NORTH PLAINS GROUNDWATER Conservation District

NORTH PLAINS WATER NEWS

Maintaining our way of life through conservation, protection, and preservation of our groundwater resources.

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Now Accepting Master Irrigator Applications

There are still spaces available for the Master Irrigator Class of 2020. This is the fifth year of the award-winning educational program that helps irrigators with the adoption process of technologies and practices that will help them be more efficient with their irrigation water.

The four-day program consists of 24-hours of classroom and interactive presentations by experts covering agronomics, irrigation scheduling, systems and special topics, with the economic perspective of each topic discussed in detail.

Cost-share funds will be available to Master Irrigator graduates to offset the costs of conservation practices. The funding is provided by grants from the Texas Water Development Board. For more information about applying for Master Irrigator you can visit the website at www.northplainsgcd.org/masterirrigator or email info@northplainsgcd.org. Class space is limited.

Master Irrigator Graduating Class of 2019. The district is accepting applications for the 2020 Class until March 13, or until the class is full.

Low Interest Equipment Loans Now Available

The North Plains Groundwater Conservation District (North Plains GCD) has funds available at 2.59 percent interest for the purchase of certain high-efficiency irrigation equipment. The loans are available only to growers within the North Plains GCD boundaries and are subject to credit approval. The loans can be used for center pivot replacements and conversions, pivot monitoring and control systems, soil moisture probes, weather stations and other irrigation efficiency tools, as long as they improve the efficiency of the system.

The loans to growers are the result of a $1,000,000 low-interest loan to the district approved last July by the Texas Water Development Board (TWDB). Back in January, the North Plains GCD board of directors, instructed the district staff to pursue TWDB funding to help producers replace inefficient equipment with water-saving technology and ultimately keep thousands of acre-feet of water in the Ogallala aquifer.

Outdated irrigation systems deliver water to crops less efficiently than newer systems. For example, a mid-elevation spray application center pivot system, known as MESA, has a 78% application efficiency. LEPA, low-energy precision application, is a system developed in the Texas Panhandle in the 1980s that operates at 95% efficiency. For a typical 125-acre, quarter-mile pivot-irrigated field, an upgrade to LEPA from MESA can save an agricultural producer 41 acre-feet (over 13 million gallons) of water in a growing season.

Full program guidelines and loan applications are available by contacting the district at 806-935-6401 and asking for Kirk Welch, or by e-mailing kwelch@northplainsgcd.org.

WCC Demo Update

To help irrigated farmers in the area make the most of every drop of groundwater, the North Plains Groundwater Conservation District demonstrates a variety of conservation methods at the district's North Plains Water Conservation Center (WCC). This year's demonstration list includes a comparison of irrigation strategies, corn and cotton rotations, population trials, fertility management, and a cover crop study.

At the time of this writing in November corn harvest at the WCC is completed and cotton harvest is just beginning. It's the time of the year when an entire season of agriculture water conservation demonstrations come to fruition. While final yield numbers are not yet available, inputs are completed and we can share those, along with harvest estimates for 2019.

Corn

Irrigation on the North Subsurface Drip Irrigated (SDI) Corn was terminated on September 14th with a total irrigation amount applied of 14.7 – 15.2 inches and approximately 10 inches of in-season rainfall. Yield estimates from kernel counts range from 200 - 220 bushels per acre (bpa) across the four different populations.

The final irrigation on the East Pivot Corn was initiated on September 14th and terminated on September 21st. The seasonal application across the East Pivot was 19.5 inches, again with approximately 10 inches of in-season rainfall. Yield estimates across the hybrids in the East Pivot range from 220 – 260 bushels per acre. Grain corn moisture as of late October was in the mid 17's. Early October rains slowed the drying process.

Thanks to the gypsum blocks and soil moisture monitoring equipment that was deployed in these fields, district staff are able to tally the amount of moisture from the soil that was used in producing these crops. According to district contract agricultural engineer Nicholas Kenny the net soil water is about

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District Leaders Selected to Lead Joint Planning

Board VP Bob Zimmer
GMA - 1 Chairman

Board President Danny Krienke
Regional A Rep.

In October, Groundwater Management Area 1 (GMA 1) selected Bob Zimmer, North Plains GCD Vice President, to lead the third round of joint planning. This is Zimmer's second time to be chosen for the role. The districts selected Board President Daniel Krienke as the Region A Water Planning Representative for GMA-1. Mr. Krienke led the first round of joint planning and Mr. Zimmer led the second round, and now will lead the beginning of third round of planning.

GMA 1 is comprised of multiple groundwater districts including North Plains Groundwater Conservation District, Hemphill County Underground Water Conservation District, Panhandle Groundwater Conservation District, and part of High Plains Underground Water Conservation District in the Texas Panhandle.

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Demonstrations (continued from page 1)

break-even in the corn. “It looks like the gross soil moisture extraction is going to be basically zero,” said Kenny. “We had some very heavy late season rainfall. It’s certainly not going to be detrimental, but its not going to contribute much to the water applied to the crop, because it was so close to time to terminate the cotton and the corn crops.”

Kenny said the soil moisture usage number is misleading because the crops actually depended heavily on soil moisture at certain times during the season, even though the crop started and ended with a full profile. The late season rainfall will be taken into consideration as soil storage for the next crop.

Cotton

The 2019 cotton season started late because of heavy rainfall and cooler weather during the regions optimum planting window. These conditions caused many growers to replant, either to a later planted cotton, or to a grain crop.

At the North Plains Water Conservation Center, farmer Stan Spain and Kenny determined to stick with the original cotton crop even though the stands were reduced by approximately 50-percent. The final irrigation on South SDI Cotton occurred on September 15th and 16th consisting of two applications of just under three hours (approximately 0.55 inches) following a two-week dry down.

The decision to apply this last irrigation was made based on the boll load, rapid soil dry down, and National Oceanic and Atmospheric Administration projection of a slightly drier and warmer fall.

Total irrigation on the Replicated Agronomic Cotton Evaluation Trial SDI was 7.8-8.2 inches on the higher irrigated blocks and 4.6 inches on the lower irrigation blocks. Yield estimates were made on September 10th and showed an estimated yield of 2-2.5 bales per acre.

The final irrigation on the cotton in the West Pivot was initiated on Sept 13th and completed on September 16th with a seasonal application across the field of 9.22 inches. Boll counts were performed on September 10th with a yield range from 2.5 – 3 bales per acre. The early observation is that the cotton plants successfully filled many of the gaps in the field, but the higher planted populations showed a clear advantage in maturity and total bolls.

The 3.5 inches of rainfall that occurred between September 30th and October 4th were a real challenge for all of the cotton on the WCC. Signs of new growth were noted on October 8th and a solid freeze hit on October 10th (26°F). While boll opener was applied on October 9, the cotton yield was negatively affected by the freeze.

Kenny explained the challenges that the cotton crop faced this season. First, there was the late start, brought on by a cool spring. The slow start created a need to push the cotton into the fall to try to maximize production potential. When weather reports called for a dry, warm fall, an additional irrigation was applied. Then, three inches of rain in early October and a killing freeze in the middle of the month reduced the positive impact of the last irrigation by putting both corn and cotton into their termination phase.

Kenny says even with this scenario the projected yields look good. “With the grain, we had planted early enough that we were just looking at abiotic conditions to help dry it down. So, really nothing was lost in terms of our yield there,” said Kenny. “All in all it looks like the cotton we were planning on has matured and opened up. We should have really good quality and we are looking at 2-2.5 bales per acre on the drip and 2.5-3 in some of the plots under the pivot.”

Kenny said he feels like these results are respectable and that the economics should be favorable and should produce a good range of results to help growers better understand what cotton is going to do under adverse production conditions.

Once final yield numbers are available, Kenny will begin the process of determining actual water use efficiency of the respective demonstrations, based on the correlation between yield and water applied. Kenny will present his final analysis through virtual field day presentations and at grower meetings during the winter.

Well Capping Program

When a water well is newly drilled and the pump has been installed by a licensed professional, the well likely meets all the local and state regulatory requirements to be properly sealed to keep pollutants from seeping or falling down the well casing. However, anyone that has ever owned or operated a water well for any length of time knows that keeping the well operational can sometimes be a challenge as the well ages.

When the well stops pumping water, we usually call our local pump installer or driller to fix it. Its been my experience that wells, whether large or small, only quit pumping at critical times such as in the middle of irrigating a crop, watering livestock or taking a shower. The task at hand is to get the well pumping again. All other tasks are set aside which sometimes include completing the repair by resealing the well.

In Texas, licensed pump installers or drillers know that when they work on a well, they cannot leave the well site unattended until the casing is properly resealed or capped to prevent pollution. If they remove the pump from the well temporarily or permanently, they know they cannot leave an open hole unattended and are required to cap the well properly until they return.

Though licensed water well pump installers and drillers know the proper procedures to secure a well by sealing or capping it to code, sometimes a landowner exercises their legitimate option to drill their own well or, more commonly, do their own pump repairs. The same rules apply.

Most wells are properly sealed. However, some wells are left open after the pump has been removed, probably because the owner or operator was planning to repair the pump and put it right back in the well. If the pump doesn’t go back into the well, the well is often left open as a pollutant conduit or, even worse, a safety hazard.

Texas made the news over 30 years ago when an 18-month-old child fell twenty feet down an 8-inch diameter well that was left open behind her aunt’s house near Midland. She was saved after over two days of working to free her. Today, the wells in the northern panhandle are far deeper than 20 feet and most large wells are 16 inches or more in diameter.

The district looks for open wells when we are doing well site inspections, usually associated with drilling new wells. Earlier this summer, we changed the procedure for addressing open and unsealed wells. When the district finds a well that is not sufficiently sealed or capped, our staff will attempt to temporarily seal the opening to prevent contamination before they leave the site. The district’s staff carry 16-inch diameter steel plates that can be placed on open well casings and sealed with adhesive as a temporary cap in those instances when there are no obstructions at the surface.

We will notify the landowner or operator if they need to more permanently secure the well. The owner can weld or bolt their own cap on a well or simply use the steel plate supplied by the district. Sometimes, a well requires more work to properly seal the well casing because of obstructions at the surface. The district notifies those landowners to address the issue.

Texas Law and North Plains GCD rules place the responsibility to properly seal or cap wells on water well drillers, water well pump installers, and landowners. Any non-deteriorated well which contains casing in good condition and is beneficial to the landowner can be capped with a covering capable of preventing surface pollutants from entering the well and sustaining weight of at least four-hundred (400) pounds. The covering must not be easily removed by hand.

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Saving Water Saves Lives

Water plays a key role in all areas of life. People know many everyday uses of water, including for drinking, utilities, washing their cars, and so on. For these reasons, most can agree that water conservation is still a vital necessity. Another important function of water is public safety. Water plays an extremely important part in keeping communities safe. One of the most well-known ways it does so comes in the familiar form of big red trucks, sirens blaring, to the scene of a fire.

Firefighting requires massive amounts of water. From the 500 or more gallons carried by trucks and engines to the amount of water it takes to keep the firefighters hydrated as they work to bring a fire under control. Efficiency is key when it comes to fighting fires, especially when a burning structure is large or already has a large portion of the building burning. For this reason, getting a jump start putting the fire out as much as possible upon arrival is important. According to Fire Marshal Ronald Pray of Dumas, firefighters will start with a 'quick attack' when they arrive on a scene. Essentially the process is to begin fighting the fire using the water from the tank of the truck that arrives first to begin controlling the flames. The next step taken is to get hooked up to a nearby fire hydrant, as what is already in the truck's tank will not be enough to finish the job. Often this is done when a second truck or engine arrives thanks to the time bought by the tank water from the first truck. Once a truck is connected to a hydrant, the firefighter switch to hydrant water to continue dealing with the burning structure and refill the tanks in case of emergencies. Pray mentioned that the process from arrival to connecting hoses to the hydrant can usually take no more than five minutes.

For this reason, keeping fire hydrants near structures is also important for public safety. Some may notice that some hydrants are different colors. These colors represent the gallons per minute of water that specific hydrant is designed to handle. When areas are being developed, the fire marshal for that area plays an important role in planning where hydrants will be placed to make sure at least one would be close enough to any given building to be used if need be. "I evaluate the fire protection systems for the commercial side of it, and if it's a new residential neighborhood say how many hydrants we need," said Pray. Things work slightly differently out in rural areas where hydrants are not readily available. In instances such as these, the hoses will be connected to private wells rather than hydrants with the owner's permission. The fire department keeps rough track of the amount of water they use to fight fires, which benefits the owners of these private wells by causing them to not have to cover the cost of the water used themselves.

Water conservation plays a major role in the fire department's mission as well. "Water is our greatest asset in the fire service. It is imperative that we have water. That is what we fight fires with and hydration of our firefighters on these hot days is very, very important," Pray said. Not only does the department do their best to track their water use, they also use special additives to the water they use to make it more effective. Things like foaming agents are mixed into the water within the truck to break surface tension and help the water do its job. An additional benefit of this, as it helps less water to be used in a fire, when a fire is put out there will be less water left standing in a building. This limits flood damage within an already fire damaged structure, possibly saving money in repairs in addition to water savings.

Ron Pray, Dumas Fire Chief, speaks to the importance of water and how the department increases its effectiveness, limits flood damage and saves money on costly clean up repairs.

Joint Planning *(continued from page 1)*

In 2005, the Texas Legislature established groundwater management area joint planning to enhance regional collaboration between local groundwater conservation districts. Texas is divided into 16 groundwater management areas.

The districts in GMA 1 are required to establish Desired Future Conditions for shared aquifers in a GMA. A Desired Future Condition (DFC) is a quantifiable, measurable, future groundwater condition such as groundwater level, a level of water quality, a volume of spring flows, a groundwater volume remaining, or another condition. The chosen conditions serve as management goals and define how an aquifer will look in the future.

GMA-1 uses a combination of groundwater level draw down and volume to establish its DFCs. Based on the chosen DFC, the Texas Water Development Board models how much groundwater is available for withdrawal for each of the major and minor aquifers in the area. These volumes become the permitting and water conservation targets for the districts.

The joint planning process allows for communities to maintain local and regional management of their groundwater resources. The state will use these targets in its regional water planning process.

Texas statute requires submission of updated plans, and updated Desired Future Conditions, to the Texas Water Development Board at least once every five years. The first DFC submission by the districts was in 2010. These conditions were then included in Texas Water Development Board's Groundwater Availability Models to determine the Modeled Available Groundwater for each region.

Contest Winners Create Conservation Calendar

Cover Art Winner, Haylee Vancel, Dalhart Intermediate,"Don't be a Water Hog"

From adorable, colorful illustrations to solid water conservation tips, the North Plains Groundwater Conservation District's calendar art contest remains successful. Students in fourth through sixth grades are invited every year to submit artwork relating to water conservation in hopes of winning a spot on the next year's calendar and a prize! After receiving hundreds of entries from all over the northern Texas Panhandle, North Plains GCD staff members carefully selected from the submitted artwork to determine one grand prize winner to be featured on the calendar's cover and twelve additional winners to appear throughout the year.

This year's grand prize winner is Haylee Vancel-Garcia from Mr. Carranza's fourth grade classroom at Dalhart Intermediate. Her artwork is titled "Don't be a water hog" and depicts a vibrant pink pig in sunglasses with raindrops going to its mouth with "Don't be a water hog" written at the top. Haylee's mother is Tara Vancel-Garcia. The twelve second-place winners are: Hagen Hill of Gruver Elementary, Jordan Schenk of Gruver Elementary, Camryn Clift of Gruver Elementary, Zulet Jaramillo of Sunset Elementary, Taylor Tidwell of Sunset Elementary, Serriaha Guiller of Sunset Elementary, Zoey Sosa of Dalhart Intermediate, Chu L Cho L of Morningside Elementary, Brooklyn Rose of Morningside Elementary, Ayzlee Garza of Hillcrest Elementary, Jazlen Rivero of Hillcrest Elementary, and Fali Leya of Hillcrest Elementary. Congratulations to all the winners, and many thanks to all the teachers and students that participated!

The water conservation calendars serve as colorful reminders of how we can be better stewards of our water throughout the year. The calendars are available to the public at no cost at the North Plains Groundwater Conservation District office at 603 East 1st Street in Dumas, and at city halls in each town within the district.

Fulcrum

The work of the North Plains Groundwater Conservation District field staff has long been an involved process. It required several pieces of expensive equipment, four paper forms, and extensive data entry. This limited how many wells staff could visit, inspect, and document due to the amount of time required. With this in mind, the district is working with an iPad application that combines all the tools required in a convenient, portable, and connected format. The Fulcrum Field Application requires only two pieces of equipment: an iPad and a range finder. With these items and cellular service, the field staff can go to a the site, record the data into Fulcrum, take any pictures needed for the report, add notes, and sync the reports back to the district's server. This process increases daily inspections from around ten wells to fifteen or twenty wells per day.

The Fulcrum app is still in developmental stages. The field staff continues to explore options that will make the applications more user-friendly and better organized. Currently, the field staff uses a modified Microsoft calendar to select and organize field inspections. The inspection and work calendar will be phased out as Fulcrum is developed. Other benefits of the Fulcrum application are a decrease in training time for new staff members, improved accuracy of data gathered and better quality pictures for the report. Thanks to the time saved, field staff can place more focus on programs like random inspections, capped wells, and encroachment. All of this culminates in saved time and saved taxpayer dollars.

District GIS Specialist Odell Ward explains the benefits of the Fulcrum system to the board of directors.

NORTH PLAINS GROUNDWATER Conservation District

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Upcoming Events

- **December 3-5 Amarillo Farm & Ranch Show**
- **January 13 Pioneer Crop Production Clinic - Dalhart**
- **January 14 Pioneer Crop Production Clinic - Dumas**
- **January 15 Pioneer Crop Production Clinic - Stratford**
- **January 16 Pioneer Crop Production Clinic - Spearman**
- **Februrary 12 Panhandle Water Symposium**

www.northplainsgcd.org/events