



Vol. 20, No. 9

May 13, 2020

In this Issue

2020 Degree Day Accumulations	2
Precipitation	2
Bud Development.....	2
Stone Fruit Buds.....	3
Diseases.....	3
Apple – Scab.....	3
Powdery Mildew	4
Fire Blight Prevention.....	5
Stone Fruit - Brown Rot.....	5
Insects.....	6
European Red Mite	6
Horticulture	6
Pruning.....	6
Planting Trees.....	6
Nursery Trees.....	6
Fertilizer	7
Lime.....	7
Herbicide	7
NEW Tree Fruit Weed Management Guide	7
Events & Notices	8
2020 NSFGA Summer Tour Cancelled... but stay tuned.....	8
Update on Mandatory Isolation Support for Temporary Foreign Workers Program (MISTFWP).....	8
Message from CHC on Business Risk Management Support.....	8
DAL-AC Extended Learning Pesticide Applicator Certification Course	8
2020 Pest Management/Spray Guides	8
Hyperlinks to Tree Fruit Management Guides.....	8

Perennia has strict protocols to help lessen the spread of coronavirus, therefore I will not be conducting any farm or client site visits, apart from a limited amount of approved trial work. The newsletter this year is written in collaboration with people who are visiting farms. Please note that I am still available to respond to farm inquiries from commercial farms even though I am working from home. You can reach me by email at mcortens@perennia.ca or by mobile phone at 902-679-7908. For more information: www.perennia.ca/coronavirus

2020 Degree Day Accumulations

Jeff Franklin writes, “The past week has done little to improve the degree-day totals relative to the seasonal average. As you can see in the plot below, we continue to experience below average temperatures. This has been a particularly long run of below average temperatures with only a handful of days above average in the last month.”

Jeff has also checked as far as the last 30 years to find that this spring is the 2nd coldest. Only 2002 was colder at an average of 6.34°C compared to this year at 6.37°C. This is not surprising because I write this as it’s snowing on Wednesday morning. Several long-term forecasts predict that temperatures will return to average after the May long weekend.

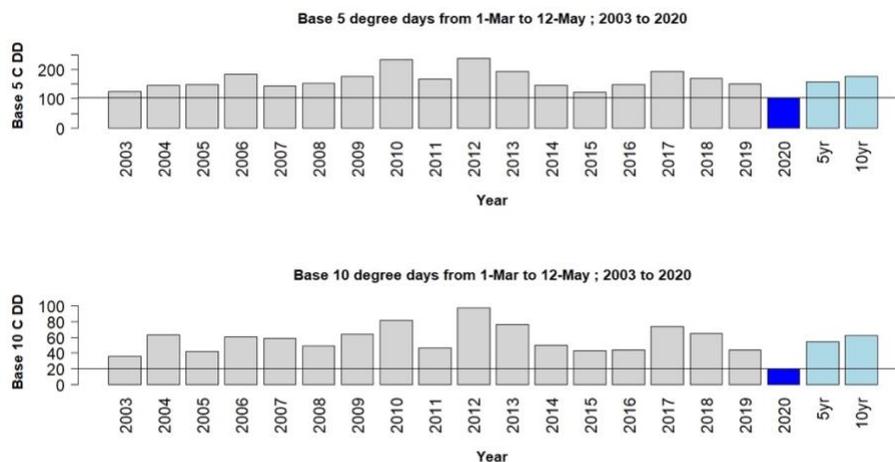


Figure 1: Heating degree day accumulations for plant (above 5°C) and insect (above 10°C) development from March 1st to May 12th for the past 17 seasons. Provided by Jeff Franklin (AAFC).

- Approximately 34% less plant development heat units compared to the 5-year average, and 41% less compared to the 10-year average.
- Approximately 31% less plant development heat units compared to 2019, and 39% less compared with 2018.
- Approximately 64% less insect development heat units compared to the 5-year average, and 68% less compared to the 10-year average.

Precipitation

Precipitation this season started lower than average, but by the end of April the accumulated totals were just above average. Jeff Franklin reported that in April we recorded 97.5 mm of rain in Kentville, compared to the 10-year average of 81 mm. Top soil is saturated this year from recent rains, as opposed to last year when lower layers were saturated from several months of above-average precipitation.

Bud Development

This year with the cold weather, there is a noticeable spread in fruit development between varieties and regions. The differences may complicate the timing of pesticides. In the table below, note that Middle Dyke Rd and Greenwich are typically early developing regions in the Valley.

Location	Variety	Current Stage
Middle Dyke Rd, Kentville	Idared	Tight cluster
	McIntosh	Half inch green to early tight cluster
Greenwich	Gravenstein	Tight cluster
	Pear	Early green cluster
	Peach	Pink
	Japanese Plum	White bud visible
	Apricot	Early bloom
Kentville Research and Development Centre	Sweet cherry	Early bud burst
Mochelle	Honeycrisp (early blocks)	Tight cluster
Rockland	Honeycrisp	Late green tip
	Early varieties	¼" to ½" green

Information courtesy of Bill Craig, Kim Hiltz, Larry Lutz, and Erika Bent on May 12-13, 2020.

Stone Fruit Buds

Some peach buds in low lying areas do appear to have been damaged by the cold winter temperature on February 15th when temperatures dipped to -21.9°C in Kentville and were sustained below -20°C for 6 hours.

Diseases

Apple – Scab

Last week's infection events were complicated by intermittent drying times and wetting events might have been combined depending on how long drying times lasted. The table below uses data from a weather station in Canard, representing only one location in the Valley. Snowfall on the south mountain could have prolonged wetting events. The bottom line is to get covered at any opportunity because rain and infection events are happening consistently.

Table 1: Apple scab infection events in Canard from May 7th to May 13th, based on the Modified Mills Table.

No.	Start of wetting	End of wetting	Infection period (hrs) ¹	Average Temp (°C)	Rainfall (mm)	Type (Primary or Secondary) ²	Ascospore maturity ³	Notes
1	Thursday, May 7 at 5:00 AM	Friday, May 8 at 3:00 PM	33	4.8	11.6	Primary –Light <i>Light = 26 hrs, moderate = 37 hrs, heavy = 53 hrs</i>	3.46%	Wetting began in the dark, so ascospore release and the infection period started at 6:00 am sunrise.
2	Saturday, May 9 at 4:00 AM	Sunday, May 10 at 3:00 PM	33	3.7	14.0	Primary –Light <i>Light = 33 hrs, moderate = 45 hrs, heavy = 60 hrs</i>	3.56%	Wetting began in the dark, so ascospore release and the infection period started at 6:00 am sunrise.
3	Tuesday, May 12 at 6:00 AM	Ongoing Wednesday morning	Ongoing				3.81%	
Short Term Forecast ⁴		Continue to reapply fungicide protection. Rains are expected in the short-term forecast. Over the next week, ascospores are expected to mature to 4.4%.						

¹ For a high inoculum orchard, a significant number of spores can be released during darkness, so begin calculating leaf wetting regardless of the time of day when the wetting event started. An orchard is considered to have a high inoculum load if last season it had 100 or more scabby leaves observed over 600 shoots.

² The weather conditions for an apple scab infection are listed in the Modified Mills Table found in the [Supplement to the Orchard Outlook](#).

³ Assuming a green tip date of Tuesday, April 21st. Please use this as a guide because microclimates will cause conditions to vary on individual farms.

⁴ All forecasts are estimates. Observe forecasts daily for more accurate predictions.

Why re-apply fungicides on a short interval during wet weather?

A protective fungicide is applied prior to rainfall events to keep tissues covered in case the environmental conditions are right for an infection. During rapid tissue growth, newly exposed tissues might not be protected or over time the fungicide residue becomes too diluted by rain to provide protection. After about 1-2 inches of rain, there is a significant loss of disease control. Light rain events don't wash off a significant amount of fungicide but taken together a few rains can add up to noticeable loss of protection. For good to excellent prevention of apple scab, a fungicide should be reapplied after noteworthy rains or tissue growth. Over the last week, at least 40 mm (1.6") of rain was recorded in Kentville.

Recommendations:

- Reapply fungicide protection on a 7-day interval, with a shorter interval after wet weather (cumulative 1-2" rain) or rapid tissue growth.
- Scala (AP, group 9) works best in cool spring temperatures and if used as a protectant spray for the next infection it provides post-infection activity for the previous infection of up to 48-72 hrs. Do not rely on post-infection activity.
- Always tank mix single site fungicides with a group M for resistance management.
- If you plan to use oil for European Red Mite control, Captan should be avoided within 7-14 days of an oil application.
- Note that the new captan containing product Maestro 80 WSP has re-entry periods that differ depending on the orchard density and activity (anywhere from 2-24 days).

Powdery Mildew

A couple of rare warm days this spring seem to have helped powdery mildew emerge from the buds where they overwintered. Typically, conidia are released around the tight cluster stage. Powdery mildew infections can be expected when conditions are warm (10-25°C), humid and dry.

A note on powdery mildew fungicides and resistance management:

Some fungicides have activity on both apple scab and powdery mildew (PM). The broad activity could be a benefit to get coverage for both diseases when weather conditions are right, but it complicates the management of fungicide resistance. Even if a fungicide is not being used intentionally for PM control, if the product has activity on the fungus then selection pressure occurs. With continued selection pressure, the PM population shifts in favour of the individuals that are resistant to a fungicide.

Products in the groups 1, 3, 7 and 11 are registered for control of PM. Therefore, whenever these groups are used, careful consideration must be given to rotating the groups to slow resistance development. Avoid more than two consecutive applications of a single group. Products available for powdery mildew are very limited.

The 2013 National Powdery Mildew Resistance Survey showed there is some resistance in Nova Scotia to group 11 products Flint and Sovran (43% and 38% of orchards, respectively). In resistant populations, Flint and Sovran will not provide adequate control. In some cases, this resistance could have developed when the products were being used to target scab.

There is little resistance of powdery mildew to the Group 3 fungicides Nova and Fullback, thus, they will give excellent control. However, most populations of apple scab are resistant and a full rate of protectant is

necessary for scab control. Tank mixing Group M fungicides (mancozeb and captan) with single site fungicides is a great strategy to slow resistance development in the apple scab population. However, Group Ms do not have activity on powdery mildew so they will not help prevent powdery mildew resistance development.

Recommendations:

- Do not apply a product for powdery mildew before a heavy rain is expected. The product will wash off, plus powdery mildew spores will not germinate on a wet leaf surface anyway. As opposed to scab, powdery mildew protection should go on prior to a period of warm and dry weather when infections are expected.
- Application of a protectant mildew fungicide at tight cluster prevents infections of leaf clusters. Timely application early in the season will reduce the risk of secondary infections.
- Remember to treat young plantings because severe infections can reduce shoot growth, which is most concerning for young, non-bearing orchards.
- Monitor the differences in development stage between varieties. Honeycrisp development is delayed and it may be too early to treat for powdery mildew.
- Pay particular attention to susceptible and high-value varieties such as Honeycrisp and Gala.

Fire Blight Prevention

Recommendations:

- Processing blocks could still receive copper application if russetting is not a concern and if there are overwintering fire blight cankers.
- For on-farm nurseries, consider applying a copper product at the lowest labeled rate prior to training trees and follow the labeled REI. Make cuts on only dry and sunny days.
- Be cautious when applying post-emergent herbicides to prevent injury to young trees.
- Late spring and early summer pruning cuts create entry points for the bacteria during the time when bacterial ooze is active. In blocks with historically high pressure, prune only when the forecast calls for at least 2 days of sunny, dry weather. As an extra precaution, disinfect tools after working in a block with fire blight pressure.

Stone Fruit - Brown Rot

Brown rot infection of the flowers during bloom provides secondary inoculum for fruit infections later on.

Recommendations:

- Keep brown rot on your radar with peaches at pink and plums near white bud.
- Fungicide protection from brown rot should begin just prior to bloom and be maintained during periods of warm, wet weather.
- Two to three fungicide applications may be required from pink/white bud to petal fall if weather is warm and wet. Refer to the [Stone Fruit Management Guide](#).
- For plums, the use of Captan/Maestro or Indar for brown rot during the white bud stage through fruit set will also give some control of new black knot infections.
- Rotating classes of brown rot fungicides is key to slow resistance development. There are many options in the management guide.

Insects

European Red Mite

Recommendations:

- To be most effective, oil application for ERM should be targeted close to egg hatch – around tight cluster and before pink. Target applications before this coming weekend. But monitor cold weather in the forecast to avoid oil if freezing temperatures will occur within 48 hrs.

It is still too early for pre-bloom insecticides.

Horticulture

Pruning

- Ensure that youngest blocks are pruned first to ensure growth is directed into desirable leader and terminal extension.
- Large thinning-out cuts will reduce the most bud load in the least amount of time.
- Mature blocks can be pruned later and are best when pruned prior to bloom. However, with the labour shortage this year summer pruning might be a good option to consider.

Planting Trees

- Trees should not be planted in waterlogged soil. Newly planted trees should be pruned for tree structure and supported as early as possible after planting.
- For a high value crop like apple, always consider tile drainage. Evaluate the landscape for pooling water and poor plant growth to use the information when you arrange for tile drainage.

Nursery Trees

- Remember to document the quality of your nursery trees with pictures and notes.
- A contact herbicide could be a good option to apply now before buds grow, if temperatures are above 16°C.
- Buds are small so the chance of leaf burn from a granular nitrogen fertilizer is low. Anytime now is a good opportunity for a broadcast fertilizer when dry enough to apply.
- Some vigorous rootstocks should have their tops cut early so the rootstock does not overpower the bud. In some new Geneva rootstocks, the rootstock can grow and stop the bud from pushing.

Fertilizer

- Bud break to bloom is the ideal time for granular fertilizer application to maximize tree growth.
- An unusually dry or, an unusually cold and wet spring can cause a temporary shortage of boron. In such circumstances, a spray of Solubor or micronutrient spray containing boron should be used at the pre-pink stage. Sprays as late as 3 weeks after petal-fall can be beneficial. Enough leaves should be showing to take up the fertilizer (tight cluster).

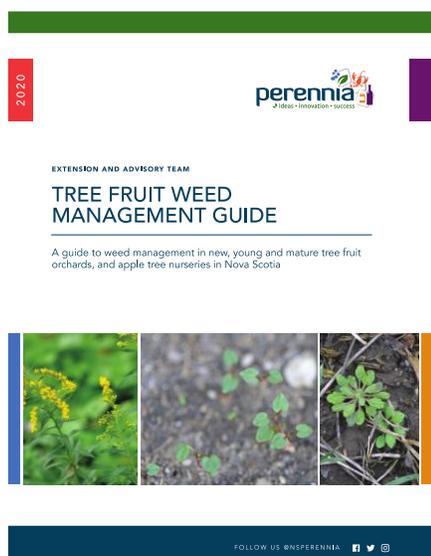
Lime

- Lime applied in spring works best when applied as soon as possible to get the product working in the top layer of soil. The provincial [limestone trucking assistance](#) program is open.

Herbicide

- Studies have shown maintaining weed free strips from bud break to 30-days after full bloom has the greatest impact on tree growth and yield.
- Applying 2,4-D in temperatures below 10°C has historically been ineffective. Applying Ignite when leaves are wet is also relatively ineffective. The label also specifies a rainfast period of 4 hours.
- An excellent article has been published by Kristen Obeid, OMAFRA Weed Management Specialist – Horticulture, on May 8th about “[What to expect from herbicides in cold weather](#)”. I recommend you read the full article but here are some highlights:
 - Cold or freezing temperatures can increase the chance that Lexone and Sencor cause crop injury.
 - Weed control is effective but slowed when using 2,4-D, Lontrel, and glyphosate.
 - Cold weather is a benefit for a pre-emerge like Casoron to prevent volatilization during application.
 - Now is a good time for pre-emerge herbicides, and wait for 16°C temperatures to apply post-emerge products.

NEW Tree Fruit Weed Management Guide



Introducing a new guide to weed management for Nova Scotia! Crops addressed in this guide are apple, pear, cherry, peach, and plum. Registered products are listed in calendars for orchards of various ages including:

- Year of planting (Established less than one year)
- Young plantings (Established 1-3 years old/non-bearing)
- Mature orchards (Established 3+ years old/bearing)
- Apple tree nurseries

Download the [2020 Tree Fruit Weed Management Guide](#).

Events & Notices

2020 NSFGA Summer Tour Cancelled... but stay tuned

In the May edition of the NSFGA newsletter, the President announced the cancellation of the Annual Summer Tour. “Unfortunately, because of the uncertainty surrounding whether or not we will be able meet in large groups for a while, it has been decided to cancel the Nova Scotia Fruit Growers 2020 orchard tour. We are looking into another opportunity but the details are still being ironed out. Please don’t hesitate to call the office or myself with questions you may have. Regards, Peter Eisses.”

Update on Mandatory Isolation Support for Temporary Foreign Workers Program (MISTFWP)

You are now able to [apply online](#) to receive up to \$1,500 per TFW under the MISTFWP. The MISTFWP is a one-time \$50-million program to help with the impacts of the COVID-19 pandemic on food supply in Canada by assisting the farming, fish harvesting, and food production and processing sectors. The program is designed to help employers cover some of the incremental costs associated with the mandatory 14-day isolation period imposed under the [Quarantine Act](#) on temporary foreign workers upon entering Canada.

Message from CHC on Business Risk Management Support

Should changes be made to the AgriStability program, it will be important that those who can benefit from the program be registered for the 2020 program year. Agriculture and Agri-Food Canada have created [AgriStability Benefit Calculator](#) that will help you determine the benefit you could receive. CHC is now recommending that growers use the online tool, and, if applicable, discuss with their accountant or financial advisor to determine if registering for AgriStability will provide support for them. **The deadline to register for the program has been extended to July 3, 2020.**

DAL-AC Extended Learning Pesticide Applicator Certification Course

The Nova Scotia Department of Environment has adjusted the Pesticide Applicator Certification process this spring due to COVID-19 precautions. They are offering an adapted online exam as a short-term solution, which will provide certification for one year to those who are in need of it. To provide support to those studying for the exam, **DAL-AC Extended Learning** is offering an **online Pesticide Applicator Certification course**— an adapted version of the classroom course. This is a fully online course that participants may complete at their own speed. To help ease the burden of COVID-19 on our industry, **registration for this course will be offered for free through to the end of June 2020.** Course content is provided through presentations (with and without instructor voice-over), videos, practice exercises and through assigned readings from the pesticide manuals. **Access to the course will be available starting Monday, May 11th, but registration may be completed anytime.** More information and a link to complete registration can be found here: <https://registeratcontinuingeducation.dal.ca/search/publicCourseSearchDetails.do?method=load&courseId=1846650>

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](#)

This Orchard Outlook has been published with the input of the Orchard Outlook Committee including Erika Bent, Suzanne Blatt, Bill Craig, Danny Davison, Jeff Franklin, Joan Hebb, Larry Lutz, and Harrison Wright.

**Edited by Michelle Cortens, Tree Fruit Specialist
Perennia Food and Agriculture Inc. Email: mcortens@perennia.ca**