

Healthy Fruit

Volume 11, 2003

Prepared by the University of Massachusetts Fruit Team






Issue 4 - April 29, 2003

Current Degree Day Accumulations*

Location	Base 32F	Base 43F	Base 50F
Belchertown, UMass CSO observed (01/01/03 – 04/28/03)		196	67
Belchertown, UMass CSO, SkyBit™ (01/01/03 – 04/28/03)		204	NA
Belchertown, UMass CSO, observed (04/15/03 green-tip – 4/28/03)	257		

*Base 32 from green-tip used for scab ascospore maturity;
Base 43 and Base 50 from January 1 used in insect models.

Current Bud Stages

Location	McIntosh	Gala	Pear	Peach	Sweet Cherry
Belchertown UMass CSO (04/28/03)					
	early tight cluster	tight cluster	bud burst +	half-inch green +	bud burst +

Upcoming Meetings/Events

Date	Meeting/Event	Location	Time	Information
May 13	UMass Fruit Team Twilight Meeting	UMass Cold Spring Orchard, Belchertown MA	5:30 PM	Jon Clements 413-478-7219 Wes Autio 413-545-2963
May 14	UMass Fruit Team Twilight Meeting	Tougas Family Farm, Northborough MA	5:30 PM	Jon Clements 413-478-7219 Wes Autio 413-545-2963
May 15	UMass Fruit Team Meeting and URI Extension Twilight Meeting	TBA	5:30 PM	Jon Clements 413-478-7219 Wes Autio 413-545-2963

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MFGA Apple Scab Network

Thanks to a Massachusetts Department of Food and Agriculture Agro-technology grant and cooperating Massachusetts Fruit Growers' Association members, weather sensing/monitoring equipment has been installed at seven sites in Massachusetts. They include Peabody, Bolton, Sterling, Northborough, Phillipston, Belchertown, Deerfield, and Pittsfield. The sensors are manufactured by Spectrum Technologies, <http://www.specmeters.com>. At a minimum, temperature and leaf wetness are being monitored. Some sites are also collecting precipitation and humidity data. Collected weather data are being fed into a computer model for apple scab ascospore maturity and infection periods. You can see the results at <http://www.massfruitgrowers.org/weather/>. Bear in mind these reports may be useful if from a location near you, however, microclimates vary widely. Use them with in conjunction with personal observation and common sense if making spray decisions.

Peach Fungicide Time

No doubt some peach orchards will be approaching pink by the end of this week if the warm weather keeps up. Late pink is appropriate timing for the first fungicide application to prevent blossom blight caused by the brown rot fungus. Warm (60 F. and above) and rainy/humid weather favor the disease. Bravo is among the best protectant fungicides, and Elite or Indar provide post-infection activity. Rovral is a good early season protectant fungicide that also provides up to two days of kick-back. If favorable weather conditions persist through bloom, another fungicide spray will be necessary.

Peach Pruning Time

Bloom is a good time to prune peaches for two reasons: first, cuts heal fast and are less likely to be invaded by canker; and second, it's easy to evaluate your bloom density and potential crop load. Pruning is a good way to thin peaches, and with a heavy bloom, aggressive pruning to reduce the crop load is a good idea. On the other hand – and we have seen some winter cold injury to peach buds this year – a light bloom warrants less vigorous pruning until you can be sure there is an adequate crop. Admittedly, you don't need too many buds to have a full peach crop, but if you suspect cold injury, it's best to hold back on the pruning a bit.

Plum Black Knot

Besides removal by pruning, fungicide applications are a good way to keep black knot out of your plums. Bravo applied any time now through petal fall is very effective at controlling black knot as well as blossom blight. Captan will also work for black knot, but is not nearly as good for blossom blight.

Apple Scab Maturity Counts

Apple scab spore maturity has progressed considerably over the last 2 weeks. Scab structures on leaf samples from 28 April in Amherst had 75 % mature spores on average. Only about 5-10 % of the ascus sacs were empty, indicating that the vast majority of scab spores could be ready and waiting for the next significant rainfall to release into the air. With many orchards, including the UMASS orchard in Belchertown, at tight cluster, growers will need to keep susceptible tissue protected.

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Healthy Fruit Insects

Orchards monitored by UMass and by Polaris Orchard Management range from Tight cluster in Eastern parts of the state to silver tip in the higher elevation orchards in the West. This year's tree development is a little less than 2 weeks behind where it was last year in many locations. Warmer weather is expected to move things along rapidly, and pest development will move accordingly.

Tarnished plant bug – About half as many plant bugs have been captured on IPM program clear sticky panels (45 bugs on 8 traps or 5.6 per trap) compared to this time last year (76 bugs per 8 traps or 9.5 per trap). Captures on sticky white rectangles are also low so far. If treatment is required, a number of highly effective materials are labeled for TPB control at Tight Cluster or pink, including Digon, Ambush, Pounce and Asana, although these are also rated as detrimental to arthropod biological control agents. Other materials with somewhat less effectiveness against TPB (but also lower beneficial impacts) are azinphosmethyl, Avaunt, Imidan, Danitol and Thiodan.

Pear Psylla - Orchard monitoring has revealed very low numbers so far this year and there is still time for a good oil application.

Leafminers – Recent windy, cool weather also appears to have reduced LM captures on sticky red trunk traps, although it is still too early to tell if this reflects a “low leafminer year”. Where leafminer has been a problem previously, a visit to the orchard in late afternoon or early evening (when the wind drops) may allow you to observe moths flying up from the groundcover to mate and lay eggs. Several materials registered for TPB (Ambush, Asana, Danitol, Pounce or Vydate) are also effective against LM.

Mites – Assuming everyone was able to get on a good oil cover previously, now (tight Cluster) is the time for a second round. Decrease the rate at this time to 1 gal/100 gals dilute and spray at no higher than 3x for best results. If oil was not applied and mites are anticipated to be a problem, the ovicides Apollo or Savey are other options at this time for good contact and residual control of eggs and early motile stages. To deter onset of resistance to Apollo and Savey growers should alternate with other strategies so that neither material is used more frequently than every other year in the same blocks.

New England Apple Pest Management Guide Update

The color plates for the Guide are done. The proofs of the remainder are expected tomorrow. Publication is still not likely before Mid May, however. Our hope is to take delivery of Guides as we receive them (rather than wait for the entire order) so that we can start shipping them as soon as possible. We regret and apologize for the delay in publication, which has been largely caused by the transition from one state producing the Guide (Maine) to another state taking it over (Massachusetts) and the inevitable problems that result when a publication of this size and complexity “migrates” from one computer to another. As noted previously the Guide has been available on line for the past 6 weeks at the UMass Fruit Advisor web site (<http://www.umass.edu/fruitadvisor/NEAPMG/index.htm>)

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The Winter Moth (*Operophtera brumata* (L.))

Insect Order: Lepidoptera

Family: Geometridae

Origin: Winter moth is an insect pest that was introduced to North America from Europe. Its introduction has been known for years in various regions of eastern Canada, including: Nova Scotia, Prince Edward Island, and parts of New Brunswick. It has also been a pest in the northwestern region, namely Vancouver, British Columbia. Winter Moth was introduced into the United States and has warranted control measures in Washington and Oregon. This pest is now in Massachusetts in, at least, the southeastern region and parts of Cape Cod. It is the first known occurrence of it in outbreak proportions in New England. It is also, currently, a problem in the United Kingdom (England and Scotland).

Injury and Host Plants: Many different deciduous plants are susceptible. These include: oaks, maples, basswood, white elm, crabapples, apple, blueberry, and certain spruces such as Sitka spruce (Scotland). Young larvae or caterpillars, resembling inchworms, tunnel into and feed inside buds, especially on fruit trees (apple, blueberry, cherry, and crabapple) in the early spring before bud break. These caterpillars move from bud to bud as they feed. Delayed bud opening due to cool weather conditions can lead to bud death as the caterpillars have longer time to feed. Older larvae feed in the expanding leaf clusters and are capable of creating defoliation in high populations. Research in Canada has shown that four consecutive years of partial defoliation of deciduous hosts can lead to branch mortality while complete defoliation in each of those years leads to tree mortality. In certain regions of Nova Scotia, this pest is responsible for a 40% red oak mortality in forested stands.

Life Cycle: Moths, or the adult stage, of the winter moth emerge from the soil usually in late November and can be active into January. The adults are strongly attracted to light and can often be found flying around outside lamps or holiday lights. The male moths are, light brown to tan in color and have four wings that are fringed with small elongate scales that give the hind margins a hairy or fringed appearance. The female is gray, wingless and, therefore, cannot fly. She emits a sex pheromone or scent that often attracts clouds of male moths. Females are usually found at the base of trees but can be found almost anywhere. After mating, the female deposits an egg cluster on tree trunks and branches, in bark crevices, under bark scales, under loose lichen, or elsewhere. The adult moths then die and the eggs over-winter. Eggs hatch when temperatures average around 55° F. It is believed that egg hatch in Massachusetts occurs when 20 – 50 Growing Degree Days (base 50) have accumulated. This means that this usually occurs in the spring, before bud break of most of its host plants. Similar to Gypsy Moth, newly hatched larvae often crawl up tree trunks and produce a long silken strand of silk which makes them air buoyant. This larval dispersal method is known as “ballooning”. In certain situations, winter moth caterpillars can arrive in areas where they have not expected to be a problem, given topography and wind patterns.

Larvae are pale green caterpillars with a white longitudinal stripe running down each side of the body. Winter moth larvae are loopers or inchworms and have just 2 pairs of prolegs. At maturity, these caterpillars will be approximately one inch long. They will feed voraciously until mid-June, whereupon they migrate to the soil for pupation. They will stay in the soil in the pupa stage until they emerge in late November as adult moths.

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Feeding: In certain years, winter moth eggs may hatch in March. After ballooning, the larvae will tunnel into buds, especially the flower buds of fruits (apple, blueberry, cherries, and flowering trees). They will feed on both fruit and foliar buds but fruit buds are preferred. Once a bud has been devoured from within, the caterpillar will migrate to other buds and repeat the process. Once leaf buds open, the small caterpillars can be found within the tight clusters of new leaves during the day. During cool springs, if weather hinders leaf expansion, the winter moth caterpillar can cause high levels of injury to these leaves. Winter moth caterpillars often leave these clusters to become free feeders at night. They may also "drop" or "balloon" to plants that are located beneath infested trees. These caterpillars may then feed on a whole host of herbaceous perennials, roses etc. that are near or beneath these trees. Winter moth caterpillars are often found in association with both the fall and spring cankerworms, which look and have similar feeding patterns to the winter moth caterpillar.

Controls: Given the rather rare occurrence of outbreaks of this pest in our region, it is not likely to be listed on the label of registered fruit pesticides. Nonetheless, applications of **Dormant Oil** sprays may have been somewhat effective against the eggs on the tree trunks providing that they are not too well hidden. The young, free-feeding larvae can be treated with *Bacillus thuringiensis* (**B.t. kurstaki**) and possibly **Insecticidal Soap if they have not yet entered the shelter of fruit buds**. Many different chemical insecticides are available for larvae of all stages in non-food crops. One of these effective chemicals registered for apples, Spinosad (e.g. SpinTor SC™) is a viable choice for all larval stages, however, as noted above, young larvae that have burrowed into buds are extremely difficult to control.

Trees heavily defoliated by winter moth caterpillars will be severely stressed. Trees must put out a second flush of growth in order to survive. Water is critical to trees at that time and supplemental watering of defoliated trees will be necessary if a drought or little rainfall occurs naturally.

March 2003

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