The district’s “3-4-5 Gallon Production Maximization” (3-4-5 GPM) demonstrations are all finished with harvest. That includes the four demonstration sites across the district and the fields at the North Plains Water Conservation Center (WCC) at Etter. In this, the second year of the “3-4-5 GPM” project, cooperators include Dennis Buss of Hartley Feeders in Hartley County, Zac Yoder in Dallam County, Harold Grall in Moore County and Danny Krienke in Ochiltree County. The district’s corporate partner, Crop Production Services (CPS) is also conducting “3-4-5 GPM” demonstrations at the WCC, in cooperation with WCC farm manager, Stan Spain.

According to project lead, Leon New, last year’s late season rainfall really helped this year’s crop. “Pre-season soil moisture was superior because of late rainfall last fall across the district, some of it during harvest,” said New. Hail was not a significant factor at the 2016 demonstration corn fields, and the area only experienced a few weeks of extreme heat in late June and early July. The heat had some negative effect on the crop, depending on the planting date and the crop stage of development. The first “3-4-5 GPM” field was planted on April 27th and the last was on June 12th. The remaining fields were planted generally during the last week of May.

New said corn production will likely be lower than in 2015. “Yields may be down a little this year due to less overall rainfall across the district,” said New. Rainfall ranged from 4.68 to 12.31 inches at the demonstration fields in 2016. He explained that there was, however, good pollination throughout all the “3-4-5 GPM” fields, even though some of it was during the hotter part of the summer. “Early season soil water allowed the crop to get through the hot period and caused the plants to root deep to 3-4 feet for soil water,” New said.

An addition to the 2016 “3-4-5 GPM” project is the comparison of subsurface drip irrigation (SDI) and Low Energy Precision Application (LEPA) center pivot irrigation. LEPA applies the irrigation water in a bubble or similar pattern no more than 18 inches above the soil using drop hoses. It is reported to reach application depths between 3.5 and 4.5 inches over a 24-hour period. New said that LEPA is particularly suited for crops like corn, cotton, and sorghum, which require a uniform supply of water to the root zone. The demonstration project will allow researchers to evaluate the performance of LEPA compared to SDI, in terms of water use efficiency and crop yield.

Demonstration Projects are Tabulating Data

International Visitors Tour Water Conservation Center

The North Plains Water Conservation Center (WCC) has been attracting an international audience recently. Irrigation equipment dealer, Farris Hightower, brought a group of farmers from Australia to the WCC to discuss the subsurface drip system in mid-September.

Later, a group, including crop nutrition consultant, David Reinart, Jourdan Bell, Ph.D., Assistant Professor and Agronomist at Texas A&M AgriLife Research and Extension in Amarillo, Robert Schwartz, Ph.D., USDA Soil and Water Management Research, and visitors from Western Africa and Ukraine visited the WCC to discuss district operation on the farm.

Iaryna Bulba, Ph.D., a Ukrainian researcher for the Institute of Water Problems and Land Reclamation, is currently in the USA for a 12-week Borlaug fellowship. Bulba plans to acquire new knowledge and skills related to land irrigation and efficient use of water resources in agriculture, crop water use modeling, and the development of new irrigation technologies. The WCC is a perfect place for Bulba to gain practical experience in drip irrigation and water management.

NPGCD Accepting Applications for Master Irrigator 2017

After experiencing success in its first year, North Plains Groundwater Conservation District (district) is now accepting applications for the 2017 Master Irrigator program.

Through a partnership agreement between the district and the USDA’s Natural Resources Conservation Service (NRCS), an estimated $1.6 million in funding through the Environmental Quality Incentives Program (EQIP) has been provided to support the new Master Irrigator program over four years. Participants who complete the 2017 course and receive their Master Irrigator certification will have priority access to the special EQIP funding. Participation in the Master Irrigator program will not affect participant’s eligibility for other EQIP funds.

The Master Irrigator program is an irrigation management curriculum made up of 32 hours of intensive irrigation education conducted over four one-day sessions to show producers how to maximize advanced conservation irrigation practices. It is designed to improve irrigation practices and increase water use efficiency, which will ultimately lead to reduced water usage and lower irrigation costs. Participants will learn about the latest irrigation technologies, water management strategies, and best practices to achieve optimal crop yields while using less water.

(Continued on page 2)

Mastor Irrigator Graduates of 2016

Photo courtesy of Casey McAnally, CPS
Telemetry Installed Making Current Aquifer Conditions Available to Stakeholders

North Plains Groundwater Conservation District (district) staff recently completed installation of data recorders equipped with telemetry in 46 water-level monitor wells.

The telemetry uses cell phones or satellites to send the recorded data from the monitor wells to the district’s servers daily, eliminating the necessity to visit the well site. Monitor wells without telemetry require someone to physically visit the site and download the information.

Currently, there are 435 total monitor wells that can be measured by three different methods in the district. Most observation wells are physically measured annually with a steel measuring tape. Monitor wells with recording equipment that are not equipped with telemetry must be visited quarterly to download recorder data. Monitor wells with telemetry and recording equipment don’t require a visit to the well. There are 55 total monitor wells with data recorders. Of those wells, 46 have telemetry capabilities. That still leaves 379 wells that require a physical trip and tape measurement.

In the future, the district hopes to equip more monitor wells with telemetry.

The project to install data recorders in monitor wells began nine years ago. “We knew that eventually we would collect data by telemetry,” said Dale Hallmark, Assistant General Manager and Hydrologist.

The cost of the telemetry equipment should ultimately save the district time and money by eliminating four visits a year to these 46 wells. Monitor wells with telemetry automatically send a file via internet to the district’s server, where an application pulls the information into a database. The information then automatically uploads onto the district’s online interactive map where it is available to the public 24/7, without the need for a log in.

“The telemetry part of it allows people to visit the map online and look and see what the well is doing over time instead of one spot in a year. Its dynamic data instead of static.” said Odell Ward, GIS System Coordinator and Natural Resource Technician Lead.

Telemetry not only takes out the middle man and automatically uploads data, but it increases the accuracy of analyses. “It’s more reliable since we have many points to look at. Telemetry shows us day-to-day over the course of a year instead of one point over the year. Any analysis we do is more accurate and more reliable. We can use more accurate data to make better management decisions.” said Hallmark.
The district requires all owners of non-exempt water wells to report groundwater production annually. Table 1, taken from the district’s 2015-16 Hydrology Report, show the groundwater amounts reported to the district from 2007 through 2015. In 2015 groundwater production in the four western counties was down from the previous year approximately 369,000 acre-feet while the four eastern counties showed a decrease of 117,600 acre-feet.

Table 1: Groundwater production reported to the District, 2007-2015 (Acre-feet).

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Table 2: Groundwater production from the District’s four western counties in acre-feet, 2007-2015.

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Table 3: Groundwater production from the District’s four eastern counties in acre-feet, 2007-2015.

Optimization of irrigation scheduling by studying relevant U.S. experiences and developments.

Guy Fipps, Ph.D., Professor in the Department of Biological and Agricultural Engineering and Bulba’s mentor at College Station, contacted Schwartz, her other mentor, to arrange the visit. She spent one week in the Texas Panhandle to gain knowledge in the recent research and developments at the USDA-ARS Bushland Laboratory and visit with Texas A&M AgriLife scientists and technical consultants involved with irrigation management in the region. Bulba was accompanied by Seydou Traore, Ph.D., Extension Associate in the Department of Biological & Agricultural Engineering at Texas A&M University at College Station. Previously, Traore was a Fulbright Visiting Scholar at Texas A&M and worked in the Sahel region of Africa in irrigation and agricultural engineering.

Schwartz contacted Bell to arrange tours, so Bulba and Traore could see the application of irrigation technology and scheduling. With the help of Reinart they arranged a tour to view sensors in the field and discuss different ways to schedule irrigation throughout the season and determine crop water needs.

“Bulba and Traore were impressed with the scale of agriculture and the size of the farm here,” said Schwartz.

Because Ukraine’s irrigation comes from rivers, they have plenty of water. They just have to transport it. In Ukraine, Bulba forecasts how much water to apply to a field, based on the river’s discharge, and then she distributes the information to those pumping the water to the farms. Therefore, “she wanted to see how irrigation scheduling happens in the Panhandle to take ideas back home with her,” said Bell. “She was very impressed and excited to see [the WCC]. She was taking it all in because she had just read about irrigation management, but never had a chance to see it. It meant a lot.” Bell said.

While the Panhandle of Texas, Africa, and Ukraine are in three different parts of the world, all have the same environment with a semi-arid, dry climate. Therefore, all are facing the same challenges with water conservation.

Much of the remaining portion of Bulba’s fellowship will be spent at the Department of Biological & Agricultural Engineering of Texas A&M University in College Station.

International Visitors at WCC

(Continued from page 1)

masterirrigator.org/masterirrigator, or call 806-935-6401. You can also “like” the North Plains Groundwater page on Facebook or “follow” us on Twitter (@NorthPlainsGCD) to receive updates on district activities.

North Plains Water News  Page 3
**New SDI: Start to Finish**

*Sub-surface drip irrigation (SDI) system was plowed into the North Plains Water Conservation Center’s field in February 2016. The SDI system was fully operational in May 2016.*

*This picture was taken in mid-August of the corn produced using the new SDI system.*

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**NORTH PLAINS GROUNDWATER CONSERVATION DISTRICT**

BOX 795

DUMAS, TEXAS 79029

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**Meter Reimbursement Program**

NPGCD has funds available for irrigators to offset up to half the equipment cost of meters on an agricultural irrigation well. The first contract for the Meter Reimbursement Program concludes December 31, 2016. Therefore, you have just a little over one month to get your reimbursement form turned in for this year. However, not to worry. The second grant will begin in January 2017.

For more information on the Meter Reimbursement Program, go to [http://northplainsgcd.org/aquifer-management-rules/meter-reimbursement-program](http://northplainsgcd.org/aquifer-management-rules/meter-reimbursement-program), or call our office at 806-935-6401.

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**Save Paper and Water by Choosing our E Newsletter**

North Plains GCD now offers our district newsletters by email. If you would like us to send you a digital copy of the newsletter, you can go online at [www.northplainsgcd.org](http://www.northplainsgcd.org) and fill out the form on the right side of the page, or just email aholguin@northplainsgcd.org. You can also go online to download previous newsletters and find us on Facebook, Twitter and Instagram.

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**NPGCD’s Website Receives Makeover**

After using the same layout for five years, NPGCD’s website got a makeover! It’s now more user-friendly for stakeholders with the same link: [www.northplainsgcd.org](http://www.northplainsgcd.org).