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**Please note: This is the last issue of the Orchard Outlook newsletter for the 2020 season. Short communications will continue when needed.**

## Congratulations on finishing the harvest season!

I can sense the relief at making it through the year without another industry-wide weather issue. COVID was an added complication, and strategies were put in place in the lead up to a generally successful harvest of a good crop.

This year has been a strange one, especially by not being able to connect with you all on the summer orchard tour. But the video tour – that was actually pretty cool as a result of some forced creativity. Through the virtual constraints, opportunities have surfaced. Videos have the advantage of offering close perspectives and documenting key activities during time when we can’t always meet. As virtual communications continue, I look forward to seeing the strong community support in attendance at the NSFGA Annual Convention in January.

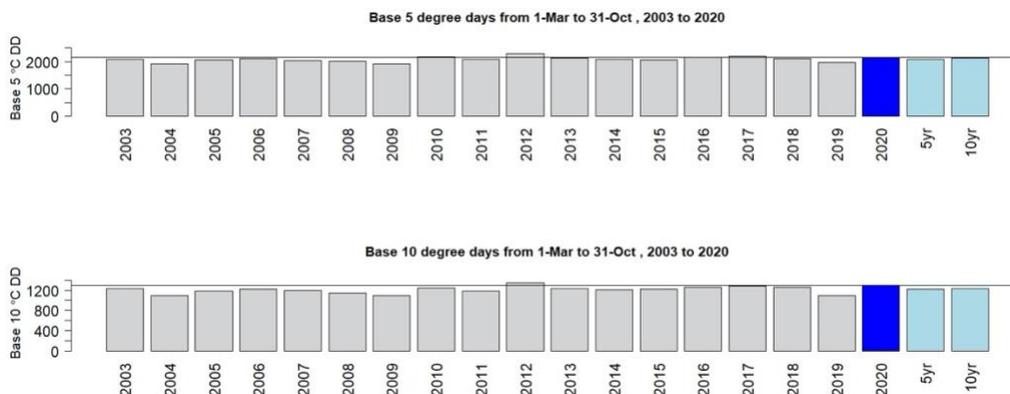
Finally, I’d like to update you on special projects that I’ve been working on behind-the-scenes this year. The industry thinning trial went ahead as planned, which you previewed during the video tour. I’ve been engaged in finding a solution to use weather data in pest modeling. And I’m working on tools to support your decision-making. Consider this a teaser and more details will come when these projects are close to fruition.

*Sincerely, Michelle*

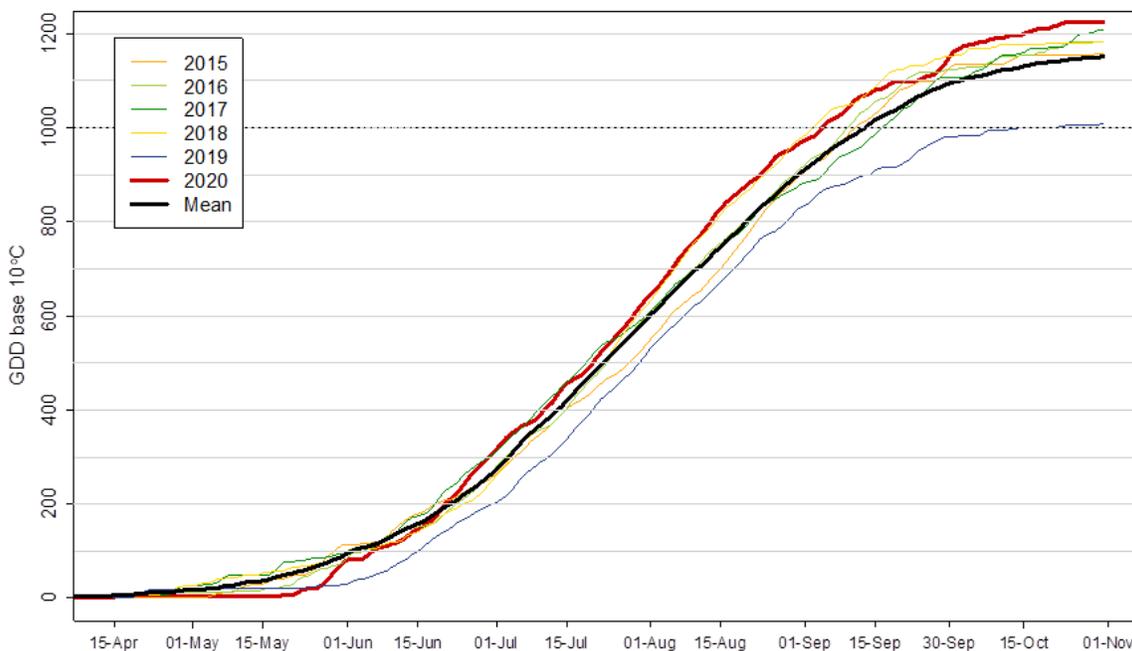
## 2020 Degree Day Accumulations

By the end of the season, the degree day totals were slightly above the 5- and 10-year averages (Figure 1). But consider how we arrived at the average. This season started with below-seasonal temperatures and then the month of June experienced a swing to above-average temperatures (Figure 2).

In the early spring, degree days ranked the second coldest over the last 30 years. The relatively large heat deficit made it hard to believe we could catch up to the average. Incredibly, the heat wave in June cleared the deficit and for the rest of the summer the growing degree day accumulations above 10°C were greater than average. Apart from the cool start, the graph of 2020 followed 2018 closely (Figure 2).



**Figure 1:** Heating degree day accumulations for plant development (above 5°C) and insect development (above 10°C) from March 1<sup>st</sup> to October 31<sup>st</sup> for the past 17 seasons. Provided by Jeff Franklin (AAFC).



**Figure 2:** Heating degree day accumulations above 10°C over time for the past 9 seasons, with the 2020 season shown in red. The mean is graphed in black. Provided by Jeff Franklin (AAFC).

## Season Summary

### Crop Load

Full bloom of apples occurred relatively late, by around the week of June 1<sup>st</sup>. Development was about 1 week behind the average due to cool spring temperatures that slowed the accumulation of growing degree days. There were reports of heavy bloom and good bee activity that resulted in many fertilized flowers.

Chemical thinning decisions were complicated by a lack of labour related to COVID-19. Trees that were not pruned had more blossom density than usual and the labour that would be available for hand thinning was uncertain. Temperatures during the chemical thinning window were initially moderate but the sudden onset of a heat wave brought temperatures in excess of 30°C. Thinners resulted in above-average fruit drop during the warming trend. The level of chemical thinning on individual farms made for variable fruit set this year but in general the crop load was good.

### Weather & Tree Health

Cumulative precipitation was less than average beginning in February. The rest of the season had periods of hot and dry weather with sporadic heavy rainfall events. The health of trees in young plantings appeared to be affected more than in mature plantings with established root systems.

Jonathan Bent, Perennia's Research Associate, shared some noteworthy trends from the weather this season:

- From June to October, temperatures trended above average for the most part. We had a cooler period in July but the warmth came back in August. In an average year Greenwood experiences approximately 8 days above 30 degrees but this year there were 17 days.
- Most locations reported less than normal precipitation. Yarmouth recorded approximately 58% of its historical average precipitation this season. Amherst and Truro fall in the 60-75% range. Out of the locations with weather stations, Greenwood and Kentville came closest to average at 85-95%. Credit for this can be given to 2 different events. The first being a line of slow-moving thunderstorms in early July which dropped over 75 mm of rain to some places in the Valley. The second, more so for Kentville, being Teddy in late September where over 80 mm of rain was reported.

### Notable Disease and Insect Pressure

Due to below average temperatures in early spring, ascospores were slow to mature but consistent wetting produced repeated infection events. This season there were relatively few heavy infection events but a total of 11 primary infection events were still recorded.

In terms of fire blight, 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. Orchards that practiced aggressive sanitation and that achieved good coverage using properly timed antibiotics had good control given the challenges.

On September 22<sup>nd</sup>, hurricane Teddy made landfall on the east side of the province as a post-tropical storm meaning it had a wide area of impact. The storm brought high-speed wind gusts to the Valley in unprotected areas. Leaves were tattered, which signalled the risk of a fire blight trauma infection.

A more detailed review of diseases was described in the [July 29<sup>th</sup> newsletter](#).

## Harvest and Fruit Quality

Above average temperatures occurred after bloom and coincided with the fruit cell division phase. Heat during cell division is expected to encourage cell development and result in a large potential fruit size. Fruit appeared to grow rapidly but then growth slowed later in the season. The shift to slow growth was likely related to hot and dry conditions. Overall, fruit size was reportedly average in many cases and small in some cases. Some heat injury to fruit did manifest in small incidents. The heat-damaged fruit were indented where the tissue had collapsed.

Several wind events damaged fruit or caused fruit drop. During post tropical storm Teddy, wind gusts were recorded up to 80 km/hr in exposed areas. Ambrosia in particular was susceptible to loss by the wind.

Maturity developed relatively quickly this year and where labour was not a limiting factor the harvest finished about a week early. Where harvest was delayed, fruit damage was reported after the hard freeze around November 4<sup>th</sup>. Overall, many reported that the harvest was good, and that fruit colour was excellent.

## Conclusion

This year's periods of hot and dry weather produced challenges for crop load management, fire blight risk, young tree health, and fruit quality. High wind events were also a risk to production. The microclimates throughout the Valley created very different situations but overall the crop this year had a positive outcome.

## Horticulture Takeaways from the Field

What stood out from the challenges this year? Consider the following thoughts.

### Hot/Dry

- **Young plantings are most susceptible** - Young plantings are susceptible to the effects of drought because their root systems are not yet widely established. Of course, the effect is worse on sandy sites that have relatively low water holding capacity. The tree stress and weakening may contribute to higher incidences of canker.
- **Uncertainty about irrigation practices** – Irrigation is not a widely adopted practice in the local industry but there is increasing interest for its use in high-density orchards. For such significant investments, irrigation can be a risk management tool. If you have questions, join us for trickle irrigation webinars on December 8<sup>th</sup> and January 12<sup>th</sup>. More details are included in the events section of this newsletter.
- **Still learning about new rootstocks** – There are unanswered questions about new rootstocks. Are some more or less tolerant of drought? Is the belowground root architecture notably different from industry standards like M.26? New rootstocks are being planted in a wide range of growing conditions and in some cases underperform. In particular, there are many reports of G.202 not performing well locally when paired with Honeycrisp because it results in small leaves and fruit.

### Disease

- **Use hay with caution** – Hay applied to the tree row can trap and retain soil moisture. The hay can be so effective at trapping moisture that it creates a humid environment around the trunk of the tree. If the hay is too close to the trunk it can encourage fungal activity that leads to tree infections.
- **Root dipping is a high-risk practice** – Microscopic organisms that cause plant disease spread freely in water. If an infected tree is dipped in the same batch of solution as the rest of the planting stock, the

disease can spread from one source to many. The symptoms of an infected tree are not always visible, so dipping in solution is a high-risk practice.

- **Fire blight sanitation is important** – What is the cost/benefit of having old trees that harbour nearby sources of fire blight? Are you investing in new plantings next to fire blight cankers and increasing their risk of infection?

## Events and Notices

### Perennia 'Getting Into the Weeds: Dialling in Irrigation Webinar Series'

Are you curious about adding irrigation to your farm or want to improve your current irrigation management? Perennia's horticulture team is introducing the winter seminar series, "Getting Into The Weeds," to give you an in-depth look at **On-Farm Irrigation**. Our team will host guest speakers from across North America to talk about on-farm irrigation practices. Seminars will cover everything from managing your soil for water retention, irrigation system selection, design and management, to disease management in irrigated crops.



This seminar series will occur from November 2020 to April 2021. Details for the first three sessions are below!

#### **WEBINAR ONE ([REGISTER HERE](#))**

**TITLE:** Water Movement through soil - make every drop count

**DATE/TIME:** Tuesday November 24, 2020 12-1:30 PM (AST)

**GUEST SPEAKER:** Odette Ménard, Soil and Water Conservation Advisor, Regional office of Montérégie, Ministry of Agriculture, Fisheries and Food.

**SESSION DESCRIPTION:** Traditionally, Nova Scotia has been blessed with adequate rainfall distribution throughout the growing season. In recent years, the frequency of dry periods in the growing season where rainfall limits crop production is growing. The use of irrigation is increasingly being used to bridge these dry periods in cropping systems where traditionally, it was less common. However, not every soil is created equal and not every soil will respond the same way to irrigation. We will discuss inherent soil properties and what you need to know about your soil to make every drop count during this session.

#### **WEBINAR TWO ([REGISTER HERE](#))**

**TITLE:** Planning and Design of a Drip Irrigation System

**DATE/TIME:** Tuesday, December 8, 2020, 2-3:30 PM AST (10-11:30 AM PST)

**GUEST SPEAKER:** Ted van der Gulik, President, Partnership for Water Sustainability in BC

**SESSION DESCRIPTION:** This information might just trickle into your toolbox. Join Ted in the first session of two

to learn the fundamentals of drip irrigation. Start by determining peak flow rate and annual irrigation requirements. Consider the plant and soil factors that influence the system design. Then dip into emitters along with layout and design. No experience is necessary.

### **WEBINAR THREE ([REGISTER HERE](#))**

**TITLE:** Operating and managing a Drip Irrigation System

**DATE/TIME:** Tuesday, January 12, 2021, 2-3:30 PM AST (10-11:30 AM PST)

**GUEST SPEAKER:** Ted van der Gulik, President, Partnership for Water Sustainability in BC

**SESSION DESCRIPTION:** Time to filter this information, so it flows onto the farm! Join Ted in the second session of two to finish learning the fundamentals of drip irrigation. Sidestep clogs by exploring the essentials of filtration and system maintenance. Then wield the power of water through irrigation scheduling. No experience is necessary.

### **Safe Food for Canadians Regulations & Preventative Control Plan Guide: Dec 3 from 9 AM to 12:30 PM**

This webinar complements the new Perennia Quality & Food Safety Resource: [Safe Food for Canadians, Good Agricultural Practices Guide](#) and its corresponding sample forms that are now available on the Perennia website. Shelly and Elaine will give a general Safe Food for Canadians Regulations overview, how to use the guide, explain the preventative controls required, food safety hazards, traceability requirements and how to meet them and how to develop a preventative control plan. This webinar is for fresh fruit and vegetable producers in Nova Scotia. A question and answer period will follow the presentation. Join the free webinar on Thursday, December 3<sup>rd</sup> from 9 AM to 12:30 PM by [registering in advance](#).

### **Pesticide Applicator Course by Marbicon**

Marbicon is again offering pesticide training for people preparing for the provincial exam or needing continuing education points. Revised this year, the course is a streamlined one-day in-person event (9:00-5:00). Because seating is limited due to the Covid spacing requirements, only 20 people may attend on any single day. Wear a mask. Lunch & snacks on your own.

The current dates and locations confirmed for the fall pesticide courses by Marbicon Inc. are:

Monday Nov 23 – Berwick Fire Hall (300 Commercial St, Berwick) - FULL

Tuesday Nov 24 – Berwick Fire Hall - FULL

Thursday Nov 26 – Colchester Legion Stadium (14 Lorne St, Truro)

Friday Nov 27 – Colchester Legion Stadium

Saturday Nov 28 - Berwick Fire Hall (300 Commercial St, Berwick) – NEW

Tuesday Dec 1 – Millville Community Centre (270 Millville Hwy, Cape Breton)

Thursday Dec 3 – Little Brook Fire Hall (361 Little Brook Rd, Digby Co.)

Friday Dec 4 – New Germany Anglican Hall (5311 Hwy 10, New Germany)

Contact Jim Jotcham at [marbicon@eastlink.ca](mailto:marbicon@eastlink.ca) or call 902-538-7101 to pre-register or to enquire about other venues. **YOU MUST PRE-REGISTER TO ATTEND.** Seating is limited.

The fee is \$100, payable by cash, cheque, or email / money transfer. Includes HST and course manual.

Certified applicators will earn 5 points (T-1901). Bring your card.

The provincial exam is NOT included. Contact your local NS Environment office for information regarding certification procedures. You do not require a course before writing the exam, but it may help. The provincial manuals are free online (download PDF from the NSE website).

Another consideration is to remind people that these courses will be offered in the Spring of 2021 as usual (same T number), in addition to the annual PRCP spectacular workshops in January/February (a different T number).

### Mark These Events in Your Calendar

Although virtual events can't replace the in-person experience, the fact that these events are now virtual makes them accessible and might open up opportunities to participate! Check out the following dates:

DATE	EVENT	LOCATION
December 8-10, 2020	<b>Great Lakes Fruit, Vegetable and Farm Market Expo</b> <a href="http://www.glexpo.com">www.glexpo.com</a>	Virtual
January 27, 2021	<b>NSFGA Annual Convention</b> <a href="http://www.nsfga.com/">http://www.nsfga.com/</a>	Virtual, TBA
Week of February 8 <sup>th</sup> , 2021	<b>Mid-Atlantic Fruit and Vegetable Convention</b> <a href="http://www.mafvc.org/">http://www.mafvc.org/</a>	Virtual
February 22-24, 2021	<b>International Fruit Tree Association</b> <a href="https://www.ifruittree.org/">https://www.ifruittree.org/</a>	Virtual
Cancelled 2021	<b>Ontario Fruit &amp; Vegetable Convention</b> <a href="http://www.ofvc.ca/">http://www.ofvc.ca/</a>	None

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