



Hort Notes

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

Volume 13, Number 11
July 22, 2002

Current Monitoring Checklist:

PLANT PHENOLOGY: *BETWEEN 1000 - 1199 GROWING DEGREE DAYS*

http://www.umassgreeninfo.org/fact_sheets/ipmtools/1000_1199_GDD.html

Mulching 101

The use of mulch has exploded over the past twenty years. One can not drive through a city or town without seeing large piles of different colored mulch, or tall stacks of plastic bags filled with mulch. The trees and flower beds of most homes have mulch on them and this can be good. The beneficial attributes of organic mulch are well known; it keeps down weeds, reduces competition with grass, helps retain root zone moisture, improves soil structure, adds soil micro-nutrients, and prevents mower and trimmer injury. In addition to these environmental benefits, mulch has aesthetic value.

All of these benefits happen when mulch is applied correctly. The important points to note when applying mulch are to spread it out to a thickness of 2-3 inches and, more importantly, to keep mulch away from the stems or trunks of trees and plants. Using these guidelines can help to keep plants and trees healthy. These guidelines can also help you to prevent over mulching, which will save mulch and money.

With all of the benefits of mulch there are some things to be aware of. Some of the more common problems found are applying too much mulch and placing mulch against the stem and trunk of the plant or tree. This creates a mound of mulch that looks like a “volcano.” Mounding the mulch against the trunk is detrimental to tree health. Bark above the soil line is not accustomed to having moisture soaked mulch touching it. This bark and stem area is important and these tissues need to have exposure to the air for the exchange of gases to maintain bark health. The plant exchanges oxygen that is needed for respiration through the lenticels in this area. A lack of gas exchange can lead to plant stress.

The build-up of moisture against the trunk can lead to other problems. The bark's main purpose is to protect the vascular tissues beneath it and, when it is not exposed to air, the bark can not do its job as well. Fungi and bacteria can take advantage of this moisture and cause root, stem or trunk rots resulting in tree or plant death. Rodents such as mice, moles, and chipmunks can dig into the thick mulch against the trunk and live there or just feed on the softened trunk or stem tissues. Insects can also take advantage of this area; bark beetles and borers have been found using these mulch "volcanoes" as feeding sites, thus causing plant decline or maybe death.

Sour mulch is another way in which mulch could harm your plants. Sour mulch is created when stored mulch is piled up too high and has not been turned over. When the pile is large, the microbes in the mulch are deprived of necessary oxygen and produce chemicals such as acids and alcohols that can injure plants. Tender annuals and herbaceous plants are more prone to injury from these chemicals. To prevent this type of plant injury, examine the mulch when it arrives. If the mulch gives off an acrid or pungent odor, do not put it near your plants. Let the mulch sit for a week or more, turning it repeatedly to increase air exposure for the microbes. This will help ensure that the mulch you are putting near your plants will not harm them.

Adding the correct amount of mulch and placing it in the appropriate manner can benefit the landscape and plants greatly. The key is making sure that the mulch helps to maintain healthy plants and will not be a detriment to them.

For more information: Too Much of a Good Thing Can Be Bad, Chris R. Calson, Arborist News, December 2001, Vol.10, # 6, p.35-39.

*Christopher Rooney and H. Dennis P. Ryan, MCA
UMass Department of Natural Resources Conservation*

Questions from You

Q. A client has a number of variegated shrubs. Some branches on a few of the shrubs have reverted to all green leaf coloration. Is there any way to prevent these reversions on variegated varieties of shrubs?

A. No, there is not. Variegation in woody plants is typically the result of a mutation within a shoot bud that gives rise to a single branch or "sport" with the variegation. Subsequent plants with that variegation are produced vegetatively, i.e. asexually, by way of cuttings or grafts.

The genetic mechanisms that lead to variegation are complex and of several different types. Therefore, the stability of specific mutations causing variegation is variable and some plants revert more readily than do others. Typically, the green shoots produced as a result of reversion grow more rapidly than do the variegated shoots. Unless removed, the reverted shoots can dominate, so reverted shoots should be

removed as soon as they are seen. A reverted shoot should be cut back to its point of origin.

Be aware that variegation on some shrubs does not immediately appear on new shoot growth in spring. For example, the variegation on leaves of *Sambucus nigra* cultivars does not appear until the shoots are nearly fully elongated. In the case of such plants, it is best to wait until new growth is completed before checking for reversions.

Q. I've noticed that the foliage of irises at this time of year appears to be wilted and yellowed. Is this because the plants are going dormant?

A. While the growth of irises does essentially cease following completion of bloom, the plants are not completely dormant. Most likely what you are seeing is foliar damage caused by iris borer (*Macronoctua onusta*). Besides discoloration and wilting of leaves, there may also be water-soaked streaks, chewed leaf edges, and slits in the leaves. At this time of year, the base of the leaves may appear slimy and small piles of frass may be seen at the rhizomes.

The visible damage to iris is caused by the larval stage of the iris borer. The larvae, which hatch in late April through May from overwintering eggs, tunnel into new leaves of iris and feed within the leaves. As they feed, they move downward to the rhizome leaving behind water-soaked streaks in the leaves. When they reach the base of the plant, the pinkish larvae, now about 1½ to 2 inches long, bore into and feed inside the rhizome. That is where they are now. In a few weeks (about mid-August), the larvae exit the rhizomes and pupate in the soil. Adults (dull brown, night-flying moths with wing span of 1½ to 2 inches) emerge from the soil from about mid-September through October. After mating, the females lay eggs on old iris leaves and other nearby debris.

Management of iris borer lends itself nicely to an IPM approach. Here are some management strategies:

- **July - mid August:** This is a good time to dig and divide clumps of iris, a task that is usually done every few years. While dividing the clumps, infested rhizomes should be cut away and destroyed.
- **August - September:** Where feasible, soil around damaged irises can be dug and sifted for the large larvae and pupae. Larvae and pupae can be found in soil that is within 5 or 6 inches of a plant and at depths up to 6 inches.
- **Fall and early spring:** Clean up old iris foliage and nearby debris since they are likely to carry the over-wintering eggs of iris borer.
- **April - end of May:** Small larvae may be crushed in water-soaked tunnels in leaves when observed. For large plantings and persistent infestations, insecticides may have to be used. Studies at University of Maryland (*Gill, S.A. and M. J. Raupp 1997. Evaluation of biological and chemical applications for control of iris borer. J. Environ. Hort. 15:108-110*) showed that entomopathogenic nematodes applied in the spring after soil temperatures rose to above 50 degrees F. were very effective

in controlling the larvae of iris borer. A key to nematode success is to apply one quart of water per square foot of soil near plants so that the nematodes can easily swim to seek out larvae. Hatching larvae are near the base of iris plants. Some chemical products that are being used for iris borer control include dimethoate, chlorpyrifos, and malathion. Whatever product is used, be sure that it is labeled for use on iris borer. Also, read and follow label directions.

Ron Kujawski

UMass Extension Educator - Landscape, Nursery and Urban Forestry

Disclaimer: Where trade names (*) are used for identification, no product endorsement is implied nor is discrimination intended against similar materials. The authors have assembled the most reliable information available at time of printing. Due to constantly changing laws and regulations, UMass Extension can assume no liability for recommendations.

Drought Conditions in Massachusetts Have Significantly Improved

Are we out of the drought? The Massachusetts Drought Management Task Force has reduced the drought level from a drought watch to a drought advisory statewide. An advisory is one step below “normal.” May had significantly above normal precipitation in Massachusetts, with an average of 5.4 inches of rain compared to a normal amount of 3.7 inches. Precipitation totals for the month of May averaged 145% of normal, with the northeastern part of the state receiving the most rain at nearly six inches, or 176% of normal. In addition to being wetter than normal, the month was also cooler than normal, helping to keep the fire danger at lower levels and reducing evaporation and vegetative water uptake. The state's rainfall has improved steadily since March 2002, with cumulative precipitation 113% of normal for the last three months, or 1.5 inches above normal.

Water supply reservoirs have improved across the state. Most small reservoirs have recovered, and medium and large reservoirs are also responding, though some remain below normal levels for this time of year. The Quabbin Reservoir, operated by the Metropolitan District Commission, is at 86%, remaining in the below normal system status. However, due to its large storage capacity, the system can withstand extended dry periods without affecting its ability to supply water.

Stream flows were at normal levels across the state, and groundwater levels were mostly in the normal range, with some areas in the central, northeast and southeast regions of the Commonwealth remaining below normal. The Cape and Islands continue to have below normal groundwater levels, a situation that has existed since June of 1999.

The U.S. Geological Survey (USGS) maintains a series of observation wells throughout the country where depth to groundwater is digitally recorded, up-linked to satellite and posted on their web site. In Massachusetts there are nine observation wells; the web site is http://ma.water.usgs.gov/ground_water/ground-water_data.htm

The table below is a summary of a small part of the data from the web site. It indicates that nearly half the wells show normal (50% quartile) groundwater levels, but the majority of the wells are below normal levels (25% quartile). More drought information with links to many data-rich sites can be found at the UMass Drought Information web site at www.umassdroughtinfo.org

Craig Hollingsworth - UMass Extension IPM Program

(Some text is taken from the Mass. DEM website at www.state.ma.us/dem/programs/rainfall/dr0607.htm)

Depth to groundwater at USGS observation wells in Massachusetts

Well Site	County	Historic Mean for June (ft)	Depth of groundwater June 18, 2002	Quartile in May	Quartile on June 18
Brewster	Barnstable	30.4	32.4	25	25
Lakeville	Plymouth	14.6	16.2	25	25
Duxbury	Plymouth	6.6	7.8	75	25
Norfolk	Norfolk	6.2	5.9	50	50
Pelham	Hampshire	14.0	15.7	25	25
Pittsfield	Berkshire	15.5	14.7	25	50
Acton	Middlesex	18.1	19.6	25	25
Wakefield	Middlesex	7.1	6.2	75	50
Wilmington	Middlesex	8.0	7.8	50	50

HORT NOTES is a horticultural newsletter published bi-weekly from March through October by UMASS Extension. Subscriptions by mail are \$20.00 (16 issues) per year. Make check or money order payable to *University of Massachusetts*, and mail it to *HORT NOTES*, French Hall, 230 Stockbridge Rd., UMass, Amherst, MA 01003-9316. When writing to request a change of address or to renew a subscription, please include the mailing label.

Kathleen M. Carroll, UMass Extension Educator
Landscape, Nursery and Urban Forestry Program Coordinator