UNIVERSITY OF ILLINOIS EXTENSION
HOME, YARD & GARDEN PEST NEWSLETTER
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Homeowner Pest Guide Available

The Home, Yard, and Garden Pest Guide, University of Illinois Extension Circular 1374, is available to homeowners and other residents to help them with their pest needs. Just as the *Commercial Landscape & Turfgrass Pest Management Handbook* is available in book and CD formats for landscape professionals, the *Home, Yard, and Garden Pest Guide* is available in both formats.

Insect pests, diseases, and weeds of turf, trees, shrubs, flowers, fruit, and vegetables are addressed, as are household insect pests. There is also a chapter on integrated pest management (IPM) methods and pesticide use and safety. A variety of IPM controls, both nonchemical and pesticide options, are given for the various pests.

The guide is available as a book for $20 and as a CD for $26, with additional shipping charges as applicable. They can be ordered at (800)345-6087. *(Phil Nixon)*

Listening Sessions for Organic Growers

University of Illinois Extension and the College of ACES Organic Task Force will conduct three listening sessions in June and July for organic growers in Illinois. The purpose of the listening sessions is to get input from current organic growers about pressing issues in Illinois organic production. We will be doing the listening. University of Illinois Integrated Pest Management (IPM) and crop systems Extension educators Suzanne Bissonnette, Pablo Kalnay, and Ellen Phillips will facilitate the listening sessions.

Do you have questions to ask about the production and marketing of organic commodities, pest management, or other issues relating to organic production? This is your opportunity to discuss current issues in organic production in a roundtable setting. Your input will guide future research and educational programs of the Organic Task Force.

The sessions will all be held from 9 a.m. to 12 p.m.; registration is free, but preregistration is requested. The dates and locations are June 18 in Redbud (contact U of I Monroe or Randolph Extension units to preregister at (618) 939-3434 or (618) 443-4364); June 26 in Sycamore (contact U of I DeKalb Extension Unit to preregister (815)758-8194), and July 2 in Lincoln (contact U of I Logan Extension Unit to preregister at (217)732-8289). Choose the location most convenient to you; we look forward to your attendance. *(Suzanne Bissonnette, (217)333-4901)*

PLANT DISEASES

Anthracnose Abundant

Last week we discussed anthracnose on trees. The recent abundance of rain has certainly intensified this disease on susceptible trees. It is very apparent on sycamores in central Illinois. Look closely and you will see that the newest leaves are dead and green leaves are emerging about 4 or 5 inches down the stem. The Morton Arboretum reports recent cases of anthracnose on sycamore, ash, and maple in DuPage County, so it is likely that anthracnose is a common problem in Illinois this year. Susceptible species may soon show leaf drop, a condition that always concerns homeowners when it happens in May. As the new flush of leaves emerges in drier, warmer conditions, they should escape infection. Cool temperatures will increase the chance of infection but will also slow the emergence of the new leaves. We may see a second flush of anthracnose this year. Refer to last week's article for detailed management suggestions. *(Nancy Pataky)*

Mulch Reminder

Most of us are well aware of the benefits of using natural mulches in planting beds and around trees. Remember, too much of a good thing can yield bad results. Adding too much mulch around the base of a tree or shrub can have the same effect as planting too deeply. The mulch can actually kill the plant it is intended to help, essentially smothering it with kindness. Keep these ideas in mind as you add mulch to your planting beds.

A mulch is a material that is applied to the surface of the soil around a plant with the intent of maintaining favorable soil conditions. We generally suggest use of an organic mulch such as compost, leaves, bark, various hulls or shells, and pine needles. You

can find out more about specific materials at the University of Illinois Extension Web site **http://www.extension.uiuc.edu/IPLANT/** where mulching is discussed. Inorganic mulches are materials that do not decompose so they do not add organic matter to the soil. They include such materials as stones and brick chips. Inorganic mulches often serve a purpose in design but are usually more expensive, do not improve the soil, and can be costly to remove if a design change is desired.

Mulch helps to insulate the soil. Certainly the soil will become hot or cold with time anyway, but mulch helps make this change more gradual. Sudden temperature drops can be extremely damaging to trees and shrubs, predisposing them to infection by canker fungi and other pathogens such as *Verticillium*. For this reason, mulching can help you avoid some diseases. Mulch also has been shown to keep soil temperatures as much as 10 degrees cooler in the summer, again avoiding heat stress and disease susceptibility.

The National Arbor Day Foundation recommends removing grass in the area to be mulched and mulching in an area around the tree that is from 3 to 10 feet in diameter, depending on the tree size. You will see differences in mulching depth recommendations, but we tend to advise that mulch be not less than 2 inches deep and no deeper than 4 inches. If you add more mulch, thinking that more is better, you may cause other problems. Roots need oxygen to grow. If soil is always saturated with moisture, roots begin to decline. In a wet season, planting beds with very thick mulch do not dry out. This is especially important on clay soils or in newer subdivisions where soil is compacted or has poor drainage. Problems with white pine provide a good example of how too little and too much mulch can be troublesome. We have been seeing white pine problems for over 20 years in Illinois. This species does not grow well in alkaline, clay, poorly drained, hot soils. Because we tend to plant them as windbreaks or in exposed sites, we make many mistakes right from the planting date. White pines benefit greatly from mulch, especially because of the advantage of insulating roots from high soil temperatures and maintaining soil moisture. If mulch is used at an excessive depth, however, roots are stressed and wet conditions promote a root rot called *Phytophthora*.

The most important message about mulching is to keep the mulch at least 4 inches away from the tree trunk. Physical contact of the mulch with the tree is not lethal. Problems occur when the mulch is several inches thick against the trunk. This collar area of the tree needs air exchange. Moisture held up against the trunk does not allow this to happen, and tree decline results.

The Plant Clinic frequently fields questions on mushrooms or fungi growing in mulch, especially bark mulches. These fungi are not harmful to plants. They are growing in the mulch because it is an organic source of nutrients. The fungi also must have moisture to grow. In dry spells, we tend to water our planting beds, so we see these fungi all summer long, rain or no rain. I am not advocating removal of the mulch, and I don't think you should stop watering your plants. Don't look at the fungicide shelf as a solution to mushrooms in your compost. Most fungicides won't have any effect on these mushrooms. Instead, get out the rake and mix up the bark mulch. This will help it dry out and will keep mushrooms under control. *(Nancy Pataky)*

Root Rots of Annuals and Perennials

Root rots are more likely to occur in wet areas of the garden and early in the season when tissues are tender. This spring, conditions have been ideal for root rots. For that reason, it may actually be to your benefit if you have not yet been able to put plants out in the garden.

If plants are stunted, low in vigor, or slow growing or wilt easily on a warm day, they may be infected with a root rot. Dying roots cannot absorb water and nutrients needed for growth. Obviously, other factors that affect root growth could cause the same symptoms. Such factors include drought, fertilizer injury, cool temperatures, too much shade, chemical injury, etc. Root rots may also cause the foliage to turn yellow to brown and drop prematurely, usually starting with the older leaves and moving up the plant. The severity of the root rot will depend on the fungal pathogen, the susceptibility of the host plant, and the soil and moisture conditions. In fact, dry conditions following infection by a root rot pathogen will cause plants to decline more rapidly.

To confirm a root rot problem, carefully remove an affected plant from the soil, place it in a bucket of water, and gently move the plant around in the water to wash off the soil. If roots are washed too vigorously, all of the rotted tissue will be washed off, often leaving a white root interior that appears healthy. A healthy plant has numerous white roots that appear fibrous. It will even have visible white root hairs. Roots of a diseased plant appear water-soaked and usually are some shade of brown or black. The discolored roots are often soft and mushy, while healthy roots are firm.

There are many root rot pathogens, but the major root rot fungi encountered in Illinois landscapes are *Rhizoctonia, Fusarium, Pythium,* and *Phytophthora*. In a very simplified scheme, we can group the first two fungi as those causing a dry rot, often with a reddish pink cast to affected roots. *Pythium* and *Phytophthora* are types that cause a soft, brown tn black rot of roots.

Control of root rots should be aimed at prevention. Use only healthy transplants. Weak plants may be diseased, and you certainly won't save time or money in the end if you use weak plants. Because poor drainage usually goes hand in hand with root rot, proper site preparation to provide good water drainage away from roots is imperative. *Pythium* and *Phytophthora* are particularly likely problems on wet sites because they require moisture to infect. Use a balanced fertilizer if desired, but keep rates low on new transplants. Rotate plantings in the garden every 2 or 3 years with unre-lated plants to help prevent the buildup of pathogens in one area. This is extremely helpful in preventing *Fusarium* and *Rhizoctonia*. Remove crop residue at the end of the season to help reduce pathogen survival.

Even if all of the above practices are followed, root rot may occur. Fungicides are available to help control the major groups of fungi discussed here. The fungicides will protect plant stems and roots not yet affected. They are most useful if a root rot is discovered in a flower bed and the goal is to preserve remaining healthy plants to the end of the season. Affected plants are removed and nearby plants treated with the appropriate fungicide. Many fungicides are specific to particular pathogens, so treatment depends on accurate diagnosis of the root rot pathogen. Specific chemicals are listed by host crop in the *Illinois Commercial Landscape and Turfgrass Pest Management Handbook* or the *Illinois Homeowners' Guide to Pest Management*. Consult *RPD* no. 615, "Damping-off and Root Rots of House Plants and Garden Flowers," for more details on root rots. This publication is available on the University of Illinois Vista Web site or in Extension offices. *(Nancy Pataky)*

Tree and Shrub Water Damage

Recent rains have set the stage for root problems that are often referred to as "wet feet" (feet referring to roots) on trees and shrubs. Symptoms are often the same as those resulting from a lack of water or other root injuries and include withering of leaves, little terminal growth, small leaf size, yellowing of foliage, and dieback of shoots and roots. Some woody plant species are particularly sensitive to such conditions, including yews (injured by as little as 12 hours of saturated soil), rose, white birch, Norway and sugar maples, flowering dogwood, and forsythia, to name only a few. Water tolerance of many plants is discussed in Sinclair, Lyon, and Johnson's book, *Diseases of Trees and Shrubs.* Most good tree ID books also list such sensitivities as part of the species description.

Woody plants (trees and shrubs) often show injury from water damage when a hot, dry spell occurs after heavy rains. The roots have been damaged. The water deficit caused by heat, sun, and wind pulls on roots to provide water to the foliage. Even if plants are watered, the injured roots cannot take up water fast enough to meet the demands of such environmental conditions.

Roots need oxygen to grow and to absorb nutrients. In a water-saturated soil, the oxygen content is low; and, without oxygen, roots cannot respire properly and cannot absorb water. Even though there is an abundance of water, it cannot be utilized by the plant. For long-term management of such situations, you must improve drainage, lighten the soil with a mixture of organic matter and sand, and avoid too much additional water. Keep in mind that improving drainage includes draining away from the planting site. A well-prepared planting hole with plenty of organic matter will still hold water like a bucket if it is in clay soil.

If you are not certain that water is the problem, dig up some of the soil around the suspect plant. In a typical situation, if there is too much water, the soil is saturated and standing water may be evident. Roots are black or brown internally, instead of the white color of healthy, new roots. In most cases, fungicides do not help. Fungicides were developed to protect healthy plants from root-rot pathogens. They do not revive dead roots. The water problem must be alleviated for new roots to form.

Information on root rots of trees is available in *RPDs* no. 602, "Armillaria Root Rot of Trees and Shrubs," and no. 664, "Phytophthora Root Rot and Dieback of Rhododendrons and Azaleas." These *RPDs* are available in Extension offices or on the Web on the University of Illinois Vista Web site. *(Nancy Pataky)*

INSECTS

Wood-Boring Insects

Now is the time of year to take the appropriate measures to minimize problems with wood-boring insects in nurseries and landscapes. The two main groups of wood-boring insects are beetles (order: Coleoptera) and moths (order: Lepidoptera). The wood-boring insects active this time of year include bronze birch borer *(Agrilus anxius)*, flat-headed appletree borer *(Chrysobothris femorata)*, lilac/ash borer *(Podosesia syringae)*, round-headed appletree borer *(Saperda candida)*, peachtree borer *(Synanthedon exitiosa)*, and viburnum crown borer *(Synanthedon fatifera)*.

Many of these wood-boring insects feed on a variety of plant types. Bronze birch borer attacks European white birch, gray birch, paper birch, and yellow birch. The flat-headed appletree borer primarily attacks plants in the rose family (Rosaceae), including crabapple, cotoneaster, hawthorn, pyracantha, and rose. Lilac/ash borer attacks ash, lilac, and privet. In general, adult females lay eggs on exposed bark. The eggs hatch into larvae that tunnel through the cambium. Larvae feed within the sapwood or heartwood, whereas adults feed on leaves or flower nectar.

The key to managing wood-boring insects is to keep plants healthy and avoid any type of stress by implementing proper cultural practices including watering, fertility, mulching, and pruning. In addition, avoid lawn mower or weed-whacker injury to the base of trees and shrubs because this removes essential cambium tissue that is responsible for transporting food upwards to leaves. This injury places undue stress on plants. Many wood-boring insects are opportunistic and thrive on stressed plants; healthy plants are less susceptible. Pruning trees or shrubs at certain times of the year may increase problems with certain wood-boring insects. For example, it is generally suggested that you avoid pruning birch trees, especially white birch, from May to August because bronze birch borer adults are flying around looking for places to lay eggs. Pruning during this time creates wounds that emit odors, which attract females.

Newly planted trees or shrubs are highly susceptible to borer attack. For example, the flat-headed appletree borer attacks recently planted trees or shrubs because they are stressed, thus increasing their susceptibility. It is important to properly water plants (and provide adequate drainage) and mulch young plants to minimize stress. Avoid placing a thick mulch layer (over 6 inches deep) against the plant crown because this will suffocate the plant. This is especially important with finely decomposed mulches. Place a 3- to 4-inch layer of mulch around trees and shrubs, and leave a 2- to 3-inch gap between the mulch and the base of the plant. Finally, avoid overfertilizing plants as this may cause plants to divert resources away from the production of defensive compounds and increase their susceptibility to wood-boring insects.

Pest-control materials may be used to minimize problems with wood-boring insects. The phasing out of chlorpyrifos (Dursban) due to the Food Quality Protection Act (FQPA) is causing some concern about the availability of effective pest-control materials for managing wood-boring insects. Chlorpyrifos is no longer available to homeowners; however, it is still available to commercial operators. At present, the alternative pest-control materials that have demonstrated some level of efficacy against various beetle and moth wood-boring insects include dimethoate (Cygon), lindane, and permethrin (Astro).

Dimethoate and lindane will most likely not be available in the next 2 to 3 years; both products are undergoing re-registration by the Environmental Protection Agency (EPA). Permethrin will probably be the product of choice for managing moth borers. Recent studies show that imidacloprid (Merit, Imicide, and Pointer) may have some activity on wood-boring beetles, but more data is needed.

The residual activity of insecticides applied to plants often depends on bark characteristics, with activity generally lower on smooth bark (such as birch bark) compared to ridged or furrowed bark. The insecticide binds more easily to rough bark, and there is less potential for wash-off from rain or irrigation. It is important to thoroughly soak the bark up to 5 feet from the tree base because adult borers tend to lay eggs there.

The timing of insecticide applications to the bark is critical. Make applications before eggs hatch or when adults emerge because most insecticides do not penetrate bark after insect entry. After larvae are inside the tree, very little can be done except to maintain plant health. *(Raymond Cloyd)*

Scouting Watch

We are in the middle of the bloom of *Spiraea x vanhouttei* in central Illinois, with more advanced stages of bloom to the south and earlier bloom periods in northern Illinois. Refer to last week's newsletter for a

list of susceptible insects that relate by phenology to this bloom. The cooler temperatures of the week of May 13 coupled with those predicted for the week of May 20 will slow down insect development, allowing more time to apply control measures. Most insects do not develop at temperatures below 50°F.

Periodical cicada emergence has been reported in southern Illinois. Emergence has been reported by Growmark in southern Monroe County west of Red Bud, as well as by Master Gardeners in St. Clair County. Both of these locations are outside of the range of this brood of cicadas as reported in the last issue of this newsletter. The source of information for last week's article was a 1975 publication by Lewis J. Stannard, Jr. Information published by Chris Simon in 1988 shows this brood also present in Monroe, Randolph, and St. Clair counties in southwestern Illinois. In southeastern Illinois, this brood has also been found in the Wayne County area to the west and in the Champaign, DeWitt, and Douglas County area northwest of the areas reported last week. Periodical cicadas probably move too slowly to have spread that far in the one brood that would have occurred between these publications. Simon undoubtedly had access to more complete information than Stannard.

Unusually high numbers of the large ground beetle *Calosoma* are being found in the Champaign-Urbana area. This 1.2-inch long beetle is broadly oval with long black legs and antennae. There are species with purple wingcovers and others with bright metallic green wingcovers that occur in Illinois. The ones being seen currently have green wingcovers. These beetles are commonly known as fiery searchers or caterpillar hunters. One species, *C. sycophanta*, was introduced from Europe into the northeastern United States in the early 1900s to control gypsy moth caterpillars. Both the larval and adult stages feed on caterpillars, with the adults climbing through trees in search of caterpillars. Once introduced, this ground beetle spread much faster than the gypsy moth and has been known to occur in Illinois for decades. These adult beetles are attracted to lights at night; they may be noticeable due to their large size and bright colors in the evening or in parking lots and other brightly lit areas in the morning. They are beneficial insects and should not require control measures. They are large and predaceous beetles, and they will probably bite if they are handled. *(Phil Nixon)*

Ash Plant Bug

Ash plant bug nymphs are present throughout the state. Both the nymphs and adults actively run along the ash leaves and branches. Their feeding causes light dots that later turn brown. This stippling can be pronounced enough to cause leaflets to curl and be distorted. The flat-backed adults are about 1/8 inch long, long-legged, and brown. The nymphs are smaller, long-legged, somewhat triangular in shape, and greenish to brown.

Sprays of insecticidal soap, pyrethroids such as bifenthrin (Talstar) and lambda-cyhalothrin (Scimitar), and several other insecticides are effective against these insects. Usually the damage can be tolerated, eliminating the need for insecticide. *(Phil Nixon and Donna Danielson, Morton Arboretum)*

Landscape Insecticide Use Changes

The Food Quality Protection Act of 1996 requires that pesticides be evaluated for their exposure to various segments of the human population, particularly children. The concept of a risk cup is used to determine the amount of exposure. If children are at a greater risk from a pesticide exposure due to their developing bodies, eating patterns, behavior, or other factors, the risk cup is made 1/10th as large.

The United States Environmental Protection Agency (USEPA) considers that organochlorine, organophosphate, and carbamate pesticides present a potentially greater risk to children because a child's nervous system continues to develop for years after birth and these pesticides affect nerve transmission. In addition, they have common food and residential uses. Thus, USEPA has been evaluating these pesticides before many others, resulting in reduced use patterns and some product elimination from the marketplace. Most of these pesticides are insecticides.

USEPA has completed most of the individual risk-cup evaluations of organophosphate and carbamate insecticides. It has yet to complete aggregate risk-cup evaluations for the organophosphates and carbamates as a group. This may cause additional restrictions in the future. The status of the more commonly used landscape and residential insecticides that have been addressed follows. Several of these are the result of voluntary cancellations. Previously purchased products can still be used according to the label on the container.

Organochlorines

Dicofol, sold as Kelthane, will have all residential uses eliminated, including residential landscapes. Applications with handheld equipment will be eliminated, and applicators using other equipment must be protected by enclosed cabs.

Endosulfan, sold as Thiodan, used in and around the home, in public buildings, and in recreational areas, has been canceled.

Lindane is no longer registered for use in buildings and landscapes.

Methoxychlor product labeling has been suspended since June 2000.

Organophosphates

Acephate, sold as Orthene, will have essentially all indoor and outdoor homeowner residential uses deleted, except when using a hose and sprayer to outdoor non-turf, ornamental plants, and individual ant-mound treatments. Some indoor uses are still approved for commercial buildings. Landscapes, including residential areas, can be treated except for granular use of Orthene on ornamental trees and shrubs and application with low-pressure wands. Home lawns cannot be treated, but golf courses and sod farms can still be treated, but not aerially. Rates will be reduced for greenhouse applications.

Chlorpyrifos, sold as Dursban, has had all residential indoor and outdoor uses eliminated except for use in ant baits and mosquito adulticide public health programs. Some indoor commercial building uses still remain. All other outdoor uses have been eliminated except for use on golf courses, road medians, industrial sites, and some wood treatments. Some fire ant treatments remain. Termite uses are being phased out. Selling products with old labeling became illegal on December 31, 2001.

Diazinon products with indoor uses, except for mushroom houses, will not be sold after December 31, 2002. Diazinon is no longer available as Knox Out for greenhouse use. All outdoor nonagricultural products, including those for lawn, garden, and landscape uses, will be phased out and cannot be sold after August 2003.

Dimethoate, sold as Cygon and under other trade names, will not be sold for residential and public-area uses after March 12, 2003. Some agricultural and other nonagricultural uses will also be eliminated at that date.

Isofenphos, sold as Oftanol, will no longer be available.

Phosmet, sold as Imidan, will be canceled in all products used in or around the home or on pets.

Carbamates

Bendiocarb, sold as Turcam, Ficam, Closure, and under other names, was canceled for all uses as of December 31, 2001. *(Phil Nixon)*

New Pesticide for Greenhouses

Pylon is a new insecticide/miticide for use in greenhouses. Olympic Horticultural Products is responsible for distribution of the material. Pylon is in a new chemical class referred to as pyrroles. The active ingredient is chlorfenapyr. Pylon works as a contact and ingestion miticide by interrupting energy production. The material has translaminar activity, which means that the material penetrates leaf tissues and forms a reservoir of active ingredient within the leaf. This provides residual activity against certain foliar-feeding insects and mites. Pylon is labeled for mites (two-spotted spider, broad, and cyclamen mites) and caterpillars.

Pylon can be applied with conventional application and low-volume application equipment. The rate range is 2 to 5 fluid ounces per 100 gallons. The restricted- entry interval (REI) is 12 hours. Pylon cannot be applied to vegetable transplants, and we suggest that you avoid applying it to plants in bloom as some phytotoxicity has been observed, especially on chrysanthemum flowers. In addition, do not apply Pylon more than two times during the crop cycle. In tests conducted at the University of Illinois, we have gotten over 90% control of two-spotted spider mite *(Tetranychus urticae)* for up to 28 days with Pylon. *(Raymond Cloyd)*

Gypsy Moth Update

Gypsy moth control measures are on hold in northeastern Illinois due to the cold weather. News from The Morton Arboretum is that the larvae are hatched but are just sitting on the egg masses waiting for warmer weather. Because the primary insecticide is *Bacillus thuringiensis kurstaki*, the caterpillars have to ingest it to be controlled. If they aren't eating, application will not be very useful.

At least in one way, the cool weather should aid in gypsy moth control. *Btk* is most effective on smaller larvae, so application early in the season is best. However, gypsy moth hatches at about the time of budbreak on oak, one of the insect's primary food plants. In most years, there is a dilemma between waiting long enough for oak leaves to expand to the point that there is enough leaf surface area to impinge the insecticide versus the gypsy moth caterpillars getting larger than is ideal for a high level of control.

Gypsy moth caterpillars do not develop at temperatures much below 50°F and develop slowly at temperatures in the 50s and 60s. However, oak leaves will continue expanding at temperatures above the 30s. The temperatures experienced over the last couple of

weeks have kept the larvae small and very vulnerable to insecticides but have allowed the tree foliage to expand. Aerial application to the tops of the trees where gypsy moth larvae tend to feed should be more efficient due to the larger leaf surface area. *(Phil Nixon)*

HORTICULTURE

Waterlogged Plants

Most of Illinois has experienced excessive rains, which have resulted in waterlogged soils and flooding. It is important to understand what is happening to plants growing in these conditions and what to expect later. It is a wait-and-see situation. Many herbaceous plants are experiencing injury symptoms now. Visible injury symptoms on trees and shrubs may not occur for a year or more.

Injury symptoms

Injury symptoms, which vary according to several factors, include decreased growth of shoots and roots, decreased transpiration rate, leaf chlorosis (yellowing), leaf epinasty (twisting), leaf abscission (drop), death of roots, increased susceptibility to attack by predators and pathogens, absence of fruiting, and death.

The main reason injury occurs is related to oxygen availability in the soil. In flooded or waterlogged soils, oxygen diffuses slowly and reduces in concentration to a few percent or zero. As oxygen is excluded from roots, there is decreased aerobic root respiration, root growth, transpiration, and translocation.

Factors influencing survival

Although survival is directly related to species' tolerance of waterlogged soils, other factors are important—including the soil type; the time, duration, and depth of the water; the state of the floodwater; and the age and size of woody plants.

Tolerant species, such as baldcypress, littleleaf linden, redtwig dogwood, mulberry, silver maple, and willow, can live on sites in which the soil is saturated for indefinite periods during the growing season.

Moderately tolerant species, such as green ash, hawthorns, honey locust, pin oak, red maple, river birch, sweetgum, and sycamore, can stand saturated soil for a few weeks to several months during the growing season, but these species die if waterlogging persists or reoccurs for several consecutive years.

Weakly tolerant species, such as American holly, balsam fir, black walnut, burr oak, catalpa, hackberry, Douglas fir, eastern cottonwood, and red oak, can stand relatively short periods of soil saturation—a few days to a few weeks—during the growing season, but they die if waterlogging persists for longer periods.

Intolerant species, such as American beech, black locust, crabapples, eastern hemlock, flowering dogwood, paper birch, pines, redbud, spruces, sugar maple, tuliptree, white oak, and yews, die if they are subjected to short periods of 1 or 2 weeks of soil saturation during the growing season.

What to do now

Unfortunately, little can be done to prevent damage to plants growing in waterlogged soils. If a woody plant shows injury symptoms, such as leaf drop, do not immediately replace it. Some plants will show initial injury symptoms and then recover. Many woody and herbaceous plants, including turf areas, will not recover. Be patient. Whether your plants are simply waterlogged or actually growing in flood areas, it will take a while to see the full extent of plant damage. *(Rhonda Ferree)*

Home, Yard, and Garden Pest Newsletter is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

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