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. 4 • May 16, 2001

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Greenhouse Management Workshop

The Third Annual Greenhouse Workshop will be held at the Crowne Plaza Hotel, Springfield, IL, on June 11. The registration fee is $30 for Illinois Greenhouse Association (IGA) members, $45 for nonmembers. The program follows:

9:00 to 10:00 a.m. **What's Happening On The "Bug" Front.** Raymond A. Cloyd, assistant professor, Extension specialist in ornamental entomology, University of Illinois, Department of Natural Resources and Environmental Sciences, Urbana, IL.

10:00 to 11:00 a.m. **People: An Essential Resource in Our Company.** Joseph F. Boarini, owner/manager, Grande Greenhouse, Inc., Indianapolis, IN.

11:00 to 11:15 a.m. Break

11:15 to 12:00 p.m. **Yes! Biological Control Does Work.** Lois M. Steil, greenhouse manager/grower, Mid-American Growers, Granville, IL.

12:00 to 1:00 p.m. Lunch

1:00 to 2:00 p.m. **Where Is The Industry Heading?** P. Allen Hammer, Professor of Horticulture, Department of Horticulture and Landscape Architecture, Purdue University, West Lafayette, IN.

2:00 to 3:00 p.m. **Fuel Cost Concerns: What Can You Do?** Joseph F. Boarini, owner/manager, Grande Greenhouse, Inc., Indianapolis, IN.

3:00 to 3:15 p.m. **Break**

3:15 to 4:00 p.m. **How To Implement a Scouting Program.** Timothy Galema, owner/manager, Galema's Greenhouse, Inc., West Lafayette, IN.

4:00 to 4:30 p.m. **Conclusion/Evaluation.**

For more information, contact Raymond Cloyd at (217)244-7218 or Susan Witt at (217)333-1965. *(Raymond Cloyd)*

INSECTS

Potato Leafhopper

Potato leafhopper, *Empoasca fabae*, is starting to be found in portions of Illinois. Potato leafhoppers attack many landscape trees, including maple, crabapple, birch, and ash. Red maples are extremely susceptible, whereas silver, sugar, and Norway maples are more tolerant.

Potato leafhoppers have piercing–sucking mouthparts, with which they feed within the vascular tissues of plants. During feeding, they inject a toxic fluid into plant tissue. Feeding, especially on maples, results in stunted tree shoots and leaves that curl downward, with brown edges. On other plants, such as ash, feeding by potato leafhoppers creates small white or yellow spots on leaves, resulting in a stippled appearance because potato leafhoppers, like spider mites, remove the chlorophyll (green pigment) from leaves. Potato leafhoppers don't overwinter in Illinois because their eggs are very sensitive to cold temperatures. So how do they get into Illinois? They winter in the Gulf of Mexico and are blown north into Illinois by prevailing winds from early May to early June.

Potato leafhopper adults settle into alfalfa fields during the early spring migration, and then after the first cutting of alfalfa they migrate onto ornamental plants. Adults are small (about 1/16 inch long), wedge-shaped, and pale green, with white eyes. Females lay eggs into the veins on the underside of leaves. The eggs hatch in 6 to 9 days into light green nymphs that are found on the underside of leaves and tend to move sideways when disturbed. Nymphs may undergo five instars before molting into adults. Adults and nymphs are similar, except that adults are larger, have wings, and can fly. The wings are held rooflike over the body. Empty, white, cast skins on the underside of leaves provide evidence of potato leafhopper activity. There are three to five generations per year.

Insecticides must be applied before potato leafhoppers cause plant damage. Control can be obtained with pyrethroid-class insecticides, such as bifenthrin (Talstar), cyfluthrin (Tempo), lambda-cyhalothrin (Scimitar), and permethrin (Astro). If damage has already occurred, insecticide applications prevent further damage, and new growth appears normal beyond the damaged leaves. Regular scouting helps minimize the potential for potato leafhoppers to cause severe foliar damage. *(Raymond Cloyd)*

Honeylocust Plant Bug

Honeylocust plant bugs, *Diaphnicoris chlorionis*, are being found feeding on newly emerging honey locust leaves. Adults should be present in southern Illinois and will appear throughout the rest of the state by early June. In other portions of the state, the nymphal stage is very small right now.

The easiest way to find nymphs is to shake a branch over a white sheet of paper and look for tiny green insects crawling on the paper. Using a 10x hand-lens makes it easier to see the nymphs. The young nymphs are green, with noticeable antennae. Older nymphs are spindle-shaped, with a yellow spot in the middle of the back. The older nymphs possess long legs that allow them to move very fast.

Feeding by honeylocust plant bugs causes severe leaf distortion, chlorosis, and yellow-brown spots on leaves. A heavy plant bug infestation may cause premature leaf drop or failure of leaves to emerge. Defoliated and partially defoliated trees should produce new leaves in June. Trees with less damage retain their damaged leaves throughout the summer, reducing their aesthetic appearance.

Yellow-leaved strains of honey locust are much more susceptible than green-leaved varieties such as 'Sunset' and 'Shademaster.' In addition, plant location may influence susceptibility to honeylocust plant bug. For example, trees planted in protected areas near buildings tend to be more heavily damaged than trees in parks and other more exposed locations. Wild honey locust trees that are covered with long spines and produce an abundance of seed pods are also attacked by honeylocust plant bug but rarely show any damage that is noticeable from more than a few feet away.

Honeylocust plant bugs are 1/8 inch long, green, and have a flat back. They tend to run and fly readily. Scouting for older nymphs and adults can be done by lightly disturbing the foliage and looking for the insects running up and down the main stem (rachis) of the compound leaf. The mated females lay eggs into the young, green stems of honey locust. The female dies by the end of June. There is only one generation per year, as eggs laid by females do not hatch until next spring.

Honeylocust plant bug nymphs can be controlled with a spray application of acephate (Orthene), bifenthrin (Talstar), cyfluthrin (Tempo), or summer oil. Trunk injections of imidacloprid (Merit, Imicide, Pointer) may also be effective and useful, especially for trees that do not require annual treatment. *(Raymond Cloyd)*

Flatheaded Appletree and Roundheaded Appletree Borer

Now is the time of year to prevent problems with wood-boring beetles such as the flatheaded appletree borer, *Chrysobothris femorata*, and the roundheaded appletree borer, *Saperda candida*. Both the flatheaded appletree borer and the roundheaded appletree borer attack a wide range of trees and shrubs; however, they seem to prefer plants in the rose family (Rosaceae) including hawthorn, quince, crabapple, cotoneaster, mountain ash, and pyracantha. Young maple trees are also highly susceptible to borer infestation. Both borers are opportunistic and tend to attack damaged or dying plants, or newly transplanted trees and shrubs. Vigorous, healthy trees are rarely attacked. Adult beetles, which feed on fruit, bark, and leaves, may infest plants growing in nurseries and landscapes.

Flatheaded appletree borer adults are typically 12 mm long, metallic, and vary in color from brown to gray. Roundheaded appletree borer adults are 24 mm long and are gray with black stripes. The adult females of both species lay single eggs in the crevices or slits in the bark, generally near the base. Eggs are laid mostly at night. Eggs hatch into legless, creamy white larvae (about 3 to 4 mm long) that bore through the bark into the cambium. They then move up and down the plant, feeding within the sapwood. The larvae are about 25 mm long when full grown. Larvae produce long, winding, tortuous tunnels that can girdle and kill large branches and young trees. Larval activity can be detected by the presence of white sap flowing from cracks in the bark. Eventually, the larvae bore into the heartwood to pupate. When flatheaded appletree borer adults emerge, they leave a D-shaped hole, whereas holes from roundheaded appletree borer adult emergence are circular or round. Females

generally emerge in late spring to early summer. Adults of both species may live up to 40 days. Flatheaded appletree borer has one generation per year. In contrast, roundheaded appletree borer takes 2 to 3 years to complete its life cycle.

The key to minimizing problems with wood-boring insects is plant health. Plants that are properly watered, fertilized, mulched, and pruned are less susceptible to attack from both the flatheaded appletree borer and the roundheaded appletree borer. Remove any dead wood from trees, as it provides potential entry sites for the borers. In addition, don't store freshly cut wood near trees because adult beetles that emerge can attack nearby trees. A horticultural wrap of paper or burlap may be useful in protecting young trees and shrubs. In nurseries, clean cultivation, removing grassy weeds by mowing, or using a postemergence herbicide such as Roundup, Finale, Reward, or Scythe may reduce problems with both species.

Applications of insecticides including chlorpyrifos (Dursban), lindane, or permethrin (Astro) in late May or early June kills eggs and the newly hatched larvae before they bore into trees. Injected or systemic insecticides may not provide control, especially if plants are stressed. *(Raymond Cloyd)*

Black Turfgrass Ataenius

This is the time of year to apply insecticides to control black turfgrass ataenius, *Ataenius spretulus*. Black turfgrass ataenius is a white grub that attacks highly maintained turf, such as that on golf courses. It is rare to find this insect in high enough numbers to damage lawns.

Black turfgrass ataenius overwinters as an adult in leaf litter and other debris in damp, wooded areas. Many golf courses have this type of habitat between fairways. In the spring, the adults migrate to highly maintained, well-watered turf to tunnel into the soil to lay their eggs. At this time, they are noticeable in the clippings baskets of greens mowers. These adult beetles are cylindrical, black, and about 1/4 inch long.

The resulting larvae are similar to other turf-feeding white grubs, being white, C-shaped, soft-bodied, and elongated, with three pairs of legs. The posterior end of the body ends in two large lobes rather than having a raster pattern of light spines as do other white grubs. Ataenius grubs appear slender or less robust than other white grubs and grow to only about 1/4 inch long.

This first generation matures in late June or early July, causing typical white grub-feeding damage to turf. The turf wilts and turns brown due to the grubs' eating the roots. This damage allows the turf to be easily pulled up, where the white grubs can be easily seen in the root zone. In dry soil, the grubs may be several inches deeper in the soil.

The larvae pupate and emerge as adults in midsummer to lay eggs for a second generation. The second generation of grubs is present during August and September, as are the larger turf-feeding grubs such as masked chafer and Japanese beetle. This second generation pupates and emerges in the fall as black beetles that fly to wooded areas to overwinter.

Infestations of 50 black turfgrass ataenius or more per square foot of turf are usually high enough to cause turf damage. There are several insecticides that are effective against the grubs. Golf-course superintendents find that imidacloprid (Merit) or halofenozide (Mach 2) applied in the spring when Vanhoutte spirea, *Spiraea x vanhouttei*, is in bloom is effective for the entire season. Even though this shrub is now finishing bloom, it is not too late to obtain control and avoid damage. These insecticides usually control the first generation and stay active to control the second generation, as well as the larger turf-feeding grubs in late summer. One should cut through and pull up some turf in early August to verify that the insecticide has provided control on these later grubs. An alternative is to apply trichlorfon (Dylox) when grubs are present both in the spring and again in August. Dylox is short-lived, so be sure grubs are present when this insecticide is applied. *(Phil Nixon)*

Gouty and Horned Oak Galls

This year seems to be an up year for gouty and horned oak galls. We have been receiving a large number of calls about them. These woody galls circle small branches and can girdle them, killing the branch out past the gall. The tiny wasp that causes horned oak gall, *Callirhytis cornigera*, attacks pin, scrub, black, blackjack, and water oak. The gouty oak gall wasp, *Callirhytis quercuspunctata*, attacks scarlet, red, pin, and black oak.

Adult wasps of horned oak gall emerge in May and June to lay eggs on the major veins of oak leaves. The resulting larvae cause oblong, blisterlike galls to develop in the veins. Adult wasps emerge from these galls in July, they mate, and the females lay eggs in

young oak twigs. Young twig galls appear on the twig as small, brown marbles, which eventually coalesce into roundish, brown galls up to 2 inches in diameter. It takes two or more years for these large galls to form. The galls are covered with 1/8-inch-long horns through which the adult wasps emerge. Gouty oak gall apparently has a similar life cycle, but the gall has no horns and adult wasps emerge through 1/16-inch holes in the side of the gall.

These wasps are native insects whose populations rise and fall in relationship to the weather and natural enemies. Many native insects follow a cycle of 3 years of high numbers followed by 7 or 8 years of low numbers. These insects are more common in southern Illinois and very common in Kentucky and Tennessee. Perhaps the warm winters 2 and 3 years ago helped their numbers increase.

On small trees, prune off the galls and destroy them, particularly in the northern two-thirds of Illinois. Their killing of branches can cause the tree to become misshapen. Pruning may not be practical in southern Illinois, where the galls are more common. Particularly in locations with large numbers of infested oaks nearby, removal of galls may have little effect, with more damage being done by the pruning than the galls. Nurseries and others with large numbers of small oaks may wish to spray the trees with dimethoate (Cygon) in the spring when leaves are expanding. This treatment may reduce the number of twig galls, but remember that it won't be noticeable for 2 years.

In general, if the tree is too tall for you to reach the galls and prune them, the problem can be ignored. Mature trees can contain thousands of galls without major branch loss. Heavily attacked trees appear to be as healthy and long-lived as those that are not attacked. *(Phil Nixon)*

Maple Petiole Borer

We have had reports from Effingham County of widespread dropping of maple leaves due to maple petiole borer. The larva of this sawfly tunnels into the petiole within about 1/4 inch of the leaf blade. As the larva matures, the petiole breaks in this weakened area, and the leaf blade drops to the ground.

One generation of borer is produced per year. Adults emerge in the spring and lay their eggs near the base of the petiole. The resulting larvae tunnel up most of the petiole over the next month. In May or June, the leaf blade drops to the ground, but the larva stays in the petiole on the tree. Later, the larva drops to the ground to pupate 2 to 3 inches below the surface.

Although the number of leaves falling to the ground is large enough to excite the average homeowner, rarely does more than 15 to 20 percent of the leaves drop from the tree. Thus, the impact on the tree is minimal. Raking up the fallen leaves does not reduce the number of insects because the larva stays in the petiole attached to the tree. No control is recommended. *(Phil Nixon, and Tim Lashmett of Effingham County)*

PLANT DISEASES

White Pine Problems

White pine is a very time-consuming plant, at least from the perspective of a diagnostician. Questions about white pine outnumber those about most other host plants at this time of year. Still, the number of actual infectious disease problems on white pine is low. We do not see problems with needle blights or needle casts on this species in Illinois. It is rare for Sphaeropsis to infect stems and needles. We often state that white pines do not host pinewood nematodes. In actuality the Plant Clinic staff has identified the nematode on white pine twice in 24 years but only on trees that were already dead. And, although this species is obviously susceptible to white pine blister rust, that disease is rare in Illinois. We do see it every few years on white pines in northern Illinois. Given these facts, why are so many white pines in Illinois dying or growing poorly?

We have addressed this problem in past years and will probably continue to address it as long as white pines remain a large part of our landscapes. Symptoms we have observed include pale needles, an apparently sudden decline of the tree, death of trees in the midst of other healthy white pines, spongy bark, and no signs of any pathogens or insects. In fact, many homeowners report that nothing has changed in their established landscape that might cause tree decline.

In all cases where we have been able to get to the roots, we find no new white root tips, few root hairs, and a cortex that easily pulls off the roots. The root systems can be shaken and easily drop the soil in the root ball. The trees are dying because the roots are dying. As far as we have been able to determine in the lab, this is not a primary root rot disease problem.

What root rots affect white pine? *Armillaria*, *Phytophthora*, and *Procera* are the major fungal pathogens of pine roots in Illinois. *Armillaria* forms white mycelial mats on the roots and develops shoestringlike structures that grow under the bark on the trunk. The distinct signs of the fungus make it easy to identify. Both *Phytophthora* and *Procera* are common in very wet sites and cause a soft, dark rot of the roots. *Phytophthora* can be a primary pathogen, but *Procera* is generally considered a stress pathogen. We find each of these pathogens from time to time at the Plant Clinic, but the vast majority of white pines that we see are not infected with a root rot pathogen.

Much of the white pine problem appears to involve the site, the environment, and species requirements. White pines are understory trees that thrive in the cool, moist, well-drained soils of Wisconsin, although they grow with intermittent success in Illinois. Many of the problem trees we have seen have been situated on clay sites or exposed to the elements (planted in new housing developments or used as windbreaks). It is also likely that site stress has contributed to the decline of these trees. The excessive rains of the past several springs also may have contributed to root injury and decline by saturating the soil and causing a lack of soil oxygen. If roots were injured as we are suggesting, they will not be able to absorb enough water in drought-stress situations.

Watering helps, as does the use of a natural mulch over the root system; but, without adequate root mass, plants will not be able to use the available water quickly enough to replace what is used by the foliage. The result will be sudden browning of foliage or off-color needles and death of branches. Because these problems in white pine are not usually the result of an infectious disease, immediate removal of the tree is not necessary. Instead, try to keep the tree watered and see how it responds. Also, try digging into a bit of the root system for a better picture of the situation. If roots are brown in cross-section and the outer layer easily pulls off or is not present, then root injury has occurred. If the roots are white and healthy, then the problem is above ground.

One other factor that may be involved in Illinois is the pH of the soil. Our soils have a fairly high pH level, whereas pines prefer more acidic soils. It may be helpful to fertilize with an acidic fertilizer specifically packaged for pines or acid-loving plants. Follow the directions so as not to burn the roots by applying too much fertilizer. *(Nancy Pataky)*

Juniper Tip Blight in Wet Areas of Illinois

No, we have not yet seen any cases of Phomopsis blight on junipers this year. The fungus infects new growth as it emerges. Those of you who had problems with this in the past and want to protect plants this year need to take action now.

Phomopsis infection occurs on the youngest needles, starting as yellow spots. Shoot tips then turn light green before becoming brown. Growers may dismiss early symptoms as winter burn and may not be concerned until the appearance of brown shoot tips. One diagnostic feature to help identify this disease and distinguish it from weather scorch, salt injury, or other stress is the presence of a grayish band at the base of the dead shoot. In this band are pinhead-sized, black fruiting bodies (pycnidia) of the fungus. The pycnidia are visible with the naked eye or with the aid of a hand lens, and they are embedded in the plant tissue. If the tissue is very dry, place it in a plastic bag with wet paper toweling overnight. The fruiting bodies will be easy to see the next day.

Infection by *Phomopsis* occurs when succulent new growth is present in wet weather. Parts of central Illinois may not see the disease this year, but it will be common in wetter areas of the state. Spores germinate under moderate temperatures (60° to 82°F) and high humidity within 7 hours after coming into contact with the new foliage. If the foliage dries before infection occurs, the spores are not killed; they begin growth again with wet weather. Pycnidia form 3 to 4 weeks after infection. This means you won't see the symptoms for a few more weeks on this year's growth. That is too late to take action with fungicides. If you had this problem in the past, consider using a fungicide to help protect growth this year.

Commercial growers can use azoxystrobin (Heritage), propiconazole (Banner), copper hydroxide (Kocide), thiophanate-methyl (Cavalier, Cleary 3336), or mancozeb (Protect T/O, Dithane, Fore, Junction, Lesco Mancozeb, Pentathalon). Homeowner products available for this use include thiophanatemethyl (Bonide Bonomyl, Dragon 3336, Ferti-lome Halt), mancozeb (Bonide Mancozeb), potassium bicarbonate (Bonide Remedy), and copper sulfate (Hi-Yield Bordeaux). Sprays must start when new flushes of growth appear and continue through maturity. Prune out the dead and infected twigs when they are dry. See *Report on Plant Disease* no. 622, "Phomopsis Twig Blight of Juniper," for more details. You can get a copy at your local Extension office or view it on the Web at **http://www.ag.uiuc.edu/~vista/horticul.htm.**

If you have tried using fungicides in years past and still have the disease, you may have Kabatina blight and not Phomopsis blight. *Kabatina* infects only wounded tissue and infects later in the season. You see it on old growth from last year. Kabatina blight is not clearly understood, and fungicide timing has not been effective in disease control. It is important to remove and destroy infected twigs in dry weather. Reports indicate that disease-resistant varieties are in development, so ask for these at your nursery. Some information about Kabatina blight can be found in Sinclair, Lyon, and Johnson's book, *Diseases of Trees and Shrubs.*

Resistant varieties are available for Phomopsis blight. If you are starting a new planting, by all means find a resistant variety. A good Web site that discusses both diseases and lists relative resistance to disease is **http://www.ag.ohio-state.edu/~ohioline/hyg-fact/3000/3056.html.** *(Nancy Pataky)*

Dead English Ivy?

It seems that in most years any English ivy sample that makes its way to the Plant Clinic has either bacterial leaf spot or fungal leaf spot. This year, we already had two samples with no leaves at all. I am certain that means there is much more of this happening but not reported. The roots are not dead and not even rotted, so some of these plants may recover. The tops have cankers of several fungi, *Botryosphaeria* being the most common. The fungus is not the cause of the problem. These plants have been injured by winter—possibly the actual low temperatures of December and possibly the sudden drop in temperatures at that time. No one really knows for certain which is the case. The canker fungi that we find now have infected the dead or declining stems.

Fungicides are not warranted for the canker fungi. Remove as much of the dead plant material as possible. Water the bed when in drought stress but do so early enough that the foliage can dry before evening. We don't want to encourage the two leaf spot diseases that are common in wet, humid conditions. If you would like to refer to a report discussing the leaf spots, consult *Report on Plant Disease* no. 652, "Leaf Spot Diseases of English Ivy." *(Nancy Pataky)*

Time for Rhizosphaera Needle Cast on Spruce

Some evergreen needle diseases are called "casts," and some are called "blights." The needle casts are fungal diseases that cause one-year and older needles to turn off-color or brown and fall from the branches. The blights also kill needles, but the needles remain on the branches longer and give the tree a blighted appearance.

Now is the time to start looking for Rhizosphaera needle cast on spruce. Although this needle disease does not kill a tree, it causes some serious aesthetic injury to the most majestic old spruce trees. Evergreens do not replace fallen needles, so infected trees often have holes of bare branches in their canopies. If you had trouble with this disease in the past, now is the time to take action to prevent its spread. Fungicides stop this disease, but they must be applied when needles are half grown and again when fully grown.

If the *Rhizosphaera* fungus is the cause of decline, it is present on last year's purple–brown needles. When infected needles are moist, the fungal pathogen forms pinhead-sized fruiting structures (pycnidia) in rows on the needles. These stick up out of the needle like black pinheads. A simple test you can do is to place suspect needles in a plastic bag with a wet paper towel. Close the bag and seal with a bread twist-tie. Wait 24 hours and then use a hand lens to look for the diagnostic fungal structures. Compare these to pictures in texts or on this North Dakota Web site, **http://www.ext.nodak.edu/extpubs/plantsci/trees/pp789-3.htm**.

Fungicides are used to protect healthy new growth; and that takes two sprays to accomplish. The critical factor is to know when to apply the fungicide. Purchase the fungicide and have it ready to apply. You must watch your spruce to see when buds open and new needles start to expand. Chemical options for control of Rhizosphaera of spruce must be applied when the needles are half grown, so compare new growth to typical growth of the past year. There are many chemical options listed in the *2001 Illinois Commercial Landscape and Turfgrass Pest Management Handbook* and the *Home, Yard and Garden Pest Guide. (Nancy Pataky)*

Peach Leaf Curl Occurrence

We have seen peach leaf curl in southern Illinois this year, so it is assumed that it will show on oaks as oak leaf blisters soon as well. Related species of the *Taphrina* fungus cause peach leaf curl and oak leaf blister. Look for distorted, thickened leaves and early leaf drop. Leaves turn downward and inward and may become red or purple. The disease may cause yield loss in edible peach but is not seriously harmful to ornamental species. Still, repeated yearly infection

may weaken a tree and predispose it to other problems.

The causal fungi survive over winter in buds and twigs. They infect leaves and flowers in the cool, moist weather of early spring, from bud swell to bud opening (ideally, temperatures are 50° to 70°F). Evidently, such weather did exist at the time of infection in parts of Illinois. It is too late now to spray a fungicide to help these trees for this growing season. Concentrate efforts on promoting tree health through pruning, watering, and fertilization.

Fungicides are not usually recommended for ornamental trees. For fruit growers, we recommend a single dormant fungicide spray applied in the fall after leaf drop or in the early spring before budbreak. This approach is common practice for most commercial growers. Home fruit growers in Illinois who use a dormant fungicide and are careful to provide full coverage of buds do not have problems with leaf curl. If you are having problems with curl and blisters, mark your calendar for a late-fall fungicide application so you don't forget again.

For more on leaf curls and blisters, consult *Report on Plant Disease* no. 805, "Peach Leaf Curl and Plum Pockets," or no. 663, "Oak Leaf Blister." Both are available on the Vista Web site, **http://www.ag.uiuc.edu/~vista/horticul.htm.** *(Nancy Pataky)*

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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