Tri-Basin Irrigator

Volume 22, Issue 3 **June 9, 2022**

Program Information

EQIP: **Applications will continue to be pre-approved as funds become available. Signup anytime for 2023 funds.**

CSP: **CSP applications continue to be pre-approved as funds become available. Sign up anytime for 2023 funds.**

NSWCP: **New funds come July 1st for all conservation practices. To have first chance at irrigation practice approval, get your irrigation applications in by August 31st. Applications must be signed by the owner.**

ENERGY EFFICIENCY GRANT: **Sign-up deadline for 2023 funds is October 31, 2022. Rural Development is already accepting applications for this deadline. For more information contact Rural Development at the Kearney USDA Service Center at 308-455-9837.**

Calendar of Events

June 14: Flag Day
June 19: Father's Day
June 19: Juneteenth National Independence Day
June 20: Juneteenth Day Observed – Gov't Offices Closed
July 5: CNPPID Board of Directors Meeting
July 12: TBNRD Board Meeting

Tool to Determine Crop Water Use – Part 2

In the last issue, you were introduced to the 2022 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 the info shown on page 3 of each newsletter.

Step 1: You need to know the crop stage of the crop in the field you are working with. There are descriptions at the bottom of page 3. Knowing your crop stage, you can determine your crop coefficient (Kc). See page 3. In our example, corn is at 12 leaf, so the Kc equals 0.88.

Step 2: On page 3, select an atmometer station nearest your field and determine the amount of evaporation (reference ET) that has taken place. A general map of atmometer locations is shown on page 3. 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 TBAWMN found on page 3 of each newsletter (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 the weather forecast, one can project an estimated crop water use for the week ahead.

Using this method is an excellent tool for determining your own crop water use for your own crops. 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

Soil Moisture Levels as of June 1, 2022:

I installed Watermark Sensors on some of the NAWMN sites. Below are my remarks and charts showing the results.

- The charts include centibar (CB) numbers and percent moisture. The sensors read in CB's which is converted to percent moisture. For Holdrege Silt Loam soil, 28 CB's is field capacity or 100% moisture. Below 28 CB's is moisture above field capacity. The higher the CB, the drier the soil.
- The pivot corn shows the top three feet wetter than field capacity and the 4th foot right at field capacity. Average moisture to a 4-foot depth is above field capacity.
- Fine tuning the profile, you will notice the pivot corn CB's getting drier as one gets deeper into the profile. This would indicate pivots and rain adding moisture this spring.
- The second chart is one set of sensors in a dryland pivot corner on corn. Note how only rain has been added, thus the moisture levels aren't as wet. Two things to remember in comparing this to the pivots: 1. The dryland does not have the luxury of ending last years crop year at a higher percent moisture level. In the Tri-Basin NRD, at seasons end, on average, pivots end the year with the 4th foot at 75% moisture. 2. The dryland is only rain fed in the spring.
- The soybeans under the pivot show consistent moisture to 4 feet. Not sure why. It is only 2 sites however. The Kearney County site was consistently drier to 4 feet at seasons end last year and that shows the same on June 1, 2022. The Gosper County site that was consistently wetter to 4 feet last year and is consistently wetter this spring had 1.76 inches more rain in September 2021 and it has 1.4 inches more moisture this spring since April 1st. Irrigation management also plays a factor.

This is just a look at where we are at moisture wise across the NRD on June 1st in case the dry winter has folks wondering. Again, pivots and one's irrigation management can have some fields pretty wet and others not the case. Soil moisture sensors help tell the story and let us know where one's field stands.

Pivot - No-till Corn and Soybeans -- June 1, 2022
Holdrege Silt Loam soil (2.25 inches per foot)

Depth	Corn (6 sites)		Soybeans (2 sites)	
	Centibar	Percent	Centibar	Percent
1 foot	13	100 + %	28.5	99.5%
2 foot	17.8	100 + %	18.5	100 + %
3 foot	18.7	100 + %	29	99.0%
4 foot	28.5	99.5%	22	100.0%
4 ft. avg.	19.5	100 + %	24.5	100 + %

Dryland - No-till Corn into Bean Residue -- June 1, 2022
Holdrege Silt Loam soil (2.25 inches per foot)

Depth	Corn (1 site 3 miles NW of Holdrege)	
	Centibar	Percent
1 foot	17	100 + %
2 foot	47	82%
3 foot	63	73%
4 foot	93	61%
4 ft. avg.	55	77%

CNPPID Notes

Hansen Family Fundraiser/Benefit:

Central will hold a fundraiser Friday, June 10th to benefit the family of Tony Hansen, a Central employee, which two of his children were involved in an auto accident last month. Central will provide hamburgers, chips, and drinks to the public. Attendees can make a free will offering to help offset the Hansen's medical costs & other bills. The Fundraiser will be located in the parking lot of Central's office in Holdrege (415 Lincoln St.) from 11:30 AM - 1:30 PM. Donations are also accepted at Central's office anytime. All proceeds go to benefit the Hansen Family.

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 drip irrigation system? If so, you must have a chemigation permit from Tri-Basin NRD for each injection point. Call TBNRD at 1-877-995-6688 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
- 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
- water discharges from low pressure drain & then stops (if pipeline check valve is not leaking)

Nebraska Extension Extras

2022 Wheat Varieties Plot Tour – June 15:

Nebraska Ext. Wheat Plot tours are set for 7 locations in western Nebraska. Troy TenBensel's (Arapahoe site) was severely hailed; so Peters Seed Farm in Red Willow County will be an alternative tour. This tour will begin at 5:00 p.m. on Wed., June 15 with a dinner following the tour. From Culbertson, head south on Hwy 17 and turn west on Road 710 (by the Stone Church). Field is on the south side of the road. (look for bins on north side). GPS: 40.113713, -100.817437 (winter wheat)

34 different winter wheat varieties will be featured. Plot tour guides will include: Katherine Frels, new UNL Wheat Breeder; Amanda Easterly – UNL Wheat Program Asst. Breeder / Coordinator; and Todd Whitney – Nebraska Extension Cropping Systems Educator.

2022 TAPS Field Day – June 22:

The Testing Ag Performance Solutions (TAPS) program annual summer field day at the West Central Research and Extension Center (WCREC) – North Platte is scheduled for Wed., June 22, starting at 9:00 a.m. This event will feature sensor company drones demos, guest speakers, and free sponsored lunch. An afternoon sporting clay target shoot social will begin at 2 p.m. at the Lincoln County Wildlife Gun Club south of North Platte.

Register: https://taps.unl.edu/taps-2022-field-day by Jun. 13.

Volunteer Corn Impact on Crop Yield:

Winter dry conditions have resulted in high numbers of volunteer corn kernels and ears remaining viable and germinating this spring. Depending on density, volunteer corn may reduce crop yield if not controlled. UNL research indicates that soybean yields willl likely be more impacted than corn at similar volunteer populations.

In soybean fields, volunteer corn densities of 3,500 plants per acre, decreased yields by 10%. Doubling the volunteer density to 7,000 plants per acre led to a 27% yield reduction. Clumps of volunteer corn in soybeans proved to be more competitive than individual plants and reduced yields upto 40% at the 3,500 clumps per acre density. The highest yield reduction occurred when the volunteer was left uncontrolled or controlled too late at the R2 soybean growth stage.

In corn field research, volunteer corn populations of 3,500 plants per acre resulted in a 2% yield reduction. Doubling the density to 7,000 plants per acre resulted in a 5% yeild reduction. More informaiton is available at: https://cropwatch.unl.edu.

Sidedress Fertilizer Applications:

As early planted corn fields move past V4 (4-leaves) development, nodal roots are now occupying more volume than the early seminal roots. So, attention is shifting to timely sidedress fertilizer efficient applications especially when fertilizer prices are hovering at all-time high values.

Since the potential number of kernel rows per ear (ear girth) are determined between V6 to V10 (Tenth-Leaf = brace roots development), most corn growers target applying their sidedress when their corn fields reach five to six leaf stages.

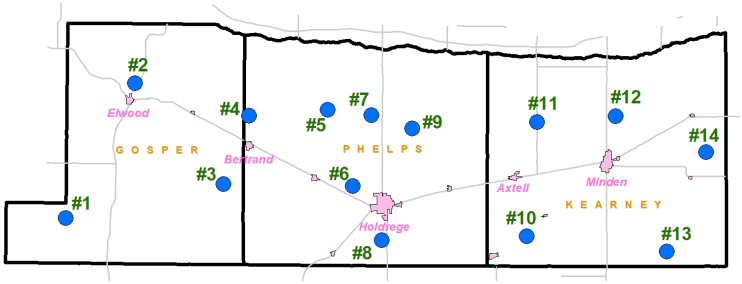
Several free UNL Extension nitrogen software tools are available for assisting with calculating sidedress rates including: "Maize-N"; "Hybrid-Maize Model" – corn growth/yield simulator; and "Corn N Calculator". The latter Excel spreadsheet was updated in 2021 to provide recommended economic nitrogen rates based on different nitrogen sources and corn prices.

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 23 – May 29		May 30 – June 5	
Site	Evaporation	Rain	Evaporation	Rain
1	1.00	0.84	1.50	0.79
2	1.20	0.65	1.50	0.10
3	1.40	0.82	1.40	0.16
4	1.30	0.92	1.60	0.60
5	1.30	1.08	1.50	2.90
6	1.20	0.87	1.70	0.94
7	1.30	0.97	1.50	0.60
8	1.40	0.86	1.50	2.09
9	1.40	0.70	1.30	0.67
10	1.60	0.81	1.30	0.18
11	1.70	0.84	1.50	0.21
12	1.60	0.80	1.50	0.09
13	1.70	0.91	1.40	0.45
14	1.60	0.79	1.40	0.19



2022 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 growing point and tassel are above the soil surface. The stalk is beginning a period of increased elongation.

Avg. daily water use from May 30 – June 5 was 0.02"-0.12".

Soybeans (VC-Cotyledon to V3-3rd Node stage): At V2, lateral roots are proliferating rapidly into the top 6 inches of soil between rows. Nitrogen-fixation begins at V2-V3.

Avg. daily water use from May 30 – June 5 was 0.02"-0.15".

May 30-June 5 (14 of 14 NAWMN sites reporting): Average weekly rainfall was 0.71 (range 0.09 to 2.90). Average weekly ET for corn was 0.38 and for soybeans was 0.40.

Crop ET Information

NAWMN: https://nawmn.unl.edu/ETdata/DataMap
TBNRD: https://www.tribasinnrd.org/tbawmn
CNPPID: https://www.cnppid.com/weatheret-data/
CropWatch: https://cropwatch.unl.edu/gdd-etdata
Texting: TBNRD: 308-995-6688 or UNL: 308-995-4222
Email: CNPPID: 308-995-3555

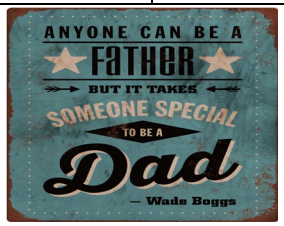
CORN STAGE		DESCRIPTION
V2	2 Leaves	Leaf stage is defined by number of leaves with visible collars. The collar is a discolored line where the leaf meets the stalk. This line circles the stalk. TIP: Mark the 6th leaf or a higher leaf by cutting a notch in it or some other way so as to know that leaf number. 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 4 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 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 9, 2022, 8:00 AM	*1 Year Ago*
Capacity of Lake McConaughy	**63.1%**	**NA**
Inflows to Lake McConaughy	**338 cfs**	**544 cfs**
Flows on the North Platte at North Platte	**1110 cfs**	**303 cfs**
Flows on the South Platte at North Platte	**147 cfs**	**1790 cfs**
Flows on the Platte at Overton	**2070 cfs**	**1200 cfs**



Happy Father's Day!

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 26 – June 8	May 1 – June 8
Elwood 0.26 mi. S:	**0.32**	**3.73**
Bertrand 6.1 mi. SE:	**1.80**	**6.31**
Holdrege 0.99 mi. E:	**1.39**	**4.60**
Minden 7.2 mi. W:	**1.97**	**4.94**
Minden 5.8 mi. E:	**1.58**	**4.51**

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. ****

USDA - Natural Resources Conservation Service

USDA United States Department of Agriculture
Natural Resources Conservation Service

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308-995-6121, Ext. 3

309 Smith Street
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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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Tri-Basin Natural Resources District

Tri Basin Natural Resources District

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UNL TAPS
TESTING AG PERFORMANCE SOLUTIONS

Field Day

Wednesday, June 22, 2022
9:00 AM (CDT)

WCREEC
402 W. State Farm Road
North Platte, NE

Educational

Beneficial

Interesting

Intriguing

Interactive

Enjoyable

SENSOR COMPANY DEMOS

AGRONOMIC OLYMPICS

DRONE OBSTACLE COURSE

GUEST SPEAKER

CROWDSOURCING UPDATE

LUNCH PROVIDED

SOCIAL AFTERNOON EVENT

Register by June 13th

Find out more or register at https://go.unl.edu/7kbj

Nebraska Corn Board

USDA United States Department of Agriculture
Natural Resources Conservation Service

SORGHUM THE SMART CHOICE

Nebraska Grain Sorghum Board