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President's Message

by Bruce R. Williams, CGCS
MAGCS President

A lot of time and effort has gone into the campaign for GCSAA Director this winter. The fruits of those efforts shall be evident after the election at the annual meeting in Las Vegas, on February 12th. I am sure that our joint efforts will be successful and I want to take this opportunity to thank the members of the MAGCS for their support. I pledge to continue my service to my profession as I have done in the MAGCS since 1986. Association work has never been a chore for me, instead I have always looked at it as though it were my duty to serve the industry. The extra work load has been made much lighter by the pleasant and positive results in guiding the MAGCS. One only hopes to add those things that will improve a group under their leadership. It is a nice feeling to know that a group, such as the MAGCS, is better off now than the first day you were elected to the Board. There is a lot of satisfaction knowing that you have accomplished many of your goals.

It would be foolish to say that service to the industry comes without sacrifice. The sacrifices are many. Working for any association means extra hours and longer days. This isn't bad though as the work is thoroughly enjoyable. Sometimes we have scheduling conflicts due to the many association activities. I would rather have that problem than boredom. Our families must sacrifice a little too when we have meetings and work to do that interfere with a normal family schedule. There will always be sacrifices made by anyone becoming involved in volunteer work. This is the price we pay for the advancement of our profession.

I would be remiss to leave out the many rewards from serving one's association. The rewards are many. I have never seen anyone that was truly committed to their elected position that did not come away a better person after their tenure on a Board or committee. We all learn a lot by serving others. We learn of people's wants and needs and ways to provide people those things. We learn to manage our time better, we learn to lead instead of following, and we learn to work with our peers to promote professionalism. These are gifts that association service has given to me. These are some of the things that have made me a better person and a better superintendent. I am grateful for that.

I encourage my fellow members to consider serving the MAGCS in the years ahead. We have members out there who can make the difference for the future of the MAGCS. Get involved now by working on the committee level. Sure, there will be some sacrifices but the rewards far outweigh the drawbacks.

Director's Column

by Timothy Kelly
Secretary/Treasurer, MAGCS

The Big Green Bill in California was defeated. This is good news for golf courses, and for the agriculture industry in California. What was Big Green? It was an environmental bill to basically ban all pesticide use throughout the state of California. This proposed law was defeated primarily because of an uncertain economy, coupled with the cost that this bill would have been for green and agricultural industries. Environmental groups plan to go after the objectives of Big Green in California in a smaller, piecemeal fashion.

What does this have to do with us, here in Illinois? The environmental movement is here, and everywhere throughout our nation. I think that all of us are responsible stewards of the small mini-environments that we take care of, commonly known to us as golf courses. I firmly believe that all superintendents are realistic environmentalists. But we need to be in the forefront of compliance and the utilization of pesticide safety. We must use pesticides judiciously and follow well planned Integrated Pest Management (IPM) procedures. Proper pesticide storage, application, and safety are a must today. Superintendents using pesticides are responsible for: the environment, safety of golfers & the public, neighbors, and our workers. Continuing education in the proper use of pesticides is important and will continue to be in the future. We need to continue to respond to do what is best for our golf courses and the environment. New techniques and improvements in technology that are beneficial must be utilized.

Superintendents have the ability to contribute information to the public and their members regarding the good news in our stewardship of our golf courses. We must tell the public about our need to use pesticides as part of a system to properly care for our golf courses. We can also tell them about our successes. The materials we utilize today for pest control are more effective and immensely more environmentally safe. We are applying pesticides today much more judiciously than in the past, utilizing IPM and new methods of pest detection. Our national association along with the USGA are researching to: reduce the use of pesticides on golf courses, and to develop natural biological control. Golf courses are good for the environment. They provide valuable green space. These "green islands" provide oxygen, and help to replenish ground water aquifers. Golf courses provide living space for birds and other wildlife.

I am sure that in the future we will have even safer means to control pests, but until then we all need to be good environmental stewards, and convey this to the public.

"Big Shoes to Fill ... Tribute to a Legend"

by Dudley Smith, Silver Lake C.C.

Dr. Fred V. Grau, last surviving member of the turf industry's big three (H. Burton Musser, O. J. Noer) passed away in Maryland on December 1, 1990. Dr. Grau was 88.

I met Fred Grau during the summer of 1949, when he walked into the proshop at Centre Hills C.C. to borrow my golf shoes to play nine holes with Burt Musser. When he returned my spikes, he inquired about my future interest in golf. With Dr. Grau's prodding and encouragement, I transferred from engineering at Syracuse to agronomy at Penn State.

Highlights in his memorable career:

- Fred was raised in Bennington, Nebraska where he was afflicted with polio that left him crippled. He graduated with a B.S. in agronomy from the University of Nebraska in 1931. He was president of the senior class.
- He earned a M.S. degree in 1933, and a doctorate degree from University of Maryland in 1935.
- Fred joined the staff at Penn State in 1935 as the first extension agronomist in turf in the United States. He traveled in that position until 1945.
- He developed and promoted the use of several grass varieties including the popular Merion bluegrass, meyer zoysia, and U-3 bermuda grass.
- Dr. Grau was director of the United States Golf Association, Green Section from 1945-1953 when its headquarters was at Beltsville, Maryland.
- In 1953 he released a certified crown vetch "Penngift" for highway slope erosion control. His company, Grasslyn produces crown vetch seed in Pine Grove Mils, Pa., a short distance from the Penn State campus.
- Dr. Grau was awarded the GCSAA Distinguished Service Award **twice** in 1954 and 1975.
- In 1968 he organized and became president of the H. Burton Musser International Turf Foundation dedicated to raising funds for students pursuing advanced degrees in turf management.

Most recently his efforts were directed to sports turf. Natural grass for stadiums with fewer injuries to athletes, plus drought tolerant to conserve water, and disease free to eliminate use of pesticides.

Fred Grau was an honorary member of MAGCS for over 35 years. Dr. Grau was a popular lecturer and moderator at midwest turf conferences from Ames, Iowa to Lafayette, Indiana. In fact, Mrs. Grau passed away at the 1976 Midwest Turf Clinic at Medinah.

Some of the young men, Hall of Fame calibre, whose careers were inspired by Fred Grau include: Dr. Marvin Ferguson, Al Radko, James Moncrief, Charlie Wilson, Bill Bengeyfield, Dr. James Watson and Dr. Joe Duich.

Two thoughts the man left with me: You are never fully dressed unless you have a notebook and pen in your jacket pocket. What good book have you read lately? Always read a thought provoking book, it chases away the cobwebs and stimulates the mind.

Yes indeed, Dr. Fred, you left us with big shoes to fill.

Tree vs. Lawn: Uneasy Coexistence

by Gary Watson

INTRODUCTION

Any two plants growing in close proximity, above or below-ground, most compete for sunlight, water, and nutrients. Results of above-ground competition for sunlight can be quite obvious. In the dense forest, tall dominant trees shade out smaller trees and underbrush. When a tree dies, young trees and shrubs flourish in the opening. In the landscape, vigorous weeds can suppress more delicate landscape plants and dense, low branching trees can shade out everything underneath.

Underground competition for soil moisture and nutrients is not always so clearly apparent. Two *similar* plants competing for a limited supply of soil moisture and nutrients will each get a smaller share than if either one were growing alone, and the growth of both will be stunted. Extra water and fertilizer will help both plants grow better.

But what if they are not similar plants? Foresters and orchardists have known for years that grasses are able to complete more vigorously than trees for soil moisture and nutrients. When grass and trees grow together, it is the growth of the trees that is most reduced. Landscape professionals and homeowners should also learn to understand tree-turf competition. The trees that we use in the urban landscape evolved in the forest with similar plants where moisture was generally plentiful. Grasses were found in the prairie which was intermittently dry. Grasses can go into a dormant state during dry periods, trees can also but to a much lesser extent. There were few places where both trees and grass thrived together in a natural landscape.

WHERE ROOTS GROW

Roots of all plants need water, oxygen and mineral nutrients in proper amounts to grow. Conditions are usually optimal for root growth near the soil surface. Both water and oxygen are found in the pores of the soil. The oxygen must diffuse into the soil from the above-ground atmosphere through the network of soil pores. There are fewer and smaller pores in deeper clay soils and too many of them can be filled with water rather than air. During all but the driest times of the year, deeper soils can be very wet and low in oxygen. The best balance of water and oxygen for roots is usually found in the upper 12 inches of undisturbed natural soils. In disturbed, compacted urban soils, particularly in newer developments, it is not uncommon to find poor soil conditions restricting all root growth to the top 6 inches of soil. Though most trees have a few roots in the subsoils, 'deep rooted' trees are rare and found only where soil conditions are especially favorable. The typical shallow rooting pattern of trees in the soils of any region, can be observed easily by taking notice of the roots of trees that are exposed by excavations accompanying construction or root systems uprooted by storms.

Grass roots are sometimes so vigorous that tree roots cannot grow in the same soil. Grass roots grow very fast compared to roots of trees. Grass root systems are composed of numerous long thread-like roots with many even-smaller branches so fine that they can be difficult to see without magnification. These roots can quickly and thoroughly penetrate every part of the soil extracting all available resources ahead of other plants. Roots of trees are slower growing, and even the finest roots of trees are coarsely branched compared to grass roots and also

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(Tree vs. Lawn cont'd.)
less efficient at extracting water and nutrients from the soil. The underground stems of grass plants, called rhizomes, function to form additional new plants rapidly under good growing conditions, making the grass and grass roots so thick that nearly everything else is suppressed, even weeds.

Studies at the Morton Arboretum have shown that turfgrass drastically can reduce the amount of tree roots present in the top few inches of soil — *the best few inches of soil* — by 90 percent. This cannot be compensated for by other parts of the root system and consequently, the tree simply has fewer roots to support it. The roots cannot form at deeper levels because the poor soil conditions will not allow it. Many times the root spread of landscape and street trees is restricted by buildings and pavements, etc. Normally, the roots should spread twice as far as the branches. Take a look at the trees on your property and see if this is possible. In some settings roots may spread farther to get needed moisture and nutrients from the soil in order to compensate for the turf competition. As it spreads, the efficiency of the root system diminishes. Water must be transported a greater distance and more roots must be produced and supported by the tree, requiring energy.

A tree with such a handicapped root system from grass competition will be under more stress and therefore will be more prone to certain insect and disease problems and shorter lived. Keeping the lawn away from the trees will benefit most trees, though the limitations of the urban landscape won't allow it in every situation. Many situations may call for creative thinking in order to have a beautiful landscape with healthy, vigorous, turf-free trees. The concept of landscapes with turf from property line to property line will have to be modified or even abandoned. Turf is useful and appropriate only where there is foot traffic. Trees should be placed on the perimeter of turf areas.

THE MULCH ALTERNATIVE

Organic mulch, like wood chips or composted leaves, is one of the best and most inexpensive soil and root enhances available and a good alternative to turf around trees. It is very similar to the forest floor environment where leaves, branches, and other plant parts constantly accumulate and then decompose to enrich the soil. In the landscape, fallen leaves can be added to the mulch each autumn to recycle their nutrients. The layer of mulch covering the soil prevents water from evaporating before the trees can absorb it. A mulch layer also moderates extremes in soil temperature, which reduces root damage as well. With improved soil moisture and more available organic matter, the earthworms and soil insects will flourish. The tunneling activity of these creatures will help to incorporate the rich organic matter into the soil and provide improved aeration. Not only will more roots be able to grow in the improved soil beneath the mulch, the tree roots will grow up (yes! trees roots can grow *up*) into the lower layers of decomposing mulch, providing excellent additional rooting medium for more roots in the same amount of space.

Many fear that if mulch is added on top of the soil surface, the changes in the soil environment will cause the tree roots to be shallower and more subject to injury during drought. If the mulch is porous and well aerated, there will be no reduction of roots in the deeper soils, only an increase in the soil near the surface. Plastic sheeting used under the mulch should

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(Tree vs. Lawn cont'd.)

be avoided since it may reduce oxygen in the soil, killing deeper roots, leaving only very shallow roots.

Mulch is not considered equally attractive by everyone. Shrubs, groundcovers and perennials can be planted in the mulched, turf-free areas around trees to achieve an attractive landscape. While still offering some competition to the trees, the roots of these plants are more similar to the tree roots. The natural forest understory is a good comparison for this situation.

When mulching a lawn area around a tree, care must be taken not to damage tree roots in any way. Do not actually remove the sod. Mulch will smother much of the grass, and any grass that does come through the mulch can be sprayed with appropriate herbicides (trade names Round-up and Kleen-up, or Grass-be-gone). Never use broad-leaf herbicides like 2,4-D around trees. Even using the latter to kill dandelions in your lawn can damage your trees. Any material like wood chips, shredded bark, and leaf compost can be used for mulch. Ideally a layer of composted material is applied first with a layer of fresher bark or chips on top. Apply up to a total of 6 inches of mulch, which will settle to about 4 inches.

WHEN GRASS IS NECESSARY OR UNAVOIDABLE

When elimination of the grass around the tree is not possible, it is important to keep the area well watered and fertilized. Having plenty of water and nutrients available will assure that the tree will get enough.

Watering: The top 8-12 inches of soil should be kept evenly moist around trees, at least as far as the branches spread. There is no way to tell how much moisture is in the soil by looking at its surface. The only way to be sure of how much moisture is in the soil is to probe or dig. A trowel, metal rod or soil sampling tool can be used. Low-cost soil moisture meters are not very accurate but may be useful for rough estimates. A metal rod, such as the end of a root feeder (without the water running), may be the easiest tool for the homeowner to get and use. Very dry soil will resist penetration of the rod and indicate the need of watering. After a little bit of practice, anyone can learn to use this simple tool. A soil sampling tube is a must for landscape professionals.

It is impossible to give a formula on how much to water a tree to keep the upper 8-12 inches of soil moist. The amount required will depend upon specific conditions for each site. Any of several methods of watering may work well, depending on the specific situation. If the ground is level, simply letting an open hose run on the ground, moving it around occasionlly to get good distribution, may give best results. If the ground has even a little slope, too much water may run off with this method, and use of a sprinkler or soaker hose may be necessary to apply the water more slowly and obtain good distribution. If the slope is severe, a root feeder may be necessary. It shouldn't be inserted into the ground more than six inches and it will have to be moved around frequently since it only moistens a relatively small area of soil around the insertion point. Root feeders are also very useful for watering the root ball of newly planted trees. No matter which method is chosen, the important thing is to keep the top foot of soil evenly moist throughout dry periods. Excessively dry soils cause the death of small roots, reducing the tree's capacity to absorb water even after the soil is remoistened. Energy reserves must be used to replace the lost roots.

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Fertilization: When fertilization is required the form of fertilizer used and the method used to apply it are of minor consequence. Research shows that broadcasting granular fertilizer on the surface is effective and inexpensive. There is not scientific evidence that other methods such as 'deep root' fertilizing, liquid feeding, spikes, pellets or any other 'improved' application method is any more effective than broadcasting.

Nitrogen is usually the most needed nutrient because it is used up rapidly by the grass and also reaches readily through the soil. A soil test may be advisable before adding more than small amounts of other nutrients because soils vary so widely throughout the country. Gladiated soils of the Midwest are often rich in nutrients other than nitrogen, while soils from other parts of the country have little capacity to store nutrients.

The recommended rate of nitrogen fertilization for trees is 6 pounds of nitrogen per 1,000 square feet of root zone soil surface per year. This large amount of quick-release nitrogen fertilizer applied all at once will probably burn the lawn, and should be divided into several smaller applications spread out over the growing season. Another approach is to use slow-release fertilizer. The nutrients in these formulations are released over a period of months. The acidity or alkalinity of the soil should be considered when selecting a fertilizer. If the soil is too alkaline (pH above 7.0) you may want to use a fertilizer which will help acidify the soil, such as ammonium sulfate. The amount of actual fertilizer applied will depend on the amount of nitrogen in it. If the N-P-K (nitrogen-phosphorus-potassium) ratio listed on the package is 25-3-3-, then it is 25 percent nitrogen and 24 pounds of fertilizer must be used to apply 6 pounds (25 percent of 24) of nitrogen. Mature trees with substantial areas of mulch around them may not need to be fertilized at all. As the mulch breaks down, nutrients are released in the same way that nutrients are recycled in the forest.

Tree-turf interactions may be more than just competition for water and nutrients. Chemical interactions may be involved. Allelopathy is the term used to describe a situation in which one plant produces a chemical which has an effect on another plant. For example, it is well known that walnut trees produce a chemical called juglone in the leaves which will inhibit tomatoes and other plants from growing in the area. We are just beginning to understand this type of chemical relationship between grass and trees. Several scientific studies in recent years have shown that grasses produce chemicals that stunt the growth of trees. This situation is probably more common than we currently understand and is another good reason for keeping trees and turf separate in the landscape.

Trees and grasses do not usually grow together in nature. There is no reason we should expect them to thrive together in the landscape. The more naturalistic we can make the urban root environment, the better our trees will grow.

"Plant Information Bulletin, #40, Spring 89

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"Leaves, Limbs, Needles and Boughs"

by Fred D. Opperman

Maybe I'm a little early by a month or two to describe this month's tree. It brings to my mind pancakes and maple syrup. What else can it be, but, Acer saccharum (a'ser sak-kar 'um) — Sugar Maple. That beautiful yellow to red tree that knocks the socks off many other trees when judged for the fall color. This is the tree that thousands of people drive to the Great Smokies or the New England States in the fall to see and take in the colors. For coloring in the fall it is the king, for the sugar maple goes from yellow thru the shades of orange to red.

Leaves: Opposite, simple, 3-6" across, 3-5 lobed pointed, slightly toothed with narrow and deep sinuses.

Buds: Terminal-imbricate, long and sharp pointed. This is the key to identify it in the winter. Axillary buds ½ as long as terminal, hairs are found at upper edge of leaf scar and are brown in color.

Size: A landscape size of 60-75 feet is often attained; potential to 100-120' in height; the spread is variable but usually about ⅔'s the height although some specimens show a rounded character.

Rate: Slow, possibly medium in youth.

Bark: Young trees develop a smooth, gray-brown bark; with age the bark becomes deeply furrowed, with long irregular thick plates or ridges.

Culture: Transplant balled and burlapped; prefers a well-drained, moderately moist fertile soil.

Landscape Value: One of the best of the larger shade and lawn trees.

This is a tree that needs to be on every golf course and no doubt is.

Credit: "Manual of Woody Landscape Plants"
by Michael A. Dirr

"Anticipation"

As the Groundhog has His day,
About the Weather that's on It's way.
Short February will tell the Story,
Of when Spring will flaunt It's Glory.
Anxious Golfers will be pushing hard,
At the sight of green grass in Their yard.
Again We weather Winter's snow and cold,
Patiently awaiting a new Spring to unfold.

Kenneth R. Zanzig