COOPERATIVE EXTENSION SERVICE
HOME, YARD & GARDEN PEST NEWSLETTER
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**Japanese Beetle**

Japanese beetle adults are present throughout Illinois. Robert Bellm, Extension Educator, reported their presence in southern Illinois, and Martha Smith, Extension Educator, reported them in northwestern Illinois. Extended deep soil freezing in northern Illinois during the winter of 2013-2014, and the statewide drought in the second half of the summer of 2013 caused reductions in their numbers during last summer. The combination of relatively normal rainfall last summer and shallow soil freezing last winter due to moderate temperatures and adequate snow cover should allow their numbers to increase significantly from last year.

Adult Japanese beetles feed on the upper leaves of crabapple, linden, serviceberry, flowering cherry, birch, willow, rose, and many other trees and shrubs from late June through mid-August. They can defoliate or window-feed at least the upper third of the tree. Window-feeding consists of the upper surface and center of the leaf being eaten, leaving the lower surface which is whitish and somewhat transparent. The cells of this exposed lower surface soon turn brown. The adult Japanese beetles are three-eighths to one-half inch long and stocky with metallic green bodies and coppery wing covers.

Imidacloprid, sold as Merit and other brand names, moves systemically through the tree into the leaves where it effectively controls the adult beetles. Imidacloprid takes just a couple of days to move into the leaves whether trunk injected or soil applied. Avoid application of imidacloprid into mulch, thatch, or other dead organic matter as the insecticide adsorbs onto it, making it unavailable for root uptake. Soil inject below the sod or mulch or pull back the sod or mulch to soil drench. Apply within two feet of the trunk.

Imidacloprid remains in the tree for at least a year after application, so application at any time during the growing season is effective as long as there are active leaves on the trees. The active leaves are needed to drive the transpiration which moves the imidacloprid throughout the tree.

There is concern about imidacloprid moving into the pollen and nectar of flowers and affecting honey bees and other pollinators. Imidacloprid is known to move into linden flowers, so its use on that tree should be avoided. Wind-pollinated trees, such as birches, are unlikely to be visited by pollinators. Roses with double blossoms are usually not visited by pollinators either, but watch for flower visits by bees or other pollinators before applying imidacloprid. Imidacloprid does not move into crabapple flowers. Realize that soil applications will move into flowers grown near the tree as well as nearby dandelions and other flowering weeds visited by pollinators.

Spraying the foliage with a labeled pyrethroid avoids most pollinator concerns. Although fresh residues are toxic to honey bees and other pollinators, pyrethroids will kill the visiting bee too quickly to carry anything back to the hive. Insecticide being carried back to the hive to affect larvae and other colony members is the biggest concern with imidacloprid and other neonicotinoid insecticides. Carbaryl, sold as Sevin, can be applied to non-flowering trees and shrubs. Although honey bees will actively gather the dried carbaryl residue and take it back to the hive, they are unlikely to discover it on a non-flowering plant. Pyrethroid or carbaryl sprays should be repeated every couple of weeks to maintain protection. With the Japanese beetle adults present in large numbers for about six weeks, three sprays are typically needed. (*Phil Nixon*)

**Rotten Weather and Root Rots**

With all the wet weather we're having, it's no surprise that we've been seeing a number of root rots at the Plant Clinic. There are two basic groups of root rots: seedling root rots and damping-off, and root nibblers that usually affect mature plants.

Root rots can be caused by both fungi and oomycetes, fungal-like organisms that are also known as water molds. *Pythium* and *Phytophthora* are two common genera of oomycetes that cause root rots. Common fungal pathogens include *Rhizoctonia* and *Fusarium* species.

Seedling root rots often cause the death of the plant, either because the seedling cannot establish or because the rot extends to the crown of the plant and causes a condition known as damping-off. Most people who have grown plants from seed are familiar with damping-off: one day the seedlings look normal, the next day they've collapsed due to a rotten area at the base of the plant. Seedling death due to root rots tends to be fairly fast and dramatic, because the plants have so few roots that they can't compensate for the damage caused by the disease.

Root rots of established plants can also occur. These pathogens are often the same or related to the seedling root pathogens. They often act more as root nibblers in mature plants, damaging the root tips and smaller roots while not causing extensive injury to the overall root system. Healthy plants can often overcome the damage. However, if the plant becomes stressed due to environmental conditions such as drought or due to other pest issues, the plant may have a more difficult time maintaining its vigor.

We think of root rots as being favored by cool, wet weather. This is true for some root rot pathogens (generally, the oomycetes) but warm, dry weather tends to favor the fungal root rots. Once the pathogen has gained entry to the root system, there's not much we can do. Fungicide seed treatments can be used to protect seedling root systems. Ensuring good drainage and adequate water during the growing season is also important for managing these diseases. For greenhouse and nursery producers, using sterile growing media and sanitizing tools and equipment is important to reduce the spread of disease. Unfortunately, many of these pathogens are ubiquitous in our soils, so our best management is keeping our plants healthy and reducing environmental factors that favor the development of root rot diseases. (*Diane Plewa*)

**Powdery Mildews of Ornamentals**

Powdery mildews are a group of common fungal diseases that affect woody and herbaceous ornamentals, as well as vegetable and fruit crops. There are hundreds of species of fungi that may cause powdery mildew on various hosts. They are generally host-specific and only infect plants from the same genus or family. Fortunately, these diseases are mostly minor in importance and damage is considered more aesthetically unpleasing than it is harmful. Some host plants may be weakened or have reduced growth resulting from reduced photosynthetic efficiency. This is especially true on fruit and vegetable crops that can lose yield as a result of infection.

Unlike many fungal diseases, powdery mildew does not do well if leaves are wet from frequent rain. Most powdery mildew fungi are inhibited by the presence of free moisture (rain) on leaf surfaces. They are much more common when weather conditions follow a pattern of warm, humid days and cool, damp nights, which most often occurs during spring and fall months. Recently, we have had our fair share of frequent rainfalls. However, there has been enough time between rain events to allow the foliage to dry while maintaining high enough relative humidity to allow for powdery mildew infections to occur.

Symptoms of powdery mildew appear as superficial, white, powdery patches on the leaves. These patches can enlarge and eventually cover the entire leaf, both top and bottom. Young stems, buds, flowers, and fruits can also be affected. The white, powdery patches are composed of threadlike mycelium and asexual spores of the fungus, which are easily blown to other plant parts and cause further infection. New growth is particularly sensitive. A stunting or dwarfing, curling of leaves, chlorosis, premature leaf drop, and deformation of flower buds frequently follow mildew infection.

Controlling powdery mildew diseases can be quite challenging when weather and environmental conditions favor disease development. Start by selecting resistant plant species and varieties and by purchasing high-quality plants from a reputable source. Disease severity may further be reduced by providing conditions for adequate air flow in the planting. Avoid overcrowding plants. Consider the plants size at maturity when spacing plants. Existing plants may require pruning to allow better light penetration and air movement. Because the pathogen thrives in humid conditions, water the plants early in the day to promote rapid drying. Avoid overhead watering, and try to water the soil rather than the foliage.

Numerous fungicides are available to control the mildews, and if sprays are begun at the first sign of mildew, control can be attained. Scout for the appearance of the disease and then treat the plants according to label directions. If damage is minor, no action may be required. Consult the Commercial Landscape & Turfgrass Pest Management Handbook or the Pest Management of the Home Landscape for a list of registered fungicides by host and disease. (*Travis Cleveland*)