Agra Point
ORCHARD OUTLOOK
10 Webster St., Suite 210 | Kentville, Nova Scotia B4N 1H7 | (902) 678-7722 | www.agrapoint.ca

Volume 7, No. 5 **May 30, 2007**

This issue contains:

Bud Development

In many areas of the Valley the King flower buds on apple trees began to open on Friday May 25th. Saturday's high of 29°C followed by Sunday's 21°C sped up flower development to where most cultivars were showing some to over 50% full bloom by Monday; others were in full bloom by Wednesday. Pear trees were in full bloom on Monday May 28th. Stone fruit were at petal fall to bloom.

2007 Degree Day Accumulations

(Temperature data provided by Jeff Franklin, AFHRC, Kentville)

Table 1.0 Degree day accumulations as of May 28, 2007 taken from Kentville weather data. Degree day accumulations are calculated using the single sine method and are based on a start date of January 1, 2007.

Category	2004	2005	2006	2007	5 year average
Plant development (Base 5°C)	252.1	214.0	348.2	250.2	259.5
Insect development (Base 10°)	97.4	52.1	131.7	99.4	91.2

Last Saturday's high of 29°C brought the Base 5°C almost back to the 5 year average

Apple Scab

This past week an infection period was recorded at Kentville and other areas of the Valley on May28th - 29th. This resulted from shower activity Monday morning starting between 10 and 11 am depending upon your location in the Valley. The showers only lasted for a couple of hours however the day remained overcast, the foliage never dried off and a heavy dew in the evening extended the wetting

period to around 8:00 am on the 29th. There would have been a very heavy spore discharge, as high as 25% of the overwintering spore within this wetting period. This is one of those infection periods which you may be second guessing because the pavement was dry mid afternoon, however leaf wetness sensors placed in an apple tree never dried off on Monday and stayed wet until Tuesday morning. If you are in a situation where your orchards were not protected against this infection you have until this weekend to apply Nova, Nustar, Sovran and Flint to control it. In some areas of the Valley there was shower activity around suppertime which would have resulted in a wetting period lasting until mid morning on Thursday given an average temperature of 9 to 10°C this may have resulted in an infection in some areas.

Scab Spore Discharge

Gordon Braun report that 61% of the overwintering spores should now have matured. This is based upon a prediction model.

Powdery Mildew

In the past week there has been lots of new leaf tissue and shoot growth which is quite susceptible to powdery mildew infection under warm humid weather conditions. If you are able to control mildew through the pink to calyx stage in many cases it will not be a problem for the remainder of the growing season. Not all cultivars or orchard block need to be treated for mildew in Nova Scotia however if you had a problem last year in a particular block or cultivar in all likelihood it will be a problem this year. In blocks where powdery mildew is an issue, select a fungicide that controls both powdery mildew and apple scab. Once again we remind you that Nova and Nustar need to be mixed with a protectant fungicide in order to prevent fruit scab infection. These products are good for controlling foliage scab but weak on fruit scab.

Brown Rot

Stone fruit are at late bloom to petal fall thus a fungicide program to control the blossom blight stage of this fungus should continue.

Fire Blight

The warm weather on Friday, Saturday and Sunday of this past week resulted in a high risk of infection rating for Monday May 27th in Kentville and to the west of Kentville. The weather forecast is for cooler weather into the weekend with only the risk of a shower on Thursday, dropping the risk factor down into a low category. Based upon the five day weather forecast the risk will remain low into Sunday. Should temperatures be warmer than forecasted the risk may go up but it is doubtful if it would reach high.

In order for a fire blight infection to occur the fire blight bacteria has to populate the bloom and this occurs as a result of insects carry the bacteria or rain splashing bacteria from and oozing overwintering fire blight canker to the blossom. Bees visiting the infected flower then spread the bacteria throughout

the orchard. The bacterium multiplies on the flower and will infect the bloom once there is sufficient moisture to wash the bacteria to the base of the flower where there are natural openings through which the bacteria can enter into the flower. A shower, rain or heavy dew will provide a sufficient volume of water to wash the bacteria to the base of the flower. Predicting showers or rain is not difficult however dew events are another story. In Nova Scotia we quite often have dews resulting from our warm days and cool evenings, most days they are not heavy enough to produce a volume of water to wash the bacteria to the base of the flower. Dew similar to that of Tuesday morning would however produce enough moisture to wash the bacteria down to the base of the flower. Moisture was dripping off the leaves of trees.

Although bloom was beginning on Friday May 25th in many areas of the Valley and high temperatures occurred over the weekend to increase the infection risk factor to high, along with rain and heavy dew on Tuesday, the Maryblight prediction model did not predict infections. In discussion with Gordon Braun we do not feel that the overwintering cankers have begun to produce bacterial ooze quite yet. Checking cankers ooze has not been detected and the Maryblight model is calculating there has only been half the heat unit requirement to produce ooze from cankers. As of Monday heat units for canker ooze was at 43. The last two years infection took place during full bloom to early petal fall and the heat unit accumulation for canker ooze were in the low 60's to mid 70's.

Bees and Orchard Spraying

At this morning's Orchard Outlook meeting, it was reported that a study conducted on orchard spraying and bee injury indicated that a high percentage of bees do not make it back to the hives when they are hit by the wind velocity from an orchard sprayer. Growers should take this into consideration when spraying orchards during the bloom period and whenever possible spray early mornings or later in the evening when bees are not present in the trees.

Insects

Now that most apple orchards are in bloom insecticide treatments to control pests will have to wait until the calyx period when bees will not be working the apple bloom. Winter moth, green fruit worm, leaf rollers, rosy apple aphid, brown and mullein bug, white apple leafhopper as well as mites are all pests that may need to be treated at the calyx period. The earlier cultivars may be at calyx within a week's time however in mixed orchards blocks it will likely be late next week before most cultivars are at calyx. Looking at the five day forecast, temperatures are going to run on the cool side so flower development will be slow.

Apple Curculio

Apple curculio has been identified on pear trees and is responsible for sting damage which results in misshapen fruit and corky fruit tissue. Stinging takes place at calyx thus if this pest is a problem in your pear orchard an insecticide should be applied as close to calyx as possible. Guthion/Sniper, Imidan or Zolone applied at calyx should control this insect.

Pear Psylla

This past Monday Dick Rogers reported observing pear psylla eggs on leaves, young nymphs and adults in a pear orchard. The next treatment window for this pest is at calyx. As stated in previous newsletters Agrameck+ oil is an excellent treatment for controlling this pear pest. It should be applied as close to the completion of pear petal fall as possible. The product is absorbed into new leaf tissue and has a long residual life which can control the drawn-out egg hatch of psylla.

Plum Curculio

This insect will lays its eggs in plums, cherries and peaches starting at shuck split. At harvest time these eggs have turned into a nice fat white grub found near the pit - a real joy to find while eating one of these fruits. The OP's, Guthion/Sniper, Imidan, Zolone are all registered on the stone fruit for Curculio control, the Pyrethroid Pounce is registered for peach and plum while Matador/Warrior is registered on cherries and plums for curculio.

Green Aphids

Those growers that have fruit tree nurseries should be checking them on a regular basis for aphids. If aphids are allowed to build to high levels they will reduce growth and twist the terminal shoot growth.

Crop Load management

Most orchards I have observed over the past few days have an excellent bloom and provided that there are good pollination conditions, fruit overset will occur. ATS is a liquid fertilizer that can be an effective blossom thinner. Reducing early fruit set with a blossom thinner is most effective for increasing repeat bloom. The rate of ATS is 30 to 40 L/ha (with 40L being the most effective) applied as a full dilute spray 3300L of water per hectare. Concentrating this product can result in foliage burn particularly if you are not obtaining even spray coverage. Post bloom fruitlet thinners are the most commonly used thinners in Nova Scotia of which Sevin is the most commonly used. At times this product is not aggressive enough in removing fruit from the tree and the desired fruit size at harvest is not obtained. The combinations of Sevin and Fruitone or Accel are more aggressive and will remove more fruit than Sevin by itself. If you find that you have not been removing enough fruit with a post bloom thinner to obtain the desired fruit size at harvest than I would suggest that you get more aggressive with your thinning program.

Nova Scotia Guide to Fruitlet Thinning Materials and Rates

Stage of Application	Treatments	Product Rate^ (per litre)	Product Rate^ (per hectare)	Product Rate^ (per acre)
8-12 mm+	Sevin XLR Plus (low rate)	0.87 ml	2.9 L	1.2 L
8-12 mm	Sevin XLR Plus (high rate)	1.25 ml	4.2 L	1.7 L

8-12 mm	Fruitone-N - 5 ppm	0.16 g	539 g	218 g
8-12 mm	Fruitone-N - 7.5 ppm	0.24 g	809 g	327 g
8-12 mm	Fruitone-N - 10 ppm	0.32 g	1,078 g	436 g
8-12 mm	Sevin XLR Plus (low rate) & Fruitone-N - 5 ppm	0.87 ml 0.16 g	2.9 L 539 g	1.2 L 218 g
8-12 mm	Sevin XLR Plus (high rate) & Fruitone-N - 7.5 ppm	1.25 ml 0.24 g	4.2 L 809 g	1.7 L 327 g
8-12 mm	Accel - 25 g a.i./acre	1.02 ml	3.4 L	1.4 L
8-12 mm	Accel - 30 g a.i./acre	1.22 ml	4.1 L	1.7 L
8-12 mm	Accel - 50 g a.i./acre	2.04 ml	6.9 L	2.8 L
8-12 mm	Sevin XLR Plus (low rate) & Accel - 25 g a.i./acre	0.87ml 1.02 L	2.9 L 3.4 L	1.2 L 1.4 L
8-12 mm	Sevin XLR Plus (high rate) & Accel - 30 g a.i./acre	1.25 ml 1.215 ml	4.2 L 4.1 L	1.7 L 1.7 L

^ These are dilute rates based on 300 imperial gallons/acre, which equals 1364 L/acre or 3370 L/hectare full canopy 'big' trees + Fruitlet diameter.

APOGEE® for Nova Scotia Apple Growers

The following article was published last year in the Orchard Outlook and was provided by Charlie Embree AAFC, Joan Hebb AAFC, Doug Nichols NSFGA.

APOGEE® (Prohexadione Calcium) is a recently registered plant growth regulator that inhibits the biosynthesis of gibberellin in the current season's growth. Vegetative growth is inhibited by a reduction in cell elongation resulting in shorter shoot internode length. In addition to growth control Apogee® will suppress secondary fire blight (*Erwinia amylovora*) infections.

In 1999 following a few years of preliminary trials in New York State, Apogee® was described at the North Eastern Plant Growth Regulator working group meetings. Charlie Embree was able to obtain some of the compound from BASF USA for preliminary trials on mature Cortland and Northern Spy in Nova Scotia. Since that initial experiment Apogee® trials were a part of the NSFGA annual Bioregulator program under the direction of Research Scientist Charlie Embree.

During the past five seasons Apogee® has consistently reduced terminal vegetative growth by 30 - 50%. This material has the potential to replace pruning the year following application. Apogee® will suppress

vigor each year it is applied, however vigor will rebound with extra terminal growth in a season no application is used. In young high density orchard systems an application of Apogee® will reduce tree vigor. As a tool, Apogee® will provide a balance between canopy development and fruit production. Apogee® should be applied as a foliar spray when the current season's vegetative growth is between 2.5 and 7.5 cm in length. Two applications at a rate of 27 grams per 100 litres of dilute spray solution (810 grams per hectare) for a 100% canopy at a 14 day interval will provide adequate growth control in most orchard systems. However timing of first application and canopy coverage are critical for desired results. Where extreme vegetative growth exists the higher rate of 45 grams per 100 litres of dilute spray solution (1350 grams per hectare) for a 100% canopy will be necessary. The adjunct Agral 90® at a rate of 50ml per 100 litres of water will ensure uptake of Apogee® by the foliage. Additional late season application may be necessary for water sprout growth control following aggressive spring pruning. Thinning treatment responses were not altered by Apogee® in Nova Scotia, however, suppressed thinning responses were reported in other growing regions.

Water volume can be reduced to as low as 800 L of water per hectare when the application take place during warm dry weather and to 400 L of water per hectare when the application is made when it is warm and humid (dew on leaves). When applied in water with a low pH 4-5 the up take by foliage is accelerated. Apogee can be tank mixed with fungicide treatment. **Do not** apply with other growth regulators contain GA (Proalin, Accel Regulaid). **Do not** apply with calcium chloride. Studies in the US have also noted that by controlling vegetative growth with Apogee, fire blight shoot infections have been reduced and insect damage from OBLR, pear psylla and aphids was also reduced.

Tree Training

Growers who have planted trees this spring and haven't already done so, will need to go through the plantings and remove limbs that are to low or too strong. Once the trees have begun to grow, leaders will need to be singled out when the shoots are 5 to 10 cm long. For trees that have been left in the nursery the lower leaves and shoots should now be stripped while the tissue is still soft.

Noon Hour Orchard Walk

There will be a noon hour orchard walk for organic apple producers and those interested in organic apple production. The meeting is being held on June 7th at VanMeekerens organic Cortland block located in Lakeville and will get underway shortly after 12:00 pm. Turn north at the corner store in Lakeville, continue until you come to a poultry barn on the right and made a right hand turn into the orchards. We will meet next to the pavement and proceed east to the mature Cortland block; this is the third block of orchard east from the paved road.

Machinery Day

The NSFGA Production Committee is in the process of arranging an orchard machinery demo day for Saturday June 23rd to be held at the farm of Lloyd Dyck's in Waterville from 9:00 am to 12:00 pm. The demo is aimed at apple, grape and high bush blueberry growers. Mark this date on your calendar, additional information will be provided in future Orchard Outlooks.

Written and published by AgraPoint in partnership with Agriculture and Agri-Food Canada and Industry representation.