower & hand pruning

Pest Management

- Had to build booms for sprayers – can't get what need
 - Very little fruit rot
 - Good mite control
 - Nozzles swivel - up/down, etc.
 - Double bottom nozzle – can do drench applications if needed
- Predatory nematode for root weevils
- Crop scouting program

Labour

- Mexican workers
 - 3 years ago = 8
 - This year = 24
 - May go up

Strawberries

- Myra, Jewel, KO412, 93.8, Brunswick
- Keep 1-3 years in production
- New varieties coming from Kentville breeding program
- 10-14K quart yield range
- Problems with Rhizoctonia, Phytophthora and Root Weevil
- Weed management for strawberry
 - fumigant plus Mexicans

Vital Berries – Centreville, Nova Scotia

- ~45 acres of strawberries
 - 18 acres of June-bearers
 - Rest = Day neutrals
 - Day neutrals on plasticulture

Varieties

- 12 acres of Albion April planted
 - Albion – 3 years?
- Some Darselect
 - Short day crop – good for plastic
 - Produces lots of runners
 - Very susceptible to Powdery Mildew
 - Need a good chemical and good application timing
 - Really resilient in summer
 - Produce fruit one after the other, not all at once
 - Overwinter then second crop
 - High mow and then runner cutting
- Tried Seascape
 - Too warm at night in the area plus gets too warm to set fruit trusses
- Albion – planted mid-April
 - Bare root plants
 - Pick mid-July onward
 - 50 flats every 2 days
 - No rain = no issues
 - Albion doesn't like rain – gets wet nose
 - 11 inch in-row spacing; 1 foot between
 - Didn't de-runner



Homemade orchard sprayer equipment – includes adjustable angle nozzles and double/triple base nozzles for drenching

Photos by Robert Spencer



Darselect strawberries on plastic



1 year old Albion day-neutrals on plastic



2nd year Albion day-neutrals on plastic

NASGA Summer Bus Tour – Day 1 (continued)

Labour

- 36 foreign workers – necessary
- Only get “right” Mexican labourers
 - Professional strawberry growers



Foreign laborers planting bare root plants into plastic beds



Machine for de-running plants

Runner Removal

- Uses a new German machine
 - Strawberry runner cutting machine
 - Cuts down on labour
 - Use machine to cut 80% of runners
 - Less disease (PM)

Frost Protection

- Uses row covers for frost protection rather than irrigate
 - Typar 1.2 oz/sq yard
 - Lasts for 10 years
 - Put over hoops
 - Hoops = every 5 feet
 - Barrier between winds and flowers
 - During bloom – contact with cover and flower = lose flower
 - Use outdoor bricks to weigh down edges
 - Frost with high winds = row cover didn't work



Row / field covers (1.2oz) over hoops for frost protection

- Use row cover without wires for winter
- Does straw between rows increase frost risk?

Pests & Pest Management

- Chateau before planting between row
 - Little on shoulder of plastic
 - Some backpack for grasses
- Malathion for insects – TPB
- Delegate for Thrips
 - Weekly or 5-7 days
- PM products
- Highly infected fields with Verticillium
 - Telone C-17 = 5+% loss to Verticillium Wilt
 - Now with Chloropicrin = no issues with Verticillium wilt



Hoops to keep row covers from contacting flowers / plants

Field Preparation Process

- Wants no rotation
 - Fumigate, then compost
- Fumigate with Chloropicrin to kill bad organisms
 - Raise bed at same time
- Apply compost 1.5-2 pound compost/row foot
 - 0-20 tonnes/ha
- Light and shallow cultivation (1-2 inches)
- Put on plastic
- 1x/month apply a compost tea



Machine with rubber finger tips for removing trash from overwintered strawberries

Photos by Robert Spencer

Row Covers

- Roll cover onto reels
 - Use JD tractor 70+ HP – do it at edge of field
 - Has a machine to help load the reels
- June-bearers – contact herbicide between rows to kill off runners
 - Remove runners 2x per season
- In the past, did new plastic every time they plant
 - Now does 2 crops on same plastic
 - Old plastic was 1, new = 1.25



Equipment to help roll row cover onto reels



Reels of field cover

NASGA Summer Bus Tour – Day 1 (continued)

Fertility Program

- Compost = Variable with moisture
 - 1.5-2 pounds N/row foot
- Compost tea
 - 40-60L/ac
 - 120L/ac didn't show benefit
- Fertility rates
 - 26 N; 42 K
- Apply 4x fertilizer in non-composted areas
- Other fertilizer
 - CaNO_3 ; KNO_3 ; MgSO_4

Compost

- Compost = purchased from municipality
 - People are required to collect compostable materials at home
- Compost = considered to be good for strawberries
 - 1.5-2%N
- Test your compost and get C:N ratio
 - Under 10 (C:N ratio) = fast mineralization
 - High C:N = slow mineralization
 - 10-20:1 = slower
 - The compost that they are using = 12:1

G.W. Allen Nursery – Centreville, Nova Scotia

- Mainly strawberry plants
 - Also do raspberry cane plant stock
 - Also have 10 acres of fruiting apples
- Father (Gilbert) started in 1963
- Son (Jeff) took over 8-9 years ago
- Building complex expanded over time
 - 6000 square foot refrigerated area
 - Bunch of different rooms

Labour

- Lots of hand labour – pack, week, etc.
- Jamaican off-shore → requirement
- Bring labour direct and/or bring transfers from ON

Certified Plants

- Nova Scotia Certification Program – since 1957
 - Walk fields 2-3X depending on the market
- 3 year Certification program
 - Year 1 = Elite stock – in screen house
 - Year 2 = Foundation
 - Year 3 = Certified fields
- Repeat every year
- 2 screenhouses
 - Start Elite 1 plants
 - 1 for Southern varieties
 - 1 for Northern varieties
- Fine screen
 - Helps to maintain air temperature and no insects



Compost tea being injected into drip system



Applying compost to fumigated & shaped rows



Screen house for Elite stock

Photos by Robert Spencer

NASGA Summer Bus Tour – Day 1 (continued)

Crop production

- Store lots over fall for Northern Market
- 2 crops
 - Fresh to Florida (harvested in Sept/Oct)
 - Green, not totally mature
 - Yield per acre reduced
 - Dormant plants to Canadian / Northern USA (mostly Canadian) markets
 - Harvest Nov/Dec
 - Store at -2°C
 - Some may be covered and harvested in spring while dormant

Grading/Packing

- 75 packers at a time
- Individual tables rather than belt lines
 - 4 person per table
- Still best to lift into bins, sort and grade
- 400K crowns per day
 - 6 days per week
 - Pack for 5-6 weeks for Florida
 - Pack for 6 weeks for North (fall and spring)

Different Markets = Different Handling

- Fresh (Florida market)
 - 34°F
 - Remove field heat
 - Sort and pack with plastic
 - Back to cooler
 - Leaves are left on
- Northern plants
 - No tops, mostly frozen
 - Bundled in 26's (25+1)
 - Leaves off in field or cut by packers
 - Harvest 50-70% in fall
 - Can store entire crop if get harvested
 - Don't want spring green plants
 - All plants are dug asleep, wake up in their new fields
- Winter storage
 - In bags, stacked for airflow
 - Box packed later on

Production System

- 7 rows/sets/variety
 - Spread out
 - N vs S markets
- Sandy soils
 - Heavier soils – avoid
 - Own their own land or long term lease – don't inherit problems
- Plant in spring, grow, then harvest
- 3 year rotation
 - Year 1 = plant strawberries
 - Fall rye (if possible) – late season
 - Year 2 = grain crop
 - Year 3 = fall rye → green manure / fallow
 - Make variety decisions 3 years ahead – need time to bulk up
- 15 inch plant spacing
- Hand remove June-bearer blossoms 3 weeks after planting
 - Day neutrals – continue to pick blossoms all season long



Foreign laborers demonstrating sorting/grading fresh crowns for Florida market



Crown harvester



Strawberry plants for Florida market

Photos by Robert Spencer

NASGA Summer Bus Tour – Day 1 (continued)

- Keep rows from getting too wide
 - Cut runners
 - Maintain wheel tracks
- Plant requirements
 - 25:1 plants per acre = minimum production
 - Can get up to 60:1 if waits

Raspberries

- 2 year program
 - Year 1 = mother and root
 - End of Year 1 = dig and toss mother plant
 - Year 2 = when no snow is left = looks bare
 - Green shoots come on – harvest 1 year

C.O. Keddy Nursery – Kentville, Nova Scotia

- Strawberry, raspberry crown production
- Similar system to G.W. Allen Nurseries
- Started with G.W. Allen
 - Worked 9 years
 - Then started out on own

General Tidbits

- **Foliar calcium sprays**
 - Help keep fruit firm
 - Helps with hail healing
- **High tunnel raspberries**
 - Bigger, better raspberry fruit
 - Hold post-harvest for longer
- **CSAs**
 - Include vouchers for free classes, etc.
 - Adds value
 - Self-picked peas with come get basket of potatoes
 - Charge per week rather than as a whole package / lump sum
- **Tip = soak roots from California for 1 day before planting**
 - Helps to get going
- **With planting bare root crowns**
 - If use tool ½ way on roots, ½ roots are upwards = not great

North American Strawberry Growers Association – Summer Bus Tour – Day 2 (August 15, 2012)

Elmsdale Sobeys – Elmsdale, Nova Scotia

- Local product displays
- Lots of connection with local growers
- Company originated in Nova Scotia



Millen Farms display in local Sobeys



Local product (wild blueberries) in local Sobeys

Photos by Robert Spencer

NASGA Summer Bus Tour – Day 2 (continued)

Millen Farms – Debert, Nova Scotia

- 140 acres of strawberries
 - 40 acres of matted row June bearers
 - 100 acres of plasticulture – increased to this point over last 3 years
 - 3rd year in DN strawberries
 - 15 acres to 50 acres
 - Plugs etc



Picked berries that have sat overnight – ready for grading

- Wild blueberries; Strawberry nursery

Blueberry Harvest & Packing System

- Can't machine harvest blueberries for fresh market
- Hand-harvest in field when dry
- Product comes in hand raked
 - Rotate crews → packers rake in the late afternoon
- Leave overnight to cool a bit before sorting
 - Not pre-cooled
- 6 packing lines
 - Blow out leaves and debris
 - Sized on rubber lines
 - Picked over by hand
 - Boxed and weighed
- Sell in different box sizes
 - 1.25 kg (3lb) box
 - 2.25 kg (5lb) box
 - Both what is required by customer
- Most all going to 1 buyer
 - Some will be frozen
 - Local, Farmer's Markets, Ottawa
 - Limited u-pick
 - Some on finished matted row
- Strapped for people right now
 - Strawberries are ramped up; blueberries are going right now, etc.



Blower to remove debris



Grading / sorting line



Laborers grading out fruit



Weighing & packing fruit



Boxes of product

Labour

- Mostly foreign
 - 130 Jamaican women
 - 38 Mexican men
- Supply housing, transportation, ½ plane
- Crew in and crew out with time – not person by person

Labour Payment System

- Pay piece but system allows them to bring pay up to \$10.15/hour if slow
- Do by scanner
 - If don't get to \$10.15 in piece, upgrades worker
- Sticker barcode matches barcode of each worker
 - Scan tag / scan sticker
 - Computer tallies / tracking
- Paying by piece rewards workers
 - Recognize certain skilled folks
 - Adjust – recognize good/bad workers
 - Productivity

Photos by Robert Spencer



Harvested berries with tracking sticker on each flat



Laborers scanning pickers' tags and stickers for each picked flat – links to payment and Quality Assurance / Traceability system

NASGA Summer Bus Tour – Day 2 (continued)

Quality Assurance / Control

- Scanner system – everything done by person (or computer)
 - Can scan a sticker in retail and know who screwed up
 - Trace to the master
 - Blueberries – not as traceable (just to field)
- Scanner operators are responsible for quality in the field
- Internal leadership
 - Scanner operators, checker, crew leaders, etc.

Strawberry Production Management

- 4 foot bed
 - Bit harder than 2 foot
 - 10K plant/acre higher than 2+ foot row
- Straw in middle rows
 - Help buggies to roll after wet (bit of clay with sandy soils)
- Trying to stretch season early and late (start of June to typically 20-25 of July)
- Need to have a consistent supply throughout the season
 - Need matted row to supply volume of traditional market (June/July)
 - Need lots of volume
 - DN = always a little, not a lot at once
 - Using different techniques to supply
 - Matted row
 - 60 day short-day strawberries
 - DN on plastic (both bare root and plugs)

60 day short day strawberries

- Short Day = 60 day plant (bare root)
- Plant and get fruit from nursery set flower buds
 - Pick a bit (1-2 fruit trusses)
 - Only keep ½ fruit
- Idea is to fill hole after matted row at end of July before DN come on
 - Keep consistent supply
 - Year to year variability – climate, variety, etc.
 - Expense to establish
 - Not cost effective

Plugs in reuse plastic

- 2nd year on same mulch
 - 1.25 embossed plastic
 - Pumped fumigant
 - Wood chisel to remove plants
 - Replanted with plugs at start of August
- Hours of labour to remove a crop and replace with plugs
 - Remove plastic, fumigate, reapply plastic = cost
 - Re-plugging = cheaper than new but pay weed big next year
 - Leaving plants in alley to dry down
 - Organic matter builds up under plastic
 - Try another year

Varieties

- Main day neutral variety = Albion
- Different varieties
 - Trying some Florida varieties
 - Some promising Andrew Jamieson stuff
 - Trying Wendy on plastic
 - Portola
 - Good shape
 - Poor taste



Massive field of day neutral strawberries



Foreign labour picking strawberries



60-day short day (June bearing) strawberry – finished – soon to be replaced



Reuse of plastic – 60-day short day plants replaced with Day-neutral plug plants



Day-neutral plugs

Photos by Robert Spencer

NASGA Summer Bus Tour – Day 2 (continued)

- Top demand (requirements) for a new variety
 - Works on plastic
 - Holds on shelf
 - Pickability
- Blueberry variety demand – pickability, bush management

Frost Protection

- Frost – protected with sprinkler
- Lines ploughed in under poly
 - Buried with overhead connections
 - Put in quick hook up sprinkler
 - Like cranberry production
 - Autosteer (GPS) in rows
- Everything covered with row cover in winter
 - Protect and advances spring growth

- Water comes from front pond of farm

Managed wild blueberries

- Sandy loam soils
- Sites carefully selected
- Remove woods
- Stump it carefully to protect understory plants
 - Wild blueberries are in there in high density
- Let fill in gradually
 - Use herbicides, fungicides, etc to help development
 - Spreads by underground rhizomes
 - 10 years to fill in – on a good field
- Pick every 2 years
- Burn off every other year
 - Burn off – cleaner and healthier fields
- Pick, burn, let regrow and set buds, pick



Harvested wild blueberries



“Raking” wild blueberries



Wild blueberry plants – ready to harvest



Wild blueberry fruit



Wild blueberry fields



Masstown Market – Masstown, Nova Scotia

- Started by current owner’s father years ago
- Open year round
- Local market
 - Farm market
 - Scratch bakery
 - Etc.
- 150 employees
- Wide selection of products



Board listing local produce at the Masstown Market



Masstown local market – also had areas with deli, bakery, restaurant, garden centre, gift shop and liquor store

Rines Creek Vineyard – Rines Creek, Nova Scotia

- Him, wife and 2 sons
- Bought land 18 years ago
 - Ran a dairy
 - Few years ago, decided to switch to grapes
 - Sold 600 acres, kept 400 acres
- Growing Chardonnay, Pinot Noir, etc.
 - 70% white, 30% red
- Swiss winemaker = partner
- 1st year harvest
- Adding 6 acres next year



Local produce at Masstown Market

Photos by Robert Spencer

NASGA Summer Bus Tour – Day 2 (continued)

- Below sea level
 - Freeze 5 weeks max
 - Coldest = -19°C for 1 night
 - Average = -14/-17°C
- Next to tidal river
 - Land = reclaimed from river
 - Diked
 - Very light sandy soil
 - 27 ft of topsoil
 - H₂O table = 7ft

Vineyard Establishment & Management

- Planted mid-June
 - Could have planted 1 month earlier
- Rows planted and oriented N & S
- ½ way between Poles (North and South)
- Learning curve for grapes
 - Go to schools
- Crops not irrigated
 - New stuff have some established water
- Commercial septic for winery
 - 24 months will be selling wine

Frost Protection Turbines

- Putting in 2 frost protection wind turbines
 - Extend spring/fall for Chardonnay / Pinot Noir
- Partnered with provincial government
 - Paid turbine
 - Gave 2 acres of land under turbine for grape research
- No crop insurance for grapes
 - No tonnage numbers given
 - Need risk management for the 30 acres

Promotion

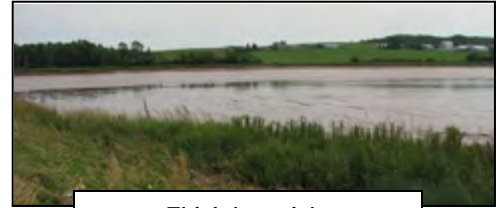
- Need to cooperate with local / regional tourism
 - Open farm day – 2000 last year, 4000 this year
 - Charity grape stomp, etc.
 - Percheron horses for rides
 - Partner/coop with roofing company out of Cape Cod
 - Other wineries
- Made wine last year and gave away to bars, wedding shops, etc.

Vineyard Management

- Chateau after 3rd year – good burndown
 - Ignite otherwise
- Going to machine harvest – pricing
- Savvyfarmer.com (subscription) / savvyfarmerlite.com (free)
 - Pest management recommendation tool

General Things Learned

- Are there issues with buried drip irrigation line in strawberries?
 - Too deep for shallow rooted strawberries?
- In Europe (and now in Quebec as well)
 - Growers are more interested in Kg/hr (picking rate) rather than Kg/ac (total yield)



Tidal river plain



Part of vineyard – 2-3 year old grape vines



Grape vines on wire trellis system



Base of vines – bare ground maintained with use of Chateau after 3rd year

Photos by Robert Spencer

INSECT OF THE MONTH

Non-pest Pests – Wasps / Yellowjackets / Hawthorn Lace bugs

A number of insects that are considered nuisance or "minor" pests in certain situations or may become problematic of some crops

Crops Affected:

Wasps / Yellowjackets / Hornets (*Vespula spp.*, *Dolichovespula spp.*, *Vespa spp.*); – strawberries, raspberries & other fruit crops

Life Cycle:

- Not pests but are scavengers
- Queens build a nest in a range of sheltered areas, such as buildings, woodpiles, underground or unprotected areas like trees and shrubs
- Populations increase over the summer, peaking in fall
- Workers scavenge for insects or rotting fruit
- Mating occurs in the fall and fertilized queens overwinter

Symptoms:

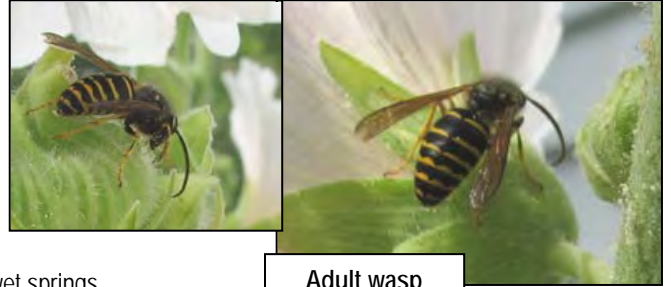
- Don't damage crops, but feed on damaged or over-ripe fruit
- May be present during harvest

Monitoring:

- Nests may be difficult to locate
- Large numbers of visible wasps may indicate the presence of a nest
- Warm, dry springs can produce larger wasp problems in August than cool, wet springs

Management:

- Regular sanitation can help keep populations lower; this would include prompt harvesting of all ripe berries and clean picking practices
- It has been suggested that the presence of another nest will deter settlement of an area, therefore false nests may be effective deterrents
- Careful destruction or removal of existing nests



Adult wasp

Hawthorn Lace bug (*Corythucha cydoniae*) – Saskatoon berry and other plants in the Rose family (apples, hawthorn, pear, cotoneaster, etc.); other species may affect Saskatoon, chokecherry, etc.

Life Cycle:

- Overwinter as adults (Two generations per season)
- Black eggs are laid in clusters on the underside of leaves in early spring
- Nymphs emerge and feed on the underside of the leaves after about 3 weeks
 - 5 instars; 1st generation of adults emerge in midsummer, 2nd in fall
- Feed by piercing leaves and sucking out plant juices

Symptoms:

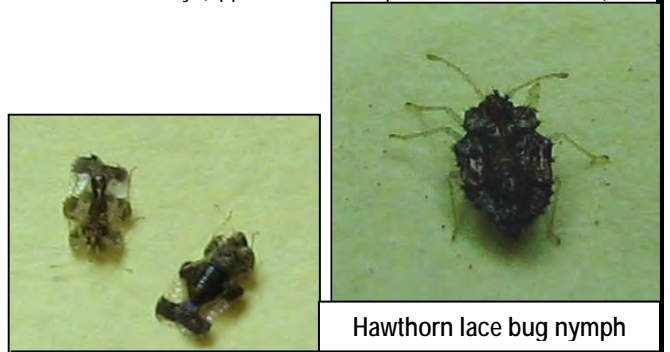
- Stippled or mottled leaves with many lace bugs present
- Feed in large numbers
 - leaves may be stained with their excrement
- Adults are small bugs which appear to be covered in lace
- Nymphs are dark brown to black and covered in varying amounts of spines

Monitoring:

- Not required, but can be detected while scouting for other insect pests

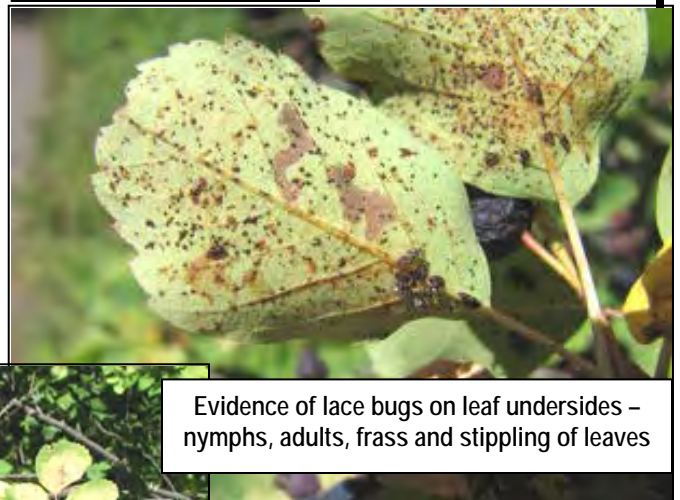
Management:

- Not typically required, as do not typically cause economic damage
- May be controlled during chemical applications for other registered pests



Hawthorn lace bug adults

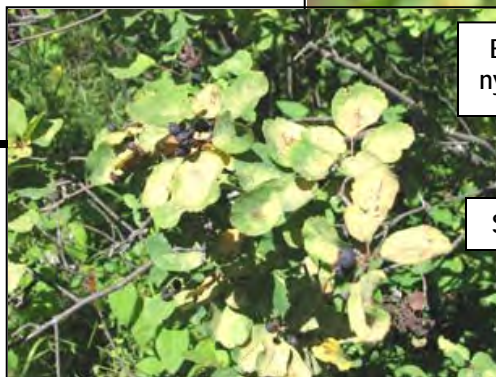
Hawthorn lace bug nymph



Evidence of lace bugs on leaf undersides – nymphs, adults, frass and stippling of leaves



Lace bug injury on Saskatoon berry – yellowing / stippling



Severe leaf stippling and discoloration

Photos by Robert Spencer

Leaf Scorch

Causal Organism: *Diplocarpon earlianum*

Crops Affected: strawberries

Disease Cycle:

- Fungal disease
- Overwinters in some regions but dry conditions and hot and freezing temperatures can reduce disease incidence
- Spore producing bodies remains dormant on dry leaves
- Conidia dispersed by water splash or dew
 - Conidia penetrate the leaf and develop intercellularly
 - Lesions appear within approximately 2 weeks

Conditions Favouring Disease Development

- Plants that are wet for extended periods
- Warm (but not hot) temperatures
- Poor air drainage within planting
- Excessive nitrogen
- Old plant stands

Symptoms:

- Reduced plant vigour
- Initially appears as small, irregular, purple-brown leaf spots (1-5mm)
 - Centres of leaf lesions don't turn white or grey
 - Spots may aggregate
- Diseased leaves dry and turn brown with curled edges (scorched appearance)
- Petioles, peduncles & pedicels may have long, sunken, reddish-purple lesions
- Girdling may occur, resulting in leaf death
- "Brown capped" calyxes

Management:

- Reduce moisture on the plant (adjust water application timing, etc.)
- Ensure good air movement and minimal shade
- Avoid excess application of nitrogen in spring
- Remove foliage and crop residues after picking or at renovation
- Renew plantings every 3 years

DISEASE OF THE MONTH



Leaf scorch on strawberry leaves

Photo by Ron Howard



Leaf scorch on strawberry leaves

Photo by MAFRI



Leaf scorch on strawberry leaves
– differing level of severity

Photo by MAFRI

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

Search the database for
electronic labels

Rob Spencer, BSA, MSc, P.Ag.
Commercial Horticulture Specialist

robert.spencer@gov.ab.ca

Alberta Ag-Info Centre

310-FARM (3276)

FAX: 403-742-7527