

To-Do List...Before You Start Planting

March 31: Submit Crop Reporting Form

Producers in Phase II/III of the Groundwater Quality Management Program must submit their online crop reporting form by March 31st. Crop Reporting Form ~ <http://cpnrd.gisworkshop.com>

If you need help or have any questions, contact Sandy or Tricia at (308) 385-6282.

Registered Wells

When completing your online form, be sure to check the location and owner name of each well to be sure they are registered correctly. You may check well registrations at the Nebraska Department of Natural Resources website: dnr.nebraska.gov/gwr/groundwaterwelldata

If you need help or have any questions, contact Dan at (308) 385-6282.

Transfers:

If you are planning changes this irrigation season, it is important to check with NRD staff before doing any development work that concerns newly irrigated acres. Following are just some of the limitations:

- * Moving water more than 1 mile west.
- * Developing significantly sloped ground.
- * Vegetation restrictions on water moved from sub-irrigated areas of the district.
- * No transfers into the over-appropriated areas of our district.
- * No transfers into declining Ground Water Management Areas (GWMA's).
- * Since 2006, any land that is not certified as irrigated with the NRD cannot be irrigated, unless the newly irrigated area is offset by applying for and completing a transfer request with CPNRD, prior to new acres being irrigated. Any transfers must be completed before irrigating. Producers who fail to obtain an approved transfer from the NRD are subject to penalties.

To view irrigated acres for potential transfers, visit the Interactive Map at: cpnrd.gisworkshop.com

Contact Luke, Angela or Dan at (308) 385-6282 for questions on transfers.

April 1: Tree Orders Due

Check your windbreak to see if you need to replace any trees or shrubs. Orders for spring planting are due by April 1st. 40 varieties of trees and seedlings available. Cost: bundle of 25 trees is \$22.50.

Contact either Kelly Cole (308) 385-6282 or your county NRCS office.

April/May: Measuring Water Levels

Tricia Dudley and Shane Max will be out in the field checking static water levels in April and May. They will be in a white NRD vehicle with our logo. Tricia and Shane would be happy to answer any questions you may have about the NRD.

June 1: Chemigation Permits Due

Current renewal permits expire June 1st. Renewal permits cost \$20 and can be issued without an inspection, however the NRD is required to re-inspect systems in operation on a spot-check basis. Renewal applications received after June 1st must comply with provisions for new permits, including a \$60 permit fee and a required inspection before the permit can be issued.

If you need help or have any questions, Sandy or Tricia at (308) 385-6282.

NRDs Summer Camp

Nebraska's Natural Resources Districts host the ACE for youth to experience some of the great wonders of camp, including tubing, hiking, archery, zip line and river activities. They'll also test their culinary skills with an outdoor version of Chopped! And back for another year, the NRD Olympics!

Your child will have fun learning about wildlife, soils, range, energy, edible plants, water and forestry.

For information about ACE, contact Upper Loup NRD at: (308) 645-2250 or ulnrd@upperloupnrd.org.



Sunday, June 11th to
Wednesday, June 14th

Four days of Outdoor Fun,
Exploring and Learning at
State 4-H Camp, Halsey, NE

Calling all 6th, 7th and 8th graders

Cost: \$190, due by May 26, 2017

Scholarships: CPNRD offers \$100 scholarships to students who live within the NRD. Contact Marcia Lee for scholarship information at: (308) 385-6282 or lee@cpnrd.org.

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Central Platte NRD 215 Kaufman Ave Grand Island NE 68803 (308) 385-6282 www.cpnrd.org



In Perspective Newsletter

Volume 18
No. 2
March 2017

215 Kaufman Avenue Grand Island, NE

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Major Construction on Flood Control Project

Central Platte NRD has contracted with Van Kirk Brothers Construction of Sutton, Nebraska, to complete the next phase of implementation for the Upper Prairie/Silver/Moores Flood Control Project. Detention cells located approximately five miles west of Grand Island at the Cornhusker Army Ammunition Plant are just one component of the flood control project.

The detention cells (SCLL4-S Phase I and SCLL4N-E Addition) are currently under construction to expand the overall footprint will be 540 acres.

Construction started in mid-January with excellent progress given the moderate winter; providing the contractor the opportunity to continue with excavation activities.

Equipment for this major construction includes four scrapers that hold 20 cubic yards, two excavators, four dump trucks that hold 30 cubic yards, a bulldozer and a road grader. Soil excavated from both cells will be spoiled on site.



The north detention cell, located on Airport Road, (SCLL4N-E Addition) is nearly completed. An additional 71,500 cubic yards has been excavated to form this cell. The contractor expects to be completed by the end of May if the weather cooperates.

The southern portion of Phase I (SCLL4-S Phase I) includes approximately 815,000 cubic yards. It is located at Capital and Schauppville. Periodic seeding and mulching will take place to ensure that permit requirements are met and that proper erosion control measures are implemented.

Looking forward, SCLL4-S Phase II is expected to be constructed this coming summer 2017, along with a levee system located at the northwest corner of Grand Island. The bid letting on that portion of the flood control project will take place in mid-spring.

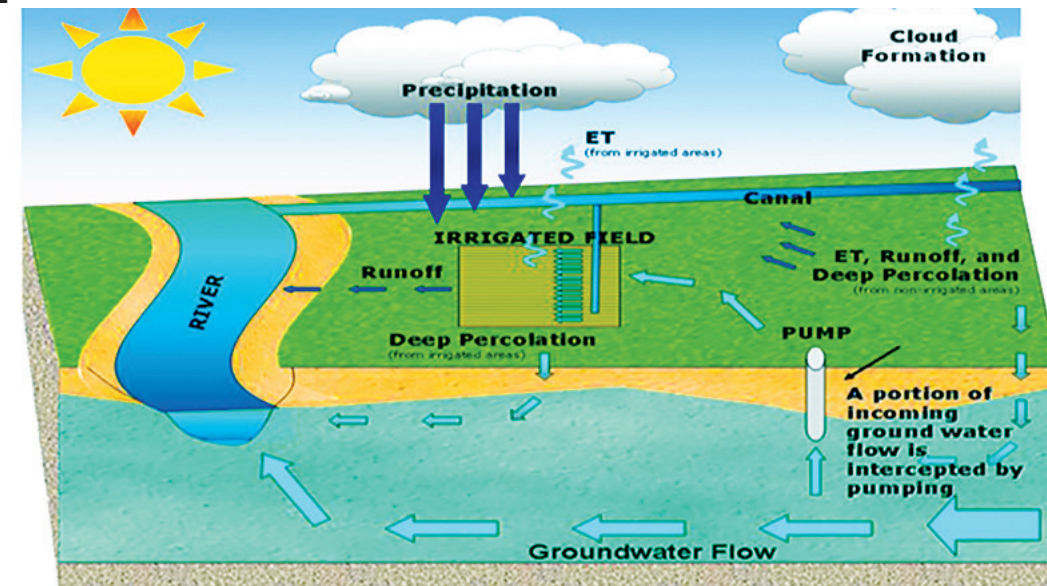


Real-Time Water Monitoring Program

by Dean Krull, CPNRD/UNL Demo Project Coordinator & Duane Woodward, CPNRD Engineering Hydrologist

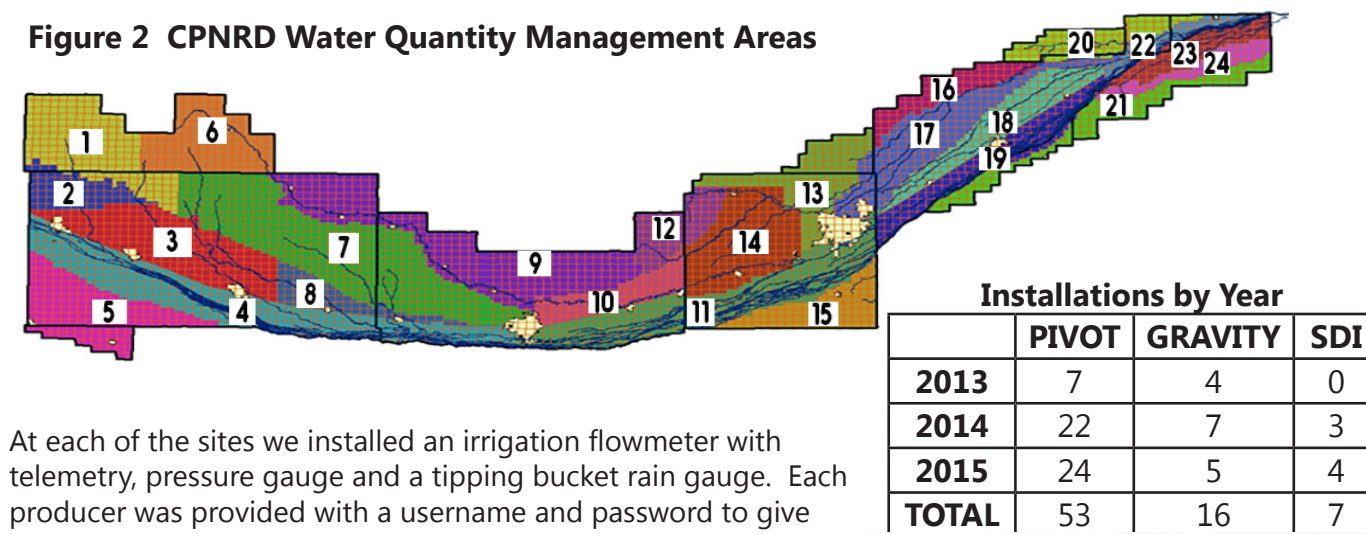
In 2013, Central Platte NRD began a Groundwater Pumping Program to build a database to collect and document the amount of irrigation water pumped monthly and annually across the district. Pumpage data is collected in real-time allowing the NRD to look at how furrow irrigation, pivot irrigation and sub-surface drip irrigation efficiencies vary. This measured data supports water use computations being used in the Cooperative Hydrology Study (COHYST); a watershed/operations/groundwater model that is establishing a Water Budget approach to the Hydrologic Cycle illustrated in Figure 1.

Figure 1



The program goal was to place two data collection equipment sites in each of the 24 Ground Water Quantity Management Areas, illustrated in Figure 2.

Figure 2 CPNRD Water Quantity Management Areas



At each of the sites we installed an irrigation flowmeter with telemetry, pressure gauge and a tipping bucket rain gauge. Each producer was provided with a username and password to give them access to their individual real-time well data. Program personnel have access to all sites throughout the season for data collection and to monitor any unexpected mechanical problems.

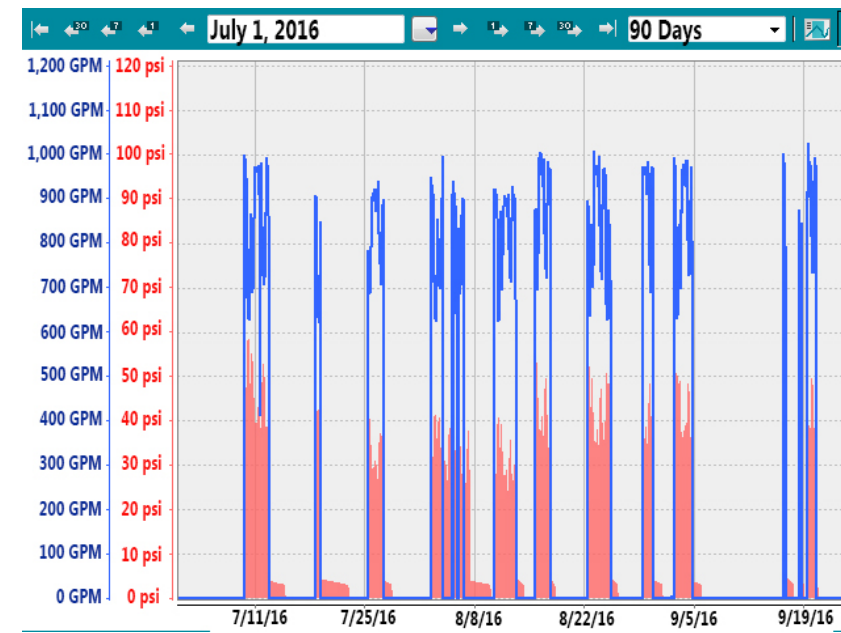
Figure 3 on the following page illustrates an example of the well volume and pressure graph that is available.

Blue Line: represents gallons per minute (GPM)
Red Line: corresponding pressure (PSI)



...Protecting Our Natural Resources

Figure 3. GPM/Pressure



Each location was evaluated to accomplish proper design to meet specs for accurate flow measurement. The example below is one of the locations that measures flow to the pivot and gravity portions of the field.

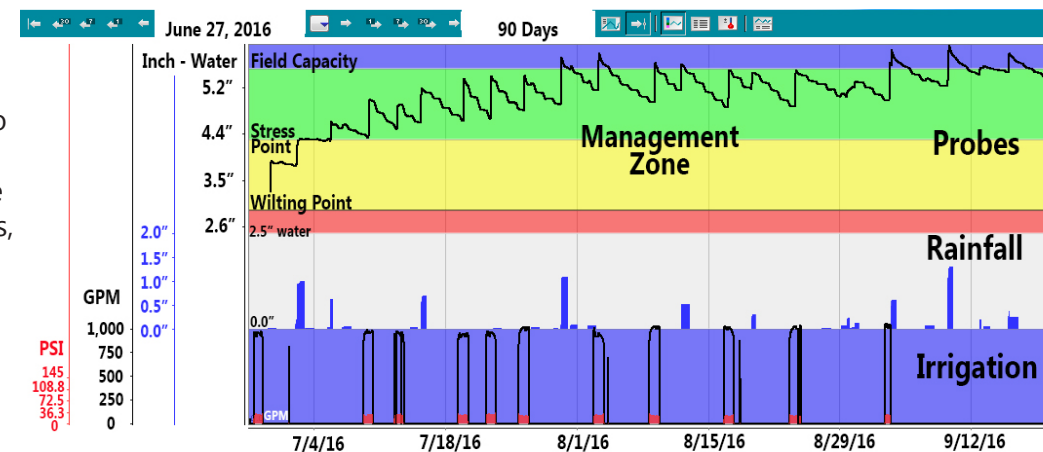
The amount of irrigation water pumped during the season, and rainfall from mid-April until mid-October, is averaged on an annual basis program-wide. System type averages are calculated separately for comparison purposes. Theoretically, one would expect gravity irrigation to have the highest volume, pivot irrigation in the middle, and sub-surface drip irrigation with the lowest volume.

See annual values for irrigation pumped and rainfall in Table 2 below.

Table 2 Average Annual Irrigation and Rainfall

Year	GRAVITY			PIVOT			SUB-SURFACE DRIP (SDI)		
	Irrigation	Rainfall	Total	Irrigation	Rainfall	Total	Irrigation	Rainfall	Total
2013	27.44	5.92	33.36	9.58	10.73	20.31			
2014	8.62	17.15	25.77	6.32	16.43	22.75	5.1	18.9	24.0
2015	18.02	17.98	36.0	8.71	20.4	29.11	11.76	18.18	29.94
2016	16.47	13.9	30.37	10.5	17.85	28.35	11.40	15.46	26.86
AVERAGE	31.38			25.13			26.93		

Placement of soil moisture monitoring equipment began in 2014. Within two years, capacitance probes were placed on 40% of the sites. Data from the probes, such as the graph (right), helps producers manage their irrigations and shows them the effects of each irrigation and rainfall on their soil profile.



With these graphs, producers can see what their soil moisture was at the beginning of the irrigation season and how each rainfall (gray area) and irrigation (blue area) affected their soil moisture. This graph shows that soil moisture was on the dry side on June 27th and increased with the combination of rainfall and irrigations into the management zone (green portion of graph). The downward movement represents the soil moisture change caused by evapotranspiration of the crop.

In conclusion, the program is beneficial to CPNRD and UNL to use pumpage and rainfall data to support water use computations being used for groundwater management. And with the combination of equipment at each site, the producers have the tools to monitor their irrigation well performance and rainfall received. Producers who also use the soil moisture probes have an expanded capability to enhance their irrigation management.



Deadline Approaching to Order Trees

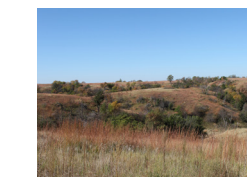
"The best friend of earth of man is the tree. When we use the tree respectfully and economically, we have one of the greatest resources on the earth." Frank Lloyd Wright

Wright was an American architect who designed more than 1,000 structures. He believed in designing structures that were in harmony with humanity and its environment, a philosophy he called organic architecture. Landowners in Nebraska are organic architects of their own right. Incorporating trees and windbreaks into their landscape increases agricultural productivity, protects natural resources, and enhances environments for people and wildlife.

Have you ordered trees or shrubs to plant this spring? We have 40 varieties to choose from at \$.90 per seedling. Small packages are available for wildlife, flowering trees, eastern and western Nebraska for \$50. Orders will be accepted until April 1st at either the CPNRD office or your local NRCS office.

For more information, visit www.cpnrd.org or contact Kelly Cole at (308) 385-6282.

Cost Share for Range Management



Rangelands are a very important natural resource within Central Platte NRD. This resource is valuable economically for agriculture, recreation and environmental stewardship. Healthy pastures can sustain natural wildlife and provide habitat for pollinators such as honey bees; which are beneficial to agriculture. Healthy rangelands also contribute to the water balance by increasing absorption of precipitation, preventing excessive evapotranspiration and limiting erosion.

There are challenges with keeping pastures in very good to excellent condition. Grazing patterns can degrade grass quantity and diversity, and reduce drought tolerance. Invasive species, such as Eastern Red Cedar, can take over pastures that are not carefully managed. In order to improve and preserve rangeland condition, there are several cost share programs available to producers. The goal of these programs is to encourage management practices that produce healthy future results for pastures.

\$\$ Available from Central Platte NRD:

- **Grassland Conservation:** Cost share for cedar tree cutting. Funded by Nebraska Environmental Trust
- **Grazing Deferment:** Cost share to leave pastures fallow for one season to prepare for burning.
- **Prescribed Burn Cost Share:** Cost share to hire an insured prescribed burn contractor for pasture burns.
- **Tree Planting:** Cost share for windbreaks, a beneficial conservation practice to reduce erosion.

\$\$ Available from the State of Nebraska:

- **WILD Nebraska:** Funding to create new wildlife habitat or enhance, improve/maintain existing habitat. Transitional land use payments used to complement enhancements. Includes grassland and prairie establishment, and enhancement to tree planting activities.
- **Nebraska Soil & Water Conservation Program:** Cost share for brush management, pasture seeding, windbreak renovation and irrigation water management.

\$\$ Available from USDA-NRCS

- **Environmental Quality Incentives Program (EQIP):** Provides financial and technical assistance for brush management, livestock watering facilities, and prescribed burning
- **Conservation Reserve Program (CRP):** Provides financial assistance for setting aside land and planting to native grassland species.
- **Conservation Stewardship Program (CSP):** Provides technical and financial assistance for many range related conservation practices to enhance rangelands, and wildlife habitat.

For more information contact CPNRD at (308) 385-6282 or contact your county USDA-NRCS office.