Orchard Outlook Newsletter

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This Issue Contains:

- **Fruit Development**
- **2003 Degree Day Accumulations**
- **June Weather**
- **Apple Scab**
- **Fire Blight**
- **Brown Rot**
- **Frog-eye Leaf Spot**
- **Codling Moth**
- **Red Mite and Two-Spotted Mite**
- **Bug of the Week – Apple Maggot**
- **Not Oriental Fruit Moth**
- **Russet**

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Fruit Development

Fruit is continuing to size well as a result of warm weather and adequate moisture. The July drop of apples is ongoing and will continue over the next week or so. There appears to be a heavy drop this year and this was somewhat anticipated as a result of poor weather conditions during bloom.

2003 Degree Day Accumulations

Table 1.0 Degree day accumulations as of July 04, 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)	671.8	591.8	621.3	**655.3**	703.8
Insect development (Base 10°C)	315.3	293.1	302.5	**338.2**	358.4

June Weather

I wonder how many growers would have answered that the month of June was warmer than average, if asked about the past month's weather? To me, June seemed to be cool, however the mean temperature recorded at Kentville for June was 16.9°C which compares to last year's

mean of 14.4°C, the five-year average of 16.8°C and the 42-year average of 16.1°C. A total of 66.3 mm of rain was recorded which compares to 45.8 mm last June, 49.2 mm for the five-year average and 67 mm as the 42-year average. Total hours of sunshine were 214 hours, well above the 187 hours last year and above the five and 42-year average. So June was a good month, which may explain the good tree growth that has been observed to date.

Apple Scab

As of Tuesday, July 8th no apple scab infection periods were recorded at Kentville since writing the July 2nd Orchard Outlook. Growers are encouraged to keeping checking orchard blocks for scab lesions as fresh lesions were appearing last week. Growers are advised to stay with a cover program for scab control for the remainder of the month.

Fire Blight

Fire blight infections have been observed on the shoots of pear trees. At this point in the growing season fire blight can infect the vegetative shoots of pear and apple trees and is most likely to infect trees that have excessive vegetative growth. Infections can take place until the terminal buds have been set on vegetative shoots. Fire blight infections are rare in Nova Scotia. If you notice vegetative shoots that have wilted, with a scorched leaf appearance and the tip of the shoot is forming a shepherd's crook, it is best to have them checked to see if the problem is related to canker or fire blight.

Brown Rot

Growers who have cherries should be on a program for brown rot control. Cherries have begun to colour and as they ripen they become more susceptible to brown rot infection. If wet weather persists throughout the cherry harvest season then the spray intervals between fungicide applications should be shortened. Check the pre-harvest intervals before selecting a fungicide for brown rot control.

Frog-eye Leaf Spot

This fungal disease is caused by *Botryosphaeria obtusa* with the leaf symptoms appearing one to three weeks after bloom. Heavily infected leaves become chlorotic and drop to the ground. This fungus can also infect the fruit and when this happens the rot is referred to as black rot. In Nova Scotia the leaf symptoms appear to be more common than the fruit infections. Leaf infections are most common shortly after petal fall and the worst should be over by now, however we have seen cases when it continued to infect the leaves of Spartan trees well into the growing season. Captan is recommended for the control of this fungus.

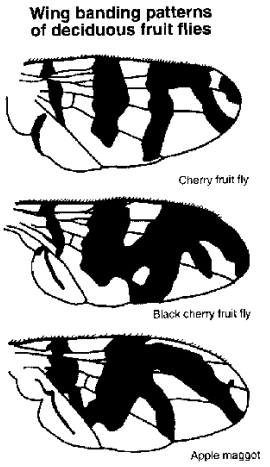
Codling Moth

Dr. Rob Smith reported increased trap captures during the past week. He feels that the flight of codling moth may be a bit more compact this year, resulting from warm temperatures and adequate soil moisture. Growers should continue to monitor traps and apply an insecticide when trap capture thresholds are reached. Growers who did apply an insecticide for codling moth should continue to monitor traps. The capture of 10 or more moths following treatment would warrant a second treatment.

Red Mite and Two-Spotted Mite

Keep checking blocks for mites and treat when numbers warrant. If sampling is done using a brushing machine the threshold is 10 mites (red, two-spotted or a combination of both) at this stage of the growing season. If sampling leaves for the presence or absence of mites, a threshold of 76 mites per 100 leaves can be used at this time of year. Growers may still have the opportunity to use Pyramite for red mite provided that the majority of mites are still at the nymph stage.

Bug of the Week- Apple Maggot



Dr. Rob Smith reported catching the first maggot fly of the season on Monday, July 9th and thus it would be timely to discuss this common orchard pest. Unlike many of the insects covered in *Bug of the Week*, the apple maggot is native to eastern North America. The adult fly is slightly smaller than a housefly and the females are black with a white spot on the thorax and four white crossbands on the abdomen. The male is smaller than the female and has three white crossbands on a rounded abdomen. The wings of both sexes are clear with characteristic dark bands forming a forward leaning "F". The wing patterns of the black cherry fruit fly and the cherry fruit fly are similar to that of the apple maggot and thus the wing patterns must be examined carefully to determine which species has been caught.

The adults emerge from the soil in early July through to August with emergence influenced by soil type, temperature and moisture. Peak flight of the apple maggot usually occurs during mid August. At the time of emergence the flies are sexually immature and before mating spend 7 to 10 days feeding on honeydew excreted by insects. Once mature the adults mate on or near fruit and the female punctures the apple skin and deposits eggs. Adult flies remain active into the fall until killed by frost.

The eggs hatch in 2 to 10 days depending on temperatures. The larvae are creamy-white and legless, with a blunt posterior and a pointed head, which contains two black mouth hooks. Mature larvae are about 7 mm long. These larvae pass through 3 instars while feeding on the fruit, which takes 20 to 30 days. Once they have passed into the third instar, they leave the fruit, drop to the ground, burrow into the soil and moult to a fourth instar. The instar stage quickly moults to the pupal stage.

The larvae of the maggot are capable of completely destroying an apple. The maggots make small brownish threadlike tunnels through the flesh of the apple as they feed. Bacterial decay will help to enlarge the tunnels and eventually the apple softens and rots. This occurs more rapidly in soft, early maturing cultivars. Infested apples usually drop prematurely. Some damage can occur as a result of the female making oviposition punctures, which resemble pinpricks. These may cause the fruit to become dimpled or distorted, and in soft cultivars, tissue around the puncture may darken or decay.

Apple maggot is managed through monitoring, applications of insecticides based on monitoring results and the removal of wild host plants. Yellow sticky board traps baited with a volatile lure are used for monitoring fly activity. The traps should be placed at eye level on the outside of the

canopy near fruit clusters. All foliage within a foot of the trap should be removed to prevent leaves from sticking to the trap. One trap should be positioned about every 100 meters near block boundaries where flies are most likely to enter the orchard. Traps should be checked weekly and cleaned of trapped insects and debris. The economic threshold for apple maggot is one fly per orchard.

Not Oriental Fruit Moth

Growers can breathe a sigh of relief. Samples of the moths that were suspected to be Oriental Fruit Moth were sent to Ottawa for identification. They have been identified as a cousin of the Oriental Fruit Moth, Grapholita prunivora, a widespread species called the "lesser appleworm".

Russet

Russet is a common disorder (of both apples and pears) that is more common in humid environments. Russet is a physiological disorder within the skin of the fruit, which is influenced by a number of direct and indirect factors. This past week I began to receive reports of russeting showing up on young developing fruit. Growers want to know: Is it weather related or due to spray programs? Russet can be caused by any one of the following factors:

1. **The genetic make-up of the cultivar**: Golden Delicious and Cox's Orange are very prone to russet.
2. **Frost**: Frost or near frost during the bloom or early fruitlet stage can cause russeting.
3. **Rain**: heavy or prolonged rain during early fruit development can increase the susceptibility of the apples to russet.
4. **Humidity**: high relative humidity can induce russeting.
5. **Dew**: dew on the fruit, especially when followed by periods of bright sunshine can promote russeting.
6. **Spray**: spray chemicals, especially when weather conditions favor russet can result in russeting problems. The formulation of the pesticide can influence russeting, with EC formulations more likely to cause a problem than WP formulations.
7. **Other**: Mechanical injury of fruitlets, virus, insect damage, powdery mildew and hormonal imbalances can all cause fruit russet.

Russeting, observed last week, mainly occurred on the exposed side of the fruit, which indicates that it may be spray induced. If it was spray related the wet weather during and post-bloom would also have had an influence on the russeting.

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