Orchard Outlook Newsletter

Vol. 2 No. 3 **May 8, 2002**

This Issue Contains:

The technical information contained in this Orchard Outlook publication is the result of the combined professional opinions of employees of AFHRC and ADI.

Bud Development

Warmer temperatures this past week advanced fruit buds to the point where McIntosh were at the half-inch stage of development. Given the present rate of bud development the tight cluster stage will likely not occur until early to mid next week.

Apple Scab

One scab infection period was recorded during the past week as a result of a wetting period, which began at 5 pm on Thursday, May 2. This wetting period ended at approximately 9 pm on Friday resulting in a 28 hour wetting period with an average temperature of 7ºC. Fungicide applications applied last week prior to the infection period, and those applied on Friday and Saturday, should have controlled this infection. Growers who have been holding off applying a fungicide should consider putting one on prior to the next infection period. There have been warm enough temperatures to mature spores and increase the amount of tissue. There is also increased risk in this as the weather following an infection may not be conducive to spraying. There have been situations of prolonged wet weather and wind, when there is not a spray window within 96 hours following an infection.

Twilight Meeting

There will be a meeting at Tim Pearson's orchard in Woodville on Tuesday, May 14, at 7 pm. The meeting will discuss the training of newly planted Honeycrisp trees. The new Honeycrisp planting is located on the first dirt road east of Tim's packing house on the north side of Route 221. This will be the first meeting for the Honeycrisp working group. If you are growing or planning to grow Honeycrisp, you may wish to attend this meeting.

Powdery Mildew

This disease prefers a warm, humid environment and is more of a problem in the warmer apple growing regions. Growers in the Okanogan Valley are generally more concerned about powdery mildew and its control than apple scab. In Nova Scotia powdery mildew is considered to be a minor

disease; however, with warmer growing seasons powdery mildew infections have become more common. Powdery mildew is the only fungal disease of apple that is capable of infecting without wetting from rain or dew, which explains its spread during dry summers, such as that experienced last year. Powdery mildew does not do well in cool, wet conditions.

The fungus over-winters in dormant shoot and blossom buds, which were infected the previous year. Spores (conidia) are produced and released from leaves as they open and emerge from the infected buds at about the tight cluster stage of development. Spore germination takes place in high relative humidity, which is usually available on the leaf surface at temperatures from 10 to 25 ºC. The optimum temperature for germination is 19 to 22 ºC. Unlike apple scab, spore germination does not take place in free moisture. Temperature plays a greater role in infection at the start of the season than relative humidity. Mildew build-up in an orchard can be quite rapid when there is an abundance of over-wintering inoculum and secondary lesions on young foliage. Secondary infections will take place until terminal growth is terminated. It is typical to see foliage infection in Nova Scotia however powdery mildew can infect the fruit, which takes place from pink to bloom. Over-wintering buds are infected soon after initiation. Infected buds are low in vigour and lack winter hardiness, resulting in a reduction of primary inoculum at temperatures below -24ºC.

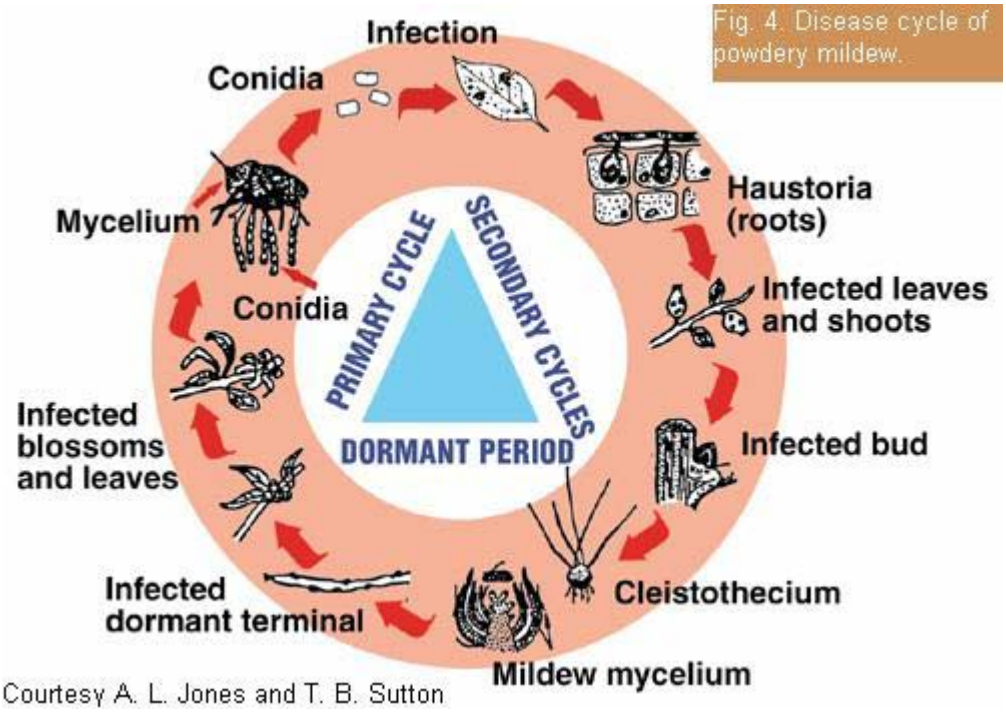

Fig. 4. Disease cycle of powdery mildew.

Courtesy A. L. Jones and T. B. Sutton

The most common symptom of powdery mildew observed in Nova Scotia is whitish lesions on curled or longitudinally folded leaves. When infection takes place from a terminal shoot bud the whole shoot will become infected taking on a whitish-grey appearance and the growth will be stunted. Infected leaves will be leathery in texture. When left unchecked mildew spreads to leaves and the white powdery lesion will be noted on the underside of leaves, and the edge of infected leaves will be rolled up. Infected flower buds will open several days later than healthy buds. Secondary infections of flower buds can result in fruit russeting which will be netted in appearance. Fruit infections are rare unless there has been a heavy build-up of inoculum. Powdery mildew can result in economic loss due to aborted blossoms, reduced fruit quality, reduced tree vigor and yield on bearing trees, and poor return bloom. Nursery trees can arrive with infected buds and infection on young trees can stunt growth and adversely affect tree form.

Depending on weather conditions growers should be able to obtain adequate control of powdery mildew with one to two fungicide applications in the tight cluster to pink stage of development. Additional sprays may be required when there is a heavy over-wintering inoculum or weather conditions are suited to the spread of this disease during shoot growth. Fungicides that have activity against powdery mildew are: Nova, Nustar, Sovran, Dikar, Senator and Sulphur. These products all have activity against apple scab, however, the rate for mildew control may be higher than the recommended rate for scab. The newer fungicides Nova (340 g/ha), Nustar (200 g/ha) and Sovran (240-450 g/ha) have excellent activity against mildew and are listed in terms of effectiveness.

New Pesticide Registrations

Two pesticides have been registered for use on apples since the publication of the 2001/2002 Orchard Management Schedule. Bioprotec CAF is a liquid formulation of Bacillus thuringiensis. Research trials indicate that this formulation is more effective than the earlier powdered formulation of BT. It has a registration for Winter Moth applied at 0.7 L/ha in a mixture with either Ripcord 400EC (12.5 mL/ha) or Cymbush 250 EC (28 mL/ha). The recommended timing for the application of either combination is at flower bud separation. It also has a registration for fruitworms on tree fruits applied at a rate of 2.8 to 4.0 L/ha.

The second, is Success 480SC, with spinosad being the active ingredient. Spinosad is derived from the fermentation of a naturally occurring soil bacterium. Success 480SC is presently registered for Obliquebanded leafroller, having good activity against worms or capterpillars. Obliquebanded leafroller, although not a major pest, is becoming more common in Nova Scotia. The timing of application is at calyx at a rate of 182 mL/ha.

2002 Degree Day Accumulations
Michelle Larsen & Dr. Rob Smith, AFHRC, Kentville, NS

Table 1.0 Degree day accumulations as of May 05, 2002 based on Kentville weather data.

Category	1999	2000	2001	2002	5 year average
Plant development (Base 5°C)	172.3	156.6	75.8	**97.4**	131.6
Insect development (Base 10°C)	43.7	36.2	14.1	**19.5**	35.6
EFTB development (Base 14.7°C)	16.4	4.9	1.3	**2.5**	8.9

European Fruit Tree Borer (EFTB)

The first flight of EFTB for 2002 was recorded last weekend. A flight Monday and Tuesday of this week will likely have occurred, given that temperatures exceeded 20°C. Because winter 2001 offered steady cold, a more concentrated, succinct flight interval is expected in 2002 than in past years. The next stretch of days where maximal daily temperatures reach or exceed 18-20°C, may produce a significant flight. Products which worked well against EFTB included Malathion 500EC at a full rate of 1.8L/ha and Zolone FLO at 2L/ha. Half rates worked equally as well as full rates.

Winter Moth
*Information supplied through **THE IFP INITIATIVE PROJECT** headed by Dr. Rob Smith.*

The first winter moths were observed in fruit clusters on Tuesday, May 6. Larvae had only hatched

within the past 24 hours. Sampling for winter moth should commence within the next week in order to be ready for the optimal treatment period, which is at bud separation. Leafrollers were also observed at high densities in individual blocks. Leafroller (pale apple, obliquebanded & three lined) incidence has been on the rise over the past couple of seasons and may be more problematic than in the past.

Tarnished Plant Bug

A few tarnished plant bugs were observed these past couple of warm days. Growers can start to monitor their orchards for this insect. There will be additional information on this insect in next week's Orchard Outlook.

Red Mite

If over-wintering European red mite egg counts warrant an oil application, this likely should go on within the week. Timing oil just prior to egg hatch generally is the most effective in controlling mites. Egg hatch starts around the tight cluster stage of bud development. Last year hatch began around May 12 and looking at the degree day table, temperatures to date have been just a bit warmer than those of last year. Just a reminder: avoid applying oil following a frost for as long as possible, preferably 48 hrs or longer. An oil application on top of frost damage will increase the damage to the leaf tissue. Captan and Captan products are not compatible with oil. Try to keep a 7-10 day interval between a Captan application and oil treatment.

Pear Psylla

Pear psylla has begun to hatch and the use of Manzate, Penncozeb, and Dikar when used in a full season program may provide adequate control of this insect. If an insecticide is required growers may wish to wait until calyx when a treatment will provide control of other insect as well as psylla. If an oil was not applied and monitoring indicates the presence of a heavy population, then a pre-bloom (blossom bud showing white at tips) insecticide would be warranted.

IPM Trap Orders

Trap order forms were mailed out in May 8 issue of the NSFGA newsletter. If traps are required for the 2002 growing season you will need to return the form to the NSFGA office by May 17. If you do not receive the NSFGA newsletter and require traps call the NSFGA office at 678-1093.

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