

Orchard Outlook



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June 30, 2015

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Another cool week has slowed the pace of development relative to other years. Fruitlet thinning is becoming apparent where it was successful with size differentiation, stem yellowing, and fruitlet drop occurring in many places. In another week or so, it will be clear where hand thinning is needed.

Fruit Development

Apples are on average are 18-20 mm or larger on most cultivars and the window for chemical thinning is generally over. Later blooming varieties such as Ambrosia and Golden Delicious or later areas may still be in the window for late treatment with 6-BA (Maxcel). Use higher rates to achieve thinning compared to 10-12 mm.

Pears are 20+ mm, cherries – marble size, plums – 1"+ length, and peach – 1"+ length.

2015 Degree Day Accumulations

Heat unit accumulation for 2015 fell relative to previous years this past week because of the trend of below seasonal temperatures the past 7-10 days. This trend appears to be ending this coming week.

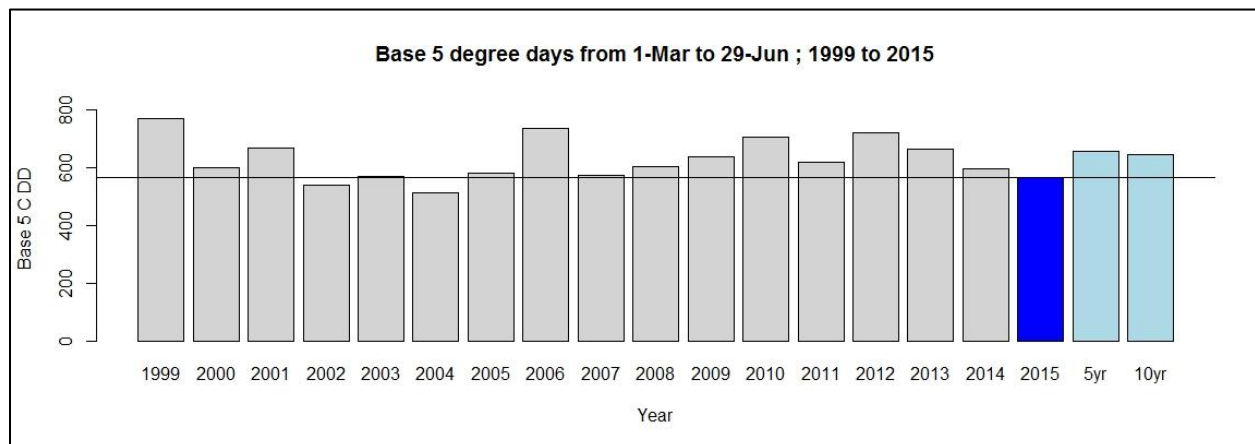


Figure 1: Degree day accumulations from March 1st for the past 17 seasons. Provided by Jeff Franklin (AAFC).

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

- About 14% fewer plant development heat units compared to the 5-year average.
- About 5% fewer plant development heat units compared to 2014.
- About 11% fewer insect development heat units compared to the 5-year average.

Rainfall

As you're well aware June has been a rainy month. Jeff Franklin has compared rainfall totals for the past few months and has noted that June rainfall has been approximately 60% greater than average (Table 1). This is good for tree growth and fruit development but may cause some challenges for disease control.

Table 1: Rainfall for April, May, and June 2015 compared to the 10-year-average for Kentville AAFC.

	April	May	June
Rainfall 2015 (mm)	83	44	164
Average Rainfall (2005 -2014) (mm)	75	79	105

Diseases

Apple Scab

There was one secondary scab infection period the past week beginning on Sunday, June 28th at 3:00 pm lasting until Monday morning at 9:00 am.

Cover rates of fungicides can now be used where no scab lesions have been observed in the orchard. Spray intervals can be extended to up to 10 days when dry weather prevails.

Fire Blight

On Monday, I observed shoot blight for the first time this season. The shoot was in a tree that had heavy blossom blight. The shoot had ooze and did not have an overwintering canker present at its base. It was located very close to primary infections – infected blossoms.

With the forecast temperatures for the coming week, symptom development of the first shoot blight strikes should be completed in most areas. Shoot blight is most likely to occur where blossom blight was not controlled. If you have yet to see blossom blight in your orchard, you have controlled the primary stage of infection.

If you have observed blossom blight in your orchard, a third Apogee application would be recommend for maximum shoot blight suppression.

With active blossom blight, canker blight, and shoot blight infections observed in some Valley orchards, scout your orchards on a weekly basis to look for signs of infection and prune off these infections where feasible to reduce secondary inoculum production.



Figure 2: Shoot blight strike on June 29, 2015.

With the presence of ooze a possibility in the orchard, work only in dry conditions in blocks with fire blight last year as ooze is spread much more easily during wet conditions. Also work in clean blocks first before moving into infected blocks. Practice sanitation wherever feasible.

Risk for blossom blight in newly planted trees in bloom will build again this week with warm temperatures. Removal of blossoms is the best protection where it is possible. If this is not feasible, an application of streptomycin would be advisable before Thursday's forecast rain. This only applies to newly planted trees with bloom.

Nectria (European) Canker

Fire blight strikes can often be confused with *Nectria* (European) canker

infections. I have observed *Nectria* twig blight in several orchards in the past week. *Nectria* twig blight is very often found on bourse shoots of a cluster where a fruit was picked last fall with the stem left on the tree.

Symptoms of *Nectria* twig blight included wilted shoots and shepard's crooking, similar to fire blight (Figure 3). However, *Nectria* shoot blight usually begins from the base upwards, and there is never ooze present. *Nectria* infections often typically have orange coloured fruiting bodies near the base of last year's clusters (Figure 4).

In comparison, shoot blight from fire blight usually begins from the tip down, often bacterial ooze is present, and usually the midvein or petiole of the leaf appears symptomatic before the leaf blade.

Nectria infections should still be pruned and discarded where found but it is not nearly as aggressive a disease as fire blight.

Powdery Mildew

New powdery mildew infections are being observed where flag shoots were present. Check the underside of curled leaves for the powdery mycelium growth. Non-bearing trees, newly planted orchards, and nurseries should be protected from powdery mildew and apple scab. The impact of powdery mildew on mature orchards at this point is minimal but infections can impact extension growth on young trees.

Insects

Codling Moth

The treatment timing for egg hatch/larvae products (Assail, Calypso, Twinguard, Delegate, Confirm, Intrepid, Altacor, and Exirel) is approximately 100 degree days (base 10°C) Celcius from biofix. The model reached 100 degree days for Kentville and Greenwood on Sunday, June 29th. Therefore, codling moth treatments can be applied during the next week where trap captures warrant treatment. Thresholds for



Figure 3: *Nectria* twig blight (also called European canker) can resemble fire blight strikes.



Figure 4: Orange fruiting bodies of *Nectria* infections can often be found near the base of wilted shoots. It also often occurs where the stem of last year's fruit is left on the tree after picking.

treatment were traditionally 40 moths per trap. However, based on high value varieties, thresholds have moved towards 10-20 moths per trap.

Note, this model is reported for Kentville Agriculture Centre and Greenwood DND and other areas of the Valley may be slightly different in timing but generally over the next week most areas will be in the appropriate timing for codling moth treatments.

In blocks that had treatable levels of codling moth and treatments have been applied, traps should be cleaned out after the application. As most of the codling moth products act on the larvae, additional trap captures are not all that indicative of a control problem unless you're using Imidan. Where codling moth has been a problem in the past, a second application 10-14 days after the first may be required.

Wondering about rainfall and insecticide activity? The following article is well worth reading from Dr. John Wise of Michigan State University on rainfastness of various insecticides:

http://msue.anr.msu.edu/news/rainfast_characteristics_of_insecticides_on_fruit

Some highlights discussed:

- A drying time of 2-6 hours is sufficient for most insecticides to stick the product to the leaf or fruit.
- Neonicotinoids are an exception to the above and up to 24 hours is need for optimal penetration.
- Rainfall of 25 mm (1 inch) or more is generally sufficient to remove most residues required for product efficacy on codling moth including Neonicotinoids (Assail, Calypso), IGR's (Confirm, Intrepid, Rimon), and organophosphates (Imidan). This will require re-application of the insecticide to adequately protect fruit.
- Spinosyns (Delegate, Twinguard) and Diamide (Altacor, Exirel) insecticides are more rainfast than other products and will still provide efficacy through up to 50 mm of rainfall post-application.

Mites

Summer miticide options include Acramite, Kanemite, Nexter, Envidor, and Nealta. Scout your orchards or check your scouting reports to see if there is a treatable population.

Horticulture

Calcium (Ca) Sprays

The goal of Ca sprays is to increase the concentration of Ca in the fruit. The benefits of Ca sprays are to potentially reduce bitter bit. Honeycrisp and Northern Spy are quite sensitive to bitter bit. Large fruit of cultivars like Cortland, Gravenstein, and Jonagold are also susceptible. Young trees typically have worse problems with bitter pit. The downsides of Ca sprays are possible advanced maturity and leaf burn resulting in reduced yield and size in some cases.

Ca sprays should be applied at two-week intervals starting in early July if you are applying four sprays or mid-June for six sprays. Where bitter pit is an annual problem and additional Ca is required, sprays can be continued up until harvest.

Ca has very low movement within the tree and needs to be applied directly to the fruit surface to be absorbed. Therefore, thorough coverage is important to cover developing fruit. Ca should not be applied as

concentrate. Use higher volume sprays. It is recognized that ensuring adequate boron sufficiency can also aid in Ca uptake of the tree.

Calcium chloride flake (77% Ca) is the most economical Ca material to use but also the highest risk for foliar burn. Apply at 4 to 5 kg per 1000 L of spray solution.

Calcium nitrate at 6.0 kg per 1000 L of spray solution could be used if foliar nitrogen is low. If nitrogen levels are adequate, it is best not to apply additional nitrogen to the trees to avoid a reduction in colour development and possible storage issues. Do not apply calcium nitrate past July. Excessive nitrogen can also make bitter pit problems worse.

Alternatively, there are various other sources of Ca which may be safer products for foliar burn in some cases. The cost per unit of active ingredient will be higher with these products. Their concentrations vary; however, the method with these products is still to apply 3.5 kg of actual Ca per 1000 L of spray solution.

Calcium chloride is compatible with most wettable powder fungicides and pesticides including Captan when applied dilute, however, risk of leaf injury may be enhanced by Captan in some cases. Dissolve calcium chloride in a pail first and thoroughly mix in the spray tank before adding other products. Incompatibility has been observed with Polyram, Epsom salts, and liquid or emulsifiable pesticide formulations in some cases.

It should not be applied with Apogee as calcium can interfere with Apogee activity.

Peach Thinning

Peach thinning can begin now as fruit size has reached 1" in many areas. Fruit set has looked good in most blocks to date.

Young Tree Training

Young plantings should have trellis installed and trees supported and trained as soon as possible. It has been demonstrated that the earlier the support is provided, the better the tree growth.

Weed Control

Continue herbicide application where weed growth is present. The critical weed free period extends to about 30 days after full bloom for mature plantings and through July for young, non-bearing trees.

Apple Maggot Eradication Technician

The apple maggot eradication technician is again available this year to control wild host trees of the apple maggot. Please contact Elizabeth Nichols to report wild trees and schedule their elimination.

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Events

Summer 2015 Fire Blight Management Tour & Workshop – Thursday, July 9th

Perennia will be hosting a tour and workshop on Thursday, July 9th to discuss the outcome of fire blight management efforts this season. Dr. George Sundin of Michigan State University, a plant pathologist with extensive expertise in fire blight management, will be joining the tour and will be making presentations in the evening workshop.

The event will begin with an orchard tour in the early afternoon on July 9th followed by an evening workshop at the Kentville Agriculture Centre. There is no cost to attend. A detailed agenda will be provided shortly. Attendance at this event will provide you with a generous 4.0 PCRP credits.

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

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Perennia