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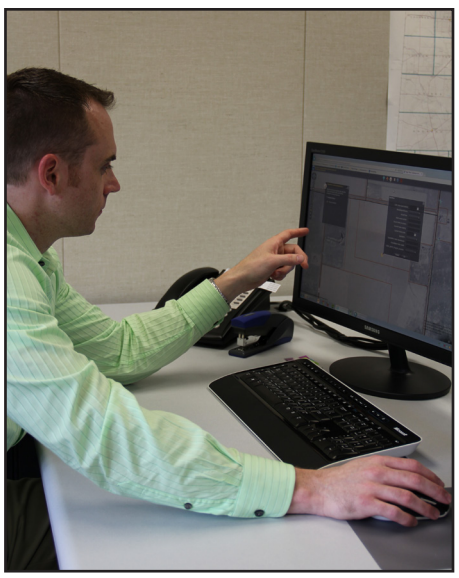
The Cross Section

Volume 58 -- No. 4 THERE IS NO SUBSTITUTE FOR WATER! April 2012

A Monthly Publication of the High Plains Underground Water Conservation District No. 1, Lubbock TX

New water meter installations can be reported on-line



Meter Module

GIS Specialist Jed Leibbrandt demonstrates how to plot the location of a water meter using the on-line reporting site.

Commercial installers and water well owners/operators can now use an on-line site to report new water meter installations within the High Plains Underground Water Conservation District No. 1.

A link to the new module is located on the front page of the High Plains Water District web site at **www.hpwd.com**.

"Persons may now use the site to create a user account, associate owners/properties with the user account, plot the location of the meter or alternative measuring method on National Agricultural Imagery Program (NAIP) aerial images, and update information about the meter installation," said Field Data Collection Supervisor Gerald Crenwelge.

He encourages persons to use the new site for several reasons.

"There are several benefits in using the site: (1) Persons may review information about their property/properties as it is shown in the HPWD database; (2) it allows access to maps of the property/properties with the latest NAIP imagery; (3) it allows easier identification and processing of meters for EQIP approval; and (4) it will ultimately replace paper forms to be completed and forwarded to the Water District's Lubbock office," Crenwelge said.

In addition, a later module will allow persons to review the status of their banked water.

Please see an accompanying article on Page Two describing creation of new user accounts and methods to enter property and meter installation data.

Assistance is available to guide persons through the new water meter reporting method.

"A video tutorial on the new site offers instruction on how to complete the meter reporting process. Plus, persons can always stop by the HPWD office or call (806) 762-0181. Several staff members are available to assist persons in setting up their on-line account," said General Manager Jim Conkwright.

Other modules will be added in the near future to allow users to verify contact/property information, draw boundaries of contiguous acres and associate them with meters, associate meters with wells, and report water use for the 2012 crop year.

Researchers: Timing critical when irrigating cotton on Texas High Plains

By Steve Byrns
AgriLife Today

In semi-arid farming regions where every drop of water counts, Texas AgriLife Research scientists say timing the application of available water is becoming more critical when it comes to irrigating cotton.

Jim Bordovsky, research scientist and agricultural engineer with AgriLife Research at Halfway, is collaborating on a project with Drs. Dana Porter and Jeff Johnson, Lubbock-based Texas AgriLife Extension Service agricultural engineering specialist and AgriLife Research economist, respectively.

They recently completed the second year of a study to optimize water-use efficiency, lint yield and fiber quality of cotton under limited water conditions by evaluating a combination of irrigation amounts during different growth periods using Low Energy Precision Application or LEPA irrigation.

Bordovsky said the growth periods used in the study are generally described as: vegetative – from planting until very early bloom; reproductive – early bloom to just past peak bloom; and maturation – bloom to initial boll maturity. Their overall objective

was to improve water efficiency in the semiarid Texas High Plains region by learning when a cotton crop responds best to combinations of limited and adequate water.

"Our irrigation water comes from the declining Ogallala Aquifer, where its availability for a given field can change dramatically within a single growing season," Bordovsky said. "Shortages also occur when producers must divert water from cotton and give it to another crop, because that crop has reached a critical growth stage or simply because it's worth more. Abrupt changes could also occur if irrigation wells are lost or annual irrigation volumes imposed by regulatory mandates are reached before the end of the growing season."

Bordovsky said wise planning of irrigation based on a farm's underground water resources, available water allowances and the region's erratic rainfall will go a long way toward High Plains producers being productive in coming years.

"In situations where available

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In This Issue

Amarillo AgriLife Center features rainwater harvesting demonstration

Rainwater Rewards

Nich Kenny shows how drip irrigation will distribute harvested rainwater on the square-foot garden plots at the Texas AgriLife Research and Extension Center at Amarillo. *(Photo by Kay Ledbetter)*

By Kay Ledbetter
AgriLife Today

AMARILLO – With the landscape and rooftop availability at the Texas AgriLife Research and Extension Center in Amarillo, Nich Kenny, Texas AgriLife Extension Service irrigation specialist determined it is the perfect site to demonstrate rainwater harvesting and garden plots.

"We've been working on a project where we will collect rainwater and demonstrate multiple types of gardening plots, as well as develop turfgrass demonstration plots," Kenny said. "Ultimately, we want to develop a comprehensive small-acreage landowner system where we can show some fruit and nut trees and ways to manage all of that off the natural systems here."

Kenny said this project, sponsored in part by the Ogallala Aquifer Project, is aimed directly at conserving and making the best use of water – in this case it is harvested rainwater.

"We've got a setup where we can catch water in a large container directly off the center, which has lots of roof space and land space, and make the best use of that water coming off the roof to demonstrate to the public things we can do to be very conservation-conscious at our homes, as well as in small-acreage settings," he said.

The rainwater harvesting system built at the center collects the water through an internal-pipe rain gutter system, Kenny said, and then it is forced back up to the top of the tanks through a gravity-flow system. The tanks are 3,600 gallons each, or collect about 3,300 gallons to overflow.

"This year in the midst of a drought, we filled three of these tanks – approximately 9,000 gallons of water – on 6 inches of rainfall," he said. "That's a pretty effective way to capture water."

With a one-inch rain, Kenny said approximately 0.6 gallons of water will be collected per square foot of rooftop.

"You can start to add that up on a standard house and basically what you end up with is a whole lot of water that can be stored," he said. "Next you have to figure out what to do with it.

"One thing I've noticed is that people involved in gardening tend to be more conservation minded," Kenny said. "And so the strategy we took was trying to demonstrate how to use this rainwater in multiple garden settings: the square-foot gardens, larger box gardens and a traditional-size garden.

"The square-foot gardening technique is incredibly efficient in terms of water use as well as plant production, whether it be for a vegetable or ornamental garden," he said. "We wanted to compare the

See DRIP Page Three

District provides overview of how to use new on-line meter reporting site

Persons following the link from the High Plains Water District web site are directed to the help page of the on-line meter reporting site.

New users need to create an on-line account by clicking the "sign-up" tab at the top of the page.

An electronic form appears which allows persons to enter their e-mail address and a unique password (*which they select*) for future access.

Additional required data on the form includes name, address, city, state, Zip Code, and phone number.

When data entry is complete, new users can click the "create account" button to proceed.

They can then log-in to the program by entering their e-mail address and password.

From the "My Account" page, users can add property/meter data using two methods: either by owner name or map location.

Adding property by owner name brings up an accompanying form which allows users to designate their role in the property: owner, commercial meter installer, or operator (*a legally authorized representative of the owner, such as a tenant or farm manager*).

Property descriptions, based upon data from the county appraisal districts within the 16-county HPWD service area, are then shown for that person's name.

One or more properties can be selected.

After confirming authorization to add property, users can click a button to "add property." Once a property is added, a new "reporting" tab is accessible from the top menu.

The other method is to select property from a map, which may be easier for most.

Persons may zoom into property based upon location on the HPWD boundary map or by entering the latitude and longitude. This will bring up a visual image of the property, similar to that of Google Earth.

From this view, users can click on the large orange plus sign to select the property of interest.

They can then choose their role in the property, confirm authorization to add meters, and choose water user for each property added. Again, once a property is added, a "reporting" tab is then accessible.

A meter icon is located on the toolbar at the top of the page. This can be used to add a point where water production is being metered on the property.

Users can designate if this is a meter or an alternative metering method location. The legal description and owner information is displayed for verification.

A second screen allows persons to enter meter installation/reading date, manufacturer/device, model or type, serial number, size of meter in inches, and initial meter readings.

It is important to note that the pull down menus on the form will only display meters on the High Plains Water District's approved meter list.

Maps are designed to optimize their performance on the web. As a result, layers will turn on and off as users zoom in and out.

The High Plains Water District emphasizes the fact that ownership information and legal descriptions were obtained from the respective County Appraisal Districts for the purpose of this on-line meter reporting site.

Private or sensitive data, such as phone numbers, residential addresses, or financial information relating to the property or property owner, is not part of the site.

The Cross Section

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THE CROSS SECTION (USPS 564-920) is a monthly publication of the High Plains Underground Water Conservation District No. 1, 2930 Avenue Q, Lubbock, Texas 79411-2499. Periodicals postage paid at Lubbock, Texas.

The Cross Section welcomes your comments. Please send Letters to the Editor to *The Cross Section*, High Plains Underground Water Conservation District No. 1, 2930 Avenue Q, Lubbock, TX 79411-2499. Letters addressed to *The Cross Section* become the property of the newsletter and it owns all rights to their use. Letters may be edited for space and clarity.

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Weather often impacts retention of pre-plant irrigation water in the soil

Continued From Page One

water can't meet the needs of the plant throughout the growing season, the irrigation-research community has recommended and producers have generally followed the practice of 'banking water' or attempting to partially fill the soil profile with pre-plant and/or early-season irrigations in April through June," Bordovsky said.

"While a full profile is very desirable and pre-plant irrigation is absolutely necessary in some years, our work indicates that under potential water constraints, the strategy of filling the profile by irrigation may need to change or at least be tempered for irrigated cotton."

That's because with typically high wind speeds, high air temperatures and low humidity in the spring, it's extremely difficult to retain early applied water in the soil until the time when cotton plants really need it in July and August, he explained.

"In addition, early season water applications exceeding crop water demand can be lost through evaporation or excessive plant growth, which translates to non-productive water use and the potential of running out of restricted water units before the end of the growing season."

Bordovsky and his team gathered data from two very different years with record-breaking extremes, high rainfall in 2010 and the drought of 2011, and saw similar results when irrigation timing was considered.

"During the record-setting drought of 2011, research results indicated that trying to store water in the soil profile in excess of the cotton plant's evapotranspiration rate during the month of June was ineffective. That was the second year of the study, but the 2010 data collected during a wet year indicated the same thing."

So when is the best time to water?

Based on results to date, Bordovsky said producers should ensure they have irrigation available in the reproductive and early maturation periods of cotton development.

In this study, water applications resulted in more than 100 pounds of cotton fiber per acre-inch of irrigation during these latter periods compared to less than 20 pounds per acre-inch from water applied above the crop water demand during the vegetative or "water banking" period.

"Additional field tests should provide the foundation for in-season irrigation recommendations for producers with specific irrigation volumes and irrigation capacities," Bordovsky said. "We hope that the eventual findings will help High Plains cotton producers optimize their total water use when faced with limited water volumes."

Bordovsky said this research is supported in part by the Texas State Support Committee of Cotton Incorporated and the U.S. Department of Agriculture-Agricultural Research Service Ogallala Aquifer Program, a consortium among the U.S. Department of Agricultural Research Service, Kansas State University, AgriLife Research, AgriLife Extension, Texas Tech University and West Texas A&M University.

Additional information is available by contacting Bordovsky at 806-746-6101 or e-mailing **j-bordovsky@tamu.edu**.

APPLYING PRE-PLANT IRRIGATION WITH A CENTER PIVOT

Drip irrigation transports harvested rainwater to demonstration plots

Continued From Page Two

other systems to this for efficiency."

The system has drip hoses coming into the different settings, "so we can isolate where the water goes. Unlike a traditional garden, where you have water running down the furrows and maybe out of the garden or on the bare surface, you can eliminate all of that by putting the water directly where the plant can use it," Kenny said.

Another benefit, he said, is rainwater doesn't contain the salt or chlorine that may be in city water, and the plants respond a lot better. The water also is basically free once storage tanks and facilities are built.

To establish the square-foot gardens, he said they built a planter box that is about 6 inches deep, and is constructed from 2-by-6 inch boards in a 4-foot by 4-foot square to provide 16 square feet of garden space.

"We built the soil in there completely," Kenny said. "It is compost, vermiculite and peat moss combined in equal proportions. That allows for a good soil structure."

Some of the square-foot gardens are on elevated beds for people who might have a bad back or bad knees and can't get down to garden or who might be in a wheel chair or those who want to sit while they garden. These are right at hands reach, he said.

"We also have the more inexpensive model that is a standard square-foot garden strategy built on the ground," Kenny said.

"In this case, you just put down a weed cloth and build the plot over it and fill it up and it's the same exact premise."

In a larger box, he said they used 2-by-12 inch boards and filled about half of the box with sand and then put the soil mixture on top of that.

"The idea there was when you have potatoes, carrots, radishes or turnips or onions or things with a rooting bulb you want to harvest, it has plenty of depth for that root to grow," Kenny said.

"One of the reasons we filled it with sand was obviously for expense," he said. "But the main reason is so the water can freely move out of it so you don't wind up with saturate conditions or fungal conditions or anything that is going to cause any sort of root rot or plant damage.

"The idea is you get just enough water on to do the work the plant needs done and then you can pull the water off and manage it very efficiently."

Kenny said all of this is a work in progress and this is the first year any of the gardens will have any plants in them.

The traditional garden plot has had manure on tilled ground for six months. In addition, a fence is being built around it to keep rodents out.

The ultimate goal is to compare efficiencies between the different sizes and styles of gardens, and also utilize the rainwater and see how far it can be stretched.

"I think we will see this year that we will have enough water to spare by what we've captured in our tanks," Kenny said. "And hopefully the public will be able to see ways they can improve gardening at their home as well as improve their water conservation efforts."

Students recognized for best water-related science fair projects

Three area students received special awards from the High Plains Underground Water Conservation District for the best water-related project at the 56th South Plains Regional Science and Engineering Fair, March 23, at the United Spirit Arena in Lubbock.

Sophia Medina, a fifth-grade student at Lubbock's Harwell Elementary School, received the elementary school award for her project, "Clear as Crystal."

Medina's project examined the presence of arsenic in Lubbock County water wells. She was prompted to conduct the project after a friend's dog began having health problems that were allegedly linked to arsenic in well water.

Tanner Best, an eighth-grade student at Lubbock-Cooper Middle School, received the middle school award for his project, "Cotton Yield Response to Varying Water Replacement Levels."

Best's project determined how various cotton varieties respond to different levels of water replacement. He said he hoped such research would help guide producers to select cotton varieties based upon available water supplies.

Jenabeth Gunter, a senior at Olton High School, received the high school award for her project, "Water Conservation: From Drain to Drink."

Gunter's project examined the best methodology (*distillation, freezing, or ultraviolet light*) to purify gray water to drinking water quality.

More than 500 area students participated in this year's South Plains Regional Science and Engineering Fair. Each student won at their respective school's science fair and advanced to the regional competition.

"Student awareness about the importance of water and water conservation is increasing. This is reflected in the quantity and quality of water-related projects entered in the science fair each year," said Carmon McCain, information/education group supervisor.

"It is a pleasure to visit with the students as they explain the hypothesis and conclusions. The High Plains Water District congratulates this year's winners for their outstanding projects," McCain said.

Water leaders honored by Texas Water Conservation Association

LEFT: High Plains Water District Precinct 5 District Director Bruce Rigler of Plainview (seated) was one of seven honorees receiving Honorary Life Membership Awards at the Texas Water Conservation Association's (TWCA) recent annual convention in Austin. President James Parks of the North Texas Municipal Water District (center) presented awards to James R. Nichols, chairman emeritus of Freese and Nichols, Inc.; Jimmy Banks, former general manager of the Wichita County Water Improvement District No. 2; and Richard Bowers, former general manager of the Central Texas Groundwater Conservation District. Other recipients not pictured are Juan F. "Frank" Ruiz, former manager of the Cameron County Irrigation District, and Robert Wagner, former manager of the Zavala-Dimmit Counties Water Improvement District. **CENTER**: James Parks presents the 2012 President's Award to Brian Sledge with Lloyd Gosselink, Attorneys At Law. **RIGHT:** Elizabeth A. ("Liz") Fazio, chief clerk of the House Committee on Natural Resources,was also a 2012 President's Award recipient. (*Photos courtesy TWCA*).

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APRIL 2012 ISSUE

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