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2011 Degree Day Accumulations

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

Table 1.0 Degree day accumulations as of May 9, 2011. All data taken from the Kentville weather station except for observations from April 11th to 28th inclusive which were taken from the Greenwood Airport. Degree day accumulations are calculated using the single sine method and are based on a start date of January 1, 2011.

Category	2008	2009	2010	2011	5 year average	10 year average
Plant development (Base 5°C)	162.9	159.5	223.2	153.9	170.1	147.1
Insect development (Base 10°C)	49.6	54.5	78.4	45.5	54.9	47.5

Rain Fall

Jeff Franklin has informed that since the beginning of May, Kentville has recorded 109.8 mm of rain of which 90.8 mm (3.57 inches) fell since Monday.

DISEASES

Apple Scab

This past week has been rather wet which in turn has resulted in three infection periods being recorded in Kentville. On Thursday May 5th a light infection period was recorded in Kentville and Medford but not in Morristown. This was a 15 hour wetting period with an average temperature of 10-11°C. The second infection period was recorded for all three weather stations (Kentville, Medford and Morristown). The wetting period began around 4:00 pm on Saturday and it stayed wet until 9:00 am or later on Sunday. The average temperature during the 16 hour wetting period was 10°C and this was classed as a light infection period. The third infection period is still ongoing and it began at 6:00 am on Monday and looking at the weather forecast it may be Friday or later before it

dries and the infection period stops. Given the length of the last infection period and spray conditions, fungicide with the longest kick back action may be required. Nova and Nustar has a kick back period of 72 to 96 hours while Sovran, Flint and Pristine have a 48 to 72 hour kick back period. Curative fungicide applications are not promoted these days because they select for resistance and thus preventive sprays are the option of choice for scab control.

Managing Fungicide Resistance

When looking at the list of fungicides to control apple scab, one would think that growers had a wide range of products to use, however the recent reports of apple scab resistance to the DMI class Group 3 and the Strobilurin Group 11 reduces the options. We do know that there are some orchards in Nova Scotia that have a resistant population to the DMI group (Nova, Nustar) thus these products can fail to provide adequate protection against apple scab. Now that apple trees are entering that stage of development where they are at the highest risk for apple scab infection and powdery mildew infections, growers will be contemplating the use of these of these two classes of fungicide. As a producer you can delay the onset of apple scab resistance by following these few points:

1. Reduce the number of applications used in a growing season. If possible restrict it to two applications of a particular class in one growing season. In the case of the new fungicide Inspire™ they are recommending that this product should only be used twice and not as back to back spray but the sprays should be separated by one fungicide application of a different class.
2. Add half a rate of a broad spectrum fungicide such as captan or mancozeb. The broad spectrum fungicide should control the resistant spores or slow down the buildup of these populations.
3. Avoid the use of these products to burn out scab.
4. Do not cut the rate

Powdery Mildew

The weather, although it is good for apple scab infection, it has not been well suited to spread powdery mildew. Having said this, tight cluster to calyx period is the time that growers should clean up an infection that has taken place from the overwinter buds. Failure to control mildew at this stage means that you will have to deal with it until terminal growth has stopped for the season. The options for mildew control are Nova, Nustar (200g/ha rate), Sovran, Flint Pristine, Inspire and Sulphur.

Brown Rot

Now that there is bloom on stone fruit in the most advanced areas of the Valley, growers should begin a fungicide program to control this disease. Ideally fungicide programs to control brown rot should begin prior to bloom; pink for peaches and white for cherry and plum. Brown infections take place from these bud stages to calyx period during periods of wet weather. Failure to control brown rot during this period will lead to infection on ripening fruit. There are a number of fungicide options in the Stone fruit pest management guide to choose from

<http://www.agrapoint.ca/Fact%20Sheets/Horticulture/Fruit/Orchard%20Fruit/Stone%20Fruit%20Orchard%20Management%20Schedule%20201112.pdf>. If you have more than one type of stone fruit (cherry, plum, peach) check to see that the fungicide is registered for all the stone fruit crops to be sprayed.

Black Knot

Infections take place from bud break until terminal buds are set. In the spring ascospores are discharged from perithecia located in 2 year old knot tissue. Maximum spore discharge occurs between white bud and two weeks after bloom during periods of wet weather. Free moisture is required for an infection and temperatures between 12.8 and 25°C favor its development. It will take several months for the knots to appear and these knots stay active from year to year extending the size of the knot 2.5 cm or greater each year.

Presently sanitation is the best means to control this fungus. Prune out knots or infected limbs during the dormant pruning season. When removing a knot cut back 5 to 7.5 cm behind the knot into healthy wood. Remove knot from the orchard and burn. Wild plum and cherry trees should be removed from around the perimeter of the orchard. The application of Maestro/Captan or Indar to control brown rot from white bud to shuck fall will provide some control against black knot, but it must go hand in hand with knot removal. On sour cherries Bravo can also be used to control black knot.

Fire Blight

The bacterial disease will not be a concern until the bloom period on apples and if the weather continues the way it has been, there should be few if any infections. Fire blight needs periods of warm weather to build bacterial levels.

INSECT ACTIVITY

I was told at this morning's Orchard Outlook meeting by Dr. Blatt that insects have survived the down pour.

Winter Moth

Winter moths can now be found and are at the second instar stage. If treatment is required bud separation would be the first time that a treatment should go on. There are a number of insecticide options for controlling winter moth. The combination of Dipel or Bioprotec plus the low rate of Ripcord is still an effective spray and has little impact on beneficial insects. If a prytheroid is being applied to control tarnished plant bugs 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 oblique banded leaf roller they should pick up winter moth, and pug moth.

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, pgs. 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

Green Pug Moth

I was told that the stripe can be seen on the most developed pug moths which will help growers determine if they need to treat winter moth or not. If you are only finding pug moths then an insecticide treatment may not be required. This caterpillar leaves the tree during the bloom period and does not damage the fruit unlike winter mouth.

Rosy Apple Aphid

Stem mothers can now be found and if you can determine that you have a treatable population then a pre-bloom spray would be more effective than a post bloom spray. Assail, Actara Movento and Beleaf™ are used as pre-bloom insecticide to control rosy apple aphid. Actara is toxic to bees and should not be applied to flowering crops or weeds if bees are visiting the area to be treated. Control of rosy aphid at times is related to spray coverage and using a minimum of 1000 L of water per hectare which should improve control.

European Apple Sawfly

It was reported that mature female and male European apple sawflies have been captured this past week. The treatment period for this insect if needed will be at calyx. A pre-bloom pyrethroid treatment for tarnished plant bug should have some impact on reducing the number of adult flies.

Tarnished Plant Bug

Given the weather conditions, there has been very little activity of this pest. They seem to like it warm and sunny. Pre-bloom treatment for this insect should only be made on high valued crops and where populations warrant.

HORTICULTURE

Honey Bees

Now that bloom has started on stone fruit, apples and pear bloom will not be too far off. If you have not already done so, you should contact a local bee keeper to rent hives for you orchards. Yes we do have a good population of native insects but weather

conditions can be quite variable in Nova Scotia and the window for cross pollination can be very short at times. Honey bees are a good form of insurance to obtain maximum pollination.

Tree Planting

The soil is saturated right now thus growers would be advised to wait until the ground dries out. Planting in wet soil can result in poor growth.

Weed Control

Grass and weed growth has not been slowed by all the rain. If you are planning to apply a residual herbicide it should go on as soon as possible. If you wait until the ground is covered by weed growth and you apply herbicide combination with a residual herbicide, you will not obtain adequate bare ground coverage for the residual herbicide to be effective.

Bark Grafting

Those growers that are planning to graft over trees to new apple cultivars can begin bark. The bark will slip now and warmer temperatures will allow for quicker callus development. When grafting, make sure that your scions are still dormant and not dried out. The success of grafting will depend upon good scions, good cambium contact and a tight seal.

Contributions and consultations were made in the preparation of this newsletter with the Orchard Outlook Committee

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