UNIVERSITY OF ILLINOIS EXTENSION
HOME, YARD & GARDEN PEST NEWSLETTER
College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
Illinois Natural History Survey, Champaign

No. 20 • November 23, 2005

Last Issue for 2005

This is the last and twentieth issue of 2005. It is also the last issue of your current subscription. Due to strong subscription response to the on-line option of this newsletter, I have been told that its subscription price will not increase for 2006. I have not heard anything about the 2006 subscription price for the mailed paper option. We will start the 2006 edition of this newsletter in April. We appreciate your support and comments through the year on this newsletter, and the updates that several of you send us when you see ornamental pests are very helpful. *(Phil Nixon)*

PLANT DISEASES

Land (and Roots) Down Under

I have a new appreciation for the value of proper tree planting. My home is about 25 years old, and most of the trees are of that vintage as well. We have been seeing some dieback and decline in our trees and needed the help of an arborist to prune, to help us with a pH/nutrient stress problem with the river birch, and to remove a redbud that has succumbed to cankers, wood rot, and decay. As we began looking more closely at my trees, it was obvious that many did not have much of a flare at the base. My arborist did a collar excavation of two crabapples, a river birch, a red oak, and three small pines. We were trying to determine how much time, labor, and money to put into these trees.

Observing the aboveground portion of the trees, we saw either no flare of the trunk, partial flare, or one flat side on the trunk. The collar excavation revealed that, belowground, many of the roots were growing around the trunk and had become girdling roots. All of these trees had been planted too deeply, with the trunk flare at its greatest width 6 to 8 inches or more below the soil line.

How could the trees grow well for the past 25 years with deep planting and girdling roots? Does this mean deep planting and girdling roots are really not a problem? Actually, I stated that these trees have been showing some decline and dieback, but nothing major, other than the redbud. That species is notorious for having winter injury and canker problems. I have been watching the top of my red oak for the last 2 years, as it develops scorching each August. I have been concerned about possible oak wilt, bacterial leaf scorch, or drought stress. In fact, the tree tested negative for oak wilt and bacterial leaf scorch. That tree had the worst girdling roots of any of my trees, and symptoms were worst on that tree. The river birch also has had extensive dieback. I thought this was because of our high-pH soils and nutrient stress. It also had a severe problem with deep planting and some girdling roots. As my arborist pointed out, the girdling roots on these trees are only now beginning to really cut off water and nutrient movement in the tree. It has taken 25 years of slow growth under conditions of deep planting and fair soil conditions for girdling roots to begin to show their effect.

The collars of these trees will remain exposed. That area of the trunk needs to be exposed to air. We are also taking some chances and removing some of the girdling roots. We have debated about how many and which ones to remove because we do not want to kill the trees. On the other hand, if some are not removed, the tree will surely die anyway.

There is no quick cure for these problems. The major point of this article is that proper planting depth and root spread are critical to the long-term life of the tree. Insist on a good job. By the time you start to see problems, it may be too late to save the tree; you will have to start over with a smaller tree; and the person who planted it is probably long gone. Your local Extension office has information and fact sheets on proper planting of trees and shrubs.

My job is to diagnose plant problems. Often I see only a few dying branches or scorched leaves and receive limited information with which to make a diagnosis. Often diseases such as Verticillium wilt, oak wilt, or bacterial leaf scorch are blamed by those in the field without laboratory confirmation. Labs such as the Plant Clinic at the University of Illinois can help get to the true cause of the problem. Now, when I see a tree with branch decline, scorch, or other

aboveground problems that have me stumped, I will be asking for much more information on the belowground conditions on the site. *(Nancy Pataky)*

Update on Bacterial Leaf Scorch

This bacterial disease occurs on oaks, elm, hackberry, maple, mulberry, sweetgum, sycamore, and planetree but has been confirmed only on oak species in Illinois. It kills infected trees, even mature oaks, but slowly, over many years. Details about this disease have been discussed in issues no. 13 and 18 of this newsletter (2005).

Bacterial leaf scorch has been confirmed on many of the listed species in Kentucky but only on oak in Illinois. A plant pathology professor in Kentucky (Dr. John Hartman) works with this disease and has actively looked for it in the landscape. It is very possible that we also have other infected species in Illinois. The bacterial pathogen cannot be detected with laboratory isolations or observations with a compound microscope. A special ELISA test (enzyme linked immunosorbant assay) is needed to confirm the presence of the causal bacterium, Xylella fastidiosa. In addition, bacterial leaf scorch symptoms resemble many other problems.

A very good report on bacterial leaf scorch was just published in the online plant pathology journal, *APSnet*. The feature article for November 2005 is "Bacterial Leaf Scorch of Shade Trees," by feature editor, Monica Elliott. The article can be viewed at http://www.apsnet.org/. Authors are Ann Gould and James Lashomb from Rutgers University. Read this article (or download it for later reading) to learn as much as you can about this silent killer. There are many helpful images in the article as well. *(Nancy Pataky)*

INSECTS

Emerald Ash Borer in UP

Emerald ash borer was found on September 12, 2005, in Brimley State Park in the Upper Peninsula of Michigan. This state park is near Sault Ste. Marie, Ontario. Two larvae were found in one of nine detection ash trees placed in the park. This represents the first detection of this beetle in the Upper Peninsula.

Girdled trees and boles for beetle detection have also been located in various areas of Illinois. Those in northeastern Illinois are monitored by Morton Arboretum staff, whereas the rest are monitored by Jim Appleby of the University of Illinois. No emerald ash borers have been found in Illinois.

The closest known location of emerald ash borer is in St. Joseph, Michigan, which is currently the location of an emerald ash borer eradication effort. St. Joseph is just south of Benton Harbor and is only 70 miles around the lower shore of Lake Michigan from Illinois. Remain vigilant for this pest and let us or the Illinois Department of Agriculture know if you see signs of this insect. *(Phil Nixon)*

Effectiveness of Nonlabeled Soaps and Detergents

As a follow-up to the article in issue no. 18 on insecticidal soaps, examples demonstrating the effectiveness of various dishwashing liquids and detergents on insect and mite pests are provided here:

1. Palmolive, Dawn, Joy, Ivory, and Dove effectively reduced the numbers of sweet potato whitefly *(Bemisia tabaci),* green peach aphid *(Myzus persicae),* cabbage aphid *(Brevicoryne brassicae),* and twospotted spider mite *(Tetranychus urticae)* on a variety of vegetable crops.
2. Dawn Ultra dishwashing liquid was found to be effective on German cockroach *(Blattella germanica),* causing 100% mortality.
3. Ivory liquid dishwashing soap tested at 0.4 to 3.0% concentrations was effective in controlling spider mites, aphids, and psyllids.
4. Ivory liquid dishwashing soap was effective against aphids, spider mites, psyllids, and thrips at 1 and 2% concentrations.
5. New Day dishwashing detergent, when used at 2.0 ml/L, was highly active on whiteflies, providing 95% mortality of silverleaf whitefly *(Bemisia argentifolii)* nymphs.
6. Aqueous solutions (0.1 to 2.0% concentrations) of two "soft" soaps caused nearly 100% mortality on two household insect pests: cricket and cockroach.
7. Ivory liquid dishwashing soap and Tide detergent were effective in reducing populations of aphids, citrus red mite *(Panonychus citri),* psyllids, and greenhouse thrips *(Heliothrips haemorrhoidalis)* on landscape plants.

Soaps may be combined with fish, whale, vegetable, coconut, corn, linseed, or soybean oil. For example, "Green Soap" is a potassium/coconut oil soap that was

used widely as a liquid hand soap in public restrooms. It is now available as a hand soap or shampoo and has been shown to be effective, as an unlabeled insecticide, in controlling soft-bodied insects.

Despite these examples, however, dishwashing liquids and laundry detergents are primarily designed to dissolve grease from dishes and clean clothes, not to kill insects. These materials may cause plant injury by dissolving the waxy cuticle on the leaf surfaces. They should not be used for insect control. Registered, commercially available insecticidal soaps are less likely to dissolve plant waxes than are household cleaning products. *(Raymond A. Cloyd)*

Dormant Oils: Are They Useful in Controlling Pests?

This is the time of year to consider the possibility of using dormant oils to control insects and mites that survive the winter months in an overwintering stage, which includes eggs or mature females. Instead of waiting until spring to initiate control measures, making applications of dormant oil may be helpful in reducing pesticide and labor costs later in the season. Advantages of dormant oils include a wide range of activity against most species of mites and scales—even the eggs; minimal potential of insects' or mites' developing resistance; tendency to be less harmful to beneficial insects and predatory mites than other pest-control materials with long residual activity; and relatively safe to humans and other mammals. Disadvantages of using dormant oils include potential phytotoxicity during the growing season and minimal residual activity or less persistence.

Dormant oils, which are derived from paraffinic crude oil, are the heaviest of the petroleum oil sprays and have a low unsulfonated residue (UR). The unsulfonated residue is an assessment of the phytotoxic compounds remaining after distillation and refining. A high UR (> 92%) indicates a highly refined product with less potential for phytotoxicity. Dormant oils generally have a UR value < 92%.

Dormant oil applications are primarily directed at killing overwintering pests, such as mites and scales, before they are active in the spring and are capable of causing plant injury. Applications are performed during winter to minimize phytotoxicity to ornamental plants. A 2 to 4% rate is generally used in late fall to early spring. Dormant oils are contact materials that either suffocate, by blocking the breathing pores (spiracles), or directly penetrate and disrupt cell membranes of exposed insects and mites. Dormant oils have minimal residual activity once the material dries, so thorough coverage is essential.

Dormant oils are applied to all plant parts, which means that the overwintering stage of the insect or mite is located on the plant. However, not all insect and mite pests overwinter on plants. For example, dormant oil applications are not effective against twospotted spider mite, *Tetranychus urticae,* because this mite overwinters as a female in plant debris, mulch, or other non-plant protected places. In contrast, the spruce spider mite, *Oligonychus ununguis,* overwinters in the egg stage on plants, primarily evergreens such as arborvitae, juniper, hemlock, and pine, which means this mite is susceptible to dormant oil sprays.

Dormant oils are effective in killing the overwintering stages of scales, especially first- and second-instar nymphs or crawlers. For example, Euonymus scale, *Unaspis euonymi,* overwinters as a second-instar nymphs or mature female; both life stages are very susceptible to dormant oil sprays. However, scales that overwinter as eggs, such as oystershell scale *(Lepidosaphes ulmi)* and pine needle scale *(Chionaspis pinifoliae)* are more resistant to dormant oil applications. The primary reason is that eggs are generally stacked on top of each other, and the dormant oil may not penetrate and contact the bottom layer. As a result, additional insecticide applications after egg hatch are typically required.

A concern with the use of dormant oils is plant injury or phytotoxicity. Some plants, such as arborvitae, beech, redbud, and certain maples (Japanese, red, sugar, and amur), are highly sensitive to dormant oil sprays. The needles of Colorado blue spruce may be discolored—change from blue to green—as a result of a dormant oil application. Phytotoxicity is usually prevalent when higher rates (> 4%) are used and when applications are performed in early fall before dormancy or in late spring at bud-break. Problems with phytotoxicity are less likely to occur when applications are made in late October through February—when most plants are completely dormant. To avoid any potential problems due to phytotoxicity, it is important to make sure the spray solution is continually agitated.

Never apply dormant oils when there is the possibility of freezing. Dormant oils should be applied to deciduous plants when the ambient air temperature will stay above freezing for at least 24 hours. Evergreens are more susceptible to damage than deciduous plants, so making applications when temperatures remain above 40ºF over a 24-hour period is highly recommended. In addition, dormant oils should never be applied to plants that are stressed, as they are

more susceptible to phytotoxicity. Lack of moisture, extreme temperatures, sudden changes in temperature after spraying, prolonged windy conditions, or disease or insect infestations may predispose plants to phytotoxicity.

There is a general "dogma" that using dormant oils is less likely to lead to insect and mite populations' developing resistance. However, this is not the case—remember, insects and mites don't read entomology books! For example, a Christmas tree plantation of Scots pines was sprayed with dormant oils for more than 10 years to control pine needle scale. Eventually the scale became more and more difficult to control. Guess what? It was discovered that the scale covers were thicker than normal, which made it harder for the dormant oil to penetrate and provide control.

Preventive dormant oil applications can save time and money later when dealing with insects and mites. Insecticide or miticide treatments may not be necessary, or the number of applications may be reduced, which preserves natural enemies of mites and scales, including predators and parasitoids that provide "free" control of these pests. *(Raymond A. Cloyd)*

Index 2005

General

Coincide by Don Orton, 1:2, 4:2
Diagnosing plant problems, 2:1
Diagnostic helps, 17:1
Educational meetings, 19:1
Fall cleanup, 19:2
First detector, 9:1
Greenhouse Management Workshop, 3:1, 7:1
Home, Yard & Garden Pest Newsletter, 1:1, 18:1
Illinois Landscape Contractors Association Institute, 19:1
Illinois Professional Turf Conference, 19:1
Mid Am Trade Show,19:1
National Pest Diagnostic Network, 3:1, 9:1
Pesticide Applicator Training Clinic, UI Extension, 19:1
Pesticides, online resources, 11:1
Phenology, 1:2, 4:2
Plant Clinic, 1:1, 3:1, 16:1, 17:1
Plant Management Network, 5:2
Pro Hort Symposium '06, 19:1
Southern Illinois Bedding Plant School, 19:1
Southern Illinois Grounds Maintenance School, 19:1
Turfgrass and Landscape Field Day, 16:1

Insects

Anthomyiid flies, fungus-attacked, 8:4
Bagworms, 6:3, 8:3, 11:3, 17:4
Beetles, Asian longhorned, 17:4; green June, 14:3; Japanese, 2:3, 3:3, 10:3, 18:3, on roses, 12:3; May, 15:3
Black turfgrass ataenius, 6:3, 12:3
Borer, appletree, 5:3; emerald ash, 11:3, 20:2; flat headed, 5:3; lilac/ash, :2; peachtree, 5:2; Viburnam, 5:2
Boxwood psyllid, 4:3
Caterpillar, eastern tent, 4:2; euonymus, 4:3; yellow necked, 16:3
Cooley spruce gall adelgid, 2:4
Dormant oils, 20:3
Drought stress, plant-insect interactions, 16:3
Eastern spruce gall adelgid, 2:4
Eriophyid mite, 19:3
European pine sawfly, 2:3, 3:3, 5:2
Fall webworm, 12:2, 15:3, 16:3
Feeding behavior, insects and mites, 1:3
Fourlined plant bug, 7:6
Gall, 7:6, 17:4; oak, 4:3
Gypsy moth, 2:3, 3:4, 4:2, 6:3
Honeylocust plant bug, 7:5
Insecticide, new--Allectus (for turfgrass and land scape ornamentals), 7:7; Arena (for turfgrass), 2:6
Juniper webworm, 2:5
Lacebugs, 16:3
Leaf miners, 4:3
Masked chafer, 10:3, 13:3, 15:3, 18:3
Miticides, new, 17:3
Rose slug, 7:7
Scale, cottony maple, 5:3, 8:3, 11:2; euonymus, 6:3, crawlers, 5:2; magnolia, 18:3; pine needle, 4:3; scurfy, 3:3
Scouting report/watch, 2:3, 3:3, 4:2, 5:2, 6:3, 8:3, 11:2, 15:3, 16:3, 17:3
Soaps and detergents, 18:3, 20:2
Sod webworm, 13:3, 17:3
Spittlebug, meadow, 9:3; pine, 9:3
Spruce spider mite, 2:5, 17:2
Taxus mealybug, 3:3
Twospotted spider mite, 14:2
Weevil, black vine, 8:4; elm flea, 4:2; flea, 11:3; strawberry root, 14:4
West Nile virus and mosquitos, 17:4
White grubs, 13:3, 15:3, 18:3
Woolly beech aphid, 10:4
Woolly birch aphid, 10:3
Zimmerman pine moth, 2:3, 15:3

Plant Diseases

Angular leaf spot of Rudbeckia, 7:2
Anthracnose, of perennials, 14:1; on trees 3:2; or frost, 5:1
Ash problems, 16:2
Bacterial leaf scorch, 13:2, 16:2, 18:2, 20:2
Bacterial soft rot of iris, 7:1
Birch problems, 11:1
Cedar-apple rust, 3:2
Clematis stem problems (wilt), 12:1
Crabapple scab, 1:1
Crown gall, 15:2
Daylily leaf streak, 15:1
Drought stress, 8:2; of trees, 17:1
Dutch elm disease, 6:1; 10:1
Elm disease concerns, 10:1
Fire blight 2:1; correction, 8:1
Galls, 14:2; crown, 15:3
Honeylocust knot, 19:2
Hosta viruses, 11:2
Hosta virus X, 18:1
Impatiens necrotic spot virus, 15:1
Iris rhizome rots, 7:1
"Iron" chlorosis, 13:1
Juniper tip blight (Phomopsis blight), 6:2
Leaf spot diseases of shade trees, 4:1
Leucotoma (Cytosphora) canker of spruce, 13:1
Mold, slime v. sooty, 5:1
Oak leaf tatters, 8:1
Oak wilt, 8:1, 18:1; pruning, 14:2
Phytophthora ramorum blight: See sudden oak death.
Pine wilt, 5:1; wilt/decline, 6:1
Powdery mildew, 12:2
Pruning, 3:2; 14:2
Rhizosphaera needle cast of spruce, 2:2
Rose fungicide ratings, 10:2
Rose rosette, 12:1
Rudbeckia leaf spots, 7:2
Rusts (many), 7:2
Sclerotium crown rot of iris, 7:1
Septoria leaf spot of Rudbeckia, 7:2
Sphaeropsis blight of pine, 3:2
Stinkhorns, 19:1
Sudden oak death (SOD), 1:1, 9:1; Web site, 6:3
Swiss needle cast, 4:1
Trees: care, 14:2; drought and disease, 17:1; girdling roots, 20:1; planting, 20:1
Tuliptree stress, 17:2
Verticillium wilt, on ash, 16:2; and stress, 9:2
White mold, 14:1

Weeds

Nimblewill, 2:3

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.

Major authors are Phil Nixon, (217)333-6650, Fredric Miller, (708)352-0109, and Raymond Cloyd, (217)244-7218, entomologists; Nancy Pataky, (217)333-0519, plant pathologist; Bruce Paulsrud, (217)244-9646, pesticide applicator training; and Tom Voigt and David Williams, (217)333-0350, and Michelle Weisbrook, (217)244-4397, horticulturists. Phil Nixon is the executive editor of the *Home, Yard, and Garden Pest Newsletter*. This newsletter is written by faculty in the Department of Natural Resources and Environmental Sciences and the Department of Crop Sciences. It is edited by Mary Overmier, Information Technology and Communication Services.

For subscription information, phone (217)333-2666 or (800)345-6087, or e-mail acesnews@uiuc.edu. Web subscriptions are available (http://www.ag.uiuc.edu/cespubs/hyg).

U of I Extension
Newsletter Service
University of Illinois
at Urbana-Champaign
528 Bevier Hall, MC-184
905 S. Goodwin Avenue
Urbana, IL 61801