

Orchard Outlook



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May 25, 2016

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Bud Development

Checking on bud development Tuesday, Idared and McIntosh were in full bloom on Middle Dyke Road – a historically early block (Figure 1). Pears are in full bloom to petal fall and stone fruits are mostly in late bloom to petal fall.



Apple: Pink to Full Bloom



Pear: Full Bloom



Peach: Petal Fall



Plum: Petal Fall



Sweet Cherry: Bloom to Petal Fall

Figure 1: Tree fruit buds observed on May 24th, 2016 in Greenwich and Middle Dyke Road.

2016 Degree Day Accumulations

Degree day accumulations from March 1st to May 24th continue to show that 2016 is below the 5- and 10-year averages, however, warm temperatures this past Saturday have narrowed the gap (Figure 2).

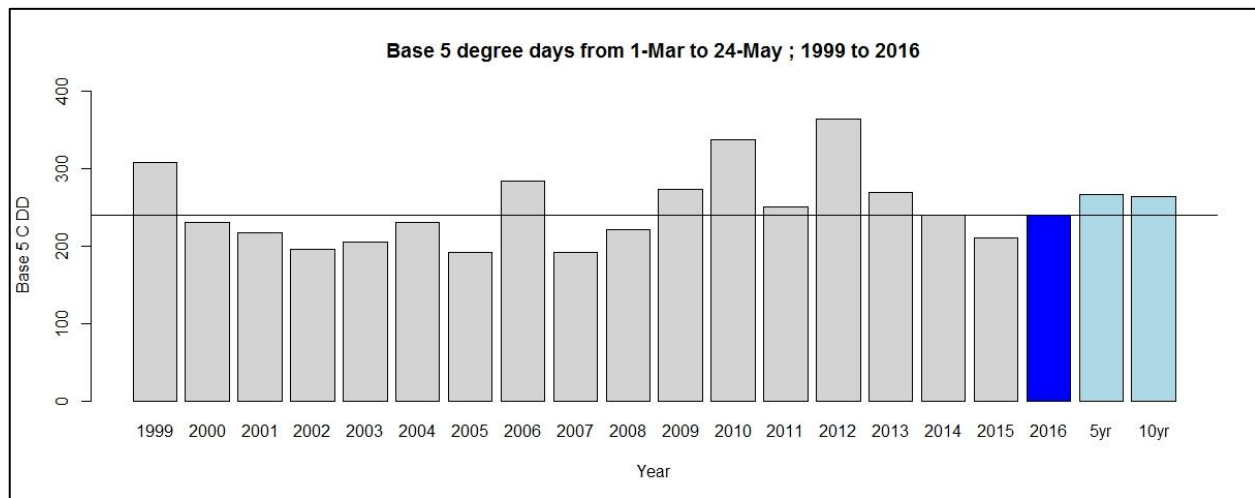


Figure 2: Degree day accumulations from March 1st for the past 18 seasons. Provided by Jeff Franklin (AAFC).

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

- About 10% fewer plant development heat units compared to the 5-year average.
- About 14% more plant development heat units compared to 2015.
- About 19% fewer insect development heat units compared to the 5-year average.

Diseases

Apple & Pear Scab

Wet weather through the past weekend resulted in an infection period at Kentville AAFC. Wetting began around 5:15 pm on Sunday, May 22nd and was continuous until 8:15 am on Tuesday, May 24th. This 39-hour wetting period at an average temperature of 12.1°C would qualify as a heavy infection.

This past weekend also aligned with a large jump in ascospore maturity from 42% at Orchard Outlook last week to 79% as of this morning. Maturity was estimated at around 70% at the beginning of the infection period on Sunday.

This will likely be one of the most critical infection periods of the season due to significant ascospore maturity, a long wetting duration, and rapid tissue expansion.

Despite the length of the wetting period, rainfall amounted to just 10 mm at Kentville so if you had a protectant fungicide applied prior to the infection period, you should have had good control of potential scab infections.

If you felt your protection may not have been adequate, an application of Flint or Sovran with a protectant fungicide for resistance management would be your only option at this point. This should be applied ASAP if necessary.

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 third mildew fungicide at petal fall should result in good mildew control. If you were able to manage a single powdery mildew fungicide application prior to bloom, a second and final application at petal fall will control powdery mildew well in low to moderate pressure situations.

Fire Blight – Blossom Blight

				Epiphytic Infection Potential (EIP Value)			
Crop: Apples				Today	Tomorrow	Day After	Next Day
Community	Location	Data Source	First Bloom	25-May	26-May	27-May	28-May
Greenwood	DND	Environment Canada	19-May	57	32	32	32
Kentville	AAFC	Environment Canada	19-May	69	24	24	24
Crop: Pears				Today	Tomorrow	Day After	Next Day
Community	Location	Data Source	First Bloom	25-May	26-May	27-May	28-May
Greenwood	DND	Environment Canada	17-May	113	65	38	38
Kentville	AAFC	Environment Canada	17-May	69	46	46	24

Figure 3: Epiphytic Infection Potential (EIP) Values from Maryblyt based on forecast data available at writing of Orchard Outlook.

Maryblyt 7.1 provides an estimate of blossom blight risk which can be used to time management decisions (Figure 3). Maryblyt can be downloaded free here:

<http://www.caf.wvu.edu/kearneysville/Maryblyt/>

The most effective prevention for blossom blight is the use of antibiotics prior to wetting events during high risk periods. High risk periods are defined by Maryblyt as having an Epiphytic Infection Potential (EIP) greater than 100.

As EIP values for apples are currently much less than 100 and forecast to decline over the coming days, the risk of blossom blight infection will be low to moderate and will not require control measures at this time. Pear values are also low for Kentville data but in Greenwood reached an EIP greater than 100 yesterday and today. Therefore, antibiotic treatments for pears in the Greenwood area was recommended yesterday, May 24th on Orchard Outlook. Preventative treatments to Greenwood-area pears yesterday would have adequately controlled potential infections and reduced the EIP for May 25th to just 12 in Greenwood from 113. At this point no other antibiotic applications are recommended based on predicted risk from blossom blight.

Both Streptomycin 17 and Kasumin are highly effective antibiotics registered for blossom blight control. Streptomycin 17 is the preferred product in NS due to lower cost and slight advantage in being partially systemic. Streptomycin resistance issues were not detected in NS fire blight samples collected in 2015.

Streptomycin 17 will provide excellent efficacy on blossom blight but is best used up to 24 hours prior to an infection event and 12-18 hours after infection. Therefore, time sprays to periods of high risk – use Maryblyt and weather forecasts. 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 third chemical approach to fire blight management is the use of Apogee to suppress shoot blight. The material Apogee itself is not an antibiotic and has no direct activity on the fire blight organism. However, microscopy has revealed that application of Apogee also results in cell walls of treated shoots becoming much thicker. This secondary effect makes these shoots difficult or even impossible for the fire blight pathogen to infect and treated shoots becoming much more resistant to fire blight infection. In addition to shoot blight suppression, the application of Apogee at the correct timing also results in a reduction of terminal growth in apples by 30-40%.

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. It is critical that Apogee be in contact with extension shoots when they are about 2.0-5.0 cm of new shoot growth (1-2”) (Figure 4). This typically happens around king bloom petal fall to petal fall. The first Apogee application should be made at this stage. This may be later this week or early next week in the advanced blocks. A second application should be made approximately 14 days later.



Figure 4: Early timing of Apogee application is about 2 cm (1 inch) of new extension shoot growth.

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). This is not the same as the blossom thinning product ammonium thiosulphate (ATS)!

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 2-5 cm of new growth.

Brown Rot

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

For plums, the use of Captan/Maestro (3.75-4.5 kg/ha) or Indar (140 g/ha) for brown rot during the white bud stage through fruit set will also give some control of new black knot infections.

Insects

BE RESPONSIBLE FOR POLLINATORS – DO NOT SPRAY INSECTICIDES DURING BLOOM!

The majority of orchards have reached the point where there is some bloom open and pollinators are starting to visit. Therefore, insecticide applications should be delayed until petal fall and bee removal. If you were not able to control tarnished plant bug, spring caterpillars, rosy apple aphid, and European apple sawfly prior to bloom you will have another opportunity at petal fall/calyx.

Protecting Pollinators During Bloom

No insecticides should be applied during bloom and precautions should be taken before and at the tail end of bloom. Be aware of bee toxicity warnings on pesticide labels. These products should not be applied with any open blossoms or when flowering weeds are present. Fungicide, antibiotic, and growth regulator sprays are best applied early morning or late evening when bees are not actively foraging. Be aware that dandelion blooms are open until about dusk.

Pollinators, Pollenizers and Pollination (OMAF)

<http://www.omafra.gov.on.ca/english/crops/hort/news/orchnews/2014/on-0314a3.htm>

Pollinators and Pesticide Sprays During Bloom in Fruit Plantings (Penn State University)

<http://extension.psu.edu/plants/tree-fruit/news/2014/pollinators-and-pesticide-sprays-during-bloom-in-fruit-plantings>

Horticulture

- **Pollination**
 - Honeybees should be moved into the orchard for pollination purposes immediately if not done already.
- **Mowing**
 - Regular mowing of the orchard floor will help minimize dandelion competition with tree fruit flowers during bloom and also minimize insect flushes from the ground cover after mowing.
- **Weed Control**
 - Tree fruits are still in the critical period of weed control and weeds should be controlled under the tree row.
- **Grafting**
 - Bark slipping is entering the ideal stage for bark grafting trees.
- **Tree Planting/Trellis**
 - Prune and support newly planted trees as early as possible after planting to ensure maximum first year growth.
- **ATS (Ammonium Thiosulphate) Blossom Thinning**
 - The caustic thinner ammonium thiosulphate (ATS) can be applied during full bloom as the first chemical thinning opportunity of the growing season. ATS physically damages the flower parts and prevents pollination from occurring. This strategy always produces variable results but has been effective in the past on Honeycrisp.

The advantages of blossom thinning with ATS are potentially increased fruit size and return bloom compared to later fruitlet thinning. ATS would be good consideration for early thinning of small fruited cultivars (e.g. Ambrosia, Gala, SweeTango). The disadvantages of ATS are thinning with an unknown crop load and the potential for foliar spray injury. Overthinning and phytotoxicity with ATS have not been observed much in NS in the previous few seasons, possible due to the reduced rate of ATS compared to some other areas which recommended 20 L per 1000 L of water.

- ATS should be applied towards the later part of full bloom (80-100% FB) when adequate pollination has occurred. The goal is to apply ATS when the king flower has been opened for 24-48 hours and has been fertilized but prior to the lateral flowers from being fertilized.
- It is expected that conditions which delay drying, such as high relative humidity and cool temperatures, would increase thinning activity.
- The following rates of ATS for blossom thinning have been trialed in NS by Douglas Nichols and Charlie Embree:
 - Dilute rate: 12.5 L of ATS per 1000 L of water

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

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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