

PROGRAM INFORMATION

EQIP, CSP, Etc.

EQIP – YOU CAN SIGN-UP ANYTIME FOR 2016 FUNDS AT YOUR LOCAL NRCS OFFICE. A CUTOFF DEADLINE WILL BE ANNOUNCED LATER THIS SUMMER/FALL.

NSWCP: SIGN-UP DEADLINE FOR ELIGIBLE IRRIGATION

PRACTICES IS AUGUST 28, 2015 IN ORDER TO BE REVIEWED FOR APPROVAL AT THE SEPTEMBER TRI-BASIN NRD BOARD MEETING. APPLICATIONS CAN BE TAKEN AT YOUR LOCAL NRCS OFFICE AND MUST BE SIGNED BY THE OWNER.

ENERGY EFFICIENCY GRANT: YOU CAN SIGN-UP ANYTIME FOR 2016 FUNDS AT YOUR LOCAL RURAL DEVELOPMENT OFFICE. A CUTOFF DEADLINE WILL BE ANNOUNCED AT A LATER DATE. CONTACT RURAL DEVELOPMENT IN KEARNEY AT 308-237-3118, EXT. 4.

CALENDAR OF EVENTS

AUG 19: SOUTH CENTRAL AG LAB FIELD DAY NEAR CLAY CENTER: FOR MORE INFO, GOTO [HTTP://CROPWATCH.UNL.EDU/SOUTH-CENTRAL-AG-LAB-FIELD-DAY-2015](http://CROPWATCH.UNL.EDU/SOUTH-CENTRAL-AG-LAB-FIELD-DAY-2015)

SENSORS FOR EFFICIENT NITROGEN USE DEMO: FOR MORE INFO, GOTO [HTTP://CROPWATCH.UNL.EDU/PROJECT-SENSE-DEMO-DAYS-2015](http://CROPWATCH.UNL.EDU/PROJECT-SENSE-DEMO-DAYS-2015)

AUG 20: YORK COUNTY FAIRGROUNDS

AUG 24: THAYER COUNTY FAIRGROUNDS

AUG 31: CNPPID 12 WEEK IRRIGATION RUN SCHEDULE ENDS.

SEPT 8: CNPPID BOARD OF DIRECTORS MEETING 9 AM

SEPT 8: TBNRD BOARD MEETING 7:30 PM

Predicting Last Irrigation!!!

Needed info: **1.** Available Water Capacity (AWC) of soil, **2.** current amount of plant available water to a four foot depth, **3.** current crop stage, and **4.** normal water use from current crop stage to maturity. This prediction assumes no rainfall to crop maturity. If rainfall occurs, the process must be reevaluated.

The following is a chart for normal water use requirements from various crop stages to maturity.

	Growth Stage	Approx. Days to Maturity	Water Use To Maturity
Corn	Dough (R4)	34	7.5"
	Beg. Dent (R4.7)	24	5.0"
	½ 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	Full Pod (R4)	37	9.0"
	Beg. Seed (R5)	29	6.5"
Beans	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://www.ianrpubs.unl.edu/epublic/live/g1871/build/g1871.pdf>.

CURTIS'S COLUMN



Irrigation:

CORN: On August 10th, 7 sensor sites across the TBNRD on Holdrege Silt Loam soils averaged 100% soil moisture to a 4 foot depth. Of course these moisture levels can vary due to when the field was last irrigated, rain, root depth, etc.

Based off 100% moisture content, soil moisture depletion to a 4 foot depth is 0.00 inches. To deplete down to a 40% moisture level at maturity, we would need to deplete 5.4 inches in a 4 foot profile. With 0.00 inches gone that means all 5.4 inches are still available to the plant.

At Beginning Dent, 5.0 inches is needed to reach maturity. At 100% moisture, you are done irrigating. However, I would continue to monitor the situation. With all the rains, maybe the roots won't get to 4 feet. Maybe they will only get to 3 feet. If that's the case, then we have 4.0 inches available to the plant (2.25 inches per foot * 3 feet depth * 60% depletion at years end). That means we would still need to add 1.4 inches to the system because we didn't get the roots to 4 feet.

At Dough, 7.5 inches is needed to reach maturity. If you are at 100% moisture, you need to apply 2.1 inches to reach maturity (7.5 inches minus 5.4 inches). Again, that is if roots get to 4 feet. Apply 3.5 inches if roots are only going to be at 3 feet.

Continue to monitor crop stage, soil moisture levels, and root depth. Soil moisture sensors are an excellent tool to really help you with moisture level and root depth. Also, it seems like corn doesn't use as much as we think late and therefore it's hard to really deplete the soil down to 40%. So shutting off a little earlier and monitoring your situation is key in saving 1, 2, or even 3 inches of water at the end of the season. This can also save wear and tear on equipment which can mean an additional year or two of irrigation before repairs.

SOYBEANS: Average moisture levels for soybeans to 4 feet at 6 sites is 91%. It looks like more root activity at 3 & 4 feet.

Predicting Last Irrigation Example

Crop: Corn Growth Stage: Beg. Dent Moisture: 80%
 Water Use To Maturity (see chart on left side of page: 5.0 in.
 Soil Type: Holdrege Silt Loam = an AWC of 2.25 in. per ft.
 (Soil information available at your local NRCS office)

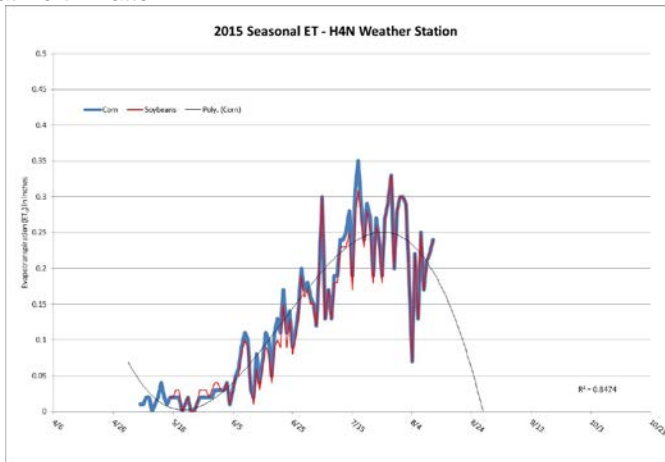
1. AWC x root zone (4 ft. depth) = **9.0 in. Total AWC**
2. Maximum water depletion of 60% x 9.0 = **5.4 in. of maximum water depletion in 4 ft. root zone**
3. Current soil water depletion (measured) = **1.80 in.**
 (20% avg. depletion (80% moisture level at 4 ft.)) x 2.25 in./ft. x 4 ft.)
4. Remaining plant available water = **3.6 in.**
 (5.4 maximum depletion minus 1.8 already depleted)
5. Irrigation requirement = **1.40 inches of irrigation water needed for plant to reach maturity.**
 (5.0 in. of water to reach maturity minus 3.6 in. of water available)

Note: This all assumes no rainfall. Should rainfall occur, the process needs to be repeated. It's also recommended to periodically check soil moisture & crop stages and repeat this process through crop maturity.

Seasonal Update:

Where has this summer gone? Corn is in the dough stage the medium season corn is just 700 GDD away from finishing. As shown in the graph below, ET has peaked for both corn and beans north of Holdrege and crop water use will decline from this point forward. The end date on the trend line shown is not accurate at this time but has been included to emphasize the peak. There has been very little stress on the crops to date and we will hope the low wind and low hail potential forecasts remain in place through harvest.

Lake McConaughy is 3.4 ft. from full this mid-August day; not great news for campers wanting the sand beaches exposed but great for irrigators who are already assured a full water supply for 2016. Inflows to the lake remain near 1200 cfs and the South Platte River is still running 600 cfs at our Diversion Dam at North Platte.



TBNRD Reminders Before Irrigation Season Ends:

Drain Your Chemigation Check Valve:

When you are preparing your irrigation systems for colder weather, remember to drain your main line check valve to prevent freezing. This will extend the life of the check valve and may help prevent check valve failure.

Irrigation Water Samples for Nitrogen Management Reports:

If you have crop ground in Phase 2 or Phase 3 of Tri-Basin NRD's Groundwater Quality Management Area, remember to take irrigation water samples. The results of your samples should be used in completing your Nitrogen Management reports.

Year End Flow Meter Readings for Water Use Reports:

As the irrigation season winds down and you are picking up irrigation pipe or bedding down irrigation engines, remember to record the ending meter readings for your Water Use reports.



Climate Outlook:

The past 10-14 days brought some very welcomed precipitation to the middle part of the state. The Tri-Basin received 1-2 inches over most of the area, with some locally higher amounts. Temperatures have remained relatively mild over the last few days with highs in the 80s. We experienced some very warm temperatures the beginning of this month, but, overall, average temperatures have been slightly below normal. This is the same pattern we have experienced this growing season with average temperatures over the last 60 days 1-2°F below normal. This is often a positive for corn yields, but the heat wave during mid-July may have hindered that a little bit.

Table . Precipitation and temperature summary.

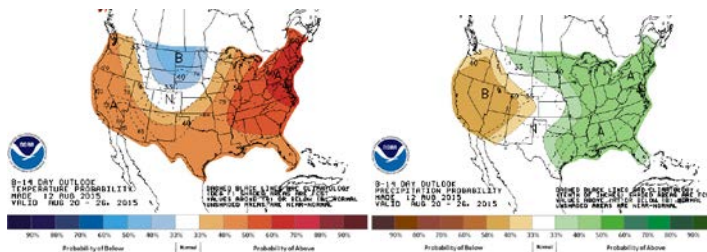
Station	8/1-8/11 Precip		4/1-8/11 Precip		8/1-8/11 Temp		
	Total (in)	% of normal	Total (in)	% of normal	Avg. Temp (°F)	Depart. (°F)	Range (°F)
Holdrege	2.12		14.93	102%	72.6	-2.1	95 : 56
Holdrege 4N	2.27	186%	15.08	102%	72.8	-1.7	93 : 58
Minden	1.43	115%	14.90	97%	73.5	-1.1	94 : 56
Smithfield	1.78	148%	14.50	100%	71.9	-2.6	95 : 57

The temperature forecast for the next couple weeks is expected to remain near average. Temperatures will warm up this weekend into the upper 80s and low 90s, but most of next week is expected to have high temperatures in the 80s after a front moves through on Sunday. The models are not very consistent with what will happen towards the end of next week, but there is a chance that we may warm back up ahead of another cold front moving through next Thursday or Friday. The models are also showing the first glimpse of freezing temperatures over the Great Lakes region early next week, but we are still a ways out from worrying about that in Nebraska.

Although it has been a dry week, precipitation chances pick back up this weekend and continue through the end of next week. The strong ridge of high pressure that brought the recent dry air will weaken and allow moisture to migrate back into Nebraska. Amounts of precipitation don't look to be all that high, but the numerous disturbances should provide at least some moisture. The best chance of precipitation comes Sunday into Monday and again the middle of next week. It does look to dry out after next week.

The long-term outlooks have still been leaning towards a cool and wet fall for Nebraska, which may present some difficulties at harvest. If the El Niño holds true to the typical pattern, we may see a wet and cool September and October with a warming and drying pattern in November and December. -Tyler Williams, Extension Educator

Figure. Temperature (left) and precipitation (right) forecast for August 20-26.

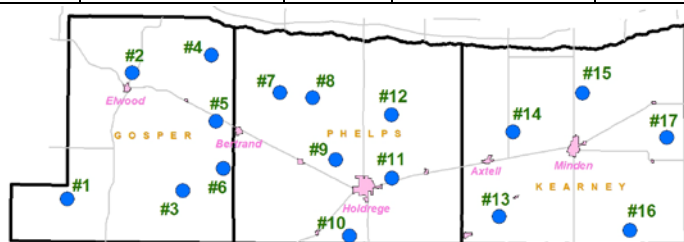


NAWMN CROP ET INFORMATION

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

$$\text{Inches of Crop Water Use (ET)} = \text{Evaporation} \times K_c$$

	July 27 – Aug 3		Aug 4 – Aug 10	
Site	Evaporation	Rain	Evaporation	Rain
1	2.00	0.05	1.00	1.93
2	1.60	0.42	1.00	1.86
3	1.80	0.00	1.10	1.65
4	1.60	0.00	1.00	2.25
5	1.60	0.00	0.90	1.50
6	1.60	0.02	0.90	1.55
7	1.80	0.00	0.90	1.90
8	1.50	0.00	1.00	2.05
9	1.70	0.00	1.00	2.15
10	1.80	0.00	1.00	1.56
11	1.60	0.00	1.00	2.00
12	1.50	0.00	0.90	2.64
13	1.60	0.00	0.70	1.49
14	1.70	0.00	1.00	1.75
15	1.20	0.00	1.00	2.80
16	1.90	0.13	0.80	1.33
17	1.90	0.00	1.00	2.15



2015 Map of NAWMN Sites Across the Tri-Basin NRD.

Corn Stage		DESCRIPTION
R4	Dough	Most kernels contain a semi-solid, pasty material.
R4.7	Beginning 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 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).
Soybean Stage		DESCRIPTION
R5	Beginning Seed	At least one pod containing small seeds is present at one of the four uppermost main stem nodes that have fully developed leaves.
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.

Crop Coefficients (Kc)

Corn		Soybeans	
Stage	Kc	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 (R3-Milk to R4.7-Beginning Dent stage): At Beginning Dent, kernels are beginning to dent at the base of the ear. 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. 3 – Aug. 9 was 0.11"-0.17".

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. 3 – Aug. 9 was 0.11"-0.17".

Aug. 3-Aug. 9 (17 of 17 NAWMN sites reporting): Average weekly rainfall was 1.92 (range 1.33 to 2.80). Average weekly ET for corn was 1.08 and for soybeans was 1.00.

ET INFORMATION SITES

- NAWMN Sites:**
- * <http://www.cnppid.com/news-info/weatheret-data/nebraska-agricultural-water-management-network/>
 - * <https://nawmn.unl.edu/>
- CropWatch:** <http://cropwatch.unl.edu/gdd-etdata>
- CNPPID:** <http://www.cnppid.com/news-info/weatheret-data/>
- Water Use Hotline:** 1-800-993-2507

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://www.cnppid.com/news-info/reservoirriver-data/>.

	August 12, 2015, 8:00 AM	1 Year Ago
Capacity of Lake McConaughy	94.1%	59.4%
Inflows to Lake McConaughy	1,103 cfs	837 cfs
Flows on the North Platte River at North Platte	819 cfs	535 cfs
Flows on the South Platte River at North Platte	581 cfs	505 cfs

It doesn't matter how slow you go so long as you do not stop.

- Confucious

WEBSITES OF INTEREST

NRCS Nebraska www.ne.nrcs.usda.gov
 Central Irrigation District www.cnppid.com
 TBNRD Home Page tribasinprd.org
 Farm Service Agency www.fsa.usda.gov
 UNL Cropwatch cropwatch.unl.edu
 UNL Extension www.extension.unl.edu/home
 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 <http://nerain.dnr.ne.gov/NeRAIN/docs/report.asp>.

Location:	July 28 – Aug 12	May 1 – Aug 12
Arapahoe 6.9 NW:	1.02	11.84
Bertrand 6.1 mi. SE:	1.78	15.15
Funk 4.1 mi. NNE:	1.95	11.93
Minden 0.855 mi. W:	2.42	12.68
Minden 8.8 mi. ESE:	1.15	12.97

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@ne.usda.gov. ***

USDA - Natural Resources Conservation Service

1609 Burlington Street
 South Brown Street
 PO Box 798
 Holdrege, NE 68949-0798
 308-995-6121, Ext. 3

309 Smith
 PO Box 41
 Elwood, NE 68937-0041
 308-785-3307, Ext. 3



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 2nd 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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