

Agriculture & Landscape Program

Landscape,
Nursery &
Urban
Forestry
Program

UMass Extension Landscape Message #16 - 2004

June 18, 2004

Scouting Information by Region

Environmental Data

The following growing degree day (GDD) and precipitation data was collected from June 10 through June 16, 2004. Soil temperature and phenological indicators were observed on June 16, 2004. Accumulated GDDs represent the heating units above the 50° F. baseline temperature collected via our mini-computers since the beginning of the current growing season. Please note that this data is particularly useful for pinpointing pest development at any time during the season.

Region/Location	2004 GROWING DEGREE DAYS		Soil Temp (°F at 4" depth)	Precipitation (1-Week Gain)
	1-Week Gain	Total accumulation for 2004		
Cape Cod	103	502	70° F	0.50"
Southeast	113	553	78° F	0.30"
East	106	595	70° F	0.00"
Central	88	557	61° F	0.39"
West	118	645	63° F	0.83"
Berkshire	104	621	70° F	0.44"

Regional Notes

Cape Cod - General conditions: The weather has generally been fair skies with either cool temperatures or warm and humid. We had a scant 1/2" of rainfall late in the reporting period. Plant development is moving at a normal pace and landscapes generally look good. **Pests/problems:** Cottony maple scale egg masses are now apparent on maples and native dogwood. Imported willow leaf beetle is active on weeping willow. The various caterpillars that have been feeding in recent weeks appear to be over for the season. Lily leaf beetle is present in egg, larval and adult stages. Asiatic garden beetle is active. Winged aphids are plentiful on herbaceous material, as are spittlebugs. Carpenter ants are swarming outdoors. Sycamore anthracnose is active. Pyracantha scab has been observed. Botrytis blight is active on peony.

Southeast - General conditions: Typical, "atypical New England weather" - cool, sunny days (70s) and cool nights (upper 40s) have given way to warm (mid-high 80s) and humid weather. Soils are dry with very little rainfall over the past week. Remind clients to water plants that were defoliated by caterpillars and also to water newly planted trees, shrubs, and perennials. Many black locust, oak and ash were completely defoliated and are coming back very slowly. White pine pollen is everywhere. If needed, prune spring flowering trees and shrubs soon before buds are set for next year. The most prominent plant in the landscape now seems to be the invasive, multiflora rose! Kousa dogwood, *Rosa rugosa*, *Viburnum dentatum*, *Cotinus obovata*, Weigela, beautybush, bearded iris, siberian iris, *Baptisia australis*, *Corydalis lutea*, peony, perennial blue salvia, foxglove, true geranium, nepeta, and shasta daisy are all in full bloom. Rutgers hybrid dogwoods are ending bloom. **Pests/Problems:** Asiatic garden beetles are active and feeding on a wide range of plant material at night. Rose slug sawfly damage (skeletonized leaves) is visible on untreated roses. Fruitworm are feeding on perennials including peony buds. Lily leaf beetles, larvae, and eggs are present on true lilies. Aphids are active on a wide range of plants but so are lady bug beetles and larvae: monitor plants before spraying. Rose chafer beetles, rose curculio, imported willow leaf beetle, cottony taxus scale, slugs and snails, ticks, mosquitoes, and pine spittlebugs are all active. Sod webworm adult moths are active on turf. Before pruning trees and shrubs, check for wasp nests. Seems like there are a lot of wasps this year. Anthracnose is evident on sycamore and dogwood. Blackspot is present on

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susceptible roses. The yellow-flowered weed, *Oxalis stricta*, is everywhere; it's a banner year for oxalis.

East - General Conditions: No report.

Central - General Conditions: No report.

West - General Conditions: There were a few showers late last week, an exquisite weekend, and now the warm, dry weather so far this week. Soil moisture continues to be adequate, but it is definitely drier in the Valley. **Pests/Problems:** Leaf spot and shoot blight (including anthracnose) diseases are evident but not as widespread this year as last year because the extended periods of rainy weather this spring were generally accompanied by upper 30° to 40° F. temperatures. That is a bit cool for the fungi to efficiently infect young leaves and green shoots. The best time to initiate protective fungicide applications to nursery and specimen woody landscape plants that are known to be susceptible to these diseases has past. However, if they were started earlier this spring it is important to repeat the treatments at the labeled intervals to maintain the protection until the foliage matures or drier weather conditions prevail (both of which are soon to be here).

Berkshire - General Conditions: Growth of lawns and landscape plants is lush and looking good. Annuals and warm season vegetable transplants are slow to get growing. The hot dry weather of this past week has begun to dry soil; and though moisture level is still good, irrigation and application of mulches may be required in some locations. **Pests/Problems:** The problem with defoliators, mostly caterpillars and sawfly larva, is beginning to slow. Aphids are common on many plants. Slugs are feeding on annuals and certain perennials. Gypsy moth caterpillars, tussock moth larvae, spittlebug on herbaceous plants, pine spittlebug observed this week.

Phenology

The phenological indicators are a visual tool for correlating plant development with pest development. The following are the indicator plants and the stages of bloom observed for this period:

Indicator Plants - Stages of Flowering (begin, b/full, full, f/end, end)						
PLANT NAME (Botanic/Common)	C.C.	S.E.	EAST	CENT.	P.V.	BERK.
<i>Rhus typhina</i> (Staghorn Sumac)	*	*	*	*	begin	*
<i>Tilia cordata</i> (Littleleaf Linden)	*	*	begin	*	begin	*
<i>Hydrangea arborescens</i> (Smooth Hydrangea)	*	begin	*	*	begin	*
<i>Itea virginica</i> (Virginia Sweetspire)	*	begin	*	*	*	begin
<i>Cotinus coggygria</i> (Common Smokebush)	*	full	*	*	begin	begin
<i>Catalpa speciosa</i> (Northern Catalpa)	*	*	begin	*	b/full	*
<i>Ligustrum</i> spp. (Privet)	*	*	full	*	b/full	b/full
<i>Sambucus canadensis</i> (American Elderberry)	*	*	*	*	b/full	*
<i>Syringa reticulata</i> (Japanese Tree Lilac)	begin	full	full	full	full	*
<i>Cornus racemosa</i> (Gray Dogwood)	begin	*	*	full	*	*
<i>Philadelphus</i> spp. (Mock Orange)	b/full	full	full	end	*	full
<i>H. anomala petiolaris</i> (Climbing Hydrangea)	b/full	b/full	*	end	full	full
<i>Kalmia latifolia</i> (Mountain Laurel)	full	full	full	full	full	full
<i>Rosa Multiflora</i> (Multiflora Rose)	full	full	full	full	full	full
<i>Cornus kousa</i> (Kousa Dogwood)	full	full	full	full	full	full
<i>Cornus sericea</i> (Red Osier Dogwood)	full	*	*	full	*	*
<i>Liriodendron tulipifera</i> (Tuliptree)	full	f/end	*	*	*	*
<i>Viburnum trilobum</i> (American Cranberrybush)	*	f/end	f/end	end	*	*
<i>Cladrastis lutea</i> (Yellowwood)	*	*	f/end	*	*	*
<i>Deutzia scabra</i> (Fuzzy Deutzia)	full	end	*	end	*	f/end
<i>R. catawbiense</i> (Catawba Rhododendron.)	f/end	f/end	end	end	end	f/end
<i>Syringa meyeri</i> (Meyer Lilac)	end	end	end	end	end	*
<i>Laburnum</i> spp. (Goldenchain Tree)	*	end	*	*	*	*

* = no activity to report/information not available

- CAPE COD REGION - Roberta Clark, Horticulturist for Barnstable County, Barnstable.
- SOUTHEAST REGION - Deborah Swanson, Horticulturist for UMass Extension in Plymouth County, Hanson
- EAST REGION - James R. Allen, Horticulturist and Greenhouse Manager for UMass Biology Department, Boston
- CENTRAL REGION - Joann Vieira, Superintendent of Horticulture, Tower Hill Botanic Garden, Boylston.
- WESTERN REGION - Dan Gillman, Plant Pathologist, Urban Forestry Diagnostic Lab, UMass, Amherst.
- BERKSHIRE REGION - Ronald Kujawski, Nursery Specialist, UMass Extension Agriculture & Landscape Program, Amherst.

Woody Ornamentals

Insects

Caterpillars

In general, products containing *Bacillus thuringiensis* (*B.t. kurstaki*) are very effective against the younger free-feeding caterpillars in the Lepidoptera only. Products that contain spinosad are generally very effective against caterpillars in the Lepidoptera and the Hymenoptera (wasp-like as adults). There are also many chemical insecticides that are labeled for caterpillars, which are pyrethroids, organo-phosphates, carbamates, and other classes.

Lepidoptera (moths):

- **Winter Moth** - finished feeding about two weeks ago and pupated. Mostly maples were affected but many other deciduous hosts were defoliated as well. The process of re-foliation should be occurring soon for those affected trees and shrubs. However, in much of the winter moth area (coastal MA and RI, primarily) there are other caterpillars in high numbers that are still active. Gypsy moth is still active and beginning to feed voraciously. Fall cankerworm is still active as well (mostly in large numbers on the North Shore above Boston).
- **Fall Cankerworm** - This caterpillar will remain active for another one to two weeks and then pupate. It may continue to defoliate those plants already injured by winter moth. Treat with a spinosad product if in high numbers and only if it is still worthwhile to treat. In some cases, it is too late.
- **Eastern Tent Caterpillar** - Unsightly webs remain in *Prunus* and *Malus* species but this pest is long gone for this year.
- **Forest Tent Caterpillar** - This very serious pest in southeastern MA and on Martha's Vineyard began pupation this last week in most areas. Most of the state had much higher than normal population levels of this pest this year while specific areas suffered complete defoliation of oaks, in particular.
- **Gypsy Moth** caterpillars are far more prevalent this year than expected. They are being found somewhat commonly in weekly monitoring, albeit mostly in low numbers, across much of the state. In the Freetown area of southeastern MA, their numbers are rather high and they are coming in strong on the heels of the Forest Tent Caterpillar outbreak. Gypsy moth caterpillar are mostly in the fourth to fifth instar stage there and are primarily feeding on what is left of the oak leaves. They have a wider host range than that of FTC and will migrate to other deciduous hosts thus causing increased defoliation to that area this year. In areas where Forest Tent Caterpillar and/or winter moth created much defoliation, the gypsy moth may provide a double defoliation as those affected trees start to re-foliate. Products containing spinosad work very well against this pest as do the multitude of registered chemical pesticides. It is too late for the use of *B.t. Kurstaki*.
- **Fruitworms (Green)** remain active. There are many species of these that sometimes appear in large numbers and create damage on such hosts as maples, beech, fruit trees, and many other deciduous hosts. They are now much larger than winter moth. Do not confuse them with Winter Moth. Fruitworms generally have 5 pairs of prolegs and develop a white stripe down the length of their backs. They also achieve a much greater physical size than winter moth. Treat if found in large numbers (most likely, it's too late for *B.t.*). Spinosad products should work well.
- **Euonymus Caterpillar** remains active. This small, pale yellow lepidopteran caterpillar with black spots attacks many varieties of euonymus from shrub-form to tree-form. They produce much silk but act as free feeders by moving throughout the entire plant. Affected plants may be defoliated and covered in a fine veil of silk. Pupation is now beginning. It is most likely too late to treat now. However, if treatments are still necessary and possible, spinosad products **or** one of the registered chemical insecticides will be effective.
- The mystery caterpillar on witchhazel has now been identified. **Mustard Sallow Caterpillar**, *Pyreferra hesperidago*, [*Lepidoptera*] has been found in damaging numbers in certain plantings in Plymouth and Barnstable Counties. Although pupation should occur within the next one to two weeks, a product containing spinosad or one of the registered chemical insecticides may be necessary to prevent defoliation.
- **Larch Casebearer** adult moths will be out soon. Gently shake foliage of the host plants for the clouds of these tiny moths. In high populations, treat with a 'knockdown-type' insecticide, if deemed necessary.

Hymenoptera (sawflies):

- **Introduced Pine Sawfly** will be active soon and may be found on the same host plants as the European Pine sawfly. Last year, this pest was quite prevalent in the eastern part of MA and caused much defoliation. Treat the young caterpillars with insecticidal soap **or** one of the products that contains spinosad.
- **Azalea Sawfly** - has finished feeding for this year but its injury is quite prevalent in some areas.
- **Rose Slug Sawfly** remains active but is quickly nearing the end of its feeding cycle for this year.

- **Oak Sawfly** are very active. In general, they are usually found in small numbers feeding by scraping the foliage, which leads to a 'window-paning' effect. In large numbers, they can be serious defoliators. These are more prevalent this year than it has been in past years. Spinosad products are effective if deemed necessary.
- **Birch Sawfly** species are active. They will appear in clusters on foliage of many species of birch. Treat with a spinosad product when found. Small individual clusters can be pruned away and destroyed by hand.
- **Locust Sawfly** is very active. We usually do not have to deal with this pest but this year it is causing defoliation. Primary host plants are black locust and rose acacia. Typical to sawflies, they eat all but the main veins of the host foliage. Treat with a spinosad product or with one of the many registered chemical insecticides.
- **Mountain Ash Sawfly** will be active soon. Continue to monitor for this yellow caterpillar with black spots that feeds in clusters. Small infestations can be pruned away and destroyed. Larger infestations can be treated with a spinosad product. This pest consumes all but the main vein of the host plant foliage and is capable of creating serious levels of defoliation.

Beetles

In general, products containing spinosad are effective against the larvae (at least) of many free-feeding beetle species. However, there are also many chemical insecticides that are labeled for caterpillars, which are pyrethroids, organo-phosphates, carbamates, and other classes.

Leaf Beetles:

- **Lily Leaf Beetle** - Adults of this bright red beetle can still be found. Eggs have hatched and larvae are feeding. As larvae feed, they pile their own excrement on their backs thus giving them a very unattractive appearance. Monitor for their appearance on true lilies, fritillaria, and Solomon seal. Recent feedback from pest control practitioners suggests that NEEM products may not achieve the desired results for management of this pest. Spinosad products and many different chemical insecticides are labeled for this pest.
- **Viburnum Leaf Beetle** - Has finally been found in MA in the town of Great Barrington (Berkshire County) not far from the NY border. Larvae are active now and creating much injury. Inspect viburnum carefully for bare twigs that have a 'sandpaper' feel to them; this could be an indication of an egg-laying site. Monitor for the larvae that are free-feeders and cause much defoliation injury to viburnum. In areas where Winter moth is active, do not confuse that injury with that of the viburnum leaf beetle.
- **Imported Willow Leaf Beetle** is active. The small, round blue-black adults will chew ragged notches in the margins of foliage but it is the larvae that create the bulk of the injury. These small, black, elongate larvae are now active. They line up on the leaf surface and skeletonize. There are multiple generations per year and they will remain active until September. By August, entire trees can appear to have been swept by fire; all of the leaves will be intact but dead and brown from total skeletonizing. Treat with a spinosad product **or** with one of the many registered chemical insecticides.

Scarab Beetles:

- **Rose Chafer Adult beetles** are active. Monitor roses for the presence of these tan and somewhat slender scarab beetles. Treat if necessary.
- **Asiatic Garden Beetle** are pupating and the rust-colored beetles will be active within a couple of weeks. The grubs of this pest cause marginal injury to turf but the adults can appear in great numbers, feed at night between first dark (approximately 9:00 PM) until about midnight. Adults feed on many hosts including garden plants, annuals, perennials and others. Their feeding can range from notched foliage to heavy defoliation. Inspect at the feeding time with a flashlight; treat if necessary. (Refer to the Turf Insect Section for additional information.)

Weevils (Snout Beetles):

- **Polydrusus Weevil** - These small and often bright green weevils are active on a variety of deciduous host plants. They will remain active well into July. They mostly create injury by notching the margins of the foliage, often to an extreme. Treat with a chemical insecticide when found in abundance. Spinosad products might be affective.
- **Rose Curculio** - This stout-bodied weevil is often a rust-red color and found on various roses. It mostly creates injury by destroying flower buds. When in large numbers, it is extremely destructive. Adults are active now. Treat with a chemical insecticide when found.

Piercing-Sucking

In general, imidacloprid applied systemically is very effective on most, with the **exception** of spider mites. Horticultural oil **or** insecticidal soap, especially against the immature stages, is usually very effective.

Lacebugs:

- **Andromeda Lacebug** nymphs are active in warmer regions of MA. Inspect the undersides of foliage for their presence. Systemic imidacloprid products work well. If contact (mechanical mode of action) pesticides, such as summer oil sprays **or** insecticidal soap, are utilized they need to be targeted to the foliage undersides. Japanese andromeda in sunnier growing sites will experience greater problems with this pest.
- **Azalea Lacebug** is active. Like Andromeda Lacebug, this pest is active all summer and capable of creating much stippling (chlorosis) of the foliage. Drought conditions and sunnier growing sites tend to

favor this pest.

- **Sycamore Lacebug** is active. Although common to Sycamore, it can be especially destructive to English White Oak. Active all summer, it can lead to serious chlorosis of the host plant.

Plantbugs:

- **Honeylocust Plantbug** is virtually finished feeding for this year.
- **Tarnished Plantbug** is active. This small, brown insect with pale yellow markings has a wide host plant range that includes shrubs and annuals. Its feeding causes brown, dead patches to appear on foliage that resemble disease caused by pathogens. If much spotting occurs, controls may be necessary. This insect is active for much of the summer.

Aphids:

- **Assorted Aphid Species** are active on many different hosts. Inspect plants carefully for building populations. Catalpa, rose, lindens, and many others are common hosts for aphids. Treat with insecticidal soap sprays, an imidacloprid product, a summer oil spray, **or** with one of the many registered chemical insecticides.

Adelgids:

- **Hemlock Woolly Adelgid** can still be treated with horticultural oil but monitor plants carefully for their stage of development. The second generation of eggs for HWA have now hatched. Avoid oil sprays on newly emerging tender foliage. There is strong evidence that much winter mortality occurred (as high as 80-90%) and inspections should be made prior to applications to determine if they are necessary.

Other Piercing-Sucking Insects:

- **Spider Mites** - Several **growth regulator products** are available that offer high levels of control; mostly for population numbers that are low to moderate in size. Most are so specific that they kill spider mites but not the beneficial predatory mites. Some even possess ovicidal (egg-killing) qualities. Horticultural oil sprays can also be very effective. Many insecticides and miticides are specifically labeled for spider mites as well.
- **Spruce Spider Mite** remains active. Inspect by gently shaking branches over a white piece of paper and then inspect with a hand lens. Monitor weekly to establish if population numbers increase significantly. Note the numbers of predatory mites present. Treat if necessary.
- **Two-spotted Spider Mite** is active. This species has a wide host range. It is also a 'warm-season' spider mite, which means that it will remain active all season long and be very prolific once the very hot and dry season approaches. Begin to monitor now and continue monitoring throughout the growing season for increasing population numbers. Treat if numbers become too high and (especially) if predator mite population numbers are too low. Horticultural oil sprays (summer rate) can be very effective as well as the other labeled pesticides for mites. Treat only if necessary. Deciduous plants, such as winged euonymus (*E. alatus*), will develop very chlorotic foliage and may even drop its leaves when high populations occur.

Psyllids:

- **Boxwood Psyllid** has virtually finished its activity for this year.

Leafminers

- **Native Holly Leafminer**, primarily in American Holly, is pupating. Place yellow-sticky cards out now to monitor for the activity of the adult flies. Treat at that time with a chemical spray. Adult females are active for several days prior to egg-laying so that is an opportune time to manage this rather difficult pest.
- **Birch Leafminer** has finished its first generation. Injury appears in the form of brown leaves on the host plant but the larvae are now in the soil. There are two more very small generations coming this year but they will not require treatment.
- **Arborvitae Leafminer** - There are two species of these lepidopteran leaf-mining caterpillars in MA. Their host plants (arborvitae and some junipers, primarily), and the injury that they cause are similar. The major difference is that one species pupates earlier (two weeks ago) than the other and does so outside of the mine, usually on the underside of the foliage. Inspect for what looks like tiny and fuzzy grains of rice attached to the foliage (cocoon). Shake foliage lightly to disturb moths. When moths are found, treat with a chemical insecticide to break the cycle of re-infestation. This species tends to be more prevalent in eastern MA. The other species pupate within the mine and will emerge as an adult moth (tiny and an off-white color) during the third or fourth week of June. Treat in the same manner as the other species. Larvae, once within the foliage, are extremely difficult to manage.

Scale Insects

In general, horticultural oil sprays work well against most armored scale species, especially when they are in the crawler stage. Imidacloprid does not work well on armored scales but is much more effective against many soft scales.

Armored (hard) Scales:

- Monitor for **Pine Needle Scale** on mugo and Scots pines, in particular.
- Monitor junipers for **Juniper Scale**.

- Monitor different euonymus for the **Euonymus Scale**.
- **Pine Needle Scale** crawlers will be emerging in one to two more weeks.

Continue to monitor scale species at the appropriate time of the season for crawlers and treat again at that time, if necessary.

Soft Scales:

- Monitor yews and certain hollies for the **Cottony Camellia Scale (aka: Cottony Taxus Scale)**. Treat the active nymphs with a summer oil spray. This pest creates much honeydew that generates much sooty mold.
- Begin to monitor azaleas for the **Azalea Bark Scale**. Inspect inner branches for nymphs and sooty mold. Treat with a summer oil spray if necessary.

Gall Formers

Many different galls have appeared on various host plants; most are insignificant in terms of plant injury.

- **Felt patch galls**, caused by certain Eriophyid mites, are commonly found on maples, beech, and other hosts. Although usually a tan color they can sometimes be a spectacular pink color and raise much alarm. They are harmless
- **Aphid-induced galls** are common on certain elms. These large pouch-like galls are often very numerous. There are no controls for these nor are any deemed necessary.
- **Galls on oaks** - Galls on oaks. Mostly stimulated by Cynipid wasp species, the majority of these are harmless. However, if found on the stems, they can be quite serious. Unfortunately, there are no effective controls for the ones on stems. The vast majority of these will be found on foliage and control measures are not warranted nor effective.

Wood Attackers

- **White-Spotted Pine Sawyer** are active. This species is only attracted to previously weakened pines and is not considered to be a pest. However, it looks very much like the Asian Long-Horned Beetle (ALB), which is not yet known to exist in MA. The adults of ALB are a very shiny black with crisp white spots. Their antennal segments alternate between white and black segments. The WSPS also has the same type of antennae. **But**, its body coloration is more of a dull grey and has a varying number of dull white spots.
- Monitor previously stressed plants (drought, soil compaction, etc.) for signs of invasion of wood borers. **Bronze Birch Borer** is one such invader. Water infested trees during drought periods. Insecticide injections may be effective in some cases. The adults of BBB are seeking new host plants for egg-laying. Even though they only emerge over a few weeks time, the adults can remain active through August. It is recommended that susceptible birches not be pruned during this time, especially if they have been previously weakened. Pruning (wounding) releases plant chemicals that attract BBB females.
- **Linden Bark Borer Moth** is still active. These tiny yet attractive moths are mating and females are depositing eggs within bark furrows on the main trunk and scaffold branches. Adult moths have orange and black markings. Inspect bark furrows for fine red sawdust. The larvae of this insect feed within the bark and not in the vascular system. Their level of importance to plant health is unknown. If host trees (lindens) are in poor growing sites and therefore suffering from other factors, then this insect may contribute to the stress load. If deemed necessary, treat the adult moths with a knock-down type (chemical) insecticide.
- **Conifer Bark Beetles**, such as the **Black Turpentine Beetle** invade stressed trees. Inspect for pitch tubes and streaks of pitch on the bark. These are signs of an already weak tree. Water during times of drought.
- **Dogwood Borer** - Continue to monitor for new infestations (adults are active) and continue to avoid any wounding of the tree trunks with mowing equipment and string trimmers, which encourages infestations of this pest. If necessary, monitor for adult emergence with pheromone traps.
- **Rhododendron Borer** adult moths will be active soon. Pheromone traps are available for this clear-winged moth species. Adult females lay individual eggs usually near the base of shoots of rhododendron. Tunneling larvae will expel sawdust but this is often hidden due to dense foliage. Often, infestation is not noticed until much later in the summer when individual shoots wilt and suddenly die. Adults can be treated with a chemical insecticide. New tunnels, if possible to find, can be treated with beneficial nematode sprays.

Nuisance Pests

- Many **wasp, bee and hornet species [Hymenoptera]** are increasing in numbers. Be aware of their potential presence, especially when around plant material, in order to avoid their stings.

Reported by Robert Childs, Entomologist, UMass Extension Landscape, Nursery and Urban Forestry Program, Amherst

Diseases

Botrytis blight is noticeable as a gray moldy blight of flowers, leaves and shoots in herbaceous perennial gardens. Cool temperatures and shaded conditions enhance the damage by this fungus. To manage Botrytis blight, remove dead plant material that the fungus uses as a beachhead for the development of more inoculum. Irrigate before mid-afternoon so needles dry off before nightfall. Consider fungicide applications to protect succulent growth on high value plants from becoming infected. Fungicides labeled include: chlorothalonil, chlorothalonil plus fenarimol, copper sulfate pentahydrate, ferbam, fosetyl-Al, iprodione,

mancozeb, thiophanate methyl, triflumizole, thiophanate methyl plus chlorothalonil, thiophanate methyl plus flutolanil, and PCNB. Repeat applications at labeled intervals until warm, drier weather prevails and Botrytis blight is less able to infect plants.

Cedar-apple rust is visible as orange-yellow spots on susceptible hawthorn, apple and crab apple leaves. By mid-summer tiny yellow-white tubes will extend from the underside of infected leaves. From mid-summer to autumn, spores are wind-carried from the apple leaves and, when conditions are wet, they infect green shoots and needles of junipers. Pea-sized to 2-inch diameter round, brown galls develop on susceptible juniper needles and twigs between twelve and twenty months after infection. The best long-term approach to manage this disease is to grow cedar-apple rust resistant apple and juniper varieties. Also, prune dormant galls on juniper during the summer, fall, winter and early spring (before jelly-like horns form). Avoid growing susceptible junipers close to apples. The time to apply fungicides to protect high value apples from cedar-apple rust has passed for this spring. Fungicide protection of eastern red cedar and Rocky mountain junipers is seldom performed, but if it were desired, it would be from mid-August through September.

The minute red-purple spots of **hawthorn (Entomosporium) leaf spot** are visible on leaves and causing some defoliation of susceptible hawthorn. Now that the fungus is established, it regularly produces spores; and with recurring wet periods the disease spreads via these secondary infection cycles. A long-term management strategy to consider is replacement of susceptible hawthorns with resistant trees. Otherwise, preventative fungicides must be applied as buds open or when the first rains begin after the leaves start to develop in the spring; these should be repeated at labeled intervals several times until early summer. There is little benefit from chemical controls of this disease when they are started this late in the season.

Oak leaf blister is showing up on red and pin oak leaves as faint, yellow-green spots. Puckering is minimal but noticeable, if you look closely. This is a not a serious problem in our area. If a severe outbreak is occurring on specimen trees, note that for future reference. Chemical control activities should be started just before buds open next spring.

Apple scab lesions are visible on susceptible crab apple leaves. Many leaves are curling or cupping where lesions developed before the leaves were mature, and the dead leaf tissue constricted leaf expansion. Within weeks after infection the olive green fruiting bodies produce new spores. New infections can occur essentially the entire growing season during wet and mild conditions. To maintain scab-susceptible crabapples in the landscape in which infection has already occurred, consider using systemic fungicides. These fungicides act to prevent new infections that develop on newly emerging leaves. Systemic fungicide applications will not restore distorted, discolored crabapple leaves to health. They can reduce the incidence of apple scab as the season goes on if they are applied soon, before the extent of infection is too severe, and protection is maintained at labeled intervals. Alternate every second or third systemic fungicide spray with a broad-spectrum fungicide to reduce problems with fungicide resistance. Prune to increase sunlight penetration and air circulation, which promotes rapid drying of wet foliage. If apple scab is a chronic problem and replacement is an option, consider planting resistant varieties of crabapple.

Susceptible flowering dogwood have scattered leaves exhibiting irregularly shaped gray areas with purplish margins of **dogwood anthracnose** infections. This can be a difficult disease to control due to the abundance of inoculum that over-winters on twigs and fallen leaves. In addition, heat and water stressed dogwood sustain more extensive branch dieback than those trees that have more vigor. If this is a recurring problem, consider replacing the tree with a resistant variety. On susceptible specimen trees during wet springs, apply fungicides as buds open, after bracts have fallen and again four weeks later.

The wet conditions, along with development of immature scale-leaves/needles are favorable for infection of juniper by **Phomopsis tip blight**. Juniper shoots that are tan-gray with pinhead sized, black fruiting bodies are producing spores at this time. New growth that becomes infected this spring with Phomopsis tip blight will turn green-yellow, then brown and die within a few weeks of infection. Management begins with the removal and disposal of infected shoot tips to reduce inoculum. Cut an inch or so below the boundary between dead and healthy tissue. Now is the time to initiate fungicide control of juniper tip blight to improve plant appearance. Grow junipers in an open, sunny location to promote drying of foliage, that are adapted to the site and that have resistant to tip blight.

The official Massachusetts Department of Agricultural Resources (MDAR), Massachusetts Department of Conservation and Recreation (MDCR), and USDA Animal and Plant Health Inspection Service (APHIS) **Sudden Oak Death (SOD)** survey in nurseries and forest areas around the state has begun. To date, *Phytophthora ramorum* has not been found in Massachusetts, but nearby states in which it has been positively identified include Pennsylvania and New Jersey.

The fungus *Phytophthora ramorum* causes SOD. It is a severe disease of oak and tanoak in certain Pacific Northwest fog forest areas. In March 2004 *Phytophthora ramorum* was found in two large ornamental nurseries in southern California. This detection demonstrates that the pathogen is not necessarily limited to the moist coastal regions of northern California and southern Oregon. At least one of the two nurseries distributes nursery stock nationwide, including Massachusetts.

This pathogen has a wide range of host plants, including rhododendron, viburnum and camellia, which are potential 'carriers of the fungus when plants are transported. The damage on non-oak hosts involves minor leaf spotting and twig dieback. However, infections on these non-oak hosts may contribute to a rapid build-up of the fungus in an area, serving therefore as a reservoir of inoculum. All of the details of how the fungus spreads have not been worked out, but these reservoir plants may play an important role.

P. ramorum has been confirmed in plants traced forward from the initially positive California wholesale nursery in 97 facilities in 14 states. The numbers of nurseries or garden centers with positive *P. ramorum*

samples from the wholesaler by state are: California (38), Alabama (1), Florida (5), Washington (6), Oregon (9), Texas (5), Colorado (1), Georgia (13), Louisiana (5), Maryland (1), North Carolina (9), New Mexico (1), Tennessee (2), and Virginia (1).

The number of confirmed positive nurseries or garden centers from the national and other surveys is 118 in 14 states. Fourteen states continue to impose quarantine regulations over and above those ordered by PPQ on California, and in some cases Oregon, Washington or British Columbia.

For more information about SOD and *Phytophthora ramorum* check out the following web site: www.massnrc.org/pests/ and hit the Search for Pest Info button for pictures and more details.

Landscape, Nursery, and Urban Forestry Diagnostic Lab Report

The following are some of the interesting disease/abiotic disorder samples received at the UMass Extension Landscape, Nursery, and Urban Forestry Diagnostic Lab in Amherst during the period June 7 through June 11, 2004:

- *Euonymus fortunei* - container plants in a nursery had many spotted leaves that were freely falling off at the slightest touch; *Euonymus anthracnose*.
- **American elm** - ~50 year old tree developed severe wilt and branch dieback in late May; Dutch elm disease.
- **Callery pear** - sudden death of the new leaves, flowers and twigs on trees that had been growing on the site for 10 years; root damage from digging too deeply around root zone to replace mulch/worsened by *Phomopsis* twig canker and scattered bacterial fire blight infections.

Reported by Dan Gillman, Plant Pathologist, based in the Urban Forestry Diagnostic Lab at UMass, Amherst, Mass

Landscape Turf

Insects

Grubs

We have had reports of European chafer adults flying, particularly in eastern Massachusetts. These beetles are slightly larger than Japanese beetles and a tan color. They normally begin to fly, sometimes in very large numbers, just as the sun is setting. In addition, I have seen adult Asiatic garden beetles in the soil in my own flower beds. Finally, I saw Oriental beetle adults this morning (Wednesday, the 16th) in Westchester County. So, the beetles are pretty much on schedule. This is the time to start thinking about how you plan to manage the upcoming grub problems that may arise as a result of the adult activity.

Caterpillars

We have had reports of black cutworm activity on golf courses, and I have seen sod webworm adults flying in my own lawn. Remember that webworms seldom cause enough damage in lawn settings to warrant treatment. Often what happens is a lawn succumbs to drought stress (later in the summer), but when a turf manager comes in to take a look and place the blame, the caterpillars are accused of causing the damage. As Dave Shetlar of Ohio State University points out, webworms usually are not the cause of the problem; drought is.

Others

We have not yet had any reports of chinchbug or billbug activity. However, this is the time of year when adults are active and laying eggs. Scouting would be a good idea to identify the chinchbug and billbug "hotspots" **before** they develop into damaging populations.

Reported by Pat Vittum, Professor and Extension Turf Entomologist, UMass, Amherst, Mass

Weeds

Recent warm weather has push crabgrass and other summer annual weeds along. Postemergence crabgrass herbicide applications should be in full swing. Check tiller growth stage before applications, some hotter and/or thinner turf areas may be past the growth stage were good control can be obtained.

Postemergence broadleaf herbicide applications in turf should be completed by the end of June. These applications can continue to be made as long as plants, both weeds and turf, are actively growing. The primary goal would be to complete these applications before the heat of summer sets in.

Winter annual weeds in landscape beds are still actively growing. Coming weeks of hot weather will encourage them to complete their life cycle and die. Remove weeds to prevent additional seed drop. If population of winter annuals are high, consider a preemergence herbicide in late summer and early fall to prevent winter annual establishment in beds. Rework mulches if need in late summer to help control winter annuals. Speaking of mulches, there has been a few reports of sour mulches reaching the market.

Randall Prostack, Weed Specialist, UMass Extension Landscape, Nursery, and Urban Forestry Program, Amherst, Mass.

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