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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Agricultural Demonstrations Focus on Water Efficiency

Corn and cotton rotations are a part of the ongoing demonstrations at the North Plains Water Conservation Center.

In order to extend the supply of water in the Ogallala aquifer, all water users must save water where they can. Agricultural producers who use groundwater to irrigate their crops can decrease their water consumption by adopting proven conservation strategies and equipment. To show producers the water savings and associated yields that can be achieved, North Plains Groundwater Conservation District showcases a variety of conservation methods at the district-owned demonstration farm, the North Plains Water Conservation Center (WCC) north of Dumas. This year's robust demonstration list includes a comparison of irrigation strategies, a cover crop study, population trials, fertility management, and corn/cotton rotations.

Building on previous water efficiency demonstrations for corn, North Plains GCD is raising high yield corn in center pivot and subsurface drip irrigation (SDI) fields to compare efficiency and yield data. The corn in the north SDI field is presently receiving 0.3 inches of irrigation five times each week, which will continue or increase through the R4 dough stage of development and ramp down as the temperature decreases. Primary irrigation in the west pivot field was initiated on June 25, with about 1.6 inches applied in an eight-day pass.

Corn was planted in the SDI field on March 31 at the rates of 28K, 32K, 36K, and 40K seeds per acre. Controlled for all other inputs, the seed population demonstration can help growers reduce seed costs or increase yield. On the east pivot, corn fertilizer is being managed to target yield goals of 240 bushels per acre on the south half, and 260 bushels per acre on the north half. This is an effort to unlock yield potential in corn to maximize the bushel per acre-inch of water use efficiency across the district.

As cotton acreage has continued to increase in the North Plains, many producers are interested in understanding more details regarding cotton's real

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Rainwater Harvesting Coming Soon to WCC

The northern Texas Panhandle receives an average of 15-20 inches of precipitation each year. Supplementing groundwater with captured rainwater can help reduce a household or business' impact on the Ogallala aquifer. Next year, residents in the North Plains Groundwater Conservation District will be able to see rainwater catchment, storage, and application in action at the North Plains Water Conservation Center (WCC) just north of Dumas, thanks to a $5,000 grant from the Natural Resources Conservation Service (NRCS). The project will include a rainwater harvesting system to supply irrigation for a new water-wise xeriscape garden.

Promotion of rainwater harvesting is in the district's management plan as a method to reduce reliance upon groundwater, and the district has been hosting rainwater harvesting classes on a regular basis since 2009. The North Plains Rainwater Harvesting Demonstration will allow the district to provide the public with hands-on learning opportunities as they explore the design of the rainwater harvesting system. Seeing real-world examples of rainwater harvesting and water-saving landscape renovations may give individuals more confidence to tackle similar projects of their own.

After designing the full rainwater harvesting system, district staff will adapt the gutters on the Richard S. Bowers Conservation Learning Center (the classroom building of the WCC) and install a cistern. In addition to serving as an educational model, the captured rainwater will be used to supplement (and hopefully replace) produced groundwater to sustain the surrounding landscape at the North Plains Water Conservation Center. The landscape irrigation system will be modified to use the stored rainwater instead of pumped groundwater, and the remainder of the funds will be used to implement a water-saving xeriscape garden with beautiful native flowers and shrubs that require very little water.

Since the Ogallala aquifer is a shared groundwater resource, everyone has a role in conservation of that resource. Educating the public on the benefits and strategies of rainwater harvesting and xeriscape gardening through this project will result in water conservation at the North Plains Water Conservation Center and hopefully throughout the region.

Water Leaders of the Future Visit Demo Farm

In July, the North Plains Groundwater Conservation District had an excellent opportunity to inform young people from across the state about how we steward water in the Northern Panhandle. With the help of several guest speakers, our team was able to welcome the Texas 4-H2O Ambassadors to the North Plains Groundwater District's Water Conservation Center (WCC) as a part of their Leadership Academy. The North Plains WCC is one of the only demonstration farms of its kind in the state, so it offers a unique perspective on how water can be managed and conserved. The day consisted of a tour of the WCC including presentations by district staff and guest speakers. The idea was to arm these young adults with information to make them effective ambassadors for water conservation.

The Texas 4-H Water Ambassadors Program is geared specifically toward high school aged students to help get young people involved in the water industry

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Dr. Jourdan Bell describes the partnership between Texas A&M AgriLife Research & Extension and the North Plains GCD to visiting 4-H2O Ambassadors.

Ambassadors *(continued from page 1)*

and conservation. Students learn important skills like leadership, science, technology, and so on within the program during their minimum 40 hours of service over a 12 month period. During this time, students meet professionals within the water industry and may even learn about internships and other future opportunities for themselves. Texas 4-H and Texas A&M AgriLife Extension lead the program with additional support from the Texas 4-H Youth Development Foundation to bring these opportunities about for the bright young water ambassadors.

Steven Walthour, General Manager, and Julia Stanford, Conservation Outreach Specialist began the day with an introduction to tell the students about the district and its mission. Attendees also participated in a few rounds of a game called Wateria, a game similar to bingo or Loteria, which tests participant's water knowledge. Students then began the tour of the North Plains WCC farm, visiting different stations, each with a different speaker and focus.

First, the 4-H2O Ambassadors stopped at the east pivot and learned about cotton and pivot technology from Justin Garrett, a local farmer. Garrett also shared some of his own personal story and why water conservation is important to him. Next, the tour progressed to the second station with Stan Spain, the farmer/operator of the WCC. Spain talked about how irrigation efficiency has continued to progress leading to Subsurface Drip Irrigation. The last stop on the tour was with Dr. Jourdan Bell, Texas A&M AgriLife Research and Extension, Regional Agronomist. Bell told the Ambassadors about the cooperation between Texas AgriLife and the district, water conservation technologies, and about the various demonstrations happening at the WCC. Once all outdoor presentations were finished, students explored the farm and ask questions of their expert guides.

During lunch, the district presented the ambassadors with our outreach programs and efforts. Julia discussed topics such as Master Irrigator, Water Festivals, Summer Showers, and many others to show students how many different things can be done to raise awareness in the community. Dessert followed the meal in the form of the Edible Aquifer, an activity where students make their own simplified aquifer using various ingredients that can be mixed together to make an ice cream shake. At the end of the day, the 4-H2O Ambassadors lined up with their leaders and our Outreach team for a photo before boarding their bus.

The district greatly enjoyed the Texas 4-H2O Ambassadors visit and appreciate all the work and efforts of organizers and chaperones that made this possible. It was an inspiring experience to see so many bright young minds interested in our precious resources and we hope to welcome 4-H2O Ambassadors to our facilities in the future.

Above: Justin Garrett explains pivot technology and describes his own experiences in farming to the students.

Below: Stan Spain teaches the 4-H2O Ambassadors about SDI and the equipment required to run it.

Above: Matt Whiteley observes a young cotton plant in Sherman County during a Cotton & Conservation video series update, investigating the inconsistency in plant size throughout the field.

Below: Nicholas Kenny prepares to record an update on this field at the North Plains WCC for a Virtual Field Day. The Virtual Field Day provides video updates to stakeholders on the status of demonstrations, so they don't have to lose a day on their own operations.

Demonstrations *(continued from page 1)*

economic and water-saving benefits compared to grain crops. By simultaneously growing corn and cotton under center pivot and subsurface drip irrigation at the WCC, harvest data can be compared to total water, agronomic inputs, and market prices to determine net return per acre-inch of water across multiple production systems and in a corn/cotton rotation.

A cotton high population demonstration was planted in the west pivot at the WCC, with a seed drop of 45K, 65K, 90K, and 110K seeds per acre on May 7 in four large replications. Due to the cool spring and delayed germination, stand counts collected in early July show 50-60% final stand across the plantings, effectively changing this project into a low population demonstration. In a season where many North Plains producers abandoned lower population cotton due to insurance pressures, this field will be useful in recording what type of yield and economic results can be expected in reduced population scenarios.

Cotton seed varieties are also being tested in a partnership with Texas A&M AgriLife Research Service as part of the Replicated Agronomic Cotton Evaluation (RACE) trials. The south SDI field is planted in 12 popular cotton varieties and being monitored for agronomic conditions including growth stage, heat units, irrigation, pesticide application, and fertility. These trials are designed to help seed manufacturers develop better seeds for this area, and Texas A&M AgriLife Research Service will use the data to develop an accurate cotton development standard for the North Plains.

Early indications show that the cotton planted in the subsurface drip field had slightly better uniformity and early growth than the pivot cotton and that all cotton will require multiple applications of plant growth regulators. Boll loads are moderate and no excessive shedding has been observed.

The district's partnership with AgriLife Research also includes a cover crop study that began last winter and will continue for three years to determine the impacts of several cover crop blends on soil health and crop performance.

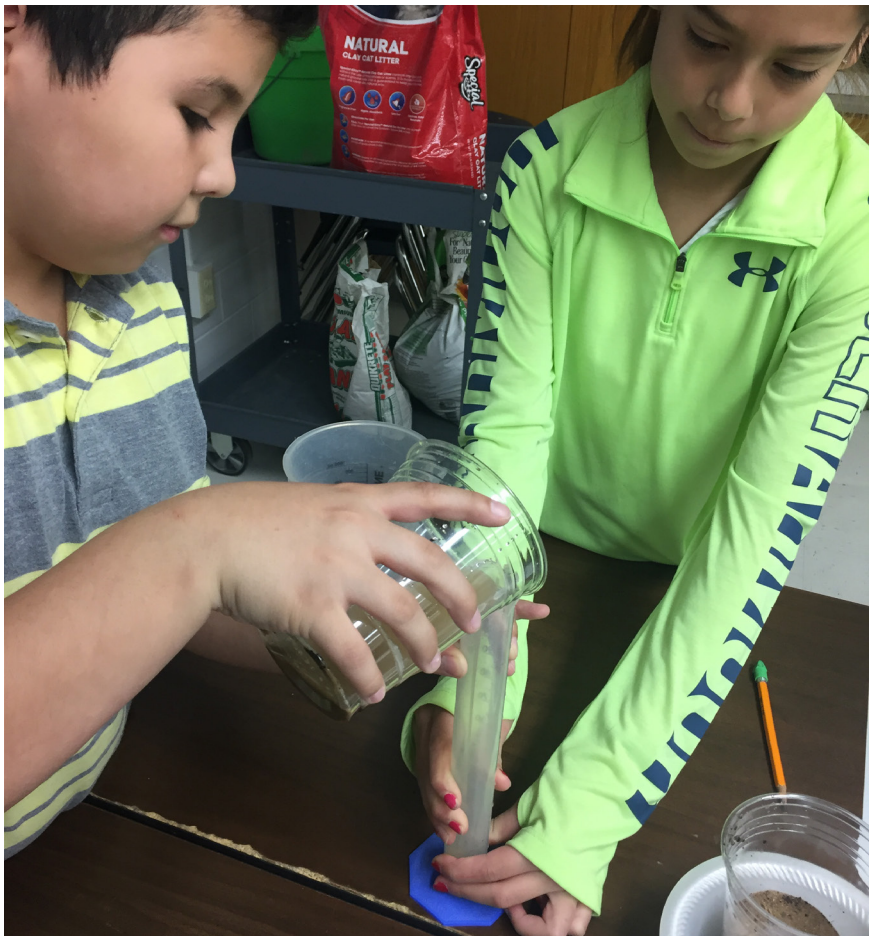
To follow the progress of these demonstrations, sign up for North Plains GCD's agricultural demonstration text list by texting WCC to 313131. You can also see video updates on the district's YouTube channel and at www.northplainsgcd.org

Free Classroom Presentations

To help schools meet educational standards and expand students' natural resource knowledge, the district is happy to offer three unique educational presentations to classes within the North Plains GCD boundaries:

- **Soil Sleuth Lab (Grades 3-8)** Learn about the properties of soils and how they are formed. Students will participate in a hands-on investigation to observe how water moves through different soils, and then discuss the real-world implications of a soil's water retention or drainage. This activity requires 45-75 minutes, less than 30 students at a time, and the classroom must have tables and chairs for all students.
- **EnviroScape Adventure (Grades K-8)** Explore the water resources of a realistic model town and learn how the water cycle and watersheds can be impacted by human activities. Please keep in mind that a short version of this activity is presented at the 4th grade water festivals each year. This activity requires 30-45 minutes, less than 30 students at a time, and the classroom must have large table for presentation setup and space for students to gather around.
- **Friends of the Farm (Grades K-8)** What did you wear, eat, and do today? Discover all the ways that local agriculture impacts your life, and see how farmers use and save water. This presentation requires 30-60 minutes and can be delivered to 30 students at a time.

To book an in-class presentation, please call Julia Stanford at 806-930-6934 or e-mail jstanford@northplainsgcd.org with your proposed date (at least 2-3 weeks notice preferred), number of classes, grade level, and the presentation requested. Due to staff availability, presentation dates are limited and available on a first-come, first-served basis.



Students participate in a Soil Sleuth Lab activity by measuring the water filtered through sand to see how porous the material is.

EnviroScape Adventure teaches about watersheds and how important it is to minimize our pollution footprint.

Operation Summer Showers Partnership a Success

The area received significant moisture through May and June; however, that does not mean conservation should be any less of a focus in the North Plains Groundwater Conservation District. More recently, scorching temperatures and decreasing rainfall have been stark reminders that water scarcity is a fact of life in the region. To encourage the wise use of water resources, the North Plains Groundwater Conservation District developed Operation Summer Showers and partnered with local municipalities to provide water saving tips and free conservation toolkits to the public. The Operation Summer Showers program just finished its ninth year of distributing free conservation kits throughout the North Plains.

Kits included items like a reusable water bottle, efficient showerhead, rain/sprinkler gauge, drip gauge, and leak detector tablets to help citizens steward water in all areas of their lives. These kits were distributed throughout July at the following locations: Booker City Hall, Dalhart City Hall, Dumas City Hall, Perryton City Hall, Spearman City Hall, Stratford City Hall, Stinnett City Hall, and the district office in Dumas.

In total, about 218 kits were distributed throughout the district. An additional 62 were handed out at the XIT Rodeo watermelon, pork chop, and BBQ feeds. As a result, millions of gallons of water will remain in the Ogallala aquifer. North Plains Groundwater Conservation District would like to thank all staff at the participating city halls for their help in distributing and advertising Operation Summer Showers!

Employees Celebrate in District from West to East

Over the years district staff have enjoyed travelling around the area to take part in some of the wonderful community celebrations that happen every summer. The summer of 2019 was no exception as groups of North Plains Groundwater Conservation District employees took part in the good times in Dumas, Channing, Dalhart and Perryton. We appreciate being included and the opportunity to share some conservation information along the way!

From l to r: Employee Casey Tice, his wife Lisa, and general manager Steve Walthour work in one of two drink stands staffed by district employees and volunteers for all three days of the XIT Rodeo and Reunion. In the meantime, other volunteers and staff distributed 62 water conservation kits at the event.

Water Conservation on a Screen Near You

Outreach and sharing information are vital elements of programs within the North Plains Groundwater Conservation District. In addition to the usual methods of mailings, newsletters, field days, radio ads, and community events, the district has developed a strong digital presence for the convenience of our stakeholders. Read below for some highlights of our offerings.

The Cotton & Conservation educational video series began in June. These videos follow the progress of three cotton fields in Moore, Sherman, and Dallam counties. AgriLife Extension agents visit fields every other week to track the crop development and provide updates on insect and disease pressure, irrigation management, and other factors. After filming in the field, district outreach staff members edit the videos and release them the next day on the district's website (at www.northplainsgcd.org/cotton) and YouTube channel. This series will give producers a close-up look at how cotton is managed in this area and how to use their water wisely when growing cotton.

Another video series debuted at the end of July, taking the place of a traditional field day that would take growers away from their operations. The Virtual Field Day playlist can be found on YouTube and at www.northplainsgcd.org/virtualfieldday. North Plains GCD's agricultural consultant, Nich Kenny, and Dr. Jourdan Bell, regional agronomist for Texas A&M AgriLife Extension Service, provided updates on the progress of agricultural demonstrations ongoing at the North Plains Water Conservation Center. Their video presentations are separated by topic, so you can "attend" whichever sessions you want, as your schedule allows.

The district shares these videos and so much more on a variety of social media sites. For news, water conservation tips, employee photos, demonstration updates, and anything else water-related, follow North Plains Groundwater Conservation District. You'll find the district on Facebook, Twitter (@northplainsgcd), Instagram (@northplainsgcd), YouTube, and LinkedIn.

E-Newsletter & Social Media

Save water and paper by receiving this quarterly newsletter in your email inbox! Just email info@northplainsgcd.org to make the switch. Follow us on social media for more content!

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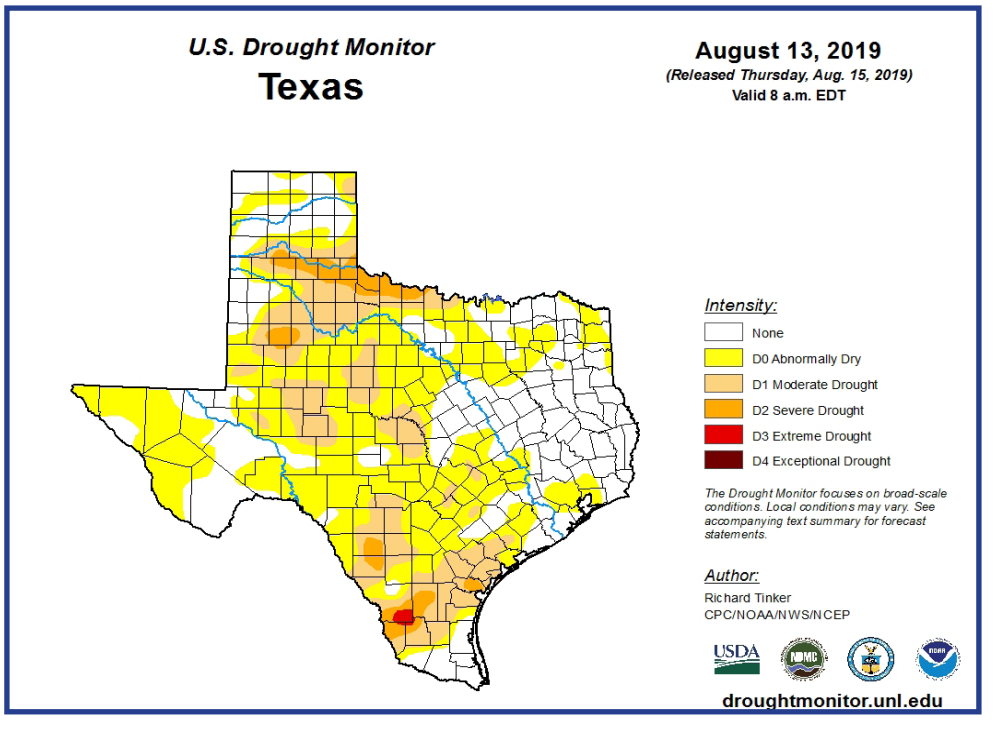

New Hydrology Report

Every year, a Hydrology & Groundwater Resources report is published by the North Plains Groundwater Conservation district. Findings and a final copy of the 2018 report were presented to the board of directors at the July board meeting. The report contains information about the district's history, annual groundwater pumping, water quality, water level declines, aquifer recharge, and more. There are also three sections of maps depicting the declines, the depth to water and the amount of saturated aquifer remaining for each of the counties in the district. It is important to remember that individual properties can and do vary significantly from the regional and county averages presented in the report.

The Hydrology & Groundwater Resources report is available at northplainsgcd.org and copies are available in the district office at 603 E. 1st Street in Dumas.