

# Orchard Outlook Newsletter

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## Fruit Development

Warmer temperatures have sped up fruit growth and the king fruit on early season cultivars are greater than 14 mm. In the warmer areas of the Valley, the king fruit on Cortland and McIntosh are at 14 mm. Late season cultivars, such as Northern Spy, were at 12.5 mm.

## 2003 Degree Day Accumulations

**Table 1.0** Degree day accumulations as of June 23, 2003 based on Kentville weather data. (Information contributed by Michelle Larsen & Dr. Rob Smith, AFHRC, Kentville)

Category	2000	2001	2002	2003	5 year average
Plant development (Base 5°C)	510.6	437.9	458.7	478.1	542.7
Insect development (Base 10°C)	209.4	203.1	195.0	215.7	254.0

## Apple Scab

One infection period was recorded at Kentville during the past week. The secondary infection period resulted from a wetting period that began at 11:00 pm on Thursday, June 19<sup>th</sup> and lasted until 8:00 am Friday morning. This infection period would only be of concern where primary lesions are present in the orchard. This infection period would have begun earlier west of Berwick, where shower activity occurred Thursday morning and afternoon.

We have reached that point in the growing season when primary spore release has been completed and growers only need to be concerned about secondary infection periods. Growers should do a thorough check of orchard blocks for the presence of scab lesions prior to switching to a cover program. This past week scab lesions began to show up from the wet weather during the last week of May. Based on these checks, growers can switch to the cover rates for fungicides and lengthen the spray interval to 10 to 14 days. The cover rates for fungicides can be found in the Orchard Management Schedule on page 18 under Third Cover.

### **Powdery Mildew**

As stated in previous Orchard Outlooks, powdery mildew is not the problem it was last year. This is due to the weather and growers applying an appropriate fungicide early in the season to control this fungus. Powdery mildew will spread during periods of warm, humid weather and if growers are observing mildew on susceptible cultivars, such as Cortland and Honeycrisp, a fungicide to control mildew and scab should be considered during the month of July.

### **Codling Moth (CM)**

*(Information contributed by Michelle Larsen & Dr. Rob Smith, AFHRC, Kentville)*

The biofix for CM occurred on June 14th. As of Monday, June 23<sup>rd</sup>, 173 degree days have accumulated. Organophosphate sprays targeting 3% CM egg hatch should be applied when 250 degree days have accumulated. If Confirm is being used, only 200 degree days are required before spraying occurs. During days where temperatures hit the mid-twenties, approximately 9 degree days are accumulated per day. This would translate into Confirm sprays being applied Thursday or Friday of this week. Organophosphates would not be applied until the beginning of next week if this beautiful warm weather continues and even later if the weather turns sour.

Fruit set is more variable this growing season and there are orchard blocks with less than a full crop. In orchard blocks with less than a full crop growers should adjust trap capture thresholds for treatments and label rates. Please refer to the following table.

<b>Codling moth</b> thresholds based on moth captures in pheromone traps and related crop load				
<b>Cumulative trap count</b>	<b>Percent of normal crop load</b>			
	<b>&lt;20</b>	<b>21-50</b>	<b>51-80</b>	<b>&gt;80</b>
10-19	X	¼	X	X
20-39	X	¼	¼	X
40-99	¼	¼	¼	¼
100-199	½	½	½	½
200+	1	1	1	1

X=no treatment, ¼=¼ label rate, ½=½ label rate, 1= full label rate

### **Rosy Apple Aphid**

With warmer temperatures aphid populations have started to build and move within the trees. To date rosy apple aphid appears to be less of a problem than they have been for the past few years. This is one benefit of last winter's cold weather. Even though rosy populations are down, growers should continue to monitor susceptible cultivars for this insect and treat where populations warrant.

### **Stinging Bugs**

In the warmer areas of the Valley we have likely passed the window for treating these pests, however, in cooler areas treatments could still be applied where populations are at a treatable threshold.

## **Apple Maggot**

Maggot traps for monitoring purposes should be placed in orchard blocks by next week. If you ordered through the NSFGA, traps can be picked up between 9:00 am and 4:30 pm any weekday. Apple maggot flies may start to emerge as early as next week. Treatment of this insect would take place 7 to 10 days after the first maggot fly is caught. A general treatment period for maggot is July 25-30<sup>th</sup>. Placement of maggot traps is important and they should be placed on the sunny side of sensitive cultivars such as Gravenstein or Idared at eye level. Remove vegetation from around the trap allowing the trap to be fully exposed and preventing leaves from getting stuck to the trap. If fly-in is problem, place a trap adjacent to the problem area such as an abandoned orchard block or a fence line with wild apple or hawthorn trees. Check the traps at least weekly starting one week after placement in the orchard, and continue checking weekly until at least mid-August. Clean the traps when needed, but at least remove all maggot flies after they are counted and recorded.

## **European Red Mite**

European red mite should be at the egg to nymph stage, the stage at which Apollo can be applied. The next window for treatment of European red mite will be late July to early August.

## **Apple-and-Thorn Skeletonizer**

This caterpillar is generally not a pest in commercial orchards but high populations have been noted in a few blocks last summer and this spring. This insect has two generations per year with first generation larvae emerging during June with the second brood (the most damaging generation) appearing in late July. The caterpillars feed on the upper surface of leaves. Damage is rarely severe enough to cause crop loss, but second generation larvae may graze on the surface of developing fruit. This insect may be found on young trees that are not being sprayed with insecticides. The organophosphates should provide adequate control where high populations of this insect are found.

## **Bug of the Week: Oriental Fruit Moth *Grapholita molesta* (Busk)**

The Oriental fruit moth is native to China, being introduced to the United States about 1913 by means of infested nursery stock. By the mid 1920's it had spread to the mid-western United States and was first reported in Ontario in 1925. A small population of Oriental fruit moth was detected in 1957 and was eradicated and annual surveys have been negative for this pest. Nova Scotia was thought to be free of this pest, however, shoot and fruit injury observation over the past couple of years were typical of Oriental fruit moth injury. The presence of this insect was confirmed with the capture of male moths in traps baited with Oriental fruit moth pheromone. Oriental fruit moth is an important pest of peaches but has an extensive host range that includes apple, quince, pear, plum, cherry, apricot, nectarine and some rosaceous ornamentals. In growing regions with a long season this insect can have up to six generations. In the northeastern United States there can be three generations while in the southern regions of Ontario there can be up to four generations. It is hoped that with our shorter growing season and cooler climate that there will only be two generations in Nova Scotia.

The adult Oriental fruit moth is a small, grayish moth about half the size of a codling moth. The adults overwinter in cocoons which are usually found in the soil, in crevices under bark, in old fruit containers or packing sheds. Emergence of the adults begins about the time of apple bloom, and females begin to lay eggs shortly thereafter. The adults are weak flyers with average flights of no more than 25 m, but they can fly over three km in search of a suitable host. The female lays eggs on the leaves and new shoot growth, with each female laying upwards of 200 eggs. The incubation period varies with temperature, ranging from three to four days at mid summer, to 7 to 14 days during cooler temperatures. Shortly after hatching the young larvae bore into tips of terminal shoots and tunnel downward until they reach hard woody tissue, at which point they exit the shoot and enter another one. The tips of the infested shoot soon wilt and die. A single larvae may kill two to five shoots before it matures. Mature larvae exit the

shoots and drop to the ground and spin a cocoon and pupate. The pupal stage lasts from 12 to 15 days in the summer, and somewhat longer at cooler temperatures. Summer generations can also attack shoots, however, as the shoots begin to harden they will exit the shoots and begin to attack the fruit. They may tunnel to the pit or feed near the surface, producing large masses of gum mixed with sawdust-like castings (frass). Fruit that are infested when they are small often drop. Larvae that attack peaches as they begin to soften usually enter the fruit near the stem, leaving only a small, inconspicuous entrance hole. They may tunnel down to the pit and excavate cavities near the pit. Signs of infestation may not be detected until the fruit is cut open.



Terminal feeding on apples is similar to that on peach. Feeding damage to apples is detected by a collection of frass at the exit hole of the insect's feeding tunnel, or at the calyx end. It is difficult to distinguish between Oriental fruit moth damage and codling moth damage. Oriental fruit moth larvae feed randomly in the apple and generally do not feed on the seed, while codling moth larvae usually tunnel directly to the core of the apple and feed on the seeds.

Control

Many of the pesticides applied for other orchard pests in an apple orchard will control Oriental fruit moth. Although pyrethroids and organophosphates are registered for the control of this insect, mating disruption is the preferred method for the control of Oriental fruit moth.

### **Fruit Thinning**

Hopefully most growers were able to assess fruit set last week and apply thinning treatment where required. The window for the application of thinners is closing, as once fruit get beyond 15 mm they will not thin with Sevin. As stated above fruit size will vary with cultivar and location within the Valley. Time is running out so growers are encouraged to assess set and apply a thinner as soon as possible where set warrants.

### **Tree Training**

Do not forget your young plantings. Now is the time to be out in these plantings doing tree training.

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