Water and the Landscape

Chatham County Center of North Carolina Cooperative Extension will present a program on water and landscape uses of water for landscapers and grounds managers beginning at 1:00 p.m. on Thursday August 28. The program will be in the auditorium of the Agriculture Building at 45 South Street in Pittsboro, NC.

There is no charge for this program. To facilitate planning, interested participants are requested to pre-register by August 22 by calling 919.542.8202.

The program will include presentations by:
- Ryan Boyles, Ph.D., State Climatologist and Director of the State Climate Office,
- Bill Hunt, Ph.D., PE, Extension Specialist in Urban Stormwater Management, NC State University Department of Biological and Agricultural Engineering,
- Grady Miller, Ph.D., Extension Specialist in Turfgrass, NC State University Department of Crop Science,
- Garry Grabow, Ph.D., PE, Extension Specialist in Irrigation, NC State University Department of Biological and Agricultural Engineering.

Boyles has done extensive research in developing radar based measurement of localized summer rainfall events over small areas, leading to improved models on which to base irrigation. He will distinguish between meteorological drought, agricultural drought, and hydrological drought and provide some insights into how much we know and don’t know about weather patterns.

Hunt is known nationwide for his work in improving stormwater management both in terms of protecting water quality from undesirable contents of runoff as well as in use of runoff for growing plants. He will share some of his work in developing rain gardens and in installation and use of cisterns.

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Miller is Professor of Turfgrass Science at NC State and has done research in irrigation distribution efficiency and its impacts on turfgrass in both home lawn and golf course environments. He will provide some insights on the wisdom of turfgrass selection for drought management as well as turf management for optimal results.

Grabow serves as technical advisor for the North Carolina Irrigation Society. He is author or co-author of many Extension publications for irrigation of a wide range of agricultural crops and delivery systems. He will share results of recent work evaluating use of weather station data, evapotranspiration (ET) monitors, and soil-based monitors for input data to determine when to use irrigation.

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On the Job Safety

On July 24, a number of local landscape businesses had opportunity to learn more about standards of the Occupational Safety and Health Administration (OSHA) that apply specifically to the landscape industry. Actually most of these standards apply to industry in general but those attending had the benefit of compliance specialists connecting the dots between routine activities of the landscaping and grounds management business and OSHA standards.

Of 26 participants attending the program 96% left expecting fewer on the job injuries that cost them lost time as well as potential increase in expenses. (The other 4% indicated they are already experiencing fewer injuries.) 78% of participants indicated they would improve or are already improving an existing safety program. While 44% have a safety program in place, 36% intend to develop one; 20% thought they might.

At the beginning of the program 26% claimed high knowledge about managing a safety program (none claimed “very high” knowledge). By the end of the program 57% said their knowledge about managing a safety program was high with 10% claiming very high knowledge. Even in an area where landscapers and grounds managers tend to have an extensive knowledge base, knowledge about working with pesticides increased from 68% high or very high before the program to 86% afterwards. Those with high or very high knowledge about working by roadsides increased from 20% before to 66% afterwards. We hope the increased knowledge will pay dividends in terms of individual health and safety.

The Occupational Safety and Health Act requires employers to comply with safety and health standards as well as with other regulations issued by OSHA. In addition, the Act includes a "general duty clause," which applies to hazards not addressed by any specific OSHA standard. The general duty clause requires employers to provide their employees with a workplace that is free from recognized hazards that are causing or likely to cause death or serious physical harm.

What are some of the routine hazards employees in landscape businesses encounter? Perhaps pesticides and mower blades come to mind. Pruners? Saws? Ladders, black widow spiders, chainsaws, heat stress, frost bite, snake bite, fire ants, hearing damage, traffic, back injuries, dust, toes or fingers crushed by heavy objects?

It’s a hazardous world out there. What happens if a worker is injured? What is your initial response? What is your long term impact? Do you have to find a new employee? Will you have to

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face an employee’s family? Will your insurance rate go up? Will there be fines? Will you be able to remain in business? Yes, it can be scary.

If your answer to “What is your initial response?” was to have a safety plan and train your workers, you’re off to a good start. Providing your employees with a place of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm may present as many challenges as any landscape job you’ve ever done.

If you are interested in a “quick start” on what you need to be in compliance with OSHA regulations, have a look at http://www.osha.gov/dcsp/compliance_assistance/quickstarts/general_industry/index_gi.html You’ll find information on Hazard Communication, Emergency Action Plans, Fire Safety, Working Surfaces (including platforms and ladders), First Aid, Machine Safety, Personal Protective Equipment (not just for pesticides), Noise Protection, and more.

There are tools to help you analyze your specific situations or develop a jobsite safety program, training aids to help train your employees, and guidelines on record keeping. While OSHA can seem like the bad guy coming to give you a hard time, it’s also there to assist you in compliance.

Turf Irrigation Management System

http://www.turffiles.ncsu.edu/tims/

How much water do you need to apply? And how do you know? Do you set the controller and go on faith? Advise your clients on a weekly basis? Teach them how to manage the controller? How well do your systems work?

Would it help if you had some idea of how much rain fell on all your accounts? Would an estimate of evapotranspiration (ET) help? Have you met the Turf Irrigation Management System (TIMS)?

TIMS, developed by Turf Science faculty at NC State, uses data from nearby weather stations and figures irrigation needs on what is called a “checkbook system.” Water in (irrigation, rainfall), water out (evaporation, transpiration). The system also accounts for soil type, irrigation system, and turf type. The creators of this system think you can reduce lawn irrigation amounts by 25% without sacrificing turf quality. In fact, they think your turf management will improve by use of their system.

To use the system, log in at http://www.turffiles.ncsu.edu/tims/

You will initially be required to create a log in and password identity. You can create accounts for any property you manage by using the physical address. You will be asked if irrigation is applied by an automated system or by hose and sprinkler; for the primary use (such as residence, park, athletic field, golf course, etc.); for soil type (clay, sand, or loam); and for the grass type. The system will then walk you through establishing a precipitation rate for the irrigation in inches per hour. If you don’t know that already, it’s a good time to learn.

After that, the system accesses data from the nearest weather station to approximate daily ET for the location. It also inputs precipitation data. And, knowing that summer showers can be “spotty,” the system uses “gridded gage-corrected radar precipitation estimates” with resolution at less than 5 kilometers to determine if rain occurred at a specific location.

With all of the data, the system creates a daily “checkbook” to predict water loss, water reserve, and sometimes excess water (drainage). With that calculation available, and even taking into account whether you have to deal with water restrictions, the system will suggest whether you need to water or not.

The Turf Irrigation Management System (TIMS) web-based irrigation decision aide is a model

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based on assumptions about the turf species and soil conditions most often encountered in different regions of North Carolina. It is only as accurate as the information which is provided by you the user.

TIMS does not cover all soil conditions. TIMS uses weather information from a site which is closest to the user’s address. However, local micro-climate effects may not be taken into account by the model.

The user must make decisions about the use of this program and how effective it is for their particular location and the response of the turfgrass area based on the irrigation provided. An adjustment to the final irrigation schedule should be made based on individual observation.

Is the system perfect? No. Is it better than what you are currently doing? You’ll have to answer that yourself. But given that you may not have access to all controllers, it may help you sound more intelligent when you advise clients about how to manage their irrigation. Some of them are using the system.