

Ag water news you can use—
TEXAS AWE REPORTER.

The GM's Report: The Why of AWE

We are now well into the eighth year of a ten-year grant from the Texas Water Development Board. Under this Agricultural Water Conservation Demonstration Initiative, we've been conducting research into best practices for irrigation water efficiency and ag water conservation, both on the farm and in our district management practices.



technological tools, news stories, and notice of upcoming workshops at the Rio Grande Center for Ag Water Efficiency.

You'll find these resources to be useful and user-friendly; our goal is to help you save time and money on your farm or in your district with ag water efficiencies.

In the past year we have begun to share what we've learned through a concerted public outreach effort. We are now calling our grant program the "Texas Project for Ag Water Efficiency," or "Texas AWE" for short, and we have a new, dedicated website to deliver our findings, facts, and news: TexasAWE.org.

We've loaded the website with a number of educational tools—an AWESome video series, fact sheets, technical reports, specifications for our automated gates and other

Please visit and bookmark the site, as we're continually updating it with new and useful information. We even have a Facebook page, and we encourage you to "Like" us to receive updates about the project and help spread the word about irrigation efficiencies in the Lower Rio Grande Valley.

Wayne Halbert
 General Manager, Harlingen Irrigation District

TEXAS AWE REPORTER

A PUBLICATION OF THE TEXAS PROJECT FOR AG WATER EFFICIENCY

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THE GM'S REPORT:
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The Texas Project for
 Ag Water Efficiency is
 developed and managed
 by the Harlingen Irrigation
 District with grant funding
 from the Texas Water
 Development Board.



From river to farm.

"Surge Valve Cooperative" Offers Water-Saving Tool at Dirt-Cheap Price

With irrigation water in tight supply these days, smart growers are looking for cost-effective ways to make every drop count. It's time to look to the Surge Valve Cooperative.

The Cooperative is a new initiative of the Rio Grande Regional Water Authority (RGRWA) aimed at putting surge valves to work in the Lower Rio Grande Valley. The Authority was intrigued by the results of Texas AWE field demonstrations showing that the use of surge valves in furrow irrigation can reduce water consumption by as much as 52 percent.

Surge v. Furrow

Crop (Date)	Volume of Water Used/Acre (in acre-inches)		Savings with Surge
	Furrow	Surge	
Sugarcane (2005)	30.68	14.64	52%
Cotton (2005)	19.53	13.48	31%
Seed Corn (2007)	23.95	17.31	28%
Cotton (2010)	18	14	22%

Growing sugarcane in the Lower Rio Grande Valley uses some 252,000 AF of water per year, and irrigated cotton about 111,000 AF/yr. Based on Texas AWE findings, using surge valves to irrigate these crops could save around 110,000 acre-feet of water per year in the region, an amount equal to about 40 percent of current municipal demand.

The possibility of such impressive water savings is thwarted by cost. Each surge valve comes with a price tag of about \$2,000, making this equipment economically unfeasible for most producers in the region.

Surge Valve Co-op to the Rescue!

The RGRWA has just been awarded a WaterSMART grant from the U.S. Bureau of Reclamation that will offset the

(continued inside)



Customized surge valve with solar panel.

"Surge Valve Cooperative"
(continued)

cost of surge valves for up to 32 volunteer cooperators in an extended demonstration of the technology.

Cooperators will receive up to two surge valves—enabling irrigation of about 50 acres per valve—for an initial payment of \$350 each. To receive the valves at this discounted price, cooperators must register for the project and attend a special one-day training session conducted by Texas AWE staff on how to use the equipment for maximum irrigation efficiency.

Once surge valves are in operation, water use will be measured during actual irrigation. Several cooperators will be chosen for in-field, follow-up evaluation by Texas A&M specialists. Cooperators who participate in a final wrap-up meeting about field experiences and common issues and problems will receive a \$50 rebate on each valve, bringing total valve cost down to \$300 each.



Two all-day training sessions are scheduled: Tuesday, Sept. 17, and Wednesday, Sept. 18, at the Rio Grande Center for Ag Water Efficiency, located next to the Harlingen Irrigation District's river pumping plant.

Registrations for the Cooperative will be taken on a first-come, first-served basis. Registration forms are available online at www.TexasAWE.org or from HID staff by calling 956.423.7015.

Details on surge valve irrigation are provided in an *AWEsome Facts* sheet available at the HID office and on the Texas AWE website. Click on "Resources" and then on "Fact Sheets."

And stay tuned for more! Texas AWE researchers currently are gathering data from another on-farm demonstration of surge technology that calculates not only inflows but also runoff. Preliminary data indicate that surge has significantly less runoff, meaning that the water savings in this area could eclipse the savings in application. **AWE**

Deliver Our Water Now!

No water because of drought is one thing, but no water because of politics is quite another.

Politics are a big reason behind the declining levels in the Amistad-Falcon reservoir system—specifically, Mexico's failure to deliver water to the Rio Grande as required by its 1944 Treaty with the United States. Mexico currently is short 477,000 acre-feet—enough water to supply all municipal and industrial needs in the region for two years—and the deficit is growing.

The impacts are considerable: several irrigation districts have run out of water while others have drastically reduced allocations to farmers. And the lack of irrigation water in canals is affecting cities and towns that depend on irrigation districts to carry their water supplies from the Rio Grande to treatment plants. The economic losses, say experts, could exceed those suffered 10 years ago, when Mexico also failed to comply with treaty obligations.

Many are faulting the International Boundary and Water Commission, part of the U.S. State Department, for not doing its job of ensuring

Texans for Treaty Compliance.org
Deliver our water NOW!

Get facts. Sign petition. Click here.

Campaign web banner is available for supporters to place on their own websites.

treaty compliance, despite repeated prodding by Texas state and federal lawmakers and public officials.

Dissatisfied with the lack of action from "diplomatic meetings," the Rio Grande Regional Water Authority has launched a grassroots effort to raise awareness of the deficit and galvanize public opinion to demand a resolution.

An online campaign is now underway to collect thousands of signatures urging President Obama to take action on this important issue for the Valley.

Signing the petition is easy: just go to www.TexansForTreatyCompliance.org and click on "sign the petition." The website also provides information about the Mexico water deficit issue. **AWE**

Raised Beds & Furrow Flood Irrigation Reduce Risk of Citrus Diseases

Irrigating citrus trees in raised beds with "furrow flood" techniques is showing promise as a means of warding off disease in young trees while also saving water.

The evidence comes from a new field demonstration site launched in 2012 at the Texas A&M University-Kingsville Citrus Center. "The site encompasses a mixture of crop management treatments, allowing producers to see in practice alternative ways to grow citrus using less water," says Dr. Shad Nelson.

In one demonstration, year-old citrus trees were planted in raised beds approximately 6 feet wide. The edge of the bed is cut to create a long furrow, enabling irrigation water to flow the length of the bed and percolate into the soil. From there, the water moves laterally, directly supplying the citrus feeder roots.



Besides being an efficient irrigation method, the raised bed furrow flood technique also appears to reduce the incidences of both *Phytophthora* (a predominant soil-borne pathogen problem) and root-rot (a leading cause of tree decline and death commonly spread in traditional flood irrigation practices). **AWE**



Rio Red grapefruit planted on raised bed with tarp and side furrow flood irrigation.

PRODUCER SPOTLIGHT

JIM HOFFMAN

Jim Hoffman began planting citrus trees in the Valley in the mid-1970s and now farms approximately 70 acres of orange and grapefruit trees. Always interested in innovation and new techniques, Jim began experimenting with drip and micro-jet irrigation in the early 1990s and signed on as a cooperator in Texas AWE demonstrations led by Dr. Shad Nelson.

Texas AWE talked with Jim about the benefits of participating in the project and using water-conserving technologies and his thoughts on the future of water in the Valley.



Jim Hoffman explains new irrigation methods during a Texas AWE field day.

This [Texas AWE] program helped me install soil moisture sensors so I could tell on a daily basis how much water is in the soil, and that tells me exactly when I need to irrigate and how much water I need. Before using the sensors, I was just estimating the amount of evaporation in the soil and making a best guess on when to irrigate. My water use is just much more precise and efficient with these moisture sensors.

With drip and micro-jet, I can save about 50 percent of the water that we would normally use in a flood irrigation system. That becomes very important since water costs now are approaching \$30 to \$35 per acre-foot of water. If you can cut your water costs by half, that's significant.

We did go through some drought periods back in the early 2000s and water use was restricted. A lot of people that were doing flood irrigation actually ran out of irrigation water. But with a drip system we use about half the water needed for a normal flood system. So, I was able to very efficiently use the water that was allocated to me for the citrus trees. And consequently, I had extremely good yields during that period when other people suffered because of lack of water.

"I think it's essential that everybody really begin conserving water now and not wait until it really gets crunch time."

*I think water costs are going to double, if not triple in the next 10 to 15 years [and] there's going to be a lot of pressure on the agricultural community to better utilize the water. I think it's essential that everybody really begin conserving water now and not wait until it really gets crunch time. **AWE***

HID Hosts New Addition to Ag Weather Station Network



Texas A&M AgriLife research team installs the new weather station adjacent to the Rio Grande Center for Ag Water Efficiency.

Farmers are always talking about the weather. Now, technology is making it possible for the weather to talk to the farmer.

A multi-measurement, high-tech weather station has been installed near the Harlingen Irrigation District's river pumping plant that will help take a lot of the guesswork out of crop water requirements, irrigation timing, and general crop management for area farmers.

The weather station measures several variables: solar radiation, wind speed and direction, temperature, relative humidity, and rainfall. Eventually, the station will also include a program that measures soil temperature to help guide farmers on optimum planting times for specific crops and best times for pesticide application.

The weather station is one of five planned installations that will cover the Rio Grande Valley with a network of weather information. Currently there are two in Weslaco and one in Rio Grande City in addition to this new station near Harlingen. Plans call for adding another station in Brownsville to round out the network.

Data collected from the weather stations are accessed online at: <http://southtexasweather.tamu.edu/>

The Valley's weather station network is the work of Dr. Juan Enciso, Texas AgriLife researcher and Texas AWE partner, and is made possible by a Conservation Innovation grant from USDA-NRCS and other partners. **AWE**