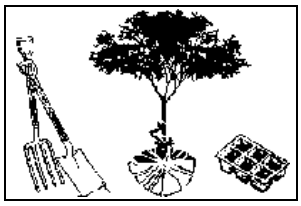
UMASS EXTENSION



Hort Notes

An educational newsletter with research-based information for businesses and individuals involved in selling, planning, designing, servicing, and enjoying landscapes and gardens.

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Current Monitoring Checklist: http://www.umassgreeninfo.org/fact_sheets/ipmtools/100_149_GDD.html
FOR LATE APRIL - EARLY MAY
PLANT PHENOLOGY: BETWEEN 100 - 149 GROWING DEGREE DAYS

"Why are there curled, droopy leaves on so many rhododendrons?"

What's happening to large, older rhododendrons in established landscapes? The Urban Forestry Diagnostic Lab has had a number of inquiries about leaf curling on rhododendrons, a situation we have also observed on the UMass Amherst campus and surrounding area. Typically, an entire plant among otherwise healthy plants or several branches on a plant have tightly curled, limp, off-color leaves. Close examination of the affected plants turned up a few plants with black vine weevil, rhododendron borer or Botryosphaeria cankers playing a role, but in the vast majority of the cases affected shoots had intact, though somewhat shriveled, bark with green (but dry) vascular cambium and white sapwood. In many cases, most of the plant had several healthy branches below or lateral to the affected ones.

So, what's happening? Something is drying out the buds, leaves and the branches to which they are attached. Fungal disease and insect feeding damage problems are not playing major roles in this situation. The best explanation has been drawn from several sources and looks like this. Rhododendrons, like many other plants in our area, are still recovering from the drought of 1998 and 1999. They suffered damage as a result of reduced photosynthesis, root damage and depleted energy reserves experienced during the dry conditions. Because of the diminished root systems, these plants were unable to take up the water available during the mild, moist season last year and fully hydrate themselves. Water stored in roots and stems allows these broadleaved evergreens to support them-selves during the winter when water is not available. Another factor that exacerbated the situation, a t least in western Massachusetts, was the dry period last fall from mid-September to December when the rainfall was 3 - 4 inches below normal. Transpiration during that period would have tapped into the moisture reserves in the plants, further predisposing them to the desiccation injury they have endured in the last several weeks. Wind, sun and mild daytime temperatures naturally draw moisture from the leaves. When the ground is frozen, soil moisture is not available to compensate for that loss. If that was not replenished during the late winter, the buds, leaves and cambial tissues under the bark dried out. Whether the affected buds, leaves and branches will be able to recover if moisture is available now and later in the spring remains to be seen.

What to do? Watch and see if the affected parts of the plant recover. Once it is certain they are dead, prune and dispose of dead twigs or branches, which can be invaded by opportunistic pathogens and insects. Long-term

management involves maintenance of 2 - 3 inches of compost-ed pine bark or other mulch over as much of the root zone as possible. Also, water the rhododendrons once a week if there is no rainfall during the hot, dry summer periods, and during dry autumns. Apply a soaking type of irrigation that wets the ground to a depth of 12 - 18 inches.

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Possible Mulch Problems

As we go, however slowly, into spring, questions have started to come in regarding mulch. The application of mulch, when done properly, is usually regarded as a beneficial landscape practice. Mulch:

- suppresses weeds
- conserves soil moisture
- moderates soil temperature
- adds organic matter to soil

However, from time to time, a few mulch problems might arise that you should be aware of.

Mulch Toxicity
Though mulch benefits plants, "sour" mulch can quickly damage plant tissue and lower the soil pH, causing injury or death. Bedding and low-growing woody plants are most easily damaged. Symptoms include yellowing of the leaf margins, scorching or dropping of leaves and occasionally entire plant death. Although it may be several days before symptoms appear, spreading sour mulch can damage plants immediately. Sour or "acid" mulch is caused by poor handling or storing of mulch, resulting in anaerobic (without air) conditions. Mulch piles need to "breathe" to prevent anaerobic conditions from occurring. In the absence of air, microbes in the mulch (mostly bacteria) produce toxic substances such as methanol, acetic acid, ammonia gas, and hydrogen sulfide gas. Sour mulch smells like vinegar, ammonia, sulfur or silage. Good mulch smells like freshly cut wood or has the earthy smell of a good garden soil. Another way to determine if mulch is sour is to test its pH. Toxic mulch will have a pH of 1.8 to 2.5.

To prevent mulch from turning sour or to cure sour mulch, you need to turn your pile once or twice a month, more frequently if the pile is very wet. Do not let the pile get larger than 4 feet thick in any dimension if you are not turning the pile regularly. A good aeration will eliminate the toxic compounds in 24 hours, but to be safe, allow three days.

Slime Molds
Slime molds are another type of nuisance fungus. They first appear as bright yellow or orange slimy masses that may be several inches to a foot or more in diameter. They are harmless but unsightly and do not require fungicides. Some fungi in mulches produce toadstools (mushrooms), and some of these are toxic to humans. It is a good idea to destroy the mushrooms when small children have access to the mulched area.

The Artillery Fungus
Many people are concerned by the tiny dark spots they find on their houses, cars, and plants. Often the spots are mistaken for scales. The spots may actually be spores from members of a group of fungi commonly called the "shotgun" or "artillery" fungi in the genus *Sphaerobolus*. These fungi colonize dung or organic matter such as wood mulch, wood benches, wood sheds, etc. Artillery fungi use an interesting mechanism to disperse their spores. The dark brown spores, called peridioles, sit on top of specialized cup-shaped cells which accumulate water and cell contents. When enough liquid is accumu-lated, the cupped cells invert causing a burst, propelling the peridioles as high as 6 meters, where they can adhere to new surfaces.
Symptoms - The fungi appear as yellow-brown to black, disk-shaped spots of about 1 - 2 mm. They can be

found on nearly any surface due to a sticky substance (i.e. mother nature's version of "super glue") covering the peridiole that allows for good adherence. The fungi are very sensitive to light and project towards it, so the spores are frequently located on white and light-colored substances (house siding, white cars, etc.) or other bright, light-reflecting bases.
Control - Artillery fungi spores do not normally structurally damage the houses, cars, plants, etc. they cover. Removing the fungi is virtually impossible. Scrubbing and scraping with tools or washing with soap and water aids somewhat in removal; however, the use of tools or harsh chemicals may damage painted or otherwise colored surfaces. No fungicide treatment is recommended at this time.

Management - Lately, the appearance of Artillery fungi has been associated with wood mulch (versus bark mulch) and the increased use of wood products in potting media. Composting of these products prior to incorporation into media is encouraged to prompt the growth of beneficial antagonistic organisms. Also, the use of gravel mulch, stone, pea gravel, and black plastic next to buildings instead of using wood products will help reduce the problem. If wood products are used, the addition of about 1 inch of fresh mulch to cover old mulch each year may lessen the problem. Use of bark products, rather than wood products, may also lessen the fungal spread.

One word of warning to homeowners wishing to replace house siding splattered by Artillery fungi - insurance companies may not cover damage claims due to "molds".

Sources:
Cornell University Fact Sheet - http://plantclinic.cornell.edu/FactSheets/Artfung.htm and Clemson University Fact Sheet - http://hgic.clemson.edu/factsheets/HGIC1604.htm

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Questions from You

Q. *Last year I noticed an existing area of Japanese knotweed getting larger. How does Japanese knotweed spread and what are the control options for this species?*

A. Japanese knotweed (*Polygonum cuspidatum*) is a herbaceous perennial and as the name would indicate, a native of Japan. It was first introduced as an ornamental and has been used for erosion control and landscape screening. Japanese knotweed is very aggressive and dense stands crowd out all other vegetation. The species produces viable seed, but primarily spreads vegetatively by means of its long, stout rhizomes. Movement of plant parts, primarily rhizomes and to a lesser extent seed, is responsible for the spread of the species from site to site. Garden waste that is not properly discarded is capable of disseminating the species.

This weed is difficult to control once it has become established. Its vigorous rhizomes form a deep, dense mat. Frequent cultivation to grub out rhizomes may be effective. Rhizome fragments will resprout, so diligence is required. Repeated cutting or mowing of stalks may slow lateral spread and gradually reduce vigor. If soil and roots permit, young plants growing from seed can be hand pulled. Plant material from these cultivation practices should not be composted, but removed from the site as trash. Glyphosate has been shown to control Japanese knotweed; applications made from the time of flowering in late summer to the first sign of fall color will be translocated to roots and rhizomes and result in the best control. In areas where damage of non-target species is an issue, tall plants can be cut back before glyphosate application. A combination of the two strategies can be used, and several years of treatment may be needed. Refer to label for application rates. The control strategy selected will be determined by the size of the area occupied by the species and resources available, specifically labor.

Q. *In the past few years I have used a preemergence herbicide for annual weed control in turf. I have had little success in controlling prostrate knotweed and have needed to resort to postemergence applications. Why?*

A. Prostrate knotweed *(Polygonum aviculare*) is a early germinating summer annual broadleaf weed. Germination can occur soon after soil thaws in the spring. Therefore, applications of preemergence herbicides, applied in mid-April to early May in New England for the control of crabgrass, are often too late to control knotweed. Early application of a postemergence herbicide to seedlings can provide good control. Knotweed is capable of persisting in very compacted soils. Alleviation of compacted condition and establishment of a turf can be an effective control strategy.

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