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Stage of Bud Development

Fruit bud development observed on Tuesday, June 3 was identical to that reported in last year’s June 6th Orchard Outlook. Depending upon cultivar and location, apple trees were at the calyx-to-full bloom stage of bud development. Early fruit set was observed on Gravenstein, Idared and McIntosh. If warm weather occurs for the remainder of the week, the majority of apple trees should be at calyx and fruitlet stages by early next week. Pear trees were at calyx and early fruit set was evident. Stone fruit were at shuck split to shuck fall.

2008 Degree Day Accumulations

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

Table 1.0 Degree day accumulations as of June 1, 2008 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, 2008.

Category	2005	2006	2007	2008	5 year average
Plant development (Base 5°C)	251.4	396.4	285.0	314.7	291.4
Insect development (Base 10°)	76.4	167.7	117.2	115.3	87.1

Apple Scab

One infection period was recorded at Kentville during the past week and this resulted from the wetting period which began at approximately 3:00 pm on Saturday, May 31 and lasting to approximately 11:00 pm on Sunday, June 1. The average temperature during the 20 hr wetting period was 13°C. Ascospore maturity is now 97.8% complete, however, it is still a bit too early to switch to a cover spray program. As of today’s date I have not observed scab lesions, or heard of anyone else observing scab lesions, from infection periods during late April and May.

Fire Blight

A fire blight infection would have occurred as a result of last night shower activity and will occur to day for all areas except Medford, if there is a wetting event. Of the three areas where predictions were being forecasted, Medford was the only site that did not predict an infection for last night or today. This weather station is located close to the Minas Basin and slightly cooler temperatures have been recorded for this site. Growers that applied streptomycin, or who will apply it today, will not have to worry about infections until after this weekend. This is based upon the present five-day weather forecast. The risk factor drops to low for all sites by this weekend.

Calyx Orchard Pest

The calyx period is the most complicated for orchard pest problems and for selecting an appropriate insecticide. The following pests will need to be monitored for and addressed when populations meet an economical threshold.

Caterpillars

- 1) Winter moth: this pest will be around for a while yet and will feed on the newly forming fruit. Check apple, pears and stone fruit and treat where populations have reached a threshold.
- 2) Green fruit worm: although not as common as winter moth also feed on the foliage and newly forming fruit. It can cause considerable fruit damage on pear trees. Base treatment on monitoring and treatable threshold one or more larva per 20 limb taps.
- 3) Pug moth: should have left the tree or is about to do so thus treatment in the calyx should not be necessary.
- 4) Apple Leafrollers: pale apple, fruit tree, three-lined or oblique-banded may be present during the calyx period. Leafrollers are more of a concern when they are found feeding on the nearly formed fruit. A few leaf rollers on terminal shoot growth should not be of concern. Treatment for leafrollers should be based on monitoring. A calyx insecticide treatment for winter moth or green fruit worm should also provide control of most leafroller problems.

Stinging Bugs

Brown bug and mullein bug can sting newly forming fruit, thus, susceptible cultivars such as Red Delicious should be checked during the calyx period for treatable populations. A threshold for either one of these bugs, or a combination of the two, is eight bugs per 20 limb taps. Mullein bug hatches during the bloom so, in some areas, tapping should not take place until early next week.

Rosy Apple Aphid

Colonies of the aphid have already starting to build and one colony per meter of tree height at this stage of tree development would warrant a treatment.

White Apple Leafhopper

An average population of one leafhopper per leaf is the threshold for this pest. Growers that use sevin for fruit thinning will control this pest, however, young trees can be overlooked and populations can build to where they reduce shoot growth.

Mites

European red, two spotted and rust mite should be monitored for during the calyx period. It was noted at the Orchard Outlook meeting that early season miticide treatments for two spotted mite may provide season-long control. For growers who are planning to use Apollo late in June for mite control – this miticide will not control rust mite. Growers that are going to use Agri-Mek + Superior Oil will obtain better mite control when applied at the early calyx stage (as soon as bloom is completed). Captan or Maestro d should not be applied seven days prior to or seven days after the Agri-mek + Oil treatment.

Pear Psylla

Dick Roger's reported observing psylla nymphs that were near the adult stage, but no adults as of yet. Growers that are planning to use Agri-mek + Oil for psylla control – this treatment should be applied as soon as bloom is completed on all pear cultivars in pear orchard blocks.

Other Pest

Apple leaf skeletonizer and brown leaf weevil were also reported in the orchard blocks being observed by Dick Rogers for the Orchard Outlook. Both are minor pest, however, if the populations become high enough they can adversely affect the tree foliage.

Fruit Set

Looking at McIntosh, Gravenstein and Idared trees that were at calyx and tail end of bloom yesterday, I was encouraged by what appeared to be a good fruit set. With still lots of bloom in the orchards it will be later this week and next week before growers should start checking orchard block to determine the need to apply a chemical thinner. Thinning treatment should go on well before the average fruit size reaches the 12.5 mm stage of development. Good weather conditions during the thinning period are critical to successful thinning, so try and pick a period when several days of warm weather are forecasted. Please refer to the enclosed table for thinning products and rates. I hope to have an update table by next week which will have the rates for the new thinner Maxcel.

Field Meeting on Thinning

This is a reminder that there will be field meeting on Friday June 6th at Tim Pearson's Woodville farm to discuss fruit set and options for thinning. Charlie Embree and Dough Nichols will be on hand to assist with the discussion. The meeting will get under way at 1:00 pm.

APOGEE®

In some areas of the Valley, shoot growth at the beginning of this week had reached the stage of development when it is applied. Once sufficient petal has occurred, Apogee applications should go on. Please refer to the articles on Apogee in last week's Orchard Outlook as to rates, timing and its beneficial effect on orchard pest and disease management.

Deer Control

Now that young trees have started to but on some new growth, deer have started to browse on it. Options for deer control are soap bars tied on each tree, scented twist ties, sprays of Thiram and an electrical fence (the best control).

Noon Hour Field Meeting for Organic Apple Production

A field meeting will be held at Dr. Rob Smith's organic orchard block to discuss calyx pest, crop load managements and organic control options. Interested individuals are more than welcome to attend. The meeting will get under way at 12:00 pm on Thursday June 12th. Rob's farm is located just north of Brooklyn St. on Vitoria road.

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)	1.25 ml	4.2 L	1.7 L
	& Accel - 30 g a.i./acre	1.215 ml	4.1 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

Decision Table 1: Determining the most effective pesticides in order of preference for control of pests at the calyx stage of apples in Nova Scotia (rev. June 2007)

Insect Complex	Products and Rate per hectare	Ratings*and comments
1. Stinging bugs: mullein, apple brown & tarnished plant bug	Actara 160 g, Calypso 145-290 ml, Admire 380 mL, ** <i>synthetic pyrethroids</i>	Actara- 4 ; Calypso- 4 ; Admire- 3 ; Synthetic pyrethroids- 4 but pyrethroids are disruptive to IPM programs;
2. Rosy Apple Aphid	Pirimor 50 DF 850g-1.7 kg or Admire 230mL, Actara 160 g or Assail 70 WP 80-120g	Actara- 4 ; Admire- 4 ; Assail- 3 to 4
3. White Apple Leafhopper	Pirimor 50 DF 1.7 kg or Admire 200 mL Calypso 145-290 ml or Sevin XLR 2.3L or Assail 80-120 g	Sevin XLR applied for chemical thinning will provide control.** Admire- 4 ; Actara- 4 ; Assail- 4 ; Calypso- 3 to 4 .
4. Rosy Apple Aphid, stinging bugs, White Apple Leafhopper	Admire 380 mL, Actara 160 g, Calypso 145- 190 ml	Each of these products is rated 4 for some of these pests and 3 for others
5. Pale Apple Leafroller, Obliquebanded Leafroller	Intrepid 1.00 L or Confirm 1.00 L or Success 182 ml	Ratings for OBLR for caterpillar kill are: Intrepid- 4 ; Success- 4 ; Confirm- 3
6. Winter Moth, Fruitworm	An organophosphate (eg Imidan 4.12 kg or Zolone F 2.0L)	Imidan 4.12 kg or Zolone F 2.0L are the least disruptive to IPM and IFP
7. Stinging bugs, Rosy Apple Aphid, White Apple leafhopper, and Leafroller	Assail 120 g, Calypso 145-290 ml	Each of these products is rated 4 for some of these pests and 2-3 for others
8. Winter Moth/Fruitworm, White Apple Leafhopper and/or stinging bugs	** <i>synthetic pyrethroids</i>	Synthetic pyrethroids are disruptive to IPM programs and their use should be avoided when possible. Not a permitted product in NSFGA IFP program post bloom
9. Winter Moth, Leafroller and Fruitworm	Confirm or Intrepid 1.0L or ** <i>synthetic pyrethroid</i> or an organophosphate (eg Imidan 4.12 kg or Zolone 2.0L)	Synthetic pyrethroids, see above note.
10. European Red Mite	Apollo 300-600ml or Agri-Mek 750 + 10 L Superior Oil	Both products are compatible with use of typhs for biological control

* Ratings based on trials in US and Canada: 1- Poor 2- Fair 3- Good- very good 4- Excellent

** Tank mixing Sevin with other insecticides such as Actara, Admire, Assail, or Calypso causes mite flare-ups.

*** Apogee reduces risk from obliquebanded leafroller and green apple aphid

Table 2 Insect Tresholds

Pest	Sampling method	Susceptible varieties	Thresholds
Stinging Mirids (Apple Brown Bug, Mullein Bug)	Tapping tray - tap 20 limbs	Red Delicious/Spy/Spartan/Jonagold	Total of 8 Stinging Mirids per 20 limbs
Tarnished Plant Bug	Visual and white sticky cards		
Winter Moth	Tapping tray - tap 20 limbs	Any	3 or 4
Speckled Green Fruitworm	Tapping tray - tap 20 limbs	Any	1
Rosy Apple Aphid	Search 3 trees; divide number of living colonies seen by total meters of tree height scanned	Gravenstein/Idared/Cortland	1.0 colony/meter of tree height
White Apple Leafhopper	Scan the underside of 100 leaves near tree trunk	Any	Average of 1 leafhopper/leaf
Pale Apple Leafroller Obliquebanded Leafroller	Check 100 terminals	Any	50 terminals infested (young trees)
European Fruit Tree Borer	Based on traps	Any	Not established