

Orchard Outlook



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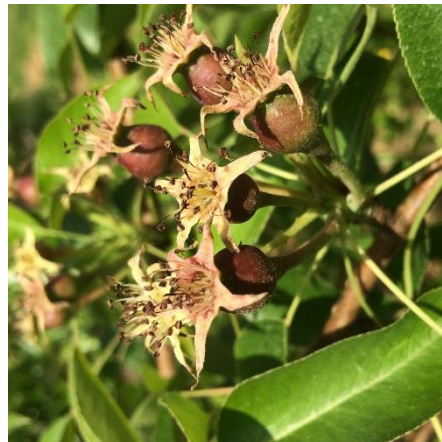
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|-----------------|-------------------------------|---------------------------|
| Bud Development | 2016 Degree Day Accumulations | Diseases |
| Insects | Horticulture | Upcoming Events & Notices |

Bud Development

Checking on tree development Tuesday, Idared and McIntosh were at late bloom to petal fall on Middle Dyke Road – a historically early block (Figure 1). Pears are at petal fall and sizing rapidly and stone fruits are mostly in the shuck to shuck split stages.



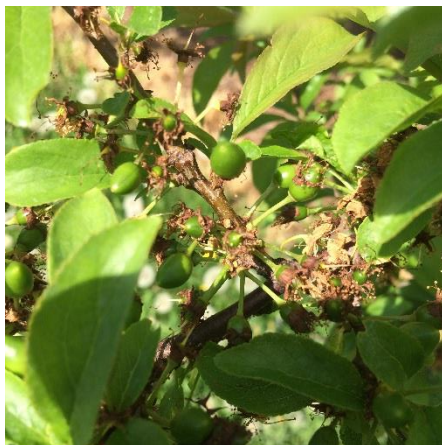
Apple: Bloom to Petal Fall



Pear: Petal Fall to 8 mm



Peach: Shuck



Plum: Shuck Split



Sweet Cherry: Shuck Split

Figure 1: Tree fruit development observed on May 31st, 2016 in Greenwich and Middle Dyke Road.

2016 Degree Day Accumulations

Degree day accumulations from March 1st to May 31st continue to show that 2016 is below the 5- and 10-year averages (Figure 2).

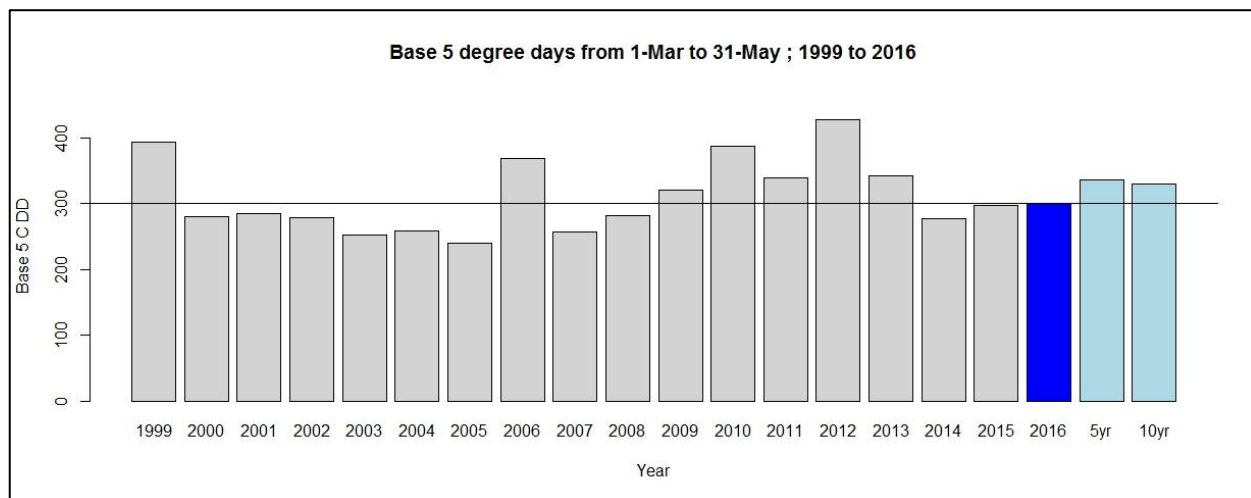


Figure 2: Degree day accumulations from March 1st for the past 18 seasons. Provided by Jeff Franklin (AAFC).

To date heat accumulation since March 1st is (Figure 2):

- About 11% fewer plant development heat units compared to the 5-year average.
- About 1% more plant development heat units compared to 2015.
- About 22% fewer insect development heat units compared to the 5-year average.

Diseases

Apple & Pear Scab

There was one borderline infection period recorded in the past week at Kentville AAFC. Wetting was recorded beginning at 2 pm on Friday, May 27th and was intermittent until 7 am on Saturday, May 28th. The wetting was not continuous enough to be considered an infection period at Kentville but could have been a light infection to moderate infection depending on wetting duration in other areas. Rainfall on Monday, May 30th was too short to cause an infection period at Kentville.

Ascospore maturity is now estimated at 96% for Kentville. Therefore, there are still some ascospores yet to be released. This is still primary scab season and fungicide protection should be maintained accordingly.

Scab lesions from primary infections are now becoming visible in the orchard (Figure 3). Unsprayed trees of McIntosh show primary lesions showing up on the underside of the very first spur leaf. In discussions with Eric Bevis (AAFC), this can likely be traced back to the heavy infection period from May 5th to May 7th. Therefore, you will soon be able to evaluate your primary scab control to see how effective your fungicide program was this spring.



Figure 3: Primary apple scab infection on first spur leaf of McIntosh on May 31st.

Powdery Mildew

Many orchards have received 1-2 fungicide applications for powdery mildew control this spring. If you have had high pressure in the past, a second or third and final mildew fungicide at petal fall should provide good control of powdery mildew. On young trees still filling space, powdery mildew protection should be maintained while terminal shoots continue to grow. Low rates of sulphur (3-5 kg/ha) will be effective in suppressing powdery mildew on young trees.

Fire Blight – Blossom Blight

Updates have been provided through the Orchard Outlook mailing list. EIP values peaked yesterday and are forecast to decline over the coming days with cooler temperatures. Updates provided in this morning's email to Orchard Outlook are:

Canard Apples – Reached an EIP value >100 yesterday. Apples in bloom would have been at risk of an infection event with any wetting. Any streptomycin application this morning/today would be effective on covering for yesterday's potential infections.

Greenwood/Kentville Apples – Reached a borderline EIP of 97. If you felt you had a wetting event from light rain or heavy dew, an application of streptomycin this morning/today would cover any potential infections. As this was below the threshold of 100, this can be based on perceived level of risk (e.g. history of fire blight last year, variety sensitivity to fire blight, age of block, stage of bloom, etc.).

Rockland Apples – Quite below the threshold of 100. No antibiotics recommended.

Canard, Greenwood, Kentville Pears - Reached an EIP value >100 yesterday. Pears in bloom would have been at risk of an infection event with any wetting. Any streptomycin application this morning/today would be effective on covering for yesterday's potential infections.

Rockland Pears – Quite below the threshold of 100. No antibiotics recommended.

Finally, remember, blossom blight is named so for a reason:

Bloom has not started or has finished prior to a possible infection = no risk.

OR

Blossoms removed prior to or immediately after a possible infection = no risk.

For those applying streptomycin today, given the peak risk did not occur until later afternoon yesterday, and today will remain relatively cool, streptomycin will provide longer post-infection efficacy than under warmer conditions. Therefore, any applications today will be reasonably effective in controlling any potential established infections from yesterday's high risk period.

Streptomycin 17 should be used at a 100 ppm solution which is equivalent to 600 g of product in 1000 L of water. Agral 90 surfactant at 500 mL per 1000 L may be included as a spreader/sticker to improve efficacy. Do not use more Agral 90 than 500 mL per 1000 L to avoid foliar burn problems.

Fire Blight – Shoot Blight Management & Apogee

The first application of Apogee for shoot blight suppression and growth control should be made at 1-2" of new extension shoot growth and should be on already in earlier areas. The "Apogee effect" begins 10-14 days after the first application. Therefore, the timing of the first application becomes critical to make sure the product contacts the shoots before rapid extension growth takes place. A second application should be made approximately 14 days later.

Ideally, Apogee should be put on with higher water volumes to sufficiently cover all new leaves and growing tips. Lower volume applications have worked also well in some situations.

Apogee can be used at 450 g per 1000 L of water for fire blight suppression or 1,350 g/ha if using 3000 L/ha of water. Include Agral 90 at 500 mL per 1000 L of water. Do not exceed this amount of surfactant. Apogee should also be applied with spray grade ammonium sulphate (AMS) in an equal 1:1 ratio with the amount of Apogee used (e.g. 500 g Apogee = 500 g or 0.5 L of ammonium sulphate).

On younger trees where shoot growth is desired, reduced rates of Apogee such as 1 to 2 applications of 300 g per 1000 L of water have been used in Michigan. The critical application on young trees is the initial one at 1-2" of new growth. Consider the potential fire blight risk for your young trees this year before putting on a first or second application of Apogee. To date, blossom blight pressure has been low in 2016 following a year of good fire blight control in 2015. Apogee for shoot blight suppression may not be worth the cost of growth reduction on young blocks with low fire blight pressure!

Brown Rot

With all stone fruits now in shuck to shuck fall, fungicide protection from brown rot should be maintained, especially during periods of warm, wet weather.

Insects

Erika Bent (APM) notes that no insecticides will be needed this week while there is still bloom and a possibility of the need for antibiotic applications. Insect management sprays should wait until petal fall is complete and more of the overwintering populations have emerged.

The petal fall/calyx period is a critical period for insect control in tree fruit with a number of pests that need to be addressed and often simultaneously. Insect management programs should be based on grower monitoring and/or scouting reports. There is still some bloom present in many blocks so calyx treatments may not begin until the weekend/early next week. The following table should assist with calyx insect control decisions (Table 1) in addition to the Orchard Management Schedule.

Table 1: Pesticides options for calyx stage of apples in Nova Scotia (rev. June 2016) with input from Erika Bent (APM).

| Insect Complex | Products and Rate per hectare | Ratings*and comments |
|---|--|---|
| 1. Stinging bugs: Mullein Bug, Apple Brown Bug | Actara 315 g, Assail 160 g, Calypso 290 ml, Admire 380 mL, ** <i>synthetic pyrethroids</i> | Actara- 3 ; Assail – 3 ; Calypso- 3 ; Admire- 3 ; Synthetic pyrethroids- 4 but pyrethroids are disruptive to IPM programs; |
| 2. Rosy Apple Aphid, Green Apple Aphid | Actara 160 g, Admire 230 mL, Assail 120 g, Calypso 145 mL, Closer 100-200 mL, Clutch 140 g, Sivanto Prime 500-750 mL, Twinguard 250 g | Each of these products is rated 4 |
| 3. Rosy Apple Aphid, stinging bugs | Admire 380 mL, Assail 160 g, Actara 315 g, Calypso 290 ml | Each of these products is rated 4 for aphids and for 3 stinging bugs |
| 4. Obliquebanded Leafroller | Intrepid 0.75 L, Confirm 1.00 L, Delegate 420 g, Success 182 mL, Twinguard 500 g, Altacor 145 g, Exirel 0.5-1.0 L | Intrepid- 3 ; Confirm- 3 ; Delegate – 4 ; Success- 4 ; Twinguard – 4 ; Altacor - 4 ; Exirel - 4 |
| 5. Stinging bugs, Rosy Apple Aphid, and European Apple Sawfly | Assail 240 g, Calypso 290 mL | Stinging bugs – 3 ; Aphids – 4 ; European apple sawfly: Assail – 3 ; Calypso- 4 |
| 6. Winter Moth/Fruitworm and stinging bugs | ** <i>synthetic pyrethroids</i> | **Synthetic pyrethroids are disruptive to IPM programs and their use should be avoided when possible. |
| 7. Winter Moth, Leafroller and Fruitworm | Confirm 0.75 L or Intrepid 1.0 L, ** <i>synthetic pyrethroids</i> , Delegate 420 g, Success 182 mL, Twinguard 500 g, Altacor 145 g, Exirel 0.5-1.0 L | Intrepid - 4 ; Confirm- 3 ; **Synthetic pyrethroids, see above note. Twinguard – 4 ; Altacor - 4 ; Exirel - 4 |
| 8. European Apple Sawfly | Assail 240 g, Calypso 290 mL, Altacor 215 g, Exirel 0.5-1.0 L | Assail – 3 ; Calypso – 4 Altacor - 4 ; Exirel - 4 |
| 9. European Red Mite | Acramite 851 g, Agri-Mek 750 mL + oil, Kanemite 2.1 L, Envidor 750 mL, Nealta 1 L | Acramite – 3 ; Agri-Mek – 3 ; Kanemite – 4 ; Envidor – 4 ; Nealta – 3 ; |

European Apple Sawfly (EAS)

EAS will be the first pest that will need to be addressed after bloom as eggs were laid during the bloom period. Jeff Franklin (AAFC) has now been observing laid EAS eggs in the sepals at the base of the flower. The closer you are able to time an application of insecticide to petal fall, the more effective these products will be in controlling EAS damage.

Plum Curculio

With stone fruits at shuck to shuck split, management for plum curculio (PC) should now be occurring. Overwintering adult PC's will move into stone fruits around shuck split and stay for up

to six weeks. Mated females will deposit their eggs in the developing fruit leaving the characteristic crescent-shaped scar. Activity of PC is increased in temperatures above 16°C.

Treatment for PC should be applied before shuck split to obtain optimal control. As this has already happened in early plums and some sweet cherries, these blocks should be treated ASAP if not already. A second application is usually needed about 12 days later. Insecticide options include neonicotinoids: Actara, Assail, Calypso, Clutch; pyrethroids: Ambush, Matador/Warrior, Pounce.

Pear Insects

Calyx is the ideal treatment timing for winter moth and fruit worm in pear. Treatment should be based on need determined by monitoring. Intrepid, Altacor, Exirel, Success, Delegate, and Imidan would be effective as well as the synthetic pyrethroids.

Apple curculio damage on pears has been observed in recent years. This pest is difficult to monitor for and its presence often is not observed until damage on fruitlets shows up. Treatments for this pest should go on when pears have reached calyx. Use of one of the products registered for plum curculio should also control apple curculio.

Pear Pyslla

Pears are at petal fall in most blocks. If you are planning to use Agri-Mek + Oil for pear psylla control, it is best to apply it as soon as petal fall is complete. Agri-Mek has better residual control when applied to younger tissues. Do not apply Agri-Mek with any bloom around as this product is highly toxic to bees. Do not use Captan/Maestro as a fungicide for pear scab within 14 days of Agri-Mek + Oil application. Use another fungicide such as Aprovia, Fontelis, Sercadis, Flint, Sovran or Pristine.

Horticulture

Pear Thinning

Petal fall has occurred or is now occurring on pear in the past week. Pear bloom looked heavy in many areas with initial set looking fairly strong. Most pear blocks would benefit from chemical thinning.

In Nova Scotia, the old growth regulator Amid-Thin (NAD) had been the most effective thinner for pears but is no longer available. If you do have some Amid-Thin around, it is still registered. It works best when applied just after petal fall. The recommended rate of Amid-Thin is 10 to 20 ppm. 10 ppm = 120 g/1000L while 20 ppm is 240 g/1000L. Clapps Favorite is easier to thin than Bartlett thus a rate in the 10-15 ppm range should be used and 15-20 ppm for Bartlett.

Maxcel is the only commercially available product registered for thinning pears in Canada. It is registered for fruitlet thinning between 8-14 mm at a concentration of 50-200 ppm. Nufarm suggests a general rate of 5-6 L/acre of Maxcel for thinning pears in heavy set conditions. On May 31st, earlier pears were in the 6-8 mm range. Daily maximum temperatures should be above 18°C for best activity of Maxcel.

There has not been much use of NAA for pear thinning in Nova Scotia and the product is not registered for thinning pears. However, some areas have been successful thinning pears with NAA

applied within a week of petal fall. Sevin XLR is not effective on pear thinning and should not be applied.

Note Harovin Sundown pear now called Cold Snap is considered to be more difficult to thin like Bartlett.

Apple Thinning

With bloom now finishing on the early apples, the period for post-bloom chemical thinning period has begun. Bloom on apples has been easily sufficient in most blocks this year for a full crop. Only biennial blocks of Honeycrisp, Golden Delicious etc. appear not to have enough bloom for a full crop. Evaluate your own bloom level and fruitset before choosing a chemical thinning strategy.

Charlie Embree (AAFC-retired) and Douglas Nichols (formerly of NSFGA) prepared a very useful table and tips for chemical thinning in Nova Scotia. This has not been updated since 2013 but is still very relevant and helpful as it is based on trial work done in NS. It can be downloaded here: <http://perennia.ca/Orchard%20Outlook/2013/7%20Tips%20and%202013%20Product%20Guide.pdf>

Chemical thinning is one area where one often encounters rate suggestions in PPM. For information on how to prepare PPM sprays, see the following Perennia factsheet:

<http://perennia.ca/Fact%20Sheets/Horticulture/Fruit/Orchard%20Fruit/Spray%20PPM%20for%20Web.pdf>

For further information on chemical thinning and thinners, see the factsheet Thinners and Growth Regulators for Fruit Trees:

http://perennia.ca/Fact%20Sheets/Horticulture/Fruit/Orchard%20Fruit/THINNERS_AND_GROWTH_REGULATORS_FOR_FRUIT_TREES.pdf

- **Bees**
 - Honey bees should be moved out of the orchard as soon as possible at petal fall to allow calyx insecticide applications.
- **Grafting**
 - Bark slipping is at the ideal stage for topworking trees.
- **Weed Control**
 - Herbicide application should be maintained to minimize competition in the orchard. The critical period of weed control extends 30 days after bloom on mature orchards and through July in young blocks.
- **Mowing**
 - Regular mowing of the orchard floor will help minimize dandelion competition with tree fruit flowers during bloom, minimize insect flushes from the ground cover after mowing, and conserve soil moisture as conditions become dry.
- **Tree Planting/Trellis**
 - Prune and support newly planted trees as early as possible after planting to ensure maximum first year growth.

Reminder: Canada-Nova Scotia Fire Blight Initiative!

This is a reminder that all tree fruit growers with apple and/or pear acreage that required additional management as a result of fire blight occurring after tropical storm Arthur can apply for financial assistance under the Canada Nova Scotia Fire Blight Initiative – a Growing Forward 2 Agri-Recovery program.

DEADLINE TO APPLY FOR THIS PROGRAM IS JULY 29!

Funding includes provisions for recovery of additional chemical costs for all growers. Funding is also available for confirmed tree losses where an industry inspection report was completed prior to July 31, 2015.

For more information on the Canada-Nova Scotia Fire Blight Initiative and how to apply, see <http://novascotia.ca/programs/fire-blight-initiative/>. Questions regarding the program or eligibility should be directed to the Programs and Business Risk Management Branch of the Nova Scotia Department of Agriculture at 1-866-844-4276.

Apple Maggot Eradication Technician

The NSFGA has again obtained funding for a summer technician to aid in apple maggot control efforts.

Please contact Elizabeth Nichols to report wild trees to schedule their elimination.

Please also contact Elizabeth Nichols if you have completely removed blocks so records can be updated for apple maggot inspections.

Elizabeth Nichols
Apple Maggot Eradication Technician
Blair House, Kentville Agricultural Centre
32 Main Street, Kentville, NS B4N 1J5
Email: enichols@nsapples.com
Office: 902-678-1093
Cell: 902-670-3599

2016 IFTA Study Tour in New York – Registration Open

Make plans now to attend the IFTA New York State Study Tour, July 19-21. Plan to fly into Rochester on Monday, July 18, as the tour will start bright and early on Tuesday, July 19 (hotel Monday night is included in the registration cost).

The first day of tours will be throughout Orleans County and will cover a variety of topics from tall spindle systems, to pruning, to fireblight management, and even a discussion on hard cider.

The second day will be a full day at the Cornell Fruit Field Day hosted at the Cornell Agricultural Research Station.

The final day of tours will be in and around Geneva, and topics will include employee training, grafting, wild bees, and orchard equipment just to name a few.

This tour will be packed full of practical tools and ideas to take back to your business. This event is expected to sell out so register soon!

See <http://ifruittree.org/Events/2016-Study-Tour> for more information.

This Orchard Outlook has been published with the input of the Orchard Outlook Committee and Erika Bent (APM).

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