

North Texas Water District invests in automated water-use website

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'WaterMyYard' project could potentially cut landscape water use in half

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COLLEGE STATION — A new pilot project by the North Texas Municipal Water District has the potential to save millions of gallons of water every summer on over-watered landscapes, according to Dr. Guy Fipps, Texas A&M AgriLife Extension Service irrigation engineer, College Station.



The water district services about 60 cities and communities in the north central Texas area, including Plano, McKinney, Terrell, Garland, the Colony and Farmersville, representing about 1.6 million users, according to Denise Hickey, public relations coordinator for the district.



Residential landscape irrigation typically accounts for about half of municipal water usage, and studies have shown that homeowners often overwater their landscapes by as much as 50 percent, according to Texas A&M AgriLife Extension Service irrigation specialists. (Texas A&M AgriLife Extension Service photo by Robert Burns)



The district has been faced with some serious water supply problems in the past few years, Hickey said. First there has been the ongoing drought, dropping reservoir levels. And Lake Texoma, once making up 28 percent of the district's water supply, has been offline since 2009 because of a zebra mussel infestation. The mussels multiply rapidly, and clump together and cause many problems, including clogged pipelines.

The WaterMyYard project incorporates automated weather stations situated throughout the district that feed data to a website, <http://WaterMyYard.org>. Website software uses evapotranspiration – usually termed “ET” – rates to calculate weekly irrigation recommendations specific to areas within the district, Fipps said.

Evapotranspiration is a measure of how much water plants need to grow and stay healthy, he explained. Water requirements depend not only on the type of plant, but also on local weather conditions such as temperature, relative humidity, wind speed and solar radiation.

This may all sound complicated, but it's been made nearly a “no-brainer” for water district customers, Fipps said

“The WaterMyYard website employs simple, intuitive images and information prompts,” Fipps said. “With a few clicks, homeowners get recommendations on how long — in minutes — to run their irrigation systems.”

Users can also subscribe to get watering recommendations emailed to them on Mondays of each week, he said.

Since 1994, Fipps has been promoting the use of scientific weather station data on websites to promote more efficient use of water in urban landscapes and agricultural crops. Called the “TexasET Network,” the associated website (<http://TexasET.tamu.edu>) posts daily weather and has tools to determine watering requirements for landscapes and crops that are available to all.

“Evapotranspiration and irrigation needs are calculated from local weather data using internationally recognized and standardized methods,” Fipps noted.

Studies have shown homeowners typically apply twice the water needed to maintain lawns. Even in a ‘wet’ year, this is wasteful as it not only represents misuse of water but the extra cost of energy needed to pump the water, he said.

One limiting factor in his promotion has been the number of weather stations needed to make accurate recommendations, he said. Texas has a lot of microclimates, particularly in urban areas.

“The initial investment in hardware does have real costs,” he said. “Unlike other states which fund statewide ET Networks, we do not receive state funding to maintain our [TexasET network](#). In order to help cover costs, TexasET depends upon local sponsors to purchase the weather stations and cover communication and maintenance costs.”

The North Texas Municipal Water District has decided the potential payback was worth the investment and sponsored seven weather stations and the [WaterMyLawn website](#), Hickey said.

The district purchased the seven weather stations and worked with Fipps to get the stations installed and the website up and self-sustaining.

Each weather station that meets TexasET Network specifications costs about \$5,500, Fipps said.

There are other associated costs to the water district, he said. The installation cost of each station will vary, depending upon site requirements and the sponsor’s preferences.

As the TexasET specifications are for a scientific-grade station, the sensors need to be sent into the manufacturer for calibration every year or two, a process that typically costs about \$400.

“We also recommend sponsors keep on hand an extra set of sensors so there is no data interruption when sensors are recalibrated or must be replaced,” Fipps said.

An extra set of sensors costs about \$1,700.

There is also a fee for being part of the TexasET Network. The fee begins at \$3000 but varies, depending upon such factors as the number of stations, and is determined on a case-by-case basis, he said.

As part of the TexasET network, Fipps and his associates help the water district with many aspects of maintaining a local or regional network, including:

- Assisting the sponsor with the purchase and siting of the weather station.
- Providing advice on the most appropriate communication method(s) based on local situations.
- Helping set up Internet transfer – if needed.
- Downloading station data on a daily basis, performing error and data quality checks, calculating evapotranspiration, and posting the information on the TexasET website.
- Assisting the station manager with any troubleshooting problems that occur, as well as aiding with sensor recalibration and installation.

The TexasET network will also offer other services at-cost, such as weather station installation, the creation of customized webpages, and information delivery, Fipps said.

Hickey said she has high hopes for the water savings – and therefore the cost savings to the district. She also noted the program has the potential to cut customers’ monthly water bills by nearly half during the summer.

The biggest hurdle, however, is informing homeowners of the website and getting them to use it. Since [WaterMyYard](#) went online in May, only 262 of the 100,000 targeted households have subscribed to the program.

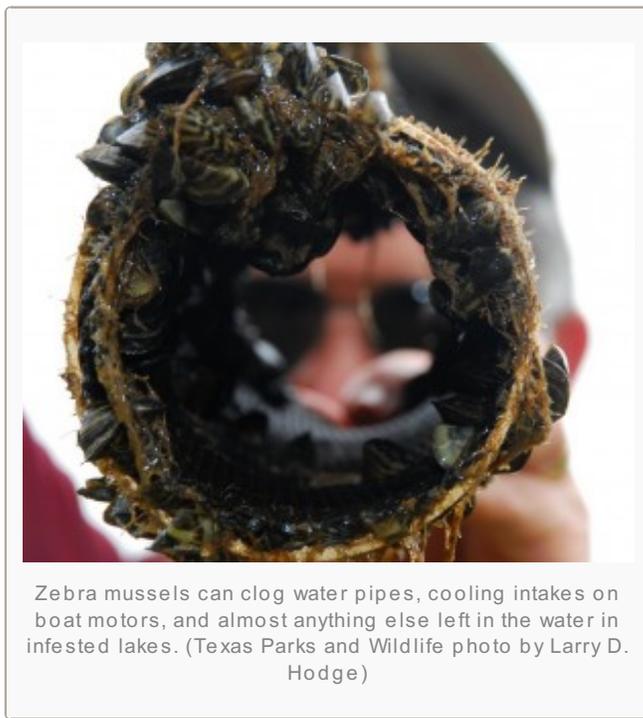
Because of the drought and the problems with Lake Texoma, the district is currently on Stage 3 water restrictions, which means homeowners are restricted to once-a-week waterings. From surveys, Hickey said the district knows homeowners tend to overwater during the once-a-week watering, a practice which not only wastes water and raises peak water demand but also harms lawns.

“It takes a variety of water efficiency and water conservation tools to gain water reductions,” Hickey said. “We know outdoor irrigation directly affects peak-use demand in the summer months, and this is a tool to educate consumers on how much water the landscape actually requires to remain healthy.”

“Over the past 60 years, research and demonstration projects have shown that using ET-based irrigation schedules can save significant amounts of water – from 20 to 50 percent,” Fipps said.

Hickey emphasized the service and the email recommendations are provided free to North Texas Water District customers.

For more information on sponsoring a weather station and becoming part of the [WaterMyYard](#) program or [TexasET Network](#), contact Guy Fipps, 979-845-7454, g-fipps@tamu.edu; or Charles Swanson, 979-845-5614, clswanson@ag.tamu.edu.



Zebra mussels can clog water pipes, cooling intakes on boat motors, and almost anything else left in the water in infested lakes. (Texas Parks and Wildlife photo by Larry D. Hodge)