Tri-Basin Irrigator

Volume 23, Issue 3 **June 8, 2023**

Program Information

EQIP: **2023 applications are being pre-approved as funds become available.**

CSP: **2023 applications are being pre-approved as funds become available.**

NSWCP: **New funds come July 1st for all conservation practices so have your applications complete by June 30th. Applications must be signed by the owner.**

ENERGY EFFICIENCY GRANT: **Next sign-up deadline is June 30th. For more information contact Jolene at Rural Development at the Kearney USDA Service Center at 308-455-9840 or at *jolene.jones@usda.gov*.**

Calendar of Events

June 13: TBNRD Board Meeting

June 14: No-till on the Plains Whirlwind Event and Jody Saathoff Memorial Field Day near Franklin. Goto *https://www.notill.org* to register by June 6.

June 14: UNL TAPS Summer Field Day at North Platte. Goto *https://taps.unl.edu/taps-2023-field-day* to register by June 7.

June 19: Juneteenth – Gov't offices closed

July 3: CNPPID Board of Directors Meeting

Tool to Determine Crop Water Use – Part 2

In the last issue, you were introduced to the 2023 NAWMN. This network is a tool for producers to determine how much water their crops are using. Below is an example of how to use this tool from all the info shown on page 3 of each newsletter.

Step 1: You need to know the crop stage in the field (see descriptions). You can then determine your crop coefficient (Kc). In our example, corn is at 12 leaf, so the Kc equals 0.88.

Step 2: Select an atmometer station nearest your field to determine the amount of evaporation (reference ET) that has taken place. See the general map of atmometer locations. In this example, evaporation will be 1.8 inches for the week.

Step 3: Calculate ET or Crop Water Use. Multiply evaporation (reference ET) by your crop stage coefficient (Kc): 1.80 inches * 0.88 Kc = 1.584 inches used by your corn for the respective week. To calculate average daily water use, divide by 7 days: 1.584 inches / 7 days = 0.226 inches used per day.

NOTE: If you go to one of the two websites, NAWMN or TBNRD, found on page 3 under "Crop ET Information", you can get to charts showing you weekly crop water use, thus eliminating your need to calculate the weekly use. Using the websites is recommended since that data will be the most timely.

Knowing last week's weather and crop ET, one can project an estimated crop water use for the week ahead simply by knowing the forecast for the upcoming week.

This is an excellent tool for determining your own crop water use. If you have any questions, call Curtis Scheele at 308-995-6121, Ext. 3 or email him at *curtis.scheele@usda.gov*.

Curtis's Column

USDA United States Department of Agriculture
Natural Resources Conservation Service

Nitrogen: Research, Demos, Other Information

From attending meetings and visiting with producers, I hear a lot of need for research, demos, information, etc. Research, field demos, and information have been written and presented for a long time. This UNL website has the results of On-Farm Research for every year back to 2013: *https://on-farm-research.unl.edu/result-publications*. The following website can get you more information including the link listed above: *https://on-farm-research.unl.edu/*.

I have presented TAPS field comparisons of irrigation, nitrogen, and yields for similar hybrids at Pesticide / Nitrogen Certification meetings and in this newsletter. TAPS reports for each year can be found at *https://taps.unl.edu/reports*.

When information is provided, I hear "That doesn't work on my farm" or "That's what I pay them for".

Every producer knows their own farming operation. That being said, every field is a demo field. No excuses. Try less nitrogen on a field or areas of a field and see the results. Technology makes this easier to do. Don't make decisions based off one year's results. Every year is different. Be consistent. Be willing to share the results.

I hear producers applying 30-70 lbs. less nitrogen with no yield reduction. That's awesome! But then it seems like this information fades away and we continue as is. Continue and learn how it plays out long-term. Is it OM, nitrates in irrigation, hybrids, weather, or other factors playing a part? Your data doesn't need to be fancy. It needs to be utilized. UNL's On-Farm Research is an option if wanting research style results.

I know a producer who's lowering nitrogen over time simply from his own trials. I don't think he has found the bottom yet.

Bottomline; dollars in or out of your pocket and high nitrates in the groundwater. There's an old saying "If you always do what you've always done, you'll always get what you've always got." by Henry Ford.

Soil Moisture Levels as of May 31st

A rough look at soil moisture across the NRD on May 31st. Irrigation and rains play a factor.

Pivot - No-till Corn and Soybeans -- May 31, 2023
Holdrege Silt Loam soil (2.25 inches per foot)

Depth	Corn (5 sites)		Soybeans (4 sites)	
	Centibar	Percent	Centibar	Percent
1 foot	19	100 + %	14	100 + %
2 foot	24	100 + %	19	100 + %
3 foot	40	88%	19	100 + %
4 foot	46	83%	29	99%
4 ft. avg.	32	96%	20	100 + %

Dryland - No-till Bean into Corn Residue -- May 31, 2023
Holdrege Silt Loam soil (2.25 inches per foot)

Depth	Corn (1 site 3 miles NW of Holdrege)	
	Centibar	Percent
1 foot	19	100 + %
2 foot	27	100 + %
3 foot	40	88%
4 foot	72	69%
4 ft. avg.	40	88%

CNPPID Notes

2023 Spring EA Release

The U.S. Fish and Wildlife Service (USFWS) in coordination with the Platte River Recovery Implementation Program (PRRIP or Program), plans to release Environmental Account (EA) water from Lake McConaughy starting on Wednesday (May 24) and continuing through the end of June. The goal is to maintain a flow of at least 1,500 cubic feet per second at the Platte River near Grand Island gage through June 30. This is to be achieved while remaining below the 6.0-foot National Weather Service flood stage at the North Platte River at North Platte gage. The release of water is intended to maintain and enhance the wide, open, unvegetated and braided channel of the central Platte River by inundating sandbars to prevent vegetation establishment. This is the highest-priority EA release currently planned for the 2023 calendar year.

The Program is a cooperative basin-wide effort to assist in the recovery of threatened and endangered species in the Platte River including the whooping crane, piping plover, pallid sturgeon, and the now de-listed interior least tern. The EA water is dedicated to instream flow purposes, specifically providing benefits to the target species of the Program. The planned release will be similar to historic river rises, which resulted from spring runoff in the Platte River basin above Grand Island, Nebraska. Historic high flows helped remove vegetation from the riverbanks and kept the river wide and shallow with bare stretches of sand. This provided a safe place for whooping cranes and other birds to roost at night, provided nesting habitat for least terns and piping plovers, and increased the size of riverine wetlands.

Visit www.cnppid.com or follow @CNPPID on Facebook, Instagram and Twitter for updates throughout the year.

Tri-Basin NRD News

Chemigation Reminder

Do you plan to apply fertilizer or ag chemicals to your fields through your center pivot or subsurface drip irrigation system? If so, you must have a chemigation permit from the Tri-Basin NRD for each injection point. Call the TBNRD at 308-995-6688 for more information about the permitting process.

If you already have chemigation permits, it is a good idea to check your safety equipment over at least once a year to make sure all the equipment is in working order.

In the TBNRD, chemigation safety equipment inspections are required every three years. At the inspection, the well and irrigation system need to start and operate at normal pressure for at least one minute. Then the following will be checked:

- water discharges from low pressure drain & stops as system's pressure increases,
- 20 ft of hose attached to low-pressure drain to carry contaminated water away from well, and
- chemical injection line check valve is free of leaks.

During shutdown of the system:

- injection pump shuts off when system shuts off,
- air is drawn into pipeline through vacuum relief valve,
- irrigation pipeline check valve is watertight, and
- water discharges from low pressure drain & then stops (if pipeline check valve is not leaking).

Nebraska Extension Extras

Mosquito Protection

All mosquitoes require water for their development; so the first line of defense is ***not*** overirrigating fields. Based on insect growth cycles; ditches that hold water for more than 4 days can be a source of mosquitoes. On the other hand, efficient irrigation usually breaks most mosquito life cycles; since crops thrive when water does not stand on fields more than 12 hours.

For mosquito personal protection: wear light-colored, loose-fitting clothing; and when practical, wear long sleeves and pants. If possible, time field entry during periods other than peak mosquito flight times such as dawn and dusk.

Apply insect repellents to skin but not skin under clothing. If using sun screen, apply sun screen first, and then repellent. Creams and liquids can provide better application coverage. DEET (Off !®, Ben's®, Sawyer® & Repel®) at 25-30% concentrations effectively repel mosquitoes for 8 hours. Avoid applying high percentages of DEET (98%) to plastic watches, cameras, or sunglasses since high concentrations can dissolve plastics. DEET-free options include: Picaridin (Sawyer®, Natrapel®); Oil of lemon eucalyptus (Repel®, Coleman®; and R3535 Coleman®).

Permethrin sprays can remain effective through multiple wears and 4-6 washings. Check labels since some factory pretreated clothing with permethrin can remain effective for repelling both ticks and mosquitoes for up to 70 washings.

Delay Early Season Soybean Irrigation

Early season irrigation such as prior to the R2 (full bloom reproductive stage) may result in taller soybeans but may not increase yield proportionally. Further, once producers start irrigating soybeans; then, the plants may become dependent on continued irrigation. Dr. Jim Specht, UNL soybean breeder emeritus, still encourages planting soybeans in late April (early) to promote taller soybeans with more nodes based on 1 node produced every 3.7 days of growth. The target for higher yielding soybeans is 20 nodes per plant at harvest.

Limiting early season soybean irrigation can actually increase yields. Dr. Specht shares that waiting to start full irrigation until the soybeans reach the R3 (beginning pod) development stage (when the pods are about 3/16" long --- just beginning elongation) usually results in higher yields.

2023 UNL Wheat Varieties Field Tours

Nebraska Extension Wheat Performance plot tours at Grant and Culbertson are scheduled for **Tuesday, June 13**.

The UNL Perkins County (Stumpf International Wheat Research Center) tour - Grant, NE will begin at **10 a.m. MDT.** Variety tours will include both dryland and **irrigated** wheat. A complimentary lunch at noon will be provided. Registration is available at: *https://go.unl.edu/unl-wheat-tour-at-stumpf-farm* GPS: 40.849318, -101.705806

The Peters Seed Farms - Red Willow County wheat tour also on June 13th will begin at **5 p.m. CST. (**located from Culbertson, south on Hwy 17 and east on Road 713 for about 3 miles before turning north on Road 378. Or, 1 mile north of Peter's seed plant (north of UNL Wheat Breeding Nursery) – intersect of Road 714 & Road 378. GPS: 40.176476, -100.7605

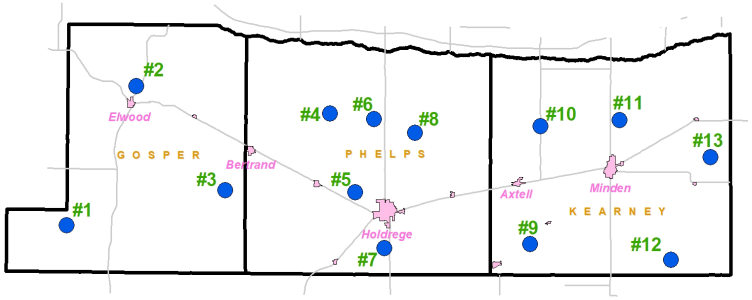
A self-guided Furnas County tour site is also available at Troy TenBensel's later drilled field site 2 miles north of Hendley, NE, west side of Rd 420 and ½ mile south of Road 714. Twitter information available on @UNLVarietyTest & @HuskerWheat.

NAWMN 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 x Kc

	May 22 – May 28		May 29 – June 4	
Site	Evaporation	Rain	Evaporation	Rain
1	1.00	0.85	1.40	2.40
2	1.30	0.58	1.60	1.12
3	1.30	0.40	1.30	1.58
4	NA	NA	NA	NA
5	1.40	0.40	1.40	0.69
6	1.50	0.31	1.20	1.38
7	1.70	1.10	1.20	0.68
8	1.70	0.15	1.10	1.11
9	1.50	1.06	1.10	0.69
10	1.80	0.90	1.20	1.83
11	1.90	0.67	1.20	1.37
12	1.90	0.27	1.10	1.30
13	2.20	0.48	1.30	1.88



2023 Map of NAWMN Sites across the Tri-Basin NRD

Crop Coefficients (Kc)

Corn Stage	Kc	Soybeans 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 (V2-2 Leaf to V8-8 Leaf stage): At V6, the determination of kernel rows per ear begins which is strongly influenced by hybrids, the growing point and tassel are above ground, and the stalk is beginning to elongate.

Avg. daily water use from May 29 – June 4 was 0.02"-0.15".

Soybeans (V1-1st Node to V4-4th Node stage): Nitrogen-fixation starts around the V2-V3 stages. The number of nodules formed and the amount of nitrogen fixed increases with time until R5.5 when it drops off sharply.

Avg. daily water use from May 29 – June 4 was 0.03"-0.15".

May 29-June 4 (12 of 13 NAWMN sites reporting): Average weekly rainfall was 1.34 (range 0.68 to 2.4). Average weekly ET for corn was 0.45 and for soybeans was 0.37.

Crop ET Information

NAWMN: https://nawmn.unl.edu/ETdata/DataMap
TBNRD: https://www.tribasinnrd.org/tbawmn
UNL: https://water.unl.edu/cropswater/nawmn
Texting (Daily): Sasha @ TBNRD: 308-995-6688
Email (Weekly): Curtis @ NRCS: 308-995-6121, Ext. 3

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. TIP: 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.
V6	6 Leaves	
V10	10 Leaves	

SOYBEAN STAGE		DESCRIPTION
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)
V3	Third Node	V3 has 3 nodes on main stem, each with a trifoliate leaf with unfolded leaflets. Plant as 3 nodes total: 1 unifoliate + 3 trifoliates
R1	Beginning Bloom	At least one open flower is present at any main stem node.

Lake and River Levels

CNPPID Reservoir Elevation and Capacity as well as 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*.

	June 8, 2023, 8:00 AM	*1 Year Ago*
El. & Cap. – Lake McConaughy	**3233.9 ft - 54.8%**	**3240.7 ft - NA%**
Inflows to Lake McConaughy	**936 cfs**	**346 cfs**
Flows on the North Platte at North Platte	**351 cfs**	**1110 cfs**
Flows on the South Platte at North Platte	**1100 cfs**	**148 cfs**
Flows on the Platte at Overton	**2300 cfs**	**2070 cfs**

FLAG DAY – June 14th – Video Tribute
Ragged Old Flag by Johnny Cash

https://www.bing.com/videos/search?q=youtube+johnny+cash+old+ragged+flag&&view=detail&mid=6386F59593ADB3A908206386F59593ADB3A90820&&FORM=VRDGAR&ru=%2Fvideos%2Fsearch%3Fq%3Dyoutube%2520johnny%2520cash%2520old%2520ragged%2520flag%26%26FORM%3DVDVVXX

Websites of Interest

NRCS Nebraska	*www.ne.nrcs.usda.gov*
Farm Service Agency	*www.fsa.usda.gov*
TBNRD Home Page	*www.tribasinnrd.org/*
Central Irrigation District	*www.cnppid.com/*
UNL Cropwatch	*cropwatch.unl.edu*
UNL Extension	*extensionpubs.unl.edu/*
K-State SDI Website	*www.ksre.ksu.edu/sdi*
No-till On The Plains	*www.notill.org*
Soil Health:	*www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/*
NE State Irrig Assoc	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:	May 25 – June 7	May 1 – June 7
Elwood 1.81 mi. NW:	**2.06**	**4.41**
Loomis 0.2 mi. SW:	**1.91**	**4.53**
Holdrege 1.7 mi. W:	**2.16**	**4.78**
Minden 7.2 mi. W:	**2.35**	**4.27**
Minden 5.8 mi. E:	**2.38**	**4.01**

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@usda.gov. ******

USDA - Natural Resources Conservation Service

USDA United States Department of Agriculture
Natural Resources Conservation Service

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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

CENTRAL Nebraska Public Power and Irrigation District

415 Lincoln Street
PO Box 740
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308-995-8601

Tri-Basin Natural Resources District

Tri-Basin Natural Resources District

1723 Burlington Street
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Nebraska Extension

N EXTENSION

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308-785-2390

424 North Colorado
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308-832-0645

Tri-Basin Irrigator via E-Mail

How about receiving this newsletter via E-MAIL rather than postal mail?

Benefits???

1. It provides you with direct links to websites that could be valuable information you may need, whether it be from NRCS, CNPPID, TBNRD, UNL Extension, or other.
2. You will receive it hot off the press
3. You will be receiving weekly Crop ET from the NAWMN sites via email.
4. If in the tractor or out of the area, you can read it from wherever you are
5. I am sure there are other benefits

If you would like to receive this newsletter via email, please provide me with your email address. 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@usda.gov.