Tri-Basin Irrigator

Volume 22, Issue 8 **August 18, 2022**

Program Information

EQIP: **Signup anytime for 2023 funds.**

CSP: **sign up anytime for 2023 funds.**

NSWCP: **Get your irrigation applications in by August 31st in order to be reviewed for possible approval at the September TBNRD Board Meeting. Next round of irrigation approvals will be at the December Board Meeting. Applications must be signed by the owner.**

ENERGY EFFICIENCY GRANT: **Sign-up anytime for 2023 funds. For more information contact Jolene Jones at Rural Development at the Kearney USDA Service Center at 308-455-9840.**

Calendar of Events

Aug 25: Water, Crops & Soil Field Day at the WCREEC in North Platte: Register at ***https://extension.unl.edu/statewide/westcentral/2022-water-and-crops-field-day-registration/***

Aug 26-Sept 5: Nebraska State Fair

Sept 5: Labor Day – Gov't offices closed

Sept 6: CNPPID Board of Directors Meeting

Sept 13: TBNRD Board of Directors Meeting

Sept 13-15: Husker Harvest Days

CSP & EQIP Reminders!

CSP

1. To ensure proper payments are made in a timely manner:
   a. Submit your 2022 documentation by Sept. 1st at your local NRCS office:
      i. completed enhancement jobsheets
      ii. signed certification sheets
      iii. supporting records such as soil tests, fertilizers applied, tissue tests, pesticides applied, water samples, irrigation records, etc.
      iv. other required documentation
   b. All 2022 enhancement job sheets, practices, etc. was sent to contract holders this past spring.
   c. The Sept. 1st deadline gives us time to review and certify your documentation, gives you time to complete unfinished items, allows time for contract modifications if needed, and anything else that arises.
   d. A letter with more details has been recently sent to contract holders.
2. If you are planting a cover crop this fall, a seeding sheet was sent to contract holders this past spring.

EQIP

1. Submit your soil moisture sensor information shortly after irrigation season, prior to harvest. Then we can pay you in a timely manner. Irrigation records include:
   a. year-end summary charts and individual sensor charts
   b. flow meter readings
   c. rainfall
   d. crop ET information

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

Curtis's Column

USDA United States Department of Agriculture
Natural Resources Conservation Service

Predicting Last Irrigation

Needed info: **1.** Available Water Capacity (AWC) of soil, **2.** goal for soil moisture level at crop maturity, **3.** current soil moisture level to a four-foot depth (unless roots are not that deep due to compaction, too much water early, etc.), **4.** current crop stage, and **5.** water use from current crop stage to maturity (see chart below).

	Growth Stage	Approx. Days to Maturity	Water Use to Maturity
Corn	Dough (R4)	34	7.5"
	Beg. Dent (R4.7)	24	5.0"
	¼ Milk Line (R5)	19	3.75"
	½ Milk Line (Full Dent)	13	2.25"
	¾ Milk Line	7	1.0"
	Maturity (R6)	0	0.0"
Soy Beans	Full Pod (R4)	37	9.0"
	Beg. Seed (R5)	29	6.5"
	Full Seed (R6)	18	3.5"
	Leaves Beg. To Yellow (R6.5)	10	1.9"
	Beg. Maturity (R7)	0	0.0"

You can get a copy of NebGuide G1871 "Predicting the Last Irrigation of the Season" online at *http://extensionpublications.unl.edu/assets/pdf/g1871.pdf*.

Predicting Last Irrigation Example

Crop: Corn Growth Stage: 1/4 Milk Line
Current Moisture: 80% Year-End Moisture Goal: 65%
Water Use To Maturity: 3.75 in. (see chart above)
Soil Type: Holdrege Silt Loam = an AWC of 2.25 in. per ft.
(Soil information available at your local NRCS office)

1. AWC (2.25 in./ft.) x root zone (4 ft.) = **9.0 in. Total AWC**
2. Crop maturity moisture goal of 65% x 9.0 in. Total AWC = **Minimum Water Balance (MWB) of 5.85 inches in 4 ft.**
3. Current moisture level of 80% x 9.0 in. Total AWC = **7.2 in. current available water**
4. 7.2 in. current available water – 3.75 in. to reach maturity = **3.45 in. water at crop maturity**
5. 3.45 in. water at crop maturity – MWB of 5.85 in. = **- 2.40 in. of water**
   (Negative: water is needed. Positive: done irrigating.)
6. **2.40 in. of irrigation and rainfall is needed between now and crop maturity.**

Note: It's recommended to periodically check soil moisture levels & crop stages, repeating this process through crop maturity. Different hybrids can utilize moisture differently, did all rainfall enter the soil profile, etc.

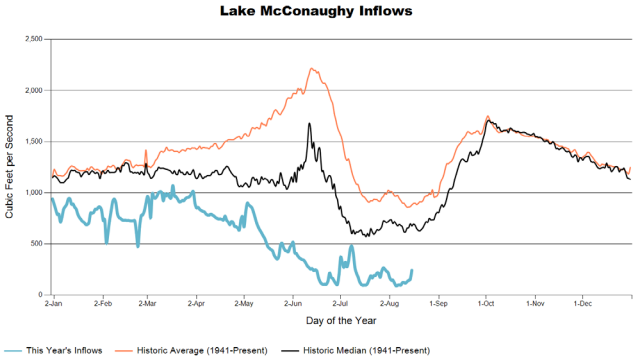
The example above is different from examples I have used in the past. This method is similar to the one in the above NebGuide.

CNPPID Notes

Irrigation Begins Last Scheduled Run

The Scheduled irrigation at Central Nebraska Public Power and Irrigation District began its last two-week scheduled irrigation run on Monday, August 15th, with its last day of scheduled irrigation water to end on Thursday, September 1st. Central will plan to shut their head gates on Friday, September 2nd. Drain down water can be used for irrigation as long as it is available.

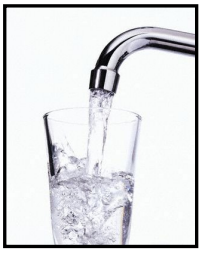
Lake McConaughy is currently at 42.3% of full with an elevation of 3222.8. Inflows into Lake McConaughy have been well below average this year as shown in the graph below.



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

Tri-Basin NRD News

Free Domestic Water Testing

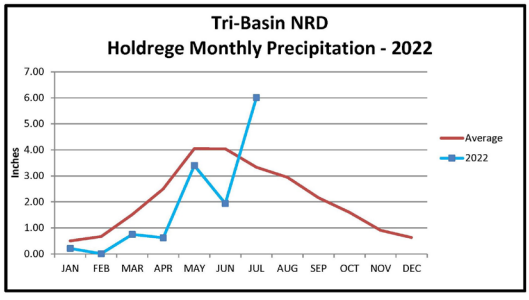


Tri-Basin NRD wants rural residents to have safe drinking water. Any district resident who uses a rural household water well can request NRD staff to sample their well once per year at no charge. The sample will be tested for nitrates and coliform bacteria.

Test results are sent to the Tri-Basin NRD office, where they are recorded in a water quality database. The results are forwarded to the homeowner, along with information about protecting water quality.

Monthly Temperature and Precipitation

Are you interested in how monthly data compares to monthly averages? Our staff keeps track of daily temperatures and precipitation for Holdrege and compiles the data into charts that compare monthly totals to the average for Holdrege. This information is updated on our website monthly and can be found at *https://www.tribasinnrd.org/information-outreach/weather-data*.



Nebraska Extension Extras

Verbal Lease Termination Notices due Sept. 1st

For verbal (non-written) agricultural agreements, Nebraska Supreme Court rules have set renewal cropland leases to begin on March 1 & pasture leases run from May 1 to Oct.1. If the landowner intends to terminate a cropland *verbal* agreement; then written notice must be provided to the tenant no later than 6 months prior to renewal date OR prior to Sept. 1st.

Written agreement agreed terms trump verbal agreement rules; so, these contracts are preferred above non-written leases. Template UNL written lease agreements are available at: *https://www.aglease101.org*.

FREE Soybean Cyst Nematode Analysis

Now may be the time to get your bags ready to collect soil samples soon after harvest. The Nebraska Soybean board & Nebraska Extension are again providing free "Soybean Cyst Nematode Analysis." Contact your local Extension office or stop by the Phelps County office to secure your sample bags; and submit to: UNL Plant & Pest Diagnostic Clinic; 448 Plant Science Hall; Lincoln, NE 68583. Analysis is free-of-charge. For more soybean cyst nematode management information: *https://cropwatch.unl.edu/plantdisease/soybean/soybean-cyst-nematode*.

Timing Last Corn Irrigation

Irrigators seek to reduce stored soil profile moisture as crops start drying down four to six weeks before crop physiological maturity. Average target is to dry down soils to 40% available water by maturity. Based on 30-year averages, the Midwest Regional Climate U2U Prediction tool (113-day maturity corn hybrid planted on May 10, 2022 @ Holdrege) will likely reach black layer (full maturity) on Sep 19, 2022.

May 10th emerged corn is likely at the dent stage (2000 GDD), so the predicted water irrigation need is 5 inches to full maturity. More information is available in the UNL publication, G1871, 'Predicting the Last Irrigation of the Season." *https://extensionpublications.unl.edu/assets/pdf/g1871.pdf*

Fall Alfalfa Drilling Season

When drilling new alfalfa stands, now is the ideal planting time (Aug. 15th – Sep. 10th). This will allow at least six weeks of growth before our average first frost on Oct. 19th. Also, weed pressure is usually less for fall seeded alfalfa than spring planted.

Irrigation can be critical for germinating and establishing new tender alfalfa plants; otherwise, producers will need timely rains. The recommended fall seeding rate is 10 to 15 pounds per acre.

Alfalfa grows best at a soil pH of 6.5 to 7.5; and test both the surface and subsoil zones for pH levels. Inoculation of alfalfa seed is recommended with fields where alfalfa was grown previously. Use fresh inoculant and the proper species of *Rhizobium* for alfalfa.

Weed control is also important for fall drilling. Our 2022 Nebraska Extension "Guide for Weed, Disease, and Insect Management in Nebraska," EC130 has an in-depth review of labelled herbicides for alfalfa (pages 89-91).

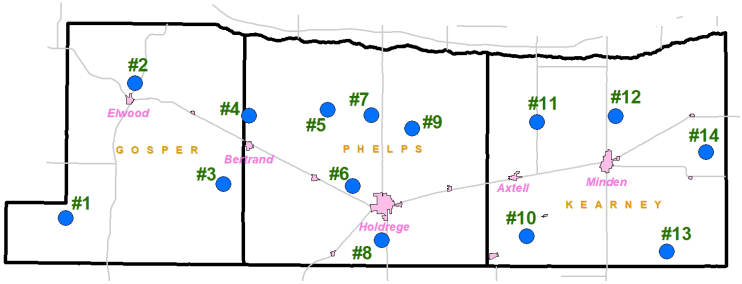
With late summer alfalfa plantings, scout potential border grasshoppers seeking to feed especially on your young alfalfa seedlings. Consider spraying field borders before drilling if necessary. Labelled insecticides are: Baythroid®XL; Beseige®; Cygon®LV; Declare®; Imidan®; Dimethoate; Fastec EC; Fyfannon®; Malathion; Mustang Maxx®; Paradigm®; Proaxis®; Warrior®; Silencer®; Tombstone®; Voliam Xpress & Respect®

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

	Aug 1 – Aug 7		Aug 8 – Aug 14	
Site	Evaporation	Rain	Evaporation	Rain
1	2.50	0.00	2.50	0.00
2	1.90	0.00	2.00	0.00
3	1.80	0.00	1.90	0.00
4	1.50	0.00	1.80	0.00
5	1.50	0.00	1.65	0.00
6	1.70	0.00	1.80	0.00
7	1.80	0.07	1.80	0.00
8	1.70	0.01	1.90	0.00
9	1.70	0.00	1.70	0.00
10	1.40	0.15	1.60	0.00
11	1.90	0.30	1.80	0.00
12	1.70	0.00	1.90	0.00
13	2.00	0.80	1.90	0.00
14	2.20	0.33	2.20	0.00



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 (R4-Dough to R5-1/4 Milk Line stage): At R4.7, Beginning Dent, kernels are beginning to dent at the base of the ear. R5.5, Full Dent, is when the milk line is ½ way down the kernel. Knowing this will help in determining last irrigation. Avg. daily water use from Aug 8 – Aug 14 was 0.24"-0.39".

Soybeans (R4-Full Pod to R6-Full Seed stage): Demand for water and nutrients is large throughout the rapid seed filling period. Environmental stress from now til shortly after R6 (Full Seed) needs to be avoided.
Avg. daily water use from Aug 8 – Aug 14 was 0.25"-0.39".

Aug 8-Aug 14 (14 of 14 NAWMN sites reporting): Average weekly rainfall was 0.00 (range 0.00 to 0.00). Average weekly ET for corn was 2.09 and for soybeans was 2.09.

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
R4.7	Beg. Dent	Kernels at the base of the ear are beginning to dent.
R5	1/4 Milk Line	All or nearly all kernels are dented. Milk line or starch line appears shortly after denting as a line across the kernel when it is viewed from opposite the embryo side and will advance toward the base of the kernel (toward the cob).
R5.5	Full Dent - 1/2 Milk Line	The milk or starch line is 1/2 way down the kernel working towards the cob. Top 1/2 is hard and bottom 1/2 is softer near the cob.

SOYBEAN STAGE		DESCRIPTION
R5	Beginning Seed	At least one pod containing small seeds is present at one of the four upper most main stem nodes that have fully developed leaves. You can hold a pod up to the sky to see the small developing seeds in the pod cavities.
R6	Full Seed	At least one pod whose cavities are completely filled with green seeds is present at one of the four uppermost main stem nodes that have fully developed leaves.
R6.5	Full seed / yellow leaf	Leaves begin to yellow, beginning in the lower canopy and progressing upwards.

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*.

	August 17, 2022, 8:00 AM	*1 Year Ago*
Capacity of Lake McConaughy	**42.1%**	**NA**
Inflows to Lake McConaughy	**222 cfs**	**327 cfs**
Flows on the North Platte at North Platte	**1480 cfs**	**1070 cfs**
Flows on the South Platte at North Platte	**120 cfs**	**109 cfs**
Flows on the Platte at Overton	**138 cfs**	**463 cfs**

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:	Aug 4 – Aug 17	May 1 – Aug 17
Elwood 0.26 mi. S:	**0.33**	**10.19**
Bertrand 6.1 mi. SE:	**0.06**	**10.03**
Holdrege 0.99 mi. E:	**0.08**	**11.43**
Minden 7.2 mi. W:	**0.00**	**10.13**
Minden 5.8 mi. E:	**0.00**	**7.88**

Average Rain for May-August in Holdrege = 14.21 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

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Tri-Basin Natural Resources District

Tri Basin Natural Resources District

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