

# Tri-Basin Irrigator

Volume 21, Issue 5

July 8, 2021

## PROGRAM INFORMATION

**EQIP:** SIGN UP ANYTIME FOR 2022 FUNDS.

**CSP:** SIGN UP ANYTIME FOR 2022 FUNDS.

**NSWCP:** FIRST CHANCE AT IRRIGATION PRACTICE APPROVAL, HAVE YOUR IRRIGATION APPLICATIONS IN BY AUG. 31<sup>ST</sup>. THEY MUST BE SIGNED BY THE OWNER.

**ENERGY EFFICIENCY GRANT:** SIGNUP ANYTIME FOR 2022 FUNDS. DEADLINE IS OCTOBER 31, 2021. FOR MORE INFORMATION CONTACT KELLEY AT RURAL DEVELOPMENT AT THE KEARNEY USDA SERVICE CENTER AT 308-455-9837 OR [KELLEY.MESSENGER@USDA.GOV](mailto:KELLEY.MESSENGER@USDA.GOV).

## CALENDAR OF EVENTS

**JULY 11-15: KEARNEY COUNTY FAIR**

**JULY 13: TBNRD BOARD MEETING**

**JULY 25-29: PHELPS COUNTY FAIR**

**JULY 29-31: GOSPER COUNTY FAIR**

## Soybean Crop Water Use (ET)

I've had questions about why soybean ET is higher than corn, even when the bean plant is so small. I will try and explain. I will be referring to page 3 of this newsletter as I go.

If comparing atmometers versus UNL weather stations, remember one thing, UNL weather stations are based off a set emergence date for corn and soybeans. You may or may not have a crop at that same crop stage so your actual ET in the field may be different.

The ET numbers I email on Mondays and on page 3 of this newsletter come from 14 atmometer sites across the Tri-Basin NRD. See map on page 3. On page 3 you will notice a range of crop stages representing the TBNRD. Corn varied this last week from 10-leaf to 16-leaf. Notice the difference in the coefficient numbers in the Crop Coefficient (Kc) chart on page 3. 10-leaf (0.69) is lower than 16-leaf (1.1). If our climate has a reference ET of 0.3 inches (ET<sub>r</sub>) for the day, then when multiplied by 0.69 Kc, 10-leaf corn is using 0.207 inches per day while 16-leaf corn is using 0.33 inches per day (0.3 ET<sub>r</sub> x 1.1 Kc). UNL weather stations at 12-leaf will use 0.264 inches per day (0.3 ET<sub>r</sub> x 0.88). The ET per day can add up, thus affecting your irrigation making decisions.

Soybeans this past week ranged from nearly Beginning Bloom to Full Pod. That Kc difference is 0.9 to 1.1. Earlier this year, beans ranged from 1<sup>st</sup> node to 3<sup>rd</sup> node. That is 0.2 to 0.6. Using the above example of 0.3 ET<sub>r</sub> per day, that equates to 0.06 inches per day 1<sup>st</sup> node and 3<sup>rd</sup> node being 0.18 inches per day of crop water use (ET). Multiply that out for 7 days and you get weekly totals of 0.42 versus 1.26 inches of ET for the week.

So, comparing 6-leaf corn and 3<sup>rd</sup> node beans on the same day. At 0.3 ET<sub>r</sub>, corn will use 0.105 inches per day (0.3 x 0.35) and beans 0.18 inches per day (0.3 x 0.6). The weekly total ET is 0.735 inches for corn and 1.26 inches for soybeans.

During peak season, both corn and soybeans have equal crop stage coefficients of 1.1 so both should use the same amount of water during peak water use.

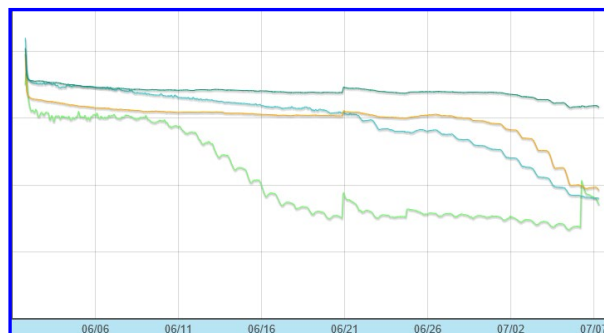
Questions, contact Curtis Scheele at 308-995-6121, Ext. 3.

## CURTIS'S COLUMN

USDA  
United States Department of Agriculture  
Natural Resources Conservation Service

### QUIZ – Soil Moisture Sensors!!!

Can you tell which line represents the following 4 sensor depths: 12 Inch, 24 Inch, 36 inch, 48 inch?



### CSP Contract Holders!!!

#### A Couple of REMINDERS!!!

1. Don't forget to take your leaf tissue samples prior to tassel if that's a part of your contract.
2. Fertilizer enhancements must have nutrients applied according to UNL recommendations. Total fertilizer applied including last fall counts towards the total amount applied. They also count when needing 50% of total nitrogen after emergence.

If you have any questions, contact your local NRCS office.

### EQIP Dryland, No-till, & Grass Field Checks!!!

The NRCS will be starting their annual field checks for dryland, no-till, and grass contract obligations for EQIP contract holders. These checks will take place over the next month or so. This past spring, EQIP contract holders received a reminder letter with a map indicating which areas needed to be dryland, no-tilled, or have grass maintained. **Failure to comply with your EQIP contract could result in termination, repayment of funds, and/or penalties.**

### Ultrasonic Flow Meter Measurements Are Available!!!

The ultrasonic flow meter can be used to determine how much water your well is pumping, how much water is going into your irrigation system, how much water you are losing from leaky gates and gaskets, how much water you are applying to your field, or it can be used as a check against your permanently installed flow meter.

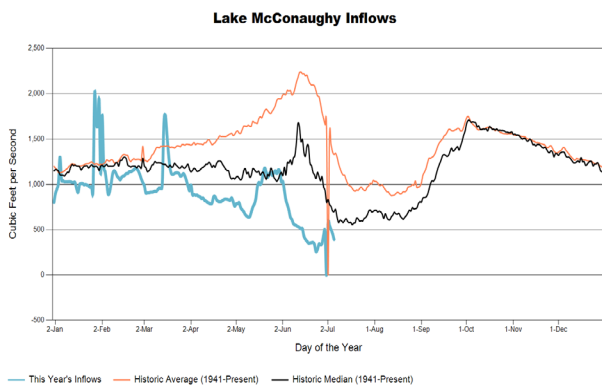
If you wish to request an ultrasonic flow meter measurement, you can contact Curtis Scheele, NRCS, at 308-995-6121, Ext. 3 OR Nolan Little, TBNRD, at 308-995-6688 to schedule an appointment.



**Irrigation is in High Demand:**

Irrigation is officially in high demand across the Central District. The Phelps, E65, and E67 canals are looking at picking up even more flow as the gravity irrigated fields are getting ready for irrigation. The E65 canal will be looking at releasing water from Elwood Reservoir when needed to meet the irrigation demands. Again, we remind Centrals irrigation customers to communicate daily with our ISS's so they can deliver the irrigation water on a timely and efficient manner.

Lake McConaughy currently has an inflow of around 400 CFS and is at 69.6% full, which is 19.5' from full pool. Last year at this time Lake McConaughy had an inflow of around 630 cfs at 77.7% full, which was 13.7' from full pool. Outflows from Lake McConaughy are at 2,550 cfs, which is down 1,025 from last week thanks in part to the environmental account releases ending on July 1.



**TRI-BASIN NRD NEWS**



**Assistance to Treat Infestation:**

*Phragmites australis* (common reed) is an invasive perennial that is found in wet areas along rivers, ponds, creeks, CRP acres, sub-irrigated ravines, and road ditches. It spreads by both seed and rhizomes, so it can spread tenfold in a single season. It has no forage value for livestock or wildlife.

Landowners are required to control phragmites on their property since it is on Nebraska's Noxious Weed list. The Twin Valley Weed Management Areas (TVWMA) has worked diligently over the past several years to combat phragmites along the area's river channels. The TVWMA, with grant funding from the Nebraska Environmental Trust, can aid landowners in treating phragmites.

If you have phragmites on your property, contact your County Weed Superintendent to see if you are eligible to have it sprayed free of charge.



**Gosper:**  
Marty Craig:  
308-324-3771

**Phelps:**  
Bobby Hamilton:  
308-991-0139

**Kearney:**  
Joe Anderson:  
308-832-2854

**New UNL Nitrogen Side-dress Recommendations:**

Based on new manure-release research, NebGuide G1335 "Determining Crop Available Nutrients from Manure" has been significantly revised. Most notably, nitrogen-release crediting of organic-N during the first year of application has been increased to 40% available during current year. Then, nitrogen availability crediting: years 2, 3 & 4 is now 20%; 10%; and 5% respectively.

For side-dress applications, two sets of procedures are recommended for fields which received manure application(s). The first provides an in-season check of organic nitrogen availability and an opportunity to adjust nitrogen application during the growing season. While the second procedure is based on canopy sensors.

NebGuide G1335 'Crop Available Nutrients from Manure' at: <https://extensionpubs.unl.edu/publication/9000017123651/determining-crop-available-nutrients-from-manure-g1335/>

**Western Bean Cutworm Moths Emerging:**

The first Western Bean Cutworm (WBC) moths were captured in the WC Research Black light trap on July 2; so WBC scouting for white egg masses, which gradually turn darker purple, on surface corn leaves will soon begin. Refer to NebGuide G1359 'Western Bean Cutworm in Corn / Dry Beans.'

**2021 UNL Soybean Management Field Days:**

Nebraska Soybean Management Field Days have been scheduled for Aug. 10-13, 2021. Featured topics will include: soybean production research, marketing and management. On Tuesday, **Aug. 10**, the **Jerome Fritz Farm at Wilcox** will kick-off the four field days. Other statewide soybean field sites will include: Aug. 11 (Kevin Dinslage Farm – Elgin); Aug. 12 (Bart & Geoff Ruth Farm – Rising City); and Aug. 13 (Mike Fuchs Farm – Arlington)

**Fertigating Pollinating Corn:**

Fertigation nitrogen applications during pollination can lower pollen survival. Therefore, it is recommended to **not** fertigate through pivots on pollinating corn in the early morning (6 a.m. to noon). This protocol is based on corn pollination occurring mostly between 8:30 a.m. and noon when the temperatures are below 90°F to 95°F. During hot days, pollen is killed by heat and is seldom viable past 2:00 p.m.

Therefore, delaying running pivots and applying nitrogen during the cooler morning hours is less likely to disrupt pollination. Fertilizer plant burn effects are further reduced by applying at least 0.25 inch of water with 30 lbs. of nitrogen per acre and at least 0.50 inch of water when applying 50-60 lbs. N. Silks tend to be viable for three or four days even with higher temperatures (> 90°F); so if a plant isn't pollinated one day, generally the next day will work just fine.

As a general rule, brown silks are a good visual sign for corn growers, since each corn silk provides a conduit to move shed pollen to one individual kernel. As individual corn kernels are successfully pollinated, each silk will detach from the kernel and brown on ear tips. Thus, when corn silks are still green long after tassel pollen; this may indicate ear pollination problems which might later result in blank kernel ear development.

Although there are risks associated with applying nitrogen on pollen during corn pollination; completely delaying nitrogen application until after the pollination period is not recommended either. Corn nitrogen needs during pre-tassel and again at kernel growth (1 to 3 weeks post pollination) are high. Plants deficient in nitrogen about seven to ten days post-pollination (before brown silk) may have kernel abortion and potentially have serious yield losses.

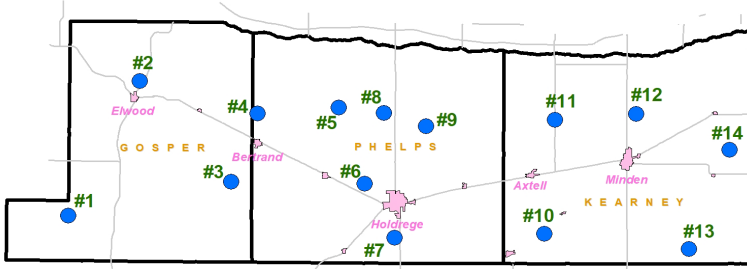
## TBAWMN CROP ET INFORMATION

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

Inches of Crop Water Use (ET) =

Evaporation (E<sub>Tr</sub>) x K<sub>c</sub>

Site	June 21 – June 27		June 28 – July 4	
	Evaporation	Rain	Evaporation	Rain
1	1.60	0.42	2.00	0.08
2	1.30	0.60	1.70	0.00
3	1.20	0.66	1.90	0.00
4	1.60	1.60	1.70	0.00
5	1.60	0.35	1.75	0.08
6	1.30	0.52	1.80	0.00
7	1.50	0.60	1.50	0.15
8	1.30	0.40	1.40	0.04
9	1.10	1.10	2.00	0.00
10	1.50	0.73	1.60	0.00
11	1.40	1.45	1.90	0.00
12	1.60	2.13	2.00	0.00
13	1.50	0.70	1.70	0.00
14	1.60	0.65	1.80	0.15



**2021 Map of NAWMN Sites across the Tri-Basin NRD.**

Crop Coefficients (K <sub>c</sub> )			
Corn		Soybeans	
Stage	K <sub>c</sub>	Stage	K <sub>c</sub>
2 leaf	0.10	Cotyledon	0.10
4 leaf	0.18	1st Node	0.20
6 leaf	0.35	2nd Node	0.40
8 leaf	0.51	3rd Node	0.60
10 leaf	0.69	Beg. Bloom	0.90
12 leaf	0.88	Full Bloom	1.00
14 leaf	1.01	Beg. Pod	1.10
16 leaf	1.10	Full Pod	1.10
Silk – Beg. Dent	1.10	Beg. Seed	1.10
¼ Milk Line	1.04	Full Seed	1.10
Full Dent (½ Milk)	0.98	Yellow Leaf	1.00
¾ Milk Line	0.79	Beg. Mat.	0.90
Black Layer	0.60	Full Mat.	0.20
Full Maturity	0.10	Mature	0.10

### CROP STAGE INFORMATION

**Corn (V10-10 Leaf to V16-16 Leaf stage):** V15 is the beginning of the most crucial period of plant development in terms of seed yield. R1 (Silking) is the most crucial period.

Avg. daily water use from June 28 – July 4 was 0.14"-0.31".

**Soybeans (V8-Eighth Node to R4-Full Pod stage):**

Environmental stress from Beg. Bloom through Full Seed will reduce yields more than any other time. Full Pod is the most crucial period. Vertical root growth increases sharply at Beg. Bloom.

Avg. daily water use from June 28 – July 4 was 0.17"-0.31".

June 28-July 4 (14 of 14 NAWMN sites reporting): Average weekly rainfall was 0.04 (range 0.00 to 0.15). Average weekly ET for corn was 1.64 and for soybeans was 1.77.

### CROP ET INFORMATION

**NAWMN Sites:**

Tri-Basin NRD: <https://www.tribasinnrd.org/nawmn>

Email: Contact Curtis at 308-995-6121, Ext. 3

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

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

**Texting:** Contact TBNRD at 308-995-6688

**Email:** Contact CNPPID at 308-995-3555

CORN STAGE		DESCRIPTION
V14	14 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.
V16	16 Leaves	
R1	Silking	Begins when any silks are visible outside the husks.

SOYBEAN STAGE		DESCRIPTION
R2	Full Bloom	At least one open flower is present at any one of the two uppermost main stem nodes that have fully developed leaves.
R3	Beginning Pod	At least one pod of 3/16" length is present at any 1 of the 4 upper most main stem nodes with a fully developed leaf. There can be pods of greater length at the lower nodes.
R4	Full Pod	At least one pod of 3/4" length is present at any 1 of the 4 upper most main stem nodes with a fully developed leaf.

## 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>.

	July 8, 2021, 8:00 AM	1 Year Ago
Capacity of Lake McConaughy	69.3%	NA
Inflows to Lake McConaughy	344 cfs	563 cfs
Flows on the North Platte at North Platte	624 cfs	1720 cfs
Flows on the South Platte at North Platte	246 cfs	119 cfs
Flows on the Platte at Overton	692 cfs	748 cfs

*If the whole world was blind, how many people would you impress?*

- unknown

## WEBSITES OF INTEREST

NRCS Nebraska [www.ne.nrcs.usda.gov](http://www.ne.nrcs.usda.gov)  
 Farm Service Agency [www.fsa.usda.gov/](http://www.fsa.usda.gov/)  
 TBNRD Home Page [www.tribasinrrd.org/](http://www.tribasinrrd.org/)  
 Central Irrigation District [www.cnppid.com/](http://www.cnppid.com/)  
 HPRCC [hprcc.unl.edu/](http://hprcc.unl.edu/)  
 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)  
 Soil Health: [www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/](http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/)  
 NE State Irrig Assoc [www.nebraskastateirrigationassociation.org/](http://www.nebraskastateirrigationassociation.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:	June 24 – July 7	May 1 – July 7
Elwood 0.26 mi. S:	0.91	5.88
Bertrand 6.1 mi. SE:	2.19	9.83
Holdrege 0.99 mi. E:	3.08	7.31
Minden 7.2 mi. W:	2.04	8.00
Minden 5.8 mi. E:	0.80	6.27

**Average Rain for May-June in Holdrege = 8.04 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@usda.gov](mailto:curtis.scheele@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

308-995-4222

PO Box 146  
 Elwood, NE 68937

308-785-2390

424 North Colorado  
 PO Box 31  
 Minden, NE 68959  
 308-832-0645

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