



Vol. 20, No. 20

July 29, 2020

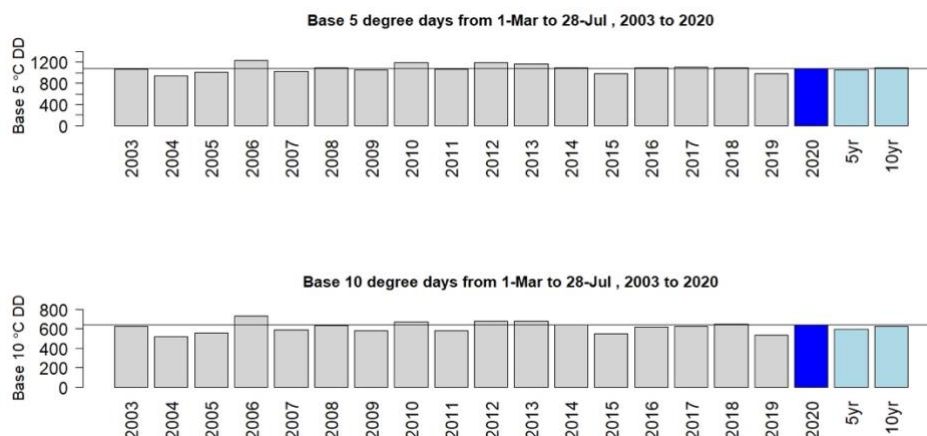
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*Currently I am not conducting drop-in farm or site visits due to COVID. Please contact me if you have a specific question or a concern and I can visit.*

**\*\*\*Please note that this will be the last weekly issue of Orchard Outlook for 2020. Orchard Outlook will continue to be produced occasionally for the remainder of the season.\*\*\***

## 2020 Degree Day Accumulations



**Figure 1:** Heating degree day accumulations for plant (above 5°C) and insect (above 10°C) development from March 1<sup>st</sup> to July 28<sup>th</sup> for the past 17 seasons. Provided by Jeff Franklin (AAFC).

- 3% more plant development heat units compared to the 5-year average, and 2% less compared to the 10-year average
- 9% more plant development heat units compared to 2019, and 1% less compared to 2018
- 8% more insect development heat units compared to the 5-year average, and 3% more compared to the 10-year average

## 2020 Review of Disease Incidence

### Review of Apple Scab

The infection periods for the 2020 season are summarized in the table below. Due to below average temperatures in early spring, ascospores were slow to mature but consistent wetting produced repeated infection events.

Ascospores were released irregularly due to infrequent wetting during late May and June. Around the time of full bloom, significant tissue growth and ascospore maturity developed since the last infection period. The May 30<sup>th</sup> rain event released 65.6% of the total seasonal ascospores in scattered rain events throughout the Valley. This season there were relatively few heavy infection events but a total of 11 primary infection events were still recorded.

During early infection periods the first spur leaves were vulnerable to infection. After bloom and until terminal bud set, the leaves of the extension shoots and developing fruit were most susceptible. Secondary scab infection events can occur up until harvest time, therefore any orchards with scab should continue regular fungicide sprays until preharvest intervals no longer allow their application. August fungicide applications are also used to prevent summer fruit rot diseases from showing up at harvest.

**Table 1:** Summary of apple scab primary infection periods recorded in Canard in 2020, based on the Modified Mills Table and assuming a green tip date of Tuesday, April 21<sup>st</sup>.

No.	Date	Infection Period (hrs)	Average Temp (°C)	Ascospore Maturity (%)	Severity
1	April 27-April 29	52.5	2.8	1.5	Primary-Light
2	May 1-May 2	23.5	10.9	2.4	Primary-Moderate
3	May 4-6	51	5.9	4.6	Primary-Heavy
4	May 7-8	33	4.8	6.2	Primary-Light

5	May 9-10	33	3.7	7.6	Primary-Light
6	May 12-13	32	5.0	10.7	Primary-Light
7	May 15-17	27	6.9	15.4	Primary-Moderate
8	May 30 (?)	Variable	20.7	84.8	Primary-Light (variable)
9	June 3-4	23.5	11.1	90.9	Primary-Moderate
10	June 6-7	29	13.8	96.7	Primary-Heavy
11	June 26-27	14 (variable)	20.8	100	Primary-Moderate (variable)

\*Note that ascospore maturity was corrected for the first five infection events reported in earlier newsletters but with similarly low values.

## Review of Fire Blight

The first blossoms in the Valley appeared around May 24-25<sup>th</sup> with early regions in full bloom around June 1<sup>st</sup>. High EIP values were noted as early in the season as May 27<sup>th</sup>. A heat wave created an unusually high risk of fire blight blossom infection during a critical period of full bloom throughout the Valley. Rainfall on May 30<sup>th</sup> overlapped with extremely high bacterial populations with EIP values of up to 242 in some regions, which resulted in an infection event. Paired with difficult application conditions, some orchards experienced significant blossom blight infections. Another significant infection event occurred during scattered showers on June 5<sup>th</sup> and during rainfall on June 6<sup>th</sup>, unless antibiotic protection was applied. Orchards that practiced aggressive sanitation and that achieved good coverage using properly timed antibiotics had good control given the challenges.

This year's new orchards that were planted late were vulnerable as they bloomed during the summer heat. Any unprotected blossoms would have been susceptible to infection if wetting occurred during high EIP values that were present frequently throughout the month of June.

Fire blight pressure was relatively high due to trauma infections caused by hurricane Dorian in the fall of 2019. New fire blight infections were identified this year as a result of Dorian. The damage resulted in tree losses in nurseries and young orchards.

## Review of Powdery Mildew

During tight cluster to bud separation in late May weather conditions were conducive to powdery mildew infections by being warm, humid and dry. Long periods of hot and humid weather during shoot growth in June and July contributed to new infections. Where pressure was high this year, powdery mildew inoculum will overwinter and next spring the risk of new infections will be best controlled with well-timed fungicide applications. Continue to watch for powdery mildew in nurseries and young plantings if terminal buds have not set.

## Insects

Insect management programs should be based on grower monitoring and/or scouting reports. Refer to the [July 15th Orchard Outlook](#) for information regarding white apple leafhopper, aphids, obliquebanded leafroller, mites, pear psylla, and pear rust mite.

## Potato Leafhopper

### Recommendations:

- Potato leafhoppers do not overwinter in Nova Scotia but they are carried to us each year on warm wind currents. Their preferred host is alfalfa so after hay is cut the leafhoppers migrate to apples.
- Potato leafhoppers could transmit fire blight. Their presence in young plantings and nurseries is concerning, especially in areas of active fire blight infections.
- Insecticides labelled for leafhoppers include Admire/Alias, Assail, Calypso, Clutch, and Sivanto Prime.
- For more information, listen to this month's podcast with [Dr. Arthur Agnello called, 'Stop the Hop.'](#)

## Apple Maggot

For a refresher about apple maggot, listen to the podcast recorded with Dr. Suzanne Blatt last year. [Click here to listen to E2 S1: Apple maggot birth control.](#)

### Recommendations:

- 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. Apply a treatment immediately after a female is captured on a red sphere. Monitor your own trap captures for treatment timing.
- Significant rainfall will wash off insecticide residues that are needed to ward off apple maggot flies. Re-treatment is required after 10-14 days or cumulative rainfall of 12.5-25 mm (0.5-1 inch).
- 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.
- Apple maggot inspections are beginning the first week of August. Owners of relevant blocks will be contacted.

## Stone Fruit – Spotted Wing Drosophila

Spotted wing drosophila is an invasive fly that can lay eggs in healthy, ripening stone fruit.

### Recommendations:

- Local monitoring for spotted wing drosophila is ongoing. Monitor scouting reports.
- For products registered for spotted wing drosophila control refer to the [OMAFRA SWD Registrations](#) updated in June 2020.

## Horticulture

Refer to the [July 15th Orchard Outlook](#) and [July 22nd Orchard Outlook](#) for information about thinning, fertilizer, calcium nutrition, irrigating young plantings and nurseries, young plantings, nursery trees, herbicide, mowing, and leaf and soil samples.

## Summer Pruning

Terminal buds have set in many bearing orchards and therefore summer pruning can begin. Removing a shoot at this time in the season will not stimulate vegetative growth. The most important objective of summer pruning is to increase light penetration into the canopy to improve fruit colour.

### Recommendations:

- Pruning should only be done when leaves are dry to prevent spreading fire blight. Blocks with a history of severe fire blight pressure could be avoided.
- Sanitizing pruning equipment at periodic intervals is a good practice to eliminate spreading fire blight between blocks.

## ReTain and Harvista Preharvest Strategies

This year consider the advantages of harvest management tools to help slow fruit maturity as you manage labour resources.

### ReTain

ReTain's active ingredient (aviglycine hydrochloride) inhibits the production of ethylene in plant tissues, delaying fruit maturity. Potential benefits of ReTain include harvest management to delay the maturity in blocks of a single variety, improved fruit size (as fruit hangs longer on the tree), maintenance of firmness, and reduced greasiness and cracking. ReTain can also offer additional benefits including improved storage quality. However, Retain can also slow red colour development. Delays to fruit colour development can be minimized by lowering the rate of application or by delaying the harvest period.

### Recommendations:

- Note that the amount of ethylene produced differs by apple variety and so the variety's response to ReTain will also differ. McIntosh is a high ethylene producing variety and the full rate is often needed 3 weeks before harvest to slow its maturity. Sensitive varieties like Gala, Jonagold and Honeycrisp produce low ethylene and are more sensitive and thus greatly delayed by ReTain.
- Consider testing ReTain or Harvista on a small block or talk to others who have experience using them.
- The effectiveness of ReTain is dose-dependent and time-dependent. Later applications and smaller doses have less effect on maturity and colour development.
- **ReTain applied 3-4 weeks before harvest will delay the harvest period up to 7 to 10 days.**

### Harvista

Harvista (1-methylcyclopropene) is another product for preharvest management that was recently registered in 2017. The mode of action is different from Retain because Harvista blocks ethylene action in fruit, even after ethylene has been produced. Therefore, Harvista can act quickly to slow maturity whereas ReTain requires a timely application to fruit before ethylene production escalates.

Recommendations:

- **Harvista can be applied 3 to 21 days before the anticipated harvest** and at a higher rate for fruit that are more advanced in maturity and producing plenty of ethylene.
- Lower rates are recommended for biocoloured apple varieties to allow colour development to progress.
- A customized sprayer system is required for Harvista applications.

## Events and Notices

### Perennia's Annual Report

[Perennia's annual report](#) is now available. Check it out if you're interested in Perennia's activities from 2019-2020.

## 2020 Pest Management/Spray Guides

### Hyperlinks to Tree Fruit Management Guides

All changes new to the 2020 guides are in red text to make it clear to you what changes have been made. If you do not wish to have the red text in your copy, please print it in black and white.

- Download the [2020 Pome Fruit Guide](#)
- Download the [2020 Organic Apple Guide](#)
- Download the [2020 Stone Fruit Guide](#)
- Download the [2020 Thinners and Growth Regulators Guide](#)
- Download the [2020 Tree Fruit Weed Management Guide](#)

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