

# Tri-Basin Irrigator

Volume 18, Issue 1

May 24, 2018

## PROGRAM INFORMATION

### ***EQIP AND CSTWP:***

**EQIP** – FUNDS FOR 2018 CONTRACTS HAVE BEEN PRE-APPROVED OR OBLIGATED. SHOULD SLIPPAGE FUNDS BECOME AVAILABLE, WE CAN POSSIBLY FUND ADDITIONAL CONTRACTS.

**CSTWP** – 2018 RANKINGS ARE COMPLETE. WE ARE AWAITING PRE-APPROVALS TO SEE WHO GETS FUNDED.

**NSWCP:** NSWCP FUNDS ARE APPROVED MONTHLY FOR FLOW METER ONLY AND SOIL MOISTURE SENSOR APPLICATIONS. ALL OTHER IRRIGATION APPLICATIONS FOR UNDERGROUND PIPE, SURGE VALVES, ETC. ARE REVIEWED FOR FUNDING 4 TIMES A YEAR, SEPTEMBER, DECEMBER, FEBRUARY, AND MAY (FOR SLIPPAGE). NEW FUNDS COME JULY 1<sup>ST</sup> SO GET YOUR APPLICATIONS IN BY AUGUST 31<sup>ST</sup> IN ORDER TO HAVE FIRST CHANCE. APPLICATIONS MUST BE SIGNED BY THE OWNER. INSTALLATION WORK CANNOT BE STARTED UNTIL APPROVED.

**ENERGY EFFICIENCY GRANT:** SIGN-UP DEADLINE FOR 2018 FUNDS HAS PASSED FOR IMPROVEMENTS TO IRRIGATION SYSTEMS SUCH AS CONVERTING GRAVITY SYSTEMS TO PIVOTS OR SDI. APPROVALS WILL TAKE PLACE THIS SUMMER. IF YOU HAVE A COMPLETED APPLICATION ON FILE AT YOUR RURAL DEVELOPMENT OFFICE, YOU CAN START YOUR PROJECT IF YOU WANT TO. IF NOT APPROVED BY SEPTEMBER 30, 2018, THEN YOU WILL NOT RECEIVE ANY FUNDING ASSISTANCE. **NEXT SIGNUP DEADLINE WILL BE OCTOBER 31, 2018** FOR 2019 FUNDING. FOR MORE INFORMATION CONTACT KELLEY AT RURAL DEVELOPMENT AT THE KEARNEY USDA SERVICE CENTER AT 308-445-9837 OR [KELLEY.MESSENGER@NE.USDA.GOV](mailto:KELLEY.MESSENGER@NE.USDA.GOV).

## CALENDAR OF EVENTS

**MAY 28:** MEMORIAL DAY – GOV'T OFFICES CLOSED  
**JUNE 4:** CNPPID BOARD OF DIRECTORS MEETING 9 AM  
**JUNE 12:** TBNRD BOARD MEETING 1:30 PM

### ***Ephemeral Gullies MUST be Prevented!***

If you are farming fields determined to be Highly Erodible Land (HEL), then you are REQUIRED to prevent ephemeral gully erosion from occurring in order to remain in compliance with USDA farm program benefits. Tillage to smooth the ditches is not a preventive practice. Tillage hides the problem and allows the problem to continue. See "Aggregate Stability" article on right side of this page at the bottom to learn why tillage will not prevent ephemeral gullies. Cover crops, terraces, waterways, etc. are ways to help prevent ephemeral gully erosion.

**Nebraska NRCS will be addressing this concern more and more in the future. Efforts will be made to assist producers in preventing ephemeral gullies and to remain in compliance with the Food Security Act of 1985.**

For more info., contact your local NRCS office. You can also visit this website:

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/nc/programs/farmbill/cc/?cid=NRCSEPRD1322784>.

## CURTIS'S COLUMN



### ***Tri-Basin Irrigator: Up and Running for 2018!!!:***

The Tri-Basin Irrigator is back for another season. Welcome to those of you getting this newsletter for the first time! My name is Curtis Scheele. I am the Water Management Specialist with the NRCS covering Gosper, Phelps, and Kearney counties. My office is located in Holdrege. See page 4 for my contact information.

The goal of this newsletter is to provide you with irrigation and other related information across the Tri-Basin NRD. Hopefully, you will benefit from the information provided. It will be sent bi-weekly during the crop season.

Archived copies from 2015 to present are available on the Tri-Basin NRD's website at

[http://www.tribasinnrd.org/tb\\_irrigator.html](http://www.tribasinnrd.org/tb_irrigator.html).



### ***Tri-Basin Irrigator via EMAIL***

***saves paper and lets you be one click away from the various links.***

***If you would be willing to receive this newsletter via email, please provide me with your email address. You can call me at 308-995-6121, Ext. 3, call your local NRCS office (see contact info. on page 4), or you can email me at [curtis.scheele@ne.usda.gov](mailto:curtis.scheele@ne.usda.gov).***

### ***SAM Registration!!!***

***SAM is no longer needed for EQIP, CStwP, and other NRCS financial assistance and conservation easement programs. - There are still some who may need it for certain programs/easements.***

### ***Aggregate Stability:***

Soil aggregates are groups of soil particles that are bound together. They are like miniature clods. Another way to look at it is they are the crumbs in a nice crumbly soil.

Aggregate Stability is the ability of soil aggregates to hold together when disruptive forces such as rain or wind put the soil to the test. Tillage destroys these aggregates. Then when it rains, individual soil particles are easily moved forming crusts or the particles are washed away and soil deposition is left at the bottom of the hill. Or wind carries the particles in the air.

Ephemeral gullies are worsened when tillage is used to smooth out the gullies. The soil aggregates are broken down thus causing the soil to be washed away more readily. Also, pivot tracks that are tilled will continue to have tracks due to the breaking of down of soil aggregates.

You can click this link to watch a powerful short 1-minute video comparing tilled vs non-tilled soil with the Aggregate Stability test: [https://www.youtube.com/watch?v=9\\_lEhCrLoQ](https://www.youtube.com/watch?v=9_lEhCrLoQ). See also the attachment to see the results of no-till versus tillage when it comes to erosion.

### **2018 Irrigation Season Outlook:**

Central's 12-week irrigation season begins June 11<sup>th</sup>. Current water supply is allowing pre-season irrigation to activate herbicides and post-season water will likely be available too. All deliveries outside of the scheduled 12-week season count toward the 18-inch allocation; delivery beyond 18" would come at a higher cost.

Lake McConaughy is at 85.2% capacity and will have a net gain of 1,511 cfs or 3,000 AF today. The large upstream Reclamation Reservoirs are storing 2.1 million AF. Some basin snow remains in the highest mountain elevations and Reclamation has room to store that runoff.

The US Drought Monitor shows an expanding D4 (exceptional) drought area south/southwest of us. La Nina conditions in the Eastern Pacific equatorial zone are dissipating and neutral conditions are likely to persist through the summer with a possible move to El Nino conditions in the fall. The Nebraska State Climate Office outlook for the May-July period is for above normal temperatures with equal chances for above, below or average precipitation.

The 2018 water supply is good but the short snowpack and drought developing to our south invites caution as we look ahead to 2019. We will continue to monitor all regional weather models and manage accordingly. Producers using Central water or a well are advised to meet crop water needs without overwatering.

### **Chemigation Permit Renewals Due June 1:**

Chemigation, the practice of applying agricultural products such as fertilizers, herbicides, and insecticides through a pivot irrigation system, can be a highly effective means of chemical or fertilizer application.

By state law, anyone who wants to apply fertilizer or ag chemicals through their irrigation system needs to apply for a chemigation permit for the 2018 season. Chemigation renewal forms have been sent to producers and are due, along with payment, in the Tri-Basin NRD office by June 1, 2018. Renewal permits are \$15 each.

Landowners and operators should contact Tri-Basin NRD toll-free at 1-877-995-6688 regarding new chemigation permits. New permits are \$50 each. All newly permitted chemigation systems must be inspected before use. A person who is certified as a chemigation applicator must supervise injection of fertilizer and ag chemicals in irrigation water. If a chemigation system crosses an open waterway, such as an irrigation canal, an additional form must be completed before the permit can be approved.

NRD staff do routine inspections on chemigation systems from June until August. Routine inspections are required every three years. If your system is due for an inspection, you will receive a postcard this summer. Routine inspections must be completed for permits to be eligible for renewal the following year.

A more detailed explanation of the chemigation permitting process is available on our website at [www.tribasinnr.org](http://www.tribasinnr.org), under the Programs & Services tab.

### **Water Use Hotline Available:**

The Nebraska Extension – Phelps-Gosper “Water Use Hotline” will again be available for irrigators from Jun. 1 through Sep. 7, 2018 as a “free” service. Through the High Plains Regional Climate Center, Tri-Basin NRD and CNPPID; Extension will provide updated crop growth and water use calculations for corn, soybeans, wheat, grain sorghum and alfalfa from automated data collection sites.

Producers can assess this information by calling either: locally 308-995-2255 OR toll-free 800-993-2507. Updated water use web information access: <http://www.cnppid.com>.

Nebraska automated weather data network station names reflect mileage and directions from the nearest village, town or post office. In 2017, The Nebraska State Climate Office renamed Nebraska locations to align with other cooperating states. As a result, our five local automated weather data stations have new names; although the actual automated data locations remain the same as previous years.

Reference automated station names are as follows: Holdrege→“Ragan 5W”; Holdrege 4N→“Holdrege 5N”; Lexington→“Lexington 4S”; Minden→“Axtell”; and Smithfield→“Smithfield 2E.”

The 2018 Water Use Hotline corn growth stage water use values are based on a May 10<sup>th</sup> emergence date; while soybean growth stage water use is based on a May 20<sup>th</sup> emergence date. Updated data includes: crop water use averages for 3-day; 1-week crop ET values; & accumulated Growing Degree Days (GDD's).

### **Crop Growth Stages Water Use:**

Crop water use increases as plant growth stages advance. On the Nebraska Extension CropWatch website are free “Crop Water Use by Plant Growth Stage” charts for alfalfa, corn, sorghum, soybeans and wheat. These illustrated guides provide guidance for irrigators to determine proper plant growth stages and plan irrigations.

Helpful Hint: For season-long corn growth staging, it may be helpful to paint or mark several V6 corn leaves soon on several plants within stage monitoring fields. For example, early lower corn leaves will likely fade as the growing season progresses; so, making accurate leaf counts for growth staging may become challenging later. Irrigation needs can then be calculated based on: rainfall; soil moisture profile conditions; weather; and ET rates for accurate crop growth staging.

EvapoTranspiration (ET) combines *evaporation* (water loss from the soil surface) and *transpiration* (water used by plants) for defining “crop water use” needed for optimum yield. Field irrigation efficiency may be improved atmometer (ETgage®) installation near the field just above the crop canopy. In-field ET gauges increase accuracy of crop water use measurement; resulting in application rates aligning more with “just enough” irrigation water addition to meet plant needs. If the crop is under irrigated, yields decline and lower revenue. However, too much irrigation water can also lower yields and net income. Over irrigation increases net energy and irrigation application costs. Saturated field soil conditions may also leach chemicals, nitrates, and available soil nutrients (needed by crops) below the root zones into groundwater tables.

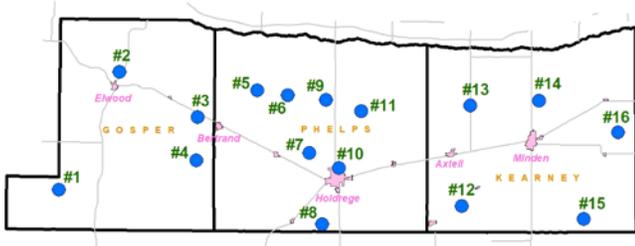
## NAWMN CROP ET INFORMATION

Additional Information and other ET resources can be found at websites listed under "ET Information Sites" below.

Inches of Crop Water Use (ET) =

Evaporation x Kc

Site	Not Available		May 14 – May 20	
	Evaporation	Rain	Evaporation	Rain
1	NA	NA	NA	1.70
2	NA	NA	NA	1.50
3	NA	NA	NA	1.64
4	NA	NA	NA	1.67
5	NA	NA	NA	NA
6	NA	NA	NA	NA
7	NA	NA	NA	2.04
8	NA	NA	NA	2.45
9	NA	NA	NA	NA
10	NA	NA	NA	NA
11	NA	NA	NA	NA
12	NA	NA	NA	1.50
13	NA	NA	NA	NA
14	NA	NA	NA	2.16
15	NA	NA	NA	1.40
16	NA	NA	NA	1.48



**2018 Map of NAWMN Sites across the Tri-Basin NRD.**

Crop Coefficients (Kc)			
Corn		Soybeans	
Stage	Kc	Stage	Kc
2 leaf	0.10	Cotyledon (VC)	0.10
4 leaf	0.18	1st Node (V1)	0.20
6 leaf	0.35	2nd Node (V2)	0.40
8 leaf	0.51	3rd Node (V3)	0.60
10 leaf	0.69	Beg. Bloom (R1)	0.90
12 leaf	0.88	Full Bloom (R2)	1.00
14 leaf	1.01	Beg. Pod (R3)	1.10
16 leaf	1.10	Full Pod (R4)	1.10
Silk – Beg. Dent	1.10	Beg. Seed (R5)	1.10
¼ Milk Line	1.04	Full Seed (R6)	1.10
Full Dent (½ Milk)	0.98	Yellow Leaf (R6.5)	1.00
¾ Milk Line	0.79	Beg. Mat. (R7)	0.90
Black Layer	0.60	Full Mat. (R8)	0.20
Full Maturity	0.10	Mature	0.10

### CROP STAGE INFORMATION

**Corn (Planted to V4-4Leaf stage):** Hail, wind, or frost that damages the exposed leaves at the 3-leaf stage have little or no effect on yield due to the below ground growing point.

Avg. daily water use from May 14 – May 20 was 0.00"-0.02".

**Soybeans (Not Planted to VC-Cotyledon stage):** Loss of one cotyledon has little affect on yield while loss of both can reduce yields by 8-9%.

Avg. daily water use from May 14 – May 20 was 0.00"-0.02".

May 14-May 20 (10 of 16 NAWMN sites reporting): Average weekly rainfall was 1.75 (range 1.40 to 2.45). Average weekly ET for corn was 0.01 and for soybeans was 0.01.

### ET INFORMATION SITES

**NAWMN Sites:**

<https://www.cnppid.com/weatheret-data/nebraska-agricultural-water-management-network/>

<https://nawmn.unl.edu/ETdata/DataMap>

**CropWatch:** <https://cropwatch.unl.edu/gdd-etdata>

**CNPPID:** <https://www.cnppid.com/weatheret-data/>

**Water Use Hotline:** 1-800-993-2507

Corn Stage		DESCRIPTION
V2	2 Leaves	Leaf stage is defined by number of leaves with visible collars. The collar is a discolored line where the leaf meets the stalk. This line circles the stalk. <b>TIP:</b> Mark the 6th leaf or a higher leaf by cutting a notch in it or some other way so as to know that leaf number. Reason is the lower leaves will be lost as the plant develops. Flag or somehow mark the plant in the field as a reference plant when determining later leaf (vegetative) stages.
V4	4 Leaves	
V6	6 Leaves	
Soybean Stage		DESCRIPTION
VC	Cotyledon	Shortly after emergence. Cotyledons and unifoliate leaves are unfolded. (1 node)
V1	First Node	One trifoliate leaf has 3 leaflets. V1 is the first trifoliate leaf with unrolled or unfolded leaflets. Leaflet edges are no longer touching. (2 nodes = 1 unifoliate + 1 trifoliate)

## LAKE AND RIVER LEVELS

CNPPID Reservoir Elevation and Platte River Flow data listed below and other locations can be found on CNPPID's website at <http://cnppid.com/wp-content/uploads/2016/06/lakeRiverData.html>.

	May 24, 2018, 8:00 AM	1 Year Ago
Capacity of Lake McConaughy	85.3%	NA
Inflows to Lake McConaughy	2302 cfs	2263 cfs
Flows on the North Platte at North Platte	407 cfs	534 cfs
Flows on the South Platte at North Platte	501 cfs	2305 cfs
Flows on the Platte at Overton	2551 cfs	2586 cfs



## WEBSITES OF INTEREST

Soil Health:

[www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/](http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/)

Climate [aqclimatenebraska.weebly.com](http://aqclimatenebraska.weebly.com)  
 NRCS Nebraska [www.ne.nrcs.usda.gov](http://www.ne.nrcs.usda.gov)  
 Central Irrigation District [www.cnppid.com/](http://www.cnppid.com/)  
 TBNRD Home Page [www.tribasinrrd.org/](http://www.tribasinrrd.org/)  
 Farm Service Agency [www.fsa.usda.gov](http://www.fsa.usda.gov)  
 UNL Cropwatch [cropwatch.unl.edu](http://cropwatch.unl.edu)  
 UNL Extension [extensionpubs.unl.edu/](http://extensionpubs.unl.edu/)  
 K-State SDI Website [www.ksre.ksu.edu/sdi](http://www.ksre.ksu.edu/sdi)  
 No-till On The Plains [www.notill.org](http://www.notill.org)

## RAINFALL

Rainfall amounts listed below and other locations come from NeRAIN which can be found at website <https://nednr.nebraska.gov/NeRain/Maps/maps>.

Location:	May 10 – May 23	May 1 – May 23
Arapahoe 9.8 NNE:	2.41	2.41
Bertrand 6.1 mi. SE:	1.29	1.61
Funk 4.1 mi. NNE:	2.88	2.88
Minden 0.855 mi. W:	2.10	2.16
Minden 8.8 mi. ESE:	1.80	1.80

Average Rain for May in Holdrege = 4.06 Inches

\*\*\* If you wish to receive this newsletter via e-mail, or have any questions, comments or ideas, feel free to contact Curtis Scheele at the NRCS office in Holdrege or you can email him at [curtis.scheele@ne.usda.gov](mailto:curtis.scheele@ne.usda.gov). \*\*\*

### USDA - Natural Resources Conservation Service



1609 Burlington Street  
 PO Box 798  
 Holdrege, NE 68949-0798  
 308-995-6121, Ext. 3

309 Smith Street  
 PO Box 41  
 Elwood, NE 68937-0041  
 308-785-3307, Ext. 3

1005 South Brown Street  
 Minden, NE 68959-2601  
 308-832-1895, Ext. 3

### Central Nebraska Public Power & Irrigation District



415 Lincoln Street  
 PO Box 740  
 Holdrege, NE 68949  
 308-995-8601

### Tri-Basin Natural Resources District



1723 Burlington Street  
 Holdrege, NE 68949  
 308-955-6688

### Nebraska Extension



1308 2<sup>nd</sup> Street  
 Holdrege, NE 68949

PO Box 146  
 Elwood, NE 68937

424 North Colorado  
 PO Box 31  
 Minden, NE 68959

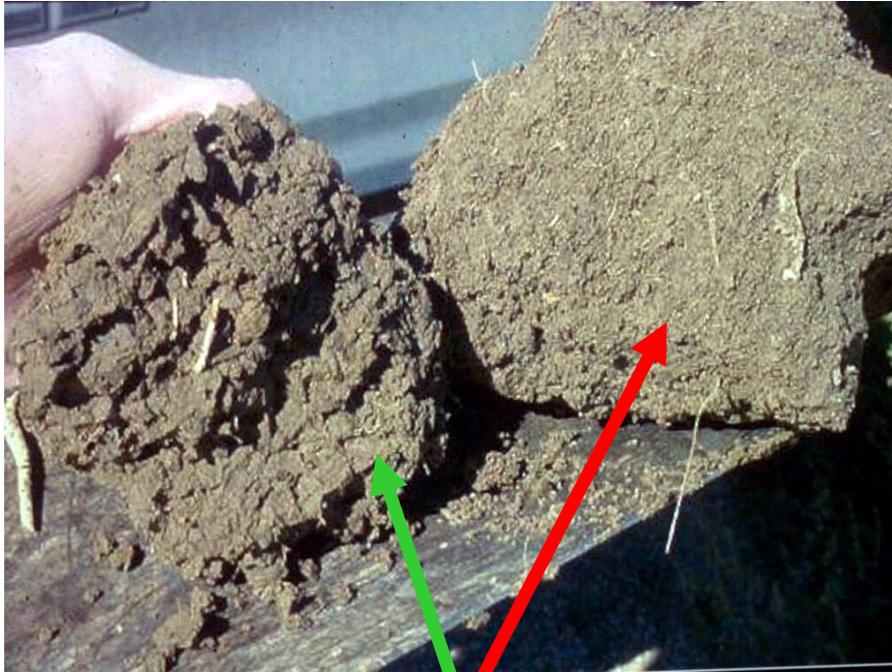
308-995-4222

308-785-2390

308-832-0645

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# Aggregate Stability



No-Till Soil

Conventional  
Tilled Soil

