Tri-Basin Irrigator

Volume 20, Issue 2 **May 28, 2020**

Program Information

EQIP: **Funds for 2020 contracts are currently being ranked. When ranking is complete, then pre-approved applicants will be contacted to start writing contracts.**

CSP: **Renewal contracts are being written now for those getting renewal contracts. - 80 plus new applications will be worked on in the near future.**

NSWCP: **New funds come July 1st so get your irrigation applications in by August 31st for first chance approvals.**

ENERGY EFFICIENCY GRANT: **Sign-up deadline for 2021 funds is October 31, 2020. For more information contact Kelley at Rural Development at the Kearney USDA Service Center at 308-455-9837 or *kelley.messenger@usda.gov*.**

Calendar of Events

June 1: CNPPID Board of Directors Meeting
June 8: CNPPID 12 week irrigation run schedule starts
June 9: TBNRD Board Meeting
June 14: Flag Day
June 21: Father's Day

Tool to Determine Crop Water Use – Part 1

The **N**ebraska **A**gricultural **W**ater **M**anagement **N**etwork (**NAWMN**) is underway for the 2020 crop season across the Tri-Basin NRD. This network is a tool for participating and area producers to use when scheduling irrigations. The information gathered is used to determine how much soil moisture their crops are using. This information can be found on 2 websites listed on page 3 of this newsletter. They are under the "NAWMN Sites" portion of the section "ET Information Sites". If you get this via email, just click the links.

There are only 6 weather stations within or neighboring the entire NRD where producers can get crop water use information. This network adds 16 additional locations. See map on page 3. Having this information more localized allows producers to better determine what their crops are using for soil moisture. Unlike the weather stations, these sites allow producers to use their own crop stage of growth. Having these sites closer to a producer's fields and being able to use their own crop stages, this network serves as an excellent tool in determining crop water usage by field. Knowing your crop water use allows you to better schedule irrigations which can mean more money in the bank, water for future generations, prevent leaching of nitrates into the water supply, etc. etc.

On page 3 of each Tri-Basin Irrigator issue, information from the prior two weeks will be provided for all 16 sites. Because this newsletter is sent bi-weekly, it's highly recommended to use the websites for the most accurate and current information. The websites are updated by Tuesday of each week. Also, I will be emailing crop water use information from this network weekly to those who wish to receive it. In the next issue of this newsletter, an example of using this network will be provided.

If you have any questions, call Curtis Scheele at 308-995-6121, Ext. 3 or email to *curtis.scheele@ne.usda.gov*.

Curtis's Column

USDA United States Department of Agriculture
Natural Resources Conservation Service

Now is the Time to Install Soil Moisture Sensors:

If you have soil moisture sensors to install, now is the time to be getting them installed. You want to install these at emergence or shortly thereafter for the following reasons:

- This gives the sensors and surrounding soil time to gel by irrigation season so as to provide the most natural soil conditions in the field.
- This prevents the cutting of crop roots from taller crops, thus allowing all the roots to grow naturally around the sensors.
- This prevents the breaking of larger crops that get in the way during installation causing potential crop voids in the field that can affect soil moisture readings.

Accurate soil moisture readings can help you better schedule your irrigations, potentially saving you money.

If you are getting paid for sensors from EQIP or CSP contracts, you need to get these installed. If you don't have them yet, you need to be getting them so that they can be installed in a timely manner for 2020. Contact your local NRCS office for more information.

NEW: ETdata Texting Service

In place of the Water Use Hotline we are offering a daily texting service for ET Data. You can sign-up to receive daily updates by calling the Tri-Basin NRD (308-995-6688) with your cell number and they will get you added. Daily (D) and Future 3 Days (F3d) estimated water use will be given for Corn and Soybeans (Beans) at three locations across the district: Holdrege 5N (Hld), Axtell 5NE (Axt) and Smithfield 2E (Smfld).

Early Season Soil Moisture Levels:

Pivots are at full profile through 4 feet. The 4th foot could be short of full if you dried that depth down good at seasons end and you were short of off-season moisture.

I have sensors in one dryland no-till pivot corner northwest of Holdrege. Corn planted in soybean residue. The top 2 feet are at full profile and the 3rd nearly full after 3.30 inches of rain this past week. The 4th foot is at 68% moisture. Prior to these weekend rains, the top 2 feet were full profile. See chart below.

Dry (1 site near Holdrege) - No-Till Corn into Beans			
Soil Depth	**9/25/2019**	**5/20/2020**	**5/27/2020**
1 foot	70%	100%	100%
2 foot	79%	100%	100%
3 foot	60%	63%	97%
4 foot	47%	53%	68%
4 ft. avg.	64%	79%	91%

Memorial Weekend Rainfall General Synopsis:

Looking over the rainfall totals from NAWMN sites and NeRain. Basically you can draw it in by county, west to east.

- Gosper County: 1-3 inches
- Phelps County: 3-6 inches
- Kearney County: 6-9 inches

CNPPID Notes

Position Changes for the 2020 Season:

Spring brings on new life each season, and this spring has brought some changes and new faces to Central's Irrigation Department at both the Bertrand and Holdrege locations. In the Bertrand office, new employee Ross Winheim is an irrigation service specialist (ISS), and will take over as patrolman for Jeff Wilken on E67 by Johnson Lake. Jeff Wilken relocated and will take over patrol route 12 northwest of Bertrand. Another new employee in the Bertrand office, Jay Johnson is an equipment operator.

In the Holdrege office, Matt McDorman is a new ISS and will take over patrol route 24 north of Holdrege. Tony Bendorf, who was previously working in Bertrand, will take over patrol route 32 from Funk to Minden. Former patrolmen Bryon McDorman and Corey Ellis changed positions and now are equipment operators. Finally, Justin Dodson recently joined Central and is a new equipment operator.

Each of these changes was brought on by a number of retirements last fall, most of whom had been with the District for a significant number of years. We're grateful for the years of service each employee has given to the District, and for doing their part in making sure the water gets where it needs to be when it needs to be there each year!

Find us at www.cnppid.com or @CNPPID on Facebook, Instagram, Twitter and LinkedIn.

Tri-Basin NRD News

Check Flowmeters Before Starting Irrigation:

We would like to remind producers to check the flowmeters on their wells before starting irrigation this season. It is a good idea to make note of the meter reading at the beginning of the season, to make sure it matches the reading from the end of last season. Checking the meter periodically throughout the season to make sure it is working properly benefits both Tri-Basin NRD and you, the irrigator, so that you can keep accurate irrigation records. It is the responsibility of the producer to make sure the flowmeter is functioning properly during the irrigation season.

It has also come to our attention that producers who have **Senninger brand flowmeters** may want to make sure the batteries they are using are the correct size. **These meters take lithium 3.6-volt batteries instead of standard 1.5-volt AA batteries.** Using standard AA batteries will cause these flowmeters to not work properly.

Nebraska Extension Extras

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 application.

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 nitrogen software tools are available for assisting with calculating sidedress rates including: UNL "Maize-N"; UNL "Corn Nitrogen Calculator"; and "Corn Nitrogen Rate Calculator" from Iowa State University. The latter two web-based tools can be used to compare nitrogen returns based on different nitrogen sources and corn prices.

Broadcast application of UAN (ammonium nitrate) fertilizer research conducted in Minnesota indicated that when corn plants were at the V3 growth stage (3-leaves), reduced growth rates due to leaf burn were worse at fertilizer rates greater than 60 lbs. nitrogen per acre (study rates were: 0, 60, 90 and 120 lbs. N per acre). When plants were larger than V3 stage, plant damage was worse and some yield depression occurred with the 120 lbs. per acre nitrogen rate.

2020 Wheat Varieties Performance Plot:

Our 2020 WC Nebraska Extension Wheat Varieties Performance Plot is located on Terry Woollen's field located just north of Alma, NE (½ mile west of the Junction of Highways 183 and 136 on the south side of the highway). This year's plot tour will be virtual due to COVID-19 social distancing requirements. More details will be provided in our next Tri-Basin e-Irrigator.

Several wheat varieties in the 2020 plot are exhibiting Barley yellow dwarf viral disease. The primary symptoms are stunting and yellow or red discoloration of the leaf tips. This disease can be confused with wheat streak mosaic or nutrient deficiency. Fall infections vectored predominantly by bird-cherry oat aphid (Rhopalosiphum padi) and corn leaf aphid (R. maidis) can result in winter wheat yield losses between 25-36%; whereas, plants infected after heading usually have minimal yield losses.

Free Nebraska Extension On-Farm Research App:

The Nebraska Extension On-Farm Research App is now available free-of-charge through Android App; Google Play and Apple App stores. Loaded on your iPhone, iPad and Android devices; this App allows users to create treatment strips for your own fields and develop maps of your research studies.

If research trials are replicated; then, the Nebraska On-Farm Network can provide statistical analysis. http://cropwatch.unl.edu/farmresearch.

Previous statewide on-farm research study research results can be queried among the 20+ years of research studies. https://resultsfinder.unl.edu.

The mission of the Nebraska On-Farm Research network is to assist Nebraska growers in increasing production, reducing inputs and improving potential profitability.

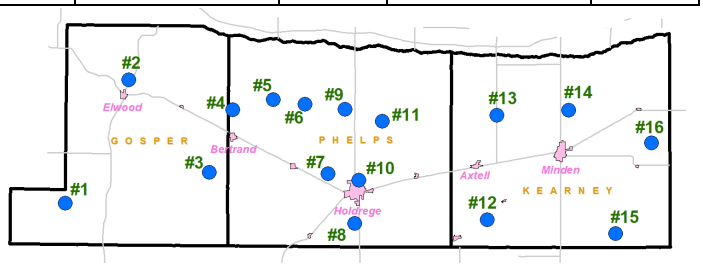
The free Nebraska Extension "CornSoyWater" irrigation scheduling is also a popular companion App for real-time in-field irrigation decisions.

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 11 – May 17		May 18 – May 24	
Site	Evaporation	Rain	Evaporation	Rain
1	0.70	1.40	0.80	1.77
2	0.70	1.05	0.90	1.07
3	0.65	0.88	0.95	2.05
4	0.60	1.17	0.90	3.24
5	NA	NA	NA	NA
6	0.70	0.80	0.70	1.63
7	1.00	0.82	0.70	3.25
8	0.70	0.73	0.90	3.05
9	NA	NA	NA	NA
10	NA	NA	NA	NA
11	NA	NA	NA	4.59
12	0.80	0.46	0.80	7.36
13	0.80	0.44	0.70	7.20
14	0.90	0.14	0.80	7.94
15	0.90	0.05	0.90	7.30
16	1.00	0.25	0.90	8.30



2020 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 (VE-Emerging to V6-6 Leaf stage): Growing point is still below ground at V4. Cold soil temps can affect growth. Hail, wind, or frost at V3 have little or no effect on yield. Growing point below flood water can kill corn in a few days.

Avg. daily water use from May 18 – May 24 was 0.00"-0.05".

Soybeans (VE-Emerging to V2-Second Node stage): At V2, lateral roots are proliferating rapidly into the top 6 inches of soil between the rows. By V5, they will completely reach across 30 inch rows.

Avg. daily water use from May 18 – May 24 was 0.00"-0.05".

May 18-May 24 (12 of 16 NAWMN sites reporting): Average weekly rainfall was 4.51 (range 1.07 to 8.30). Average weekly ET for corn was 0.12 and for soybeans was 0.20.

Crop ET Information

NAWMN Sites:
https://www.cnppid.com/weatheret-data/nebraska-agricultural-water-management-network/
https://nawmn.unl.edu/ETdata/DataMap
Email: NRCS: 308-995-6121, Ext. 3
CropWatch: https://cropwatch.unl.edu/gdd-etdata
CNPPID: https://www.cnppid.com/weatheret-data/
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.
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)
V2	Second Node	V2 has 2 nodes on main stem, each with a trifoliate leaf with unfolded leaflets. Plant as 3 nodes total: 1 unifoliate + 2 trifoliates

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 28, 2020, 8:00 AM	*1 Year Ago*
Capacity of Lake McConaughy	**87.7%**	**NA**
Inflows to Lake McConaughy	**1210 cfs**	**1690 cfs**
Flows on the North Platte at North Platte	**1350 cfs**	**821 cfs**
Flows on the South Platte at North Platte	**280 cfs**	**658 cfs**
Flows on the Platte at Kearney	**3890 cfs**	**3430 cfs**

Sometimes we focus so much on what we don't have that we fail to see, appreciate, and use what we do have!

- Jeff Dixon

Websites of Interest

Soil Health: *www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/*

Climate	*agclimatenebraska.weebly.com*
NRCS Nebraska	*www.ne.nrcs.usda.gov*
Central Irrigation District	*www.cnppid.com/*
TBNRD Home Page	*www.tribasinnrd.org/*
Farm Service Agency	*www.fsa.usda.gov*
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*

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 14 – May 27	May 1 – May 27
Elwood 0.26 mi. S:	**1.61**	**2.40**
Bertrand 6.1 mi. SE:	**3.91**	**4.53**
Holdrege 0.99 mi. E:	**3.83**	**4.38**
Minden 7.2 mi. W:	**6.71**	**7.18**
Minden 5.8 mi. E:	**7.49**	**8.02**

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

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1005 South Brown Street
PO Box 41
Elwood, NE 68937-0041
308-785-3307, Ext. 3

Minden, NE 68959-2601
308-832-1895, Ext. 3

Central Nebraska Public Power & Irrigation District

415 Lincoln Street
PO Box 740
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308-995-8601

Tri-Basin Natural Resources District

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