



Newsletter

Winter 2002

FROM DAVE'S DESK

Construction starts have slowed (hopefully only temporarily) and consumer spending is down. There is no doubt that the infamous attacks on September 11 have impacted the U.S. economy. All of our businesses have been adversely effected by these trends and so it was good news to see a report today that economists expect the economy to rebound sooner than was expected.

The attacks only stiffened our resolve at Piedmont Turf Farm to strive toward our mission of providing a superior quality product and excellent customer service at all times and this will continue to be an important goal in 2002.

Many different things influence our ability to accomplish these goals. One that we have no control over is the weather. As I write this, we are in the middle of the wettest week we have had in more than a year. Don't let that fool you! We are still in the midst of a terrible drought. For the last three years we are 40 plus inches below

normal, the equivalent of having one year with no rain.

Several communities in our area are experiencing water shortages. A few have put mandatory water restrictions into effect and these are not usually helpful to the green industry. If irrigation is available and permitted the drought effects may not be so bad. However, we all know that irrigation keeps plants alive, but it does not promote the growth that natural rainfall brings.

This Newsletter touches on the water issue once again but we have introduced a couple of new topics dealing with biotechnology and the "dark side" of turfgrass plants.

David B. McCart, Turf Specialist/Agronomist

1890 H W Farm Road

Maiden, North Carolina 28650-9347

828/428-8359

800/479-8873 • FAX 828/428-2093

www.piedmontturf.com

F.A.Q.*

Question: What are some of the anticipated benefits of turfgrasses enhanced by biotechnology?

Answer: Turfgrass professionals are constantly exploring ways to provide all of the benefits to a healthy turfgrass while reducing such inputs as pesticides, growth regulators, fertilizer, fuel, mowing time, and water. Conventional turfgrass breeders have traditionally focused on delivering new cultivars with traits designed to help reduce turf maintenance inputs.

Biotechnology can provide breeders with the means to help solve turfgrass management problems that have not, and probably will not, be solved by conventional breeding. For example, biotechnology can provide unique traits that help to reduce many maintenance inputs while delivering quality turf and consequently increase the overall environmental, functional, and aesthetic benefits of turf. Some improved

features and benefits potentially available in the near future through biotechnology include:

- Selective control of grassy weeds which will increase the uniformity of the turf.
- Reduced vertical growth to help reduce the use of fossil fuel, the cost of equipment and maintenance and replacement, and the associated costs of labor.
- Broad-spectrum disease tolerance to reduce the need for fungicides and improve turf performance.
- Improved heat or cold hardiness to decrease losses of turf due to winter or summer stress.
- Improved drought resistance to reduce dependence on potable water sources.

**Q and A appeared in TURF NEWS July/Aug, 2001, in an article written by Eric Nelson, turfgrass breeder and Bob Harriman, variety developer for The Scotts Company.*

MORE ABOUT WATER!

Landscapers and sod producers have heard many times that turf grass is a plant material that wastes water and its use should be banned. Indeed, this perception is widespread and the green industry comes under a great deal of criticism from the environmental community and public officials for the water waste seen or associated with lawns.

However, it needn't be the case! Every green industry business has an obligation to avoid wasting water, especially in these days of rainwater shortfalls. Each of us in the green industry must practice water-use efficiency and we should educate our sod consumers about using the right amount of water and avoiding water run-off.

Too much water wastes energy, labor, system repair and maintenance expenses, and nitrogen, plus it results in more disease problems. Too little water hinders growth. Increasing water-use efficiency means that more will be available for economic growth. Saving landscape water will reduce peak water demand, usually a big problem for water agencies, and it will reduce water run-off. Adopting the water-use efficiency standard will position the green industry to become one of the good guys instead of being perceived as one of the bad guys wasting a valuable resource.

So, just what do we mean by the efficient allocation or use of water? To put it simply: *water efficiency is an irrigation technology that saves water.* Water-use efficiency requires that every turf area be scheduled for the "right amount of water." This means that water for landscapes is really replacement water that is applied after some level of water depletion that evaporates from the soil and transpires from the leaves of the plant. The water depletion rate has a technical name – evapotranspiration rate or ET. A model exists for water-use efficiency that is cost effective, business friendly, and scientifically sound; it is based on the theory that price is the only universal motivator to use water efficiently.



**Piedmont Turf Farm accepts
VISA and MASTER-CARD**



There are two methods which will aid in putting down the "right amount of water."

1) A hand soil probe and direction sheet is the simplest method that could be used by the homeowner to avoid wasting water. With experience, visual appearance, temperature, and gauges one can improve the distribution over random settings for irrigation systems that frequently used 47 percent more water than non-auto sprinkler homes.

2) The second method is the ET system considered standard for water-use efficiency. The site water budget = (local ET) (species coefficient) (irrigation efficiency) (irrigated area). By pricing water based on efficient use, we arrive at a more preferable system than having public agencies restrict, ban and/or ration water for landscapes — the first reaction of community officials to drought or water shortages.

You may be interested to know that the city of Cary, NC limited outdoor water use to three days per week beginning in the year 2000. In the Spring of 2001 it entered into a program to educate its customers on water conservation and the benefits of using soil probes. Research had shown that in a community in California homeowners were able to realize a 27 percent water savings over a three month period. In Cary, each customer who volunteered for the program had his water budget determined; this set the target. The pricing structure motivates the water user to stay within the accepted water use target. When the data of this study is completed it will be interesting to learn how this program has aided Cary in its water consumption.

Do you believe that your community might benefit from such a program?

What About the “Dark Side” of Turfgrass?



According to Dr. Michael Sullivan *(Department of Plant Sciences, University of Rhode Island), miracles are performed when “harsh environments are turned into verdant landscapes. A rocky rolling landscape becomes a spectacular golf course, a patch of bare ground becomes a ball field, while a disturbed spot in suburbia becomes a home.” The “green side” of turfgrass is highly valued.

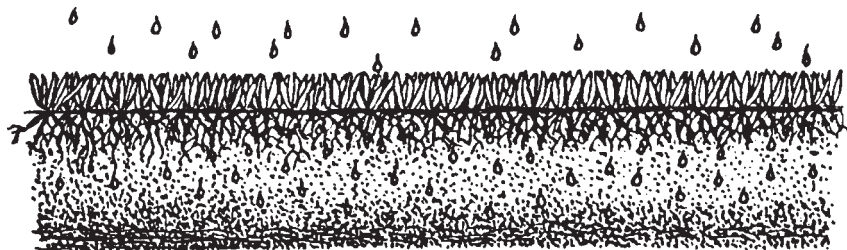
What about the “dark side,” – the root system - of turfgrass? What is its role in the success of the plant and its impact on our earth? The roots contribute to turfgrass growth and development and provide the landscape value we desire, but they provide many unseen contributions, too. “The roots can fix more carbon dioxide per acre than rain forests, and clean contaminants from water running off feedlots, parking lots and roadways. It is important that sod producers and others recognize how their production and management activities impact the root system and its environment.”

Turfgrass and Nutrient Management

The public has become increasingly aware of the movement of nutrients and pesticides through the soil and into watersheds. As a contributor to non-point source pollution, the production and maintenance of turfgrass is quite insignificant. To the contrary, research conducted at Oklahoma State University demonstrates how effective turfgrass buffers can be in preventing pesticide run-off from production areas into watersheds. A buffer strip of five meters “has a profound impact on cleaning flowing water of 2,4-D in surface runoff. The same impact with narrow buffer strips has been shown to occur when looking at sediment, nitrogen, and phosphorus movement in runoff water.” The filtering of sub-surface water takes place “when vegetation is prescribed for environmental protection in a buffer

area and turfgrasses have been shown to create an environment that results in cleaner water.”

Denitrification is the conversion of nitrogen to nitrogen gas, which then can be returned to the atmosphere. Research conducted at Rhode Island University “clearly demonstrates that tall fescue and Kentucky bluegrass drive denitrification to higher levels than trees, shrubs, and other vegetation. Managing turfgrass-based retention areas for runoff water resulted in greater removal of runoff nitrogen because root systems feed the bacteria with sugars and encourage cleanup. Tall fescue and bluegrass were superior environmental cleaners when grown alone and even more impressive when additional carbon foodstuffs (glucose sugars) were added.”



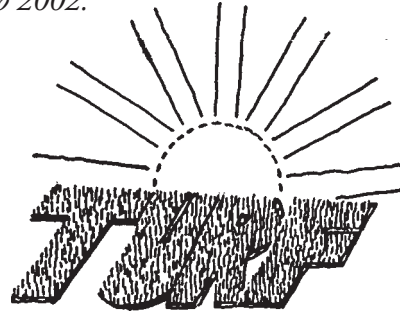
Turfgrass helps purify water entering underground aquifers by its root mass and soil microbes acting as a filter to capture and breakdown many types of pollutants.

Temperature's Effect on Turfgrass

Temperatures at the plant crown and root zone are directly linked to growth and performance. Data clearly show that the fresh weight and dry weight of clippings decline with elevated temperatures. *"Quality is impacted...Plants show a response to temperature extremes but also to accumulated heat."* The plant's stress can be directly related to the root heat accumulation unit which can be evaluated using a simple formula of average daily temperature minus the base temperature. $[72^{\circ}\text{F} - 40^{\circ}\text{F} = 32 \text{ accumulated heat units (AHU)}]$. Ten days of this condition would result in 320 AHU. *"Sub-lethal stress clearly becomes predictable and points out the importance for producers and managers being aware of their crops vulnerability. A thermally stressed root system will succumb to disease, have reduced water and nutrient absorption potential and reduce profitability."*

Root density measurements are directly impacted with heat accumulation. Several years of data show us that grass roots are at their smallest, most stressed time each year when conditions have generated approximately 4100 – 4500 AHU. In New England, this occurs in the second to third weeks in August.

**Paper presented at TPI Summer Convention, 2001 at Toronto, Ontario and printed in TURF NEWS Jan. Feb 2002.*



Our New Warm Season Grasses Are Ready to Harvest!

TifBlair Centipede and EMPIRE Zoysia are warm season certified grasses whose characteristics make them preferable to cool season grasses in certain situations.

- TifBlair Centipede is described as a dense, low maintenance, weed-free turf. With its aggressive, deep rooting, it is remarkably drought tolerant once it is established, more so than common centipede, and it has superior cold hardiness. It is a low maintenance grass requiring fertilization only once a year and mowing no more frequently than twice a month. Potentially, it may not need to be mowed during the entire growing season, making it very useful for steep banks and other hard-to-mow places: The NC Highway Department is using this grass to reduce maintenance costs by mowing just twice a year. It possesses greater shade tolerance than bermudagrass and has excellent fall color retention. TifBlair, a "Blue Tag Certified"

centipede, offers consistent and reliable performance and is exclusively available through licensed producers.

- EMPIRE Zoysia requires more maintenance than the TifBlair. When used for lawns, it needs to be fertilized more frequently and mowed on a regular schedule. Its wear resistance is excellent and is moderate to good in shade tolerance. It has fine, deep, massive rhizomes that spread underground making it relatively drought tolerant once established and providing injury recovery if needed. It possesses excellent hot weather tolerance and thrives in hot, humid areas. It is not subject to damage by as many insects or diseases as Fescue, thereby reducing fungicide and insecticide use. EMPIRE is also a certified grass available through licensed producers.

Piedmont Turf will be glad to fill your orders at any time!

