

Orchard Outlook



Vol. 17, No. 16

July 31, 2017

Diseases		Insects
Horticulture		Events and Notices

Please note that this will be the final regular issue of Orchard Outlook for 2017. Orchard Outlook will continue to be issued occasionally until the end of the season.

Tree Fruit Specialist Update

Perennia Food & Agriculture Inc. is pleased to announce that Michelle Arseneault will be joining our field services team as the Tree Fruit Specialist on Thursday, September 7th. She will be based out of our Kentville Agriculture Centre offices. Michelle is very excited to begin her role as Tree Fruit Specialist and would like to pass on the following message:

In September, I will be joining Perennia and I am looking forward to bringing my passion and expertise to the industry. Throughout my education and career, I have gained experience in tree fruit production and extension. My career goal has been to become a tree fruit specialist — striving to use science, educational outreach, and problem-solving to help produce high-quality fruit. What a wonderful opportunity this will be!

My background includes a Bachelor of Science in Agriculture (horticulture) and a Master of Science from the University of Guelph, during which I researched Honeycrisp and Gala apples. In my field work I investigated chemical thinners, specifically alternatives to carbaryl because it has encountered increasing regulatory pressure worldwide.

Over the past six years, I have been a research assistant at the University of Guelph, an extension assistant in weed management with the Ontario Ministry of Agriculture Food and Rural Affairs, and a content writer for the Ontario representative of Agriculture in the Classroom Canada. I have had roles on several committees, and also promoted the innovation shown by apple growers in an award-winning video.

I am grateful for the opportunity to be your new Tree Fruit Specialist, to focus on your research and extension priorities. I look forward to working with this forward-thinking industry in the beautiful province of Nova Scotia!

Michelle Arseneault

Degree Day Accumulations

Degree day accumulations from March 1st to July 25th continue to remain slightly above the 5- and 10-year averages for this point in the season (Figure 1).

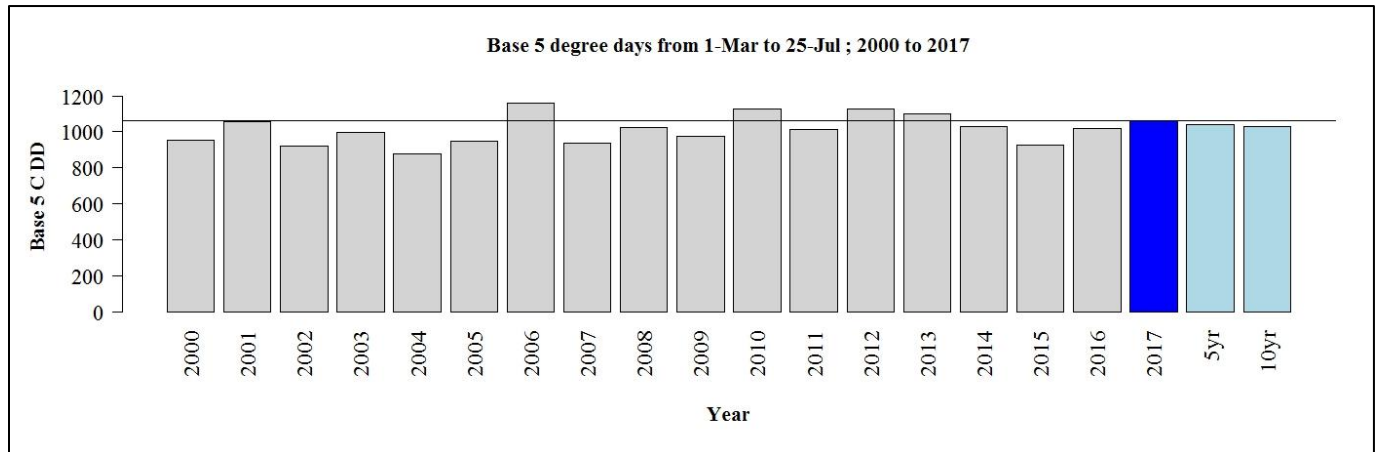


Figure 1: Degree day accumulations from March 1st for the past 18 seasons. Provided by Jeff Franklin (AAFC).

To date heat accumulation since March 1st is (Figure 1):

- About 2% more plant development heat units compared to the 5-year average.
- About 4% more plant development heat units compared to 2016.
- About 1% more insect development heat units compared to the 5-year average.

Diseases

Phytophthora Root & Crown Rot

Several growers have reported nurseries or young plantings with trees performing poorly or suddenly collapsing this summer. Upon examination, it appears many of these trees are in various stages of decline due to Phytophthora infection of the crown and root areas (Figure 2). Phytophthora is a fungal pathogen that thrives in consistently moist or wet soils. It appears the frequent wetting conditions experienced this year have made for perfect conditions for Phytophthora infections, even on some of the best drained soils. Well there are no curative treatments for trees already showing symptoms of Phytophthora, the systemic fungicide Aliette WDG is a preventative treatment that is registered for the control of Phytophthora rots on apples. Aliette can help to reduce further infections of healthy trees. Foliar sprays of Aliette for nurseries can be used at 5 g/L of water. Applications can be repeated at 6 week intervals for up to 3 applications per season. A drench treatment is also an option as an early spring/fall treatment.



Figure 2: A budded nursery tree showing sudden collapse of the growing shoot (left). A poorly growing bud which upon examination with a knife shows a green top with a brown dead bark at the soil line and poorly developed root system typical of Phytophthora infection (right).

Apple & Pear Scab

One secondary scab infection period was recorded this week at Kentville AAFC. Wetting began at 8:30 pm on Monday, July 24th and lasted until 3:00 pm on Tuesday, July 25th for a duration of 16.5 hours at an average temperature of 13.4°C resulting in a secondary conidia infection where primary infections have become established. Secondary infection periods can occur right up to harvest, however, with extended dry weather now more prevalent and leaves and fruit more hardened, apple scab pressure will be lower at this point in the season. Summer diseases such as black rot and bitter rot can still cause significant losses mid to late summer, especially on high-value varieties. Fungicide protection should still be made at 10-14 day intervals for summer disease control under dry conditions.

Powdery Mildew

Continue to watch for powdery mildew in nurseries and young plantings which can interfere with terminal development and tree growth. As terminals set, the risk for new powdery mildew infections stops. See the Pome Fruit Management Guide for registered products for mildew control.

Fire Blight

Terminal bud set will end the risk for new shoot blight infections this season. Where the number of infections is light and can be manageably pruned from the orchard, removal on a dry day and discarding in the row middles will help reduce secondary inoculum production which

might affect nearby blocks or nurseries that are still growing. Sanitizing pruning equipment at periodic intervals is a good practice to eliminate spreading fire blight from block to block. Removal by pruning should not be attempted where the number of infections would make the chance of accidentally spreading fire blight high.

With the presence of ooze a possibility in the orchard, work only in dry conditions in blocks with fire blight as ooze is spread much more easily during wet conditions!

Brown Rot

Stone fruits become susceptible to brown rot infections again as they start to ripen. Regular preharvest fungicide applications are critical, especially during periods of wet weather. With periods of heavy and frequent rainfall, the interval between fungicide applications may need to be as short as 3-5 days. Once brown rot has appeared on picked fruit it is too late to do anything about control. If you are treating more than one type of stone fruit make sure that the product is registered for all the crops that you are spraying. Also check the pre-harvest interval. Check the Stone Fruit Management Schedule for products and rates. Rotate fungicide classes for resistance management.

Insects

Apple Maggot

The first apple maggot treatments have been applied where needed. The economic threshold is 1 maggot fly per orchard on a yellow sticky board. Apply a treatment 7-10 days after the first fly is captured on a yellow sticky board. Highly effective products for AM are limited to Imidan (2.68 kg/ha), Assail (160-240 g/ha), Calypso (440 mL/ha), and Exirel (1.0-1.5 L/ha). In organic orchards, Surround can be used to deter egg laying and GF 120 fruit fly bait can be used for suppression of adult flies. Both Surround and GF 120 should begin to be applied as soon as flies are present in the orchard.

Yellow sticky traps should be cleaned out after application to determine the additional emergence of adult flies. Additional captures when the residual life of the insecticide is complete (14 days depending on rainfall with Imidan) will indicate a second spray is required. With the neonicotinoids (Assail or Calypso) or diamides (Exirel), insecticide residue should be maintained through the end of August and retreatment would be based on rainfall or 10-14 days residual activity. The following article from Michigan State University includes a good reference table of apple maggot insecticides and activity.

http://msue.anr.msu.edu/news/managing_apple_maggots_using_insecticides

With 30 mm of rainfall on July 24/25th, any insecticide applications prior to then are largely depleted and should be renewed to provide continued fruit protection.

Aphids

Check blocks with any active terminal growth for the presence of Green Apple Aphid colonies. An aphid control treatment is recommended if 10% of terminals are infested.

Mites

Though mite populations have been relatively quiet this year, numbers can build rapidly with warm, dry weather typical of mid to late summer. Scout your orchards or check your scouting reports to see if there is a treatable population. The presence of European red mite or twospotted spider mite on 48 of 50 leaves examined will act as threshold for treatment in early to mid-August. Summer miticide options include Acramite, Kanemite, Nexter, Envidor, and Nealta. Mites have many generations per year and therefore have a high potential to develop resistance. For resistance management, it is critical to rotate miticide classes. The use of dormant oil applications will also help to delay resistance selection for European Red Mite.

Pear Pyslla

Continue to monitor for this insect pest as the pears can become quite sticky from the honeydew this sap feeder produces. Sooty mold will also grow on the honeydew resulting in pears that are not marketable. If treatment is required, one of the neonicotinoid insecticides can be used at this stage in the season.

Horticulture

ReTain & NAA Preharvest Strategies

As August begins, the time is approaching to consider ReTain and/or NAA as harvest management tools. ReTain's active ingredient (aviglycine hydrochloride) inhibits the production of ethylene in plant tissues, delaying fruit maturity and preventing fruit drop. Potential benefits of ReTain include improved fruit size (as fruit hangs longer on the tree), firmness, and reduced greasiness, and cracking. ReTain can also offer additional benefits including improving storage quality.

The ReTain label was changed in 2016 to allow applications up to 1 week prior to harvest. This has been beneficial for reducing color development delays on some varieties. For some recommendations on ReTain strategies for different cultivars and objectives, see the end of the following presentation by Philip Schwallier of MSU:

http://msue.anr.msu.edu/uploads/files/2014_NW_orchard_show/Apple_Sensitivity_to_ReTain_and_NAA_Preharvest_Treatments_Schwallier.pdf

Apply with an adjuvant in approximately 1000 L/ha. Full rate ReTain applied 4 weeks prior to harvest will normally provide about a week delay in harvesting that cultivar at optimal maturity.

NAA is an alternative stop-drop treatment for apples, however, contrary to ReTain, NAA actually promotes ethylene production which will cause additional ripening and drop after the initial effect wears off. The combination of ReTain + NAA can be used to get the maximum benefit of both materials – strong drop prevention plus control of ethylene production.

Phil Schwallier at Michigan State University has discussed ReTain strategies such as split applications and/or tank-mixing with NAA in the following article:

http://msue.anr.msu.edu/news/retain_and_naa_as_a_standard_practice_for_apples

Tissue and Soil Analysis

The collection of leaves for nutrient analysis can begin shortly as the terminal buds set on this season's extension growth. Sampling should be completed by mid-August. Nutrient levels in leaf tissues change with the growing season and the desired nutrient level ranges for apples were based on leaves being collected once the trees have stopped growing (late July to early August in Nova Scotia). Collecting samples prior to or after the specified period may give inaccurate nutrient level readings. Annual fertilizer applications should be based on tissue analysis reports and other factors such as pruning, vegetative growth and anticipated crop load.

The following information is for growers who will be collecting their own samples or giving instruction to hired staff. A sample usually represents a block of orchard 1 to 2 hectares in size. The sample consists of 100 apple leaves collected from 10 trees of the sample cultivar. It is suggested that the trees be marked, and that they represent a typical tree within the block, so that the same trees can be sampled on a routine basis. This will help to eliminate some of the variability in yearly reports. If there are problem areas within the orchard, then sample trees in this area separately. Ten leaves per tree are collected from the mid-point of this year's terminal growth with terminals being sampled from all sides of the tree. Place the leaf samples in a paper bag. The leaf sample needs to be submitted as soon as possible after collection in order to obtain an accurate nutrient analysis. If the sample cannot be submitted right away, refrigerate until it can be submitted.

Collecting a soil sample from the block will provide additional information when it comes to determining fertilizer requirements. Soil samples do not need to be collected on an annual basis but should be collected at least once every three years. Two to four soil cores should be taken at the drip line from each of the 10 trees. The soil cores should be mixed and a representative sample placed in a soil box for analysis.

Soil boxes and bags of tissue need to be clearly identified with the following information: grower or farm name; mailing address; phone number; farm registration number; orchard block name; cultivar and sample number. Soil boxes can be obtained from the NSDA office in Kentville.

Summer Pruning

Terminal buds have set in many bearing orchards. Summer pruning can begin whenever hand thinning is completed. The most important objective of summer pruning is to increase light penetration into the canopy to improve fruit colour. Strong uprights should be removed completely, not tipped back which will only promote several breaks to occur below the cut next spring causing more shading in the canopy. Removing a shoot at this time in the season will not stimulate vegetative growth like dormant pruning.

Events & Notices

2017 NSFGA Annual Orchard Tour

The NSFGA Annual Orchard Tour will be on Thursday, August 3rd this year starting and returning to Scotian Gold Cooperative in Coldbrook. See the program below.

8:00 am	Scotian Gold Cooperative 220 Lovett Road, Coldbrook	Coffee and Snacks Parking Near Pad #5
8:30 am		Introductions & Greetings
8:45 am	Board Buses	
9:05 to 9:40 am	Pomona Farms 1222 Hwy #341, Canard	<ul style="list-style-type: none"> • Fall Herbicides <ul style="list-style-type: none"> ○ An Effective Option? ○ Sandy Loam vs. Clay Loam
9:40 am	Board Buses	
9:55 am to 10:45 am	Breezeway Acres @ Northville Farm 1158 Steadman Road, Billtown	<ul style="list-style-type: none"> • 1st-3rd Leaf HD Plantings @ 9-10' • Newly Planted Tree Fertility Trial <ul style="list-style-type: none"> ○ Ambrosia on Clay Loam • Young Tree Crop Load Management • Wild Apple Tree Control
10:45 am	Board Buses	
11:05 am to 11:45 am	CAP Farms 127 Coleman Road (Driveway to South), Grafton	<ul style="list-style-type: none"> • Mature Ambrosia Fruiting Wall <ul style="list-style-type: none"> ○ 11' x 2' Ambrosia in 5th-leaf • Crop Load Management • Yield Estimates
11:45 am	Board Buses	
12:00 pm to 1:15 pm	Apples & Spice 23 Bent Road, Waterville	Lunch <ul style="list-style-type: none"> • Irrigation Pond • New Plantings
1:15 pm	Board Buses	
1:35 pm to 2:15 pm	Crisp Growers Inc. 220 Prospect Road, Morristown	<ul style="list-style-type: none"> • AgWeather Atlantic Network • Tree Propagation in NS <ul style="list-style-type: none"> ○ Bench Grafts
2:15 pm	Board Buses	
2:35-3:00 pm	Nazinga Farms 1405 New Road, Aylesford	<ul style="list-style-type: none"> • Bud In Place – Feasible Strategy? <ul style="list-style-type: none"> ○ GYO vs. Finished Trees
3:00 pm	Board Buses	
3:20-4:00 pm	Spurr Brothers Farms 1125 Spa Springs Road, Melvern Square	<ul style="list-style-type: none"> • 12x3 Plantings of Ambrosia/Gala in Production • Newly Planted Tree Fertility Trial <ul style="list-style-type: none"> ○ Honeycrisp on Sandy Loam • Topworking - Still Working?
4:00 pm	Board Buses	
4:30 pm	Scotian Gold Cooperative 220 Lovett Road, Coldbrook	Tour Concludes

Apple Maggot Eradication Program

Elizabeth Nichols is the Apple Maggot Eradication Technician again this year. The apple maggot over-winters as a pupa in soil and adults emerge from late June through September, with peak

flight into commercial orchards in August. Emergence is closely linked to soil moisture levels—in dry years, some pupae remain in the soil until the following growing season.

Apple Maggot flies are strong fliers and field studies indicate they fly up to 3 km from alternative hosts. Thus, controlling alternative hosts including American hawthorn or wild apple trees within 300 meters of commercial orchards helps to reduce pressure from migrating flies.

Elizabeth is here to help growers control apple maggot so if you are aware of any hawthorn or wild apple trees within that 300 m radius, please contact Elizabeth at (o) 902-678-1093; (c) 902-670-3599; or enichols@nsapples.com.

Brown Marmorated Stink Bug

Researchers are on high alert for the Brown Marmorated Stink Bug which has damaged apple crops in the US. These pesky bugs have gone from 2 or 3 states in 2010 to 43 states in 2017, wreaking \$37m worth of havoc on the apple industry in the northeastern US alone. They have been found in B.C. and parts of Ontario as well as the Montreal corridor in Quebec.

Researchers in the Atlantic Provinces have been keeping an eye out for the insect since 2012. At this time, there have been no captures in Nova Scotia or New Brunswick.

Nova Scotia has one type of stink bug already and if the brown marmorated bug was to do in Canada what it did in the US, it would become a real problem for agriculture, in particular, the tree fruit industry, earning it as much of a bad reputation as the apple maggot.

This stink bug has unique characteristics: distinctive white bandings on its legs and antennae, inward-pointing white triangles between dark markings along the edge of the abdomen, and a smooth edge along the pronotum or “shoulders.”

If you think you’ve found a brown marmorated stink bug, please contact Dr. Suzanne Blatt of the Kentville Research Station, at Suzanne.blatt@AGR.GC.CA. Dr. Blatt is asking all growers to be on the lookout for this pest.

Thank you for your attention to these destructive pests. We want to stay on top of them for the sake of our industry.

Edited by Chris Duyvelshoff