

Tools offered to determine how much is enough when watering the grass

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Dr. David Chalmers, Texas AgriLife Extension Service state turfgrass specialist, discussed a deficit-irrigation study on turf during the annual field day at College Station. (Texas AgriLife Research photo by Kay Ledbetter)

Watering grass, whether in a park, a football field or a homeowner's yard, was an issue throughout the summer as those responsible for upkeep tried to keep things green under drought conditions.

But pouring [water](#) onto grass during periods of drought is not necessary and can even have the opposite effect of what lawn managers might want, according to Texas AgriLife Extension Service experts.

Dr. Jim McAfee, AgriLife Extension turfgrass specialist in Dallas, and Dr. David Chalmers, AgriLife Extension state turfgrass specialist in College Station, say two things are needed for anyone to maximize the effectiveness of the water they put on grass – sprinkler auditing and

evapotranspiration information.

The goal this summer was to not lose the grass, Chalmers said. To accomplish that, consumers need research-based information on the minimum amount of irrigation required to maintain the viability of warm-season turfgrass, regardless of the appearance, through long-term drought.

Chalmers conducted a three-month study this summer looking at deficit turf irrigation on St. Augustine grass based upon [weather station](#) evapotranspiration data. The study indicated that even at levels of 24 percent of the evapotranspiration rate, which is considered very high stress, and 36 percent or normal stress, the ground cover will be greatly reduced but the plant population would be maintained for regrowth and lawn recovery when more moisture is available.

The amount of irrigation needed to maintain warm-season turf with acceptable quality was equal to 60 percent of weather station evapotranspiration, Chalmers said.

Evapotranspiration for some areas can be found by going to texaset.tamu.edu and clicking on the county and weather station nearest to the lawn. It will calculate how much water needs to be applied with input of a little information, McAfee said. This site does not cover the entire state, so others may need to find an alternative source for collecting the evapotranspiration rate.

“In addition to knowing how much evapotranspiration is taking place, you have to know what your system is putting out,” he said.

So one of the first steps to correctly and efficiently water grass is auditing the sprinkler system in use, McAfee said.

“In some cases, reducing the amount of water these people are putting on their sports fields can actually improve the field,” he said. “The whole thing is about having available oxygen to the roots. Overwatering can reduce the quality of the field, because the roots can’t get oxygen when they are water-logged.”

He estimated that most football fields inside a track, about 90,000 square feet of turf, are on average overwatered by as much as 30 percent, or about a million gallons overage per field annually.

“A few simple measures will help you determine how much water you are putting on,” McAfee said.

To conduct a proper audit, however, he advised first running the system and fixing all broken heads, leaking heads and misalignments.

“For sports fields, we place the catch cans out by zones and then run that zone for a set period of time, generally 10 to 15 minutes. Then we record the amount of water collected in the catch cans and enter that value plus the run time (in minutes) into a computer program that calculates the precipitation rate (in inches per hour) and the distribution uniformity,” McAfee said.

The computer program for calculating this information was developed by Dr. Guy Fipps and Charles Swanson, both with Texas AgriLife Extension Service.

“For homeowners who don’t have the catch cans and want to do an irrigation audit, then we recommend placing tuna cans or similar type cans out by zones,” McAfee said. “The homeowner runs that zone for a set period of time, say 10 minutes. They then measure the depth of water in each catch can and they calculate the average depth for all the tuna cans in the one zone.”

Multiplying that number by six will provide the homeowner with information on how fast their irrigation system is applying the water, he said.

AgriLife Extension has catch cans that can be ordered from agrilifebookstore.org/, search “catch can.” They are simple to use and are about half the price of some others, he said, but added another alternative for home lawn sprinklers are cat food or tuna cans.

For the sports field manager, an alternative to the catch-can system might be looking at the water meter before turning the system on, then run it for 10 to 15 minutes. Turn it off and read the meter again to determine the output of gallons for that time period. Then determine what the evapotranspiration rate is and apply about 60 percent of that rate.

“You need to do this audit at the time of day you will normally be watering, because it can make a difference. A city’s water pressure varies throughout the day, depending on use and that can affect how much your system is putting out,” McAfee said.

He recommended watering sometime between 3 a.m. and mid-morning because reduced wind means better distribution and less evaporation. Irrigation just before dawn also helps keep turf diseases to a minimum by reducing the leaf wetness period as opposed to early evening watering.

Educating the public on techniques to save water and save their turf is important during periods of drought, but also a good practice year in and year out, McAfee said.

“I did an audit on one lawn that was 10,000 square feet and the owner was putting on 100,000 gallons of water per month,” he said. “That’s way

over the 20,000 to 30,000 gallons that yard needed.”

One problem, McAfee said, is many homeowners never change their sprinkler system from the rate they set it at when they were establishing the lawn to what they need for maintenance.

“We are starting through the Master Gardener program to try to get people to work with homeowners and educate them on efficient lawn irrigation,” he said.

The Texas Master Gardener program is a statewide volunteer horticulture-related program in conjunction with AgriLife Extension.

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