Orchard Outlook

Vol. 15, No. 7 May 27, 2015

Warm temperatures have pushed out bloom and despite starting the season 3 weeks behind back in early May, bloom will just be a few days behind average. The planners of Apple Blossom Festival won't be disappointed this year!

Bud Development

Apples range from early pink to full bloom on Gravenstein (Figure 1). McIntosh is at early bloom in the warmer areas. Pears are white bud to full bloom; peach – full bloom; plum – full bloom to petal fall; sweet cherry – full bloom to petal fall.

Figure 1: King bloom of apple (top left), full bloom of pear (top centre), full bloom of peach (top right), petal fall of sweet cherry (bottom). Photo: http://utahpests.usu.edu/IPM/htm/fruits/home-orchard-guide/ and http://fruit.umext.umass.edu/tfruit/clements/2004budstages/03312004/03312004-Pages/Image3.html.

2015 Degree Day Accumulations

Heat unit accumulation again advanced rapidly last week. It is still behind the 5 and 10-year averages but is now just 4% lower than this date last year.

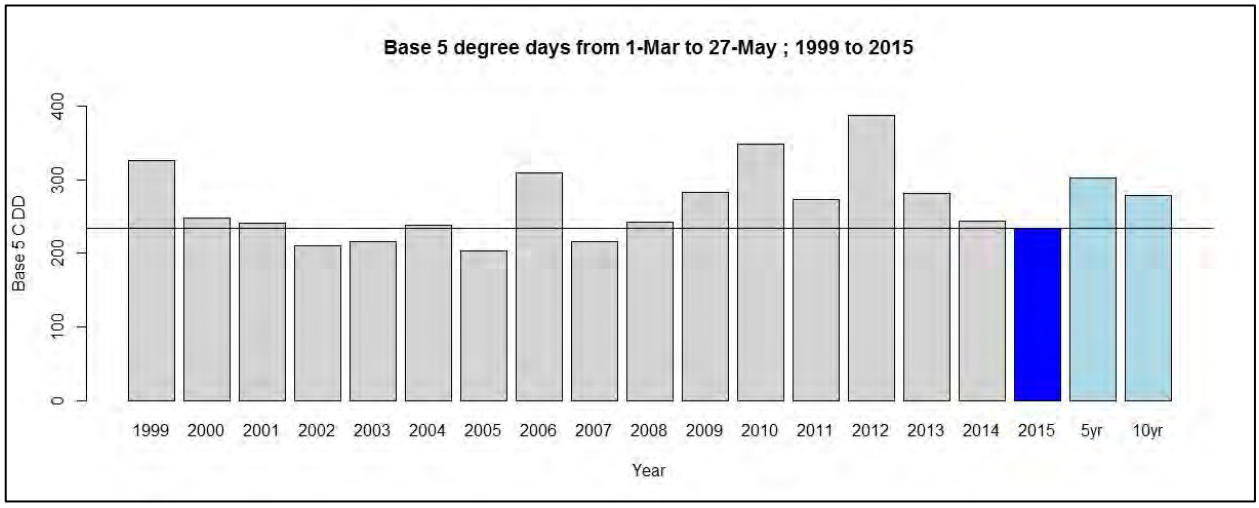

Figure 2: Degree day accumulations from March 1st for the past 17 seasons. Provided by Jeff Franklin (AAFC).

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

- About 23% fewer plant development heat units compared to the 5-year average.
- About 4% fewer plant development heat units compared to 2014.
- About 18% fewer insect development heat units compared to the 5-year average.

Diseases

Apple Scab

An apple scab infection has not occurred since May 12-13th according to the Mill's table with the Kentville Agriculture Centre data. A longer duration of leaf wetness may have led to an infection period in your area depending on the erratic nature of rainfall. Ascospore maturity is estimated at 68% today and most mature spores would have been released with yesterday's rainfall (though wetness did not last long enough to cause an infection). In good news, two-thirds of the ascospores are gone for the season so far with only 1-2 infection periods on the books.

Secondary Diseases

Captan cover sprays from bloom onwards are usually the most cost effective approach for summer disease management. If you are applying Agral 90 with Streptomycin or Apogee, ideally avoid applying captan within 2-3 days of Agral 90. The strobilurin fungicides Flint and Sovran, as well as Allegro, and Pristine have good activity on these summer diseases as an alternative to Captan. Captan is still the most economical.

Fire Blight - Streptomycin

Updates have been sent through the Orchard Outlook mailing list. Based on the weather forecast, the next few days are a critical period for blossom blight control.

A clarification around rate:

> **The 600 g per 1,000 L of water rate refers to 600 g PER 1,000 L OF WATER IN SPRAY TANK.** This is not a suggested application volume per hectare (though I suspect it would be a sufficient volume for many blocks given decent sprayer condition).
>
> Add the Strep based on tank capacity and then spray with whatever volume of spray per hectare you normally spray with. If you don't have time to spray dilute with Strep than it's better to reduce your water volume to fungicide volumes and spray than to not spray anything at all.
>
> **Example: Your sprayer holds 2,000 L of water: Add 1.2 kg of Strep to the tank. Go spray.**
>
> The alternative approach is using a fixed rate per hectare of 1.0-1.68 kg/ha. Either will be effective as long as you get adequate coverage.

Fire Blight – Shoot Blight Management & Apogee

The third chemical approach to fire blight management is the use of Apogee to supress shoot blight. Apogee has excellent activity on shoot blight suppression and this was observed last season during the fire blight epidemic. The material Apogee itself is not an antibiotic and has no direct activity on the fire blight organism. The application of Apogee at the correct timing results in a reduction of terminal growth in apples by 30-40%. Microscopy techniques have revealed that application of Apogee also results in cell walls of treated shoots becoming thicker. This secondary effect makes these shoots much more difficult for the fire blight pathogen to infect and treated shoots becoming much more resistant to fire blight infection.

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"). This typically happens around king bloom petal fall to petal fall. The first Apogee application should be made at this stage. This may be this week or early next week but not today. A second application should be made 14 days later.

Do not go too early! Apogee is xylem mobile which means it only moves from the base to the tips of treated shoots. Therefore, there must be basal leaves of the shoot present to absorb the product.

Apogee should be put on dilute with high water volumes to sufficiently cover all new leaves and growing tips. Concentrate volumes have worked well in some situations.

Apogee can be used at 450 g per 1,000 L of water for fire blight suppression or 1,350 g/ha if using 3,000 L/ha of water. Include Agral 90 at 500 mL per 1,000 L of water. Do not exceed this amount of surfactant. Apogee should also be applied with spray grade ammonium sulphate (AMS) in a 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 thinning production ammonium thiosulphate (ATS)!

Recommendations from Michigan where fire blight has been a major problem in the past is 3 applications of Apogee beginning at king bloom petal fall spaced two weeks apart. The rate used is 600 g/ha per application.

Powdery Mildew

For blocks or cultivars with powdery mildew pressure, apply a second fungicide for powdery mildew at pink or bloom if not done yet. For high pressure situations, a final powdery mildew fungicide can be applied at calyx.

Brown Rot

Maintain fungicide coverage through bloom and wet, warm weather.

Insects

DO NOT SPRAY INSECTICIDES DURING BLOOM!

Most blocks have reached the point where there is some bloom open and pollinators are starting to visit. There are plenty of dandelions. **Do not use insecticides with bloom open.** You should never be thinking about spraying Streptomycin and insecticides at the same time! Control of stinging bugs, spring caterpillars, rosy apple aphid, and European apple sawfly can take place at calyx.

A correction from last week:

Closer and Twinguard Insecticide both contain sulfoxaflor a Group 4C insecticide. It has come to my attention that sulfoxaflor, though in group 4, is not part of the neonicotinoid class. Sulfoxaflor's mode of action (classified as 4C) is the Isoclast active and shows no cross-resistance with neonicotinoids (4A). Regardless of the class, it should still not be used with bloom in the orchard!

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. I would encourage you to review the following links on protecting pollinators during bloom:

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**
  - Honey bees should be moved into the orchard for pollination purposes immediately if not done already.
- **Pruning**
  - Prune blocks with known fireblight infections when dry and disinfect pruning equipment on a regular basis.
- **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.
- **Grafting**
  - Bark slipping is at the ideal stage for topworking trees.
- **Tree Planting**
  - Prune newly planted trees as early as possible to maximum first year growth.
- **Foliar Sprays**
  - Boron application should be applied at pink to improve fruitset if tissue sampling indicates a need.

EVENTS

There will be an evening orchard meeting tomorrow, Thursday, May 28th to discuss issues relevant to bloom including blossom thinning, thinning, and fire blight. This will take place at Van Meekeren's at 7:00 pm. Attendance will qualify for 1 PCRCP credit.

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

Editor: *Chris Duyvelshoff*
Perennia