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President's Message

by Bruce R. Williams, CGCS
President, MAGCS

How Am I Driving? Call 1-708-432-0088

I hope that all of our regular members took the opportunity to complete the membership survey that was recently mailed out. This survey gives each individual member an opportunity to be heard. The results of this survey will be utilized to formulate programs and procedures for the Midwest Association of Golf Course Superintendents. All too often, associations are controlled by a vocal minority and the balance of the membership suffers silently. Your Board of Directors wants to insure that this does not happen. While we can't please everybody we can certainly strive to develop the programs that the majority of the membership desires.

As the leader of the Midwest Association of Golf Course Superintendents it is my responsibility to steer the association in the proper direction. My goal is to have an organization that runs like a finely tuned automobile. A V-8 is designed to run on all 8 cylinders for optimum performance. Similarly, our association must have effective Board and committee members for us to run smoothly. Without all of the hard work of each and every individual our association would run about as smoothly as a V-8 hitting on only 4 cylinders.

In the upcoming months it is time to see how our association will perform. Our goal is to function like a finely tuned precision machine. In order to do that we need the imput and effort of all of the components. Through planning, we feel that we can select the right routes with the proper directions to reach our desired destinations. As your leader I will be sure to see that all of our parts are greased and oiled. I will fuel our association with high-test motivation. It is my responsibility to make sure that all of the parts work.

In the event that you have a question about the association or any comments please don't hesitate to call me. I vow to steer all of us on a smooth ride in 1990. How am I driving? Call 1-708-432-0088.

Bruce R. Williams, CGCS
MAGCS President

"Cicadas"

Cicadas are large, active insects which are known by many different names. Periodical cicada, annual cicada, dog-day cicada, and 17 year locust are all used to describe members of this group. During the summer of 1990, many regions of the Chicago metropolitan area will be acutely aware of the periodical cicada as they will emerge in substantial numbers. Although damage to some plant materials may be severe, noise produced by the males will prove to be the greatest annoyance.

Types of Cicadas

The cicidas in northern Illinois can be broken into two major groups: (1) those with 17 year life cycles, and (2) those with life cycles of 2-5 years. Members of the first group are correctly called periodical cicadas, although they are often known as 17-year locusts. They have black bodies that are slightly over an inch long, and have red or orange eyes, legs, and wing veins. This is the group that will command so much attention during 1990. In our area, 17 years are required to complete the life cycle. Within a given geographic area, all the periodical cicadas emerge as adults at one time. These populations are called broods. Brood emergences occur at 17 year intervals and can be accurately predicted. Thus, the periodical cicadas due to emerge in northern Illinois during 1990 (Brood XIII) will not reappear in our area again until the year 2007.

The second group, balled dog-day cicadas, is named for the time of year their buzzing is heard. They are slightly larger than the periodical cicadas and are colored green and black. Their eyes are black and their legs are tan. Although the exact duration of their life cycle is unknown, it is probably 2-5 years. Unlike the periodical cicadas, the broods of dog-day cicadas overlap, so that some individuals emerge as adults each year. Thus, the term annual cicadas have been applied to this group, although that title is not correct because more that one year is required to complete the life cycle.

Life Cycles

All cicadas have a similar life cycle, other than the time it takes to complete it. Using a saw-like egg laying apparatus, adult females insert their eggs into slits cut into the bark of small twigs. About 25-50 eggs will be laid in each slit. Over the course of her adult life (about 3 weeks), a female will make up to 20 slits and lay up to 600 eggs. It is during this egg laying activity that the damage to woody plants occurs.

After emerging from the eggs, the young nymphs drop to the gorund and burrow into the soil beneath the tree. There, they find a small root and begin to feed by inserting their tube-like mouthparts into the root and sucking plant sap. Thus begins an underground existance of 2-5 years for the dog-day cicadas, or 17 years for the periodical cicadas.

After the time required for nymphal development has passed, the nymphs are ready to leave the soil. Beginning in late May or early June, the nymphs will emerge from the ground, leaving behind a nickel-size hole. The nymphs (Fig. 1) crawl up a nearby vertical object, usually a tree trunk. There, the nymphal case splits along the back, and the adult cicada (Fig. 2) emerges. Adult males possess sound producing organs which produce a loud buzzing noise for the purpose of attracting mates. Only the males sing. Females do not possess sound producing organs. Following mating, the cycle begins again.

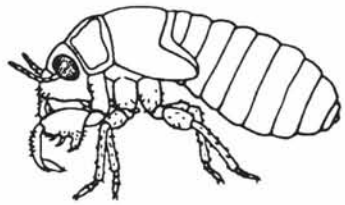

Figure 1. A Cicada Nymph

Figure 2. A Cicada Adult

Injury

Adult cicadas do not consume plant material. The only harm they do to the plants is a result of their egg laying activities. The adult females insert their eggs into small twigs. The effect is similar to cutting a slit with a small penknife. A few slits do little harm to the twigs. Because of the great number of cicadas that may be present, however, large numbers of slits can be made over short distances. This physical disruption of the twigs can cause them to die. Consequently, the twig foliage will die, resulting in brown flags in an otherwise green tree. On large trees, the loss of small twigs may appear significant, but actually causes little harm to a healthy tree. Where cicadas are numerous, small or newly transplanted trees may be severely injured. The trees will probably not die, but may have significant dieback and scarring of twigs and small branches.

Management

Healthy trees will be able to recover from cicada injury more easily than those in poor condition. Small trees are more at risk because a greater percentage of their branches fall into the size range favored by females for egg laying. Covering small trees with a cherry net or cheesecloth will serve as a physical barrier. On larger trees, little can be done to prevent injury. Spraying is impractical because of the large amounts of pesticides required, and because it will do very little to prevent tree injury. Although the adult cicadas can be easily destroyed with insecticides, in areas where numbers are high, more will soon replace those killed. To prevent the females from laying eggs, sprays would need to be applied too frequently to be practical. In summary, it is our opinion that chemical controls for cicada management will not be needed in most situations.

Prepared by Dr. Rex A. Bastian, Ph.D.
Hendricksen, the Care of Trees
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January, 1990

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As a response to growing concerns about the effects of chemical releases on communities, the U.S. Congress enacted the Emergency Planning and Community Right-To-Know Act (EPCRA) in 1986. The act supports state and local emergency planning efforts and provides citizens and local governments with information concerning potential chemical hazards present in their communities by requiring reports from businesses — including golf courses — that deal with hazardous chemicals.

In Illinois, the state's Toxic Substances Disclosure to Employees Act expands the federal OSHA Hazard Communication standard. In addition, the state's Chemical Safety Act requires businesses to submit a chemical safety contingency plan that includes facility emergency response procedures and chemical information.

The law, administered by the Illinois Department of Labor, covers all employers except in-state employers with fewer than 20 employees, out-of-state employers with fewer than five full-time employees working in Illinois and employers of domestic workers at residential dwellings.

The law does not apply to the use of toxic substances, compounds or mixtures that are chemical concentrations less than 1 percent, — or in the case of carcinogens, mutagens or teratogens — less than 0.1 percent.

Covered employers must provide the local fire chief with the following information:

★ diagram of plant layout, showing locations of employee work stations, workplace entrances and possible evacuation routes

★ list of workplace chemicals included on the toxic substance list

★ chemical storage and usage information

★ potential accident and chemical release information

★ emergency response procedures.

Penalities of $1,000 per violation may be assessed. Employers who repeatedly violate the law may be assessed penalties up to $10,000. Punitive damages also may be assessed, not to exceed 10 times the total amount owed by the liable party or $20,000, whichever is greater.

Employers not complying with the written chemical safety contingency plan requirements may be liable for civil penalties up to $10,000 per violation and $1,000 per day the violation continues.

The Chemical Safety Act grants immunity from civil liability to members of the state emergency response and local emergency planning committees for damages that may occur as a result of emergency planning activities.

Community Right-To-Know Contacts

For emergency release notification, call 800/782-7860.

For general information and emergency planning notification, call the Emergency Services and Disaster Agency at 217/782-4694. For document submissions, call 217/782-4102.

Submit follow-up emergency release notification and chemical inventories to Illinois Emergency Services and Disaster Agency, 110 E. Adams St., Springfield, IL 62706.

Submit material safety data sheets (MSDSs) to Illinois Department of Labor, One West Old State Capitol Plaza, Rm. 300, Springfield, IL 62701.

Submit annual toxic chemical release inventory forms to Illinois Environmental Protection Agency, 2000 Churchill Road., P. O. Box 19276, Springfield, IL 62708-9276.

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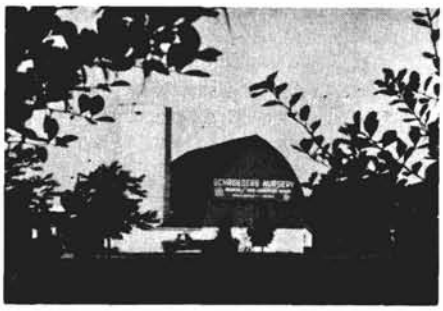

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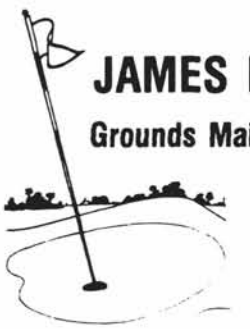

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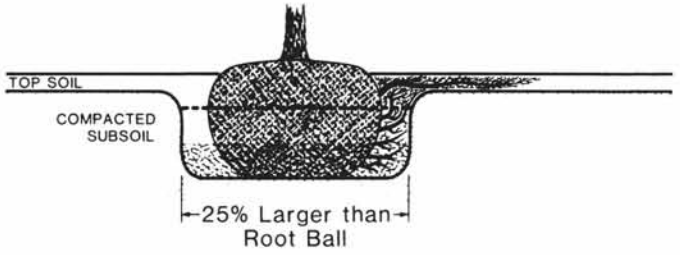
Predicting and Reducing Drought-Related Plant Problems

by Kris R. Bachtell & Charles A. Lewis
Part 2 — continued from April

PROPER TRANSPLANTING TECHNIQUES

Transplanting may result in great moisture stress on landscape plants. When normal nursery practices are followed, less than 5% of the root system may be moved with the tree. The extreme state of imbalance between the root system and the crown results in an extended period of stress and slow growth, often described as "transplant shock." Recently transplanted trees and shrubs with limited root systems are particularly prone to drought-related injury. Proper transplanting techniques and follow-up maintenance can have a significant positive influence on root growth and development, thus helping to reduce the severity and duration of this period of post-transplanting stress.

Poor soils make successful transplanting still more difficult. Urban planting sites are often characterized by severely compacted subsoil and a thin topsoil layer. Root regeneration following transplanting in a disturbed site is difficult, because water is often in excess, and oxygen is unavailable in sufficient quantities to support good root growth. Water applied during transplanting — and subsequent irrigations or rainfall — cannot easily infiltrate into the subsoil and eventually flows to the lowest point of the planting hole, where it can remain for weeks, killing the root system (Figure #1). Even when drought conditions exist, the lower portion of the soil ball is often slow to dry out. Only in the upper portion of the planting hole is there enough oxygen and the proper amount of water to support the new, regenerating roots.



Plants transplanted into disturbed soils must be planted properly to increase their chances of root regeneration and survival. The wider that the planting hole is dug, the better. A width of two to three times the diameter of the soil ball or container is recommended. The depth should be no deeper than the soil ball or container, so the plant rests on the compacted surface of the soilball. Sloping the sides of the hole is also helpful (Figure #2). If these recommendations are followed, the volume of soil favorable for root regeneration may amount to ten times the volume of the conventional hole.

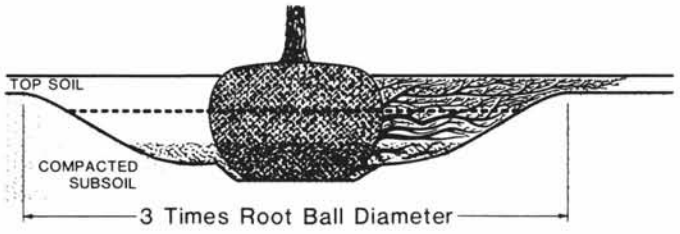


FIGURE 2

(cont'd. page 8)

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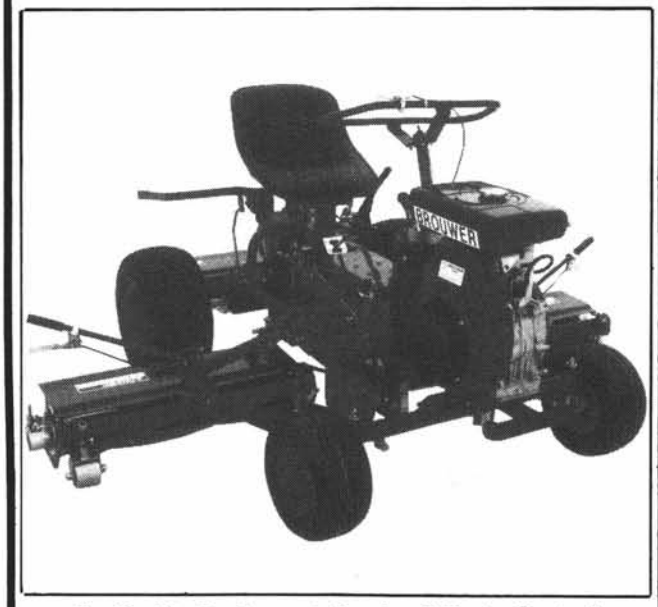

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When placing the plant into the planting hole, make sure the basal root flare (where the roots spread at the base of the stem or trunk) is at or slightly above the ground line. Plants that are planted too deeply often fail soon after transplanting. Those that do survive may grow for many years, but can be more subject to disease during periods of drought. During the drought summer of 1988, some large declining sugar maples in the Arboretum that were apparently planted too deeply over 30 years ago died quite suddenly. When planting a tree, if you observe that the basal root flare is more than two inches below the soil surface of the root ball, remove the excess soil until the flare is exposed and plant accordingly.

On sites that tend to flood after heavy rainfall, the root ball can be planted so that at least one-third is above the original grade (Figure #3). This planting technique keeps the majority of the newly planted tree's root system out of saturated soil even during very wet periods. If the planting site is properly mulched (discussed later), the planting soil will be less prone to drying during dry weather.

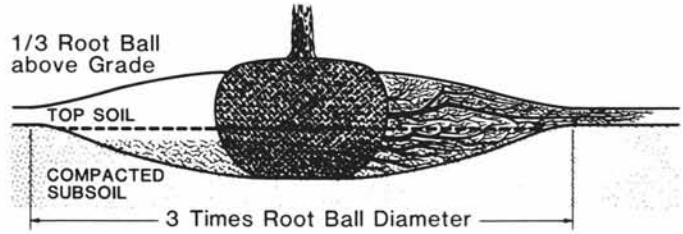

FIGURE 3

WATERING NEWLY TRANSPLANTED AND ESTABLISHED PLANTS

Newly transplanted trees possess only a small percentage of their original roots and need to be watered carefully and monitored closely. The best way to determine the need for water is to check moisture of the soil ball or the container medium frequently. A hand trowel or soil probe is a useful tool for doing this. If the soil is dry, apply enough water to re-wet the soil ball or container mix thoroughly. Commercially available root feeding/watering probes are useful for watering recently transplanted plants. Insert the probe directly into the soil ball or growing medium, and deliver the water at a low rate. Do not over-water; as mentioned earlier, the subsoil may not allow the irrigation water to drain and the root ball can quickly become too saturated. Newly transplanted trees should be checked once a week to determine if watering is necessary, more often during hot, dry weather.

During periods of drought, large established trees also need to be watered. A single large tree can transpire more than 100 gallons of water per day. Thus, it is important to water properly.

Before watering it is best to check the soil moisture by carefully digging a 6''-diameter hole to a depth of 12-18 inches with a narrow spade about midway between the trunk of the tree and the edge of the branch spread or by taking a sample with a soil sampling probe. If the soil is dry, water with a sprinkler or slow-running hose to a depth of at least 18 inches, including an area at least as wide as the branch spread. Root feed/watering probes are only useful as long as they are not placed deeper than 12 inches into the soil and if they are moved frequently. When surface watering, be sure to water at a rate slow enough to allow

(cont'd. on page 10)

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the water to soak into the soil rather than to run off the surface. Apply additional water only when there is insufficient rainfall and the soil probe sample is again dry to the touch. One long thorough watering is more effective than more frequent, short term waterings. Deeper watering will enhance the development of deeper roots that are less subject to heated soil surface and surface evaporation. *Do not apply water that has been chemically softened.*

MULCHING NEWLY TRANSPLANTED AND ESTABLISHED PLANTS

Organic mulches applied to the soil around newly transplanted trees will often increase transplanting success. Properly applied mulch creates an excellent zone for root regeneration and thus helps increase drought tolerance. Mulches encourage root growth in a number of ways, including: greater soil moisture retention (reducing the need for supplemental watering); reduced soil temperature fluctuations (keeping the soil cool in summer and warm in winter); reduced weed and turf grass competition for moisture and nutrients; increase soil fauna activity (allowing for better availability and use of oxygen and water).

Readily available and acceptable kinds of organic mulches include: leaves, grass clippings, mushroom compost, wood chips, hardwood and coniferous bark, composted manure, and composted sewage sludge. Composted mulches are preferable to fresh, non-composted materials because they usually possess a more favorable texture and chemical composition. If only fresh mulch is available, do not incorporate it into the planting soil. Apply the mulch to cover the planting-hole area to a depth of three to four inches. Keep the mulch six inches away from the trunks of trees, to discourage rodents feeding on the trunk. Plan on renewing the mulch layer every two or three years. If ground

Applying an organic mulch beneath established, large plants is also helpful in reducing drought stress. In a recent mulching experiment conducted at the Arboretum, we determined that mulch applied to 20-year-old trees significantly increased the root growth in the soil layer beneath the mulch. In mulched sugar maples, the root surface area in the top six inches of soil was increased by 195 percent, compared to plants of the same species grown in a lawn. A common concern expressed about this type of treatment is that roots which are closer to the soil surface could be more prone to drying out. This is not the case — this same experiment determined that the moisture content beneath the organic mulch is greater than it is in a lawn.

Before applying mulch to larger trees, first eliminate grass with glyphosate herbicide (Brand Names: Round-up, Kleen-up, and others). Do not dig up the grass, as this would disturb the surface roots of the tree. Follow the label instructions carefully (do not increase the concentration of the herbicide beyond the recommended amount, or you could kill the tree), and be sure to use only this chemical and not another type of herbicide that could be harmful to the tree. After waiting a week for the herbicide to work, apply three to four inches of mulch over the sprayed area. Consider renewing the mulch every few years and periodically spot-spray glyphosate to eliminate weeds that emerge.

CONCLUSION

No one is certain of future weather patterns. While it is true that we can do little about the weather, in order to grow plants successfully, we need to use better cultural and landscape management practices. Through proper plant selection and use, our landscape plants will have a better chance to survive during a drought.

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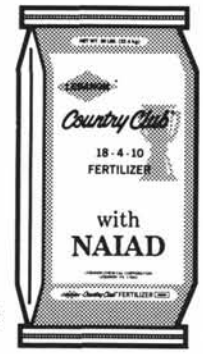

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