

This issue contains:

- **2009 Degree Day Accumulations**
- **Bud Development**
- **Winter Damage to Fruit Buds**
- **Diseases**
- **Insect Activity**
- **Horticultural Tips**
- **Organic Orchard Meeting**

2009 Degree Day Accumulations

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

Table 1.0 Degree day accumulations as of May 11, 2009 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, 2009.

Category	2006	2007	2008	2009	5 year average
Plant development (Base 5°C)	192.7	147.9	169.4	174.1	158.6
Insect development (Base 10°)	58.6	54.8	51.2	61.2	52.8

As you will note the degree day accumulation (Base 5°C) is slightly ahead of last year, well ahead of the five year average but behind that of 2006. In terms of insect development (Base 10°C) accumulation is ahead of the previous 3 years and the five year average. This may mean insect development is more advanced at this stage of the growing season than in previous years.

Bud Development

Orchard visits from Greenwich to Aylesford on Monday May 11th and Tuesday May 12th revealed that apple fruit buds on average were at the tight cluster to bud separation stage. In one warm pocket I did see Gravenstein at pink and by the end of Tuesday a few King blooms will have opened. Pear fruit buds were between the green cluster and white bud stage of development. I would expect to see pear trees in bloom by the end of the week, if not sooner. Japanese plums were in full bloom in many locations. Sweet cherries were at full bloom to early bloom while sour cherries were at white cluster to early bloom. Peach flower buds were

at pink with the odd flower blossom opened. The long range forecast is for above average daily temperatures for the next 5 days so I would expect bud development to continue at a fairly good rate. This would mean that some apple cultivars will have a fair amount of bloom by the weekend or early next week.

Winter Damage to Fruit Buds

I have observed a poor bloom on sweet cherry trees in many locations. There is some bloom but not near the bloom that should be there. Examining some swollen bud I noted that the flower bud had been killed but the leaves were alright. Looking at the peach trees I would have to say that winter kill has been heavier than the past few years. There will be some bloom; however a number of buds never started to swell this spring and others started but appear to have stopped. The two nights in January when temperatures dropped to - 26°C are likely the blame for the fruit bud damage. To date I have not observed any tree losses that I would attribute to these lows.

Two apple scab infection periods were recorded at Kentville during this past week. The first infection period was the result of a wetting period that began at 11:00 am on Thursday, May 7th and lasted until 11:00 am on Friday, May 8th. The average temperature during this 24 hour wetting period was 14°C which places this as a heavy infection period. Lesion from this infection will appear in about 2 week's time. The second infection was the resulting of shower activity over a two day period. The wetting period began at approximately 5:00 pm on Saturday, May 9th, with additional wetting periods early Sunday morning and Sunday afternoon. The average temperature during this 14 hr wetting period was 16°C, resulting in a medium infection period. Dr Braun report the prediction model has ascospore development at 50 mature. Visual observation indicated that 40 - 50 % of the over wintering spores have now matured. There are lots of mature spores available to be released during the next wetting period. Growers should remember that the pink to calyx period is the period when fruit trees are the most susceptible to apple scab infections

Powdery Mildew

The most effective time to control powdery mildew is from the pink to post bloom stage. Powdery mildew spreads more rapidly during warm humid weather and does not do well in cool wet weather. Weather plus carry over inoculum from 2008 will dictate disease pressure by this fungus. The most effective fungicide options for mildew for the bloom to post bloom period are Nova, Nustar, Sovran and Flint. These products can also be used as scab control sprays but remember the mildew rate for Nustar and Sovran is higher than that for apple scab.

Brown Rot and Black Knot

Now is the time to be treating stone fruit trees for brown rot control. The fungus will infect blossoms during periods of wet weather killing the blossoms and spurs. These infections can later spread to the fruit. Check the stone fruit guide for products listed to control brown rot. On plums and cherries select a fungicide that controls brown rot as well as provides some control of black knot. Captan/Maestro or Indar; being the better options.

Fire Blight

As apple trees enter the bloom stage, growers should be prepared to apply a streptomycin spray prior to a wetting period when the risk of infection becomes high. We will try and keep growers informed on a timely basis when the risk becomes high.

Insect Activity

Spring Caterpillars

At this point in the growing season there are a number of caterpillars that can be found in fruit bud and/or vegetative buds. Winter moth, green pug moth, green fruit worm, eye spotted bud moth and obliqueband leaf roller are the main ones growers should be concerned with during the tight cluster to pink stage of bud development. Pre-bloom pesticide applications for any one of these will need to go on during the next several days and prior to any amount of bloom appearing in an orchard block. Those growers that have their orchard blocks monitored will know shortly if they have to treat for any one of or combination of these pests. The complex winter moth and pug moth are more commonly found in orchards. Growers should now be able to distinguish between pug moth and winter moth as I did observe pug moth with fully developed dark strip down the middle of the back on Tuesday. Growers that do their own monitoring can use the following guidelines taken from the **'IFP Guide 2001[®] For Apple Growers of Atlantic Canada'** Dr. Rob Smith, editor, pp 54-55. Special thanks to the expertise of Dick Rogers, Wildwood Labs Ltd.

HOW TO SAMPLE:

- Collect 20 clusters at random from each of at least three standard trees. ON SMALL TREES, COLLECT 5 OR 10 CLUSTERS FROM EACH TREE AND GROUP THE BUDS IN SAMPLES OF 20. YOU NEED A MINIMUM OF 60 BUDS IN TOTAL.
- Empty a sample of 20 buds onto a table and examine them by teasing the leaves apart with a fine-tipped knife or noodle probe. Inspect the bud carefully with a hand lens or microscope as you tease it apart.
- Record the number of larvae found and what kind they are (i.e. winter moth, green pug moth, eye-spotted bud moth, leaf roller, fruit worm, or other).

- When you are finished, you should have a record for each orchard block of how many trees were sampled (a sample of 20 buds is considered a tree), and how many winter moth larvae were found.
- NOTE: The buds do not have to be collected; they can be examined on the trees. However, it is easy to overlook the small larvae, and this method can actually be more time consuming.

HOW TO INTERPRET WHAT YOU OBSERVE:

Winter moth larvae can be tolerated at low abundance. Therefore, using the sampling technique described above, an action threshold of a light-moderate population has been established.

Use the table to determine if a treatment is required. You should note that if the number of winter moth larvae is low, you may need to sample more trees before you are confident enough to make a decision.

Number of trees examined (20 buds/tree)	Total number of winter moth larvae					
	Treat				Continue	No treat
	H	M-H	M	L-M	L	VL
3	>4	4	3	2	0-1	--
4	>5	5	3-4	2	0-1	--
5	>6	6	4-5	3	0-2	--
6	>7	6-7	4-5	3	1-2	0

CONTROL PRODUCTS: Check your copy of the ‘the N.S. Orchard Management Schedule 2009/2010.

When treating for just winter moth the Dipel or Bioprotec plus a 1/10th rate of Ripcord still remains of the better option when it comes to control and impact on beneficial insects. If a pyrethroid is being applied to control tarnished plant bug then this treatment should pick up most of the caterpillars. Likewise if any one of the following products, Altacor, Delegate, Confirm or Success is applied for obliquebanded leafroller they should pick up winter moth, and pug moth. The calyx period will be the next time to check for these caterpillars except for pug moth which leave the tree during bloom.

Rosy Apple Aphid

Rosy aphid is one of two aphids that can now be found in apple orchards, the other being the grain aphid. Grain aphid seldom needs treatment and later in June they move off apple trees to grain. Rosy apple aphid on the other hand can cause significant damage to the fruit resulting in pigmy fruit. Cultivar sensitivity to rosy apple feeding varies with Cortland, Gravenstein, and

Idared being three of the more sensitive. Rosy apple aphid can be treated pre-bloom however it can be difficult at this time of the season to detect colonies in trees. Many producers wait until the calyx period to treat for rosy aphid as it is easier to find while others will wait too long to determine that they need to treat. When sampling at this time of the year the threshold for treatment is 0.5 plus colonies of rosy apple aphid per meter of tree height. One of the following: Assail, Actara, Movento and Pirimor can be used as a pre-bloom control. You will have to have Pirimor on hand as it is not being manufactured but still has a registration.

Tarnished plant Bug

In some growing regions this is only a minor pest that does not require control during the bloom period. History has shown that this insect can cause considerable fruit damage during the pink to calyx period on certain cultivars such as Honeycrisp, Jonagold, Gravenstein and Cortland. Tarnished plant bug can now be observed on flower clusters. If monitoring indicates that a treatment for plant bug is required Ripcord or Matador are the two main options and both would be harsh on beneficial insects. If Actara is applied pre bloom for rosy apple aphid or mullein bug it would also have some activity on plant bugs

European Red Mite

The window to apply oil for red mite control is just about shut. Red mite begins to hatch around pink which means hatch should begin any day now. I was informed at this morning Orchard outlook meeting that some hatch was observed on Tuesday, May 12th. If you were not able to get a planned oil spray on; the next window of opportunity for treatment will be the calyx period. The only reason to apply miticide would be to control a very heavy population of European red mite.

European Apple Sawfly

The incidents of observed European apple sawfly increased in 2009. Although still considered a minor pest in Nova Scotia its population appears to be building. There have been a couple of presentations this spring by Erika Bent at grower meetings on this pest. Those growers that were not at these meeting can review the following which appeared in the May 14th 2008, issue of the Orchard Outlook.

(Info taken from Pest Management Fact Sheet 32)

The European apple sawfly was first discovered in North America in New York and British Columbia during 1939 and 1940, respectively. Although the larvae will feed on all apple varieties, they tend to attack early or long-blooming varieties with a heavy fruit set. One generation occurs in Nova Scotia annually. Sawflies are related to bees, wasps and ants.

The adult "flies" or wasps are 6 to 8 mm long; the females are slightly larger than the males. The head, antennae and lower body surface are light orange to yellow; the upper body is dark brown and shiny. The wings are covered with tiny black hairs and have a dusky appearance, and the eyes are black. The wasps emerge in the spring at apple bloom, with the males appearing first. They are active, especially during warm mornings, and they can be observed flying rather unsteadily around blossoming trees in the sunlight. When they land, the wasps move quickly, rapidly vibrating their antennae. Feeding, mating and egg laying usually occur during midday when the sun is most intense and activity is greatest. Adults live from one to two weeks.

The newly hatched larva is light cream coloured with a black head and measures about 1.7 mm long. By the fifth instar, the head becomes pale brown and the larva is 9 to 11 mm long. Sawfly larvae have seven pairs of fleshy abdominal legs (prolegs), and this can be used to distinguish them from similar lepidopterous larvae which have five pairs of prolegs. Immediately after hatching, the young larvae enter developing apples and form long winding tunnels which may extend to the ovary. Larvae which reach the ovary feed on one or two seeds then migrate to another fruit. Larvae mature in four to six weeks, then leave the fruit, burrow into the soil and form cocoons in preparation for pupation.

Early larval instars create winding tunnels just beneath the skin of developing fruit. As the fruit grows and expands, the skin often splits along the length of these tunnels and brownish ribbon-like scars which reduce fruit value at harvest are formed. Older larvae, which give off an unpleasant odour, chew large cavities inside developing fruitlets and produce masses of wet, black grass which is pushed out through a hole in the side of the infested fruit. Fruit infested by first and second instar larvae remain small and are misshapen, dark green in colour and pubescent. They usually drop before or soon after the larvae have left them for larger fruitlets. Larval feeding at the core of the apple also causes premature fruit drop and further reduces yield.

Ontario and the state of New York use a three-dimensional non-UV white sticky boards to trap adults and adult captures are used to determine the need to treat for this pest. Pictures of the pest and fruit damage along with additional information can be obtained at the following web site: www.omafra.gov.on.ca/english/crops/facts/eurosaw.htm or www.nysipm.cornell.edu/factsheets/treefruit/pests/eas/eas.asp

Guthion and Imidan are the two products in Canada that have apple saw fly listed on their labels. Insecticide treatment for this pest can be applied post bloom aimed at the adults or at petal to control the young larvae. The post bloom treatment would appear to be the most effective treatment however timing of the treatment is critical. In orchard block with mixed cultivars the bloom period can be extended preventing the application of the insecticide until the late blooming cultivars are at petal fall which could provide inadequate control of sawfly on the early blooming cultivars. The issue here is the risk of bees poisoning while there is still bloom in the orchard. Calyx insecticide treatments for other orchard pest likely help keep this pest in check. In the Cornell Pest Management guide Calypso and Assail are two of the products

listed at calyx for European sawfly control. Assail or Calypso applied at calyx rosy apple aphid or sting bugs would also have activity on European sawfly.

Nova Scotia Wildlife Compensation Program 2009

This program is administered by the Nova Scotia Crop and Livestock Insurance Commission however you are not required to have crop insurance in order to receive compensation. Apple and pears are one of a number of crops covered under the compensation program. I believe I am correct in saying the program will cover for crop loss and/or tree losses. For crop compensation a loss of at least \$250 or 2 acres must have occurred. Last winter the snow load in the woods was heavier than normal which resulted in deer herding in some orchards. I have seen an orchard which was heavily browsed during the winter and have heard of others. You have orchard blocks that have sustained wildlife damage then you should contact the NS crop and Livestock Insurance Commission at Kentville 679-6015/6028 or the Truro office toll free 1-800-565-6371.

Horticultural Tips

Pruning

In my travels I have observed a number of young plantings that have yet to be pruned. The longer you delay the pruning of these blocks the less vegetative growth you will see. In young orchard where excessive vigour is a concern delayed pruning can be used as a method to control vigour. However I have been seeing Honeycrisp blocks unpruned and with Honeycrisp excessive vigour is general not the concern but lack of vigour is. It may be wise to put off the pruning of mature blocks until the young trees are looked after.

Pollination

Full bloom of apples will soon be upon us and this year's crop will be determined by the amount of pollinating activity that takes place. Nova Scotia growers should feel fortunate in that there are still native bees to cross pollinate the bloom. Growers should never fully rely upon native bee population as it may vary from years to year and the placement of honeybees in the orchard during the bloom is still the best option for insure for an adequate fruit set.

Weed Control

Warmth and moisture are good stimulus for weed and grass control. There is also a full carpet of yellow out there. Herbicide treatment for weed and grass control should now be ongoing. The 2,4-D Amine plus glyphosate mixture is still the most commonly used treatment in Nova Scotia. This treatment does not however provide residual activity. The herbicides Sinbar, Princep and Chateau can be used for residual control. Chateau is a new herbicide which needs

to be applied prior to pink. To be effective it needs to make contact with the soil and be washed in by rain or irrigation. Do not apply Chateau within 100 m of pear trees. When weed germination has just begun then it should be tank mixed with glyphosate which will control the newly germinated weed.

Planting

Soon as the ground is dry enough young trees should be planted to optimize tree growth.

Top Grafting

Growers that plan to top work apple trees over to new cultivars can begin this process now. The bark will slip and temperatures are warm enough to promote good callusing. Remember to leave one nurse limb on the tree and make sure the grafts are well sealed with grafting wax or other grafting compounds.

Noon Hour Organic Orchard Meeting

The organic orchard working group will be holding a noon hour field meeting on Thursday, May 21 to at the Kentville Research Station to discuss timely and organic production methods. The meeting will get under way shortly after 12:00 pm and is open to all interested growers. Meeting place is the new Honeycrisp planting at the back or south end of the station. This is a two year orchard which is enclosed by a deer fence.

Contributions and consultations were made in the preparation of this newsletter with the Orchard Outlook Committee and Dr. Rob Smith

Editor: Bill Craig

AgraPoint