

PROGRAM INFORMATION

EQIP, CSP, AND ACEP:

EQIP – A TARGETED SIGN-UP CUTOFF DATE FOR 2017 FUNDS IS OCTOBER 21, 2016.

SOIL HEALTH DEMONSTRATION FARMS INITIATIVE – SIGN-UP DEADLINE IS JUNE 17, 2016. FOR MORE INFORMATION, GOTO [HTTP://WWW.NRCS.USDA.GOV/WPS/PORTAL/NRCS/DETAIL/NE/NEWSROOM/RELEASES/?CID=NRCSEPRD1031007](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/NE/newsroom/releases/?cid=NRCSEPRD1031007).

CSP – NEW 2016 APPLICATIONS HAVE BEEN PREAPPROVED. CONTRACT DEVELOPMENT IS UNDERWAY FOR THOSE PREAPPROVED.

NSWCP: NEW MONEY COMES JULY 1ST. APPLICATIONS CAN BE TAKEN ANYTIME AT YOUR LOCAL NRCS OFFICE.

ENERGY EFFICIENCY GRANT: SIGN-UP DEADLINE FOR 2017 FUNDS IS OCTOBER 31, 2016. FOR MORE INFORMATION CONTACT KELLEY MESSENGER AT THE KEARNEY USDA SERVICE CENTER AT 308-237-3118, EXT. 120.

CALENDAR OF EVENTS

JUNE 6: CNPPID BOARD OF DIRECTORS MEETING – 9 AM

JUNE 6: CNPPID 12 WEEK IRRIGATION RUN SCHEDULE STARTS

JUNE 14: TBNRD BOARD MEETING – 7:30 PM

JUNE 15: WHEAT PLOT TOUR NORTHEAST OF BEAVER CITY.

GOTO [HTTP://GO.UNL.EDU/IETH](http://go.unl.edu/ieth) FOR MORE INFO.

NO-TILL EXPOS: GOTO [HTTP://WWW.NOTILL.ORG](http://www.notill.org) FOR MORE INFO.

JUNE 21 @ WINSIDE, NE & JUNE 23 @ ALLIANCE, NE

AUGUST 2016: AUSTRALIAN FARM TOUR: EXPRESSIONS OF INTEREST MUST BE RECEIVED BY JUNE 15TH. FLYER LOCATED AT [HTTP://WWW.NOTILL.ORG/SITES/DEFAULT/FILES/EVENTS/AUS_STUDY_TOUR_FLYER.PDF](http://www.notill.org/sites/default/files/events/aus_study_tour_flyer.pdf)

Tool to Determine Crop Water Use – Part 1

The Nebraska Agricultural Water Management Network (NAWMN) is underway for the 10th year across the Tri-Basin NRD. This network is a tool for participating and area producers to determine how much soil moisture your crops are using. This information can be found on 2 websites listed on page 3 of this newsletter under 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 17 additional locations. See map on page 3. Having this information more localized allows you to better determine what your crops are using for soil moisture. Also, you get to use your own crop stage of growth. Having these sites closer to your fields and being able to use your own crop stages, this network serves as an excellent tool in determining your own crop water usage.

On page 3 of each Tri-Basin Irrigator issue, information from the prior two weeks will be provided for all 17 sites. Because this newsletter is sent bi-weekly, it's recommended to use the websites for the most accurate and current information. The websites are updated by Tuesday of each week. In the next issue of this newsletter, an example of using this network will be provided.

Questions, call Curtis Scheele at 308-995-6121, Ext. 3.

CURTIS'S COLUMN



Early 2016 Soil Moisture Information:

The information given in the table below is an average of the NAWMN sensor readings at the end of the 2015 crop season and early in 2016. **Each individual field across the NRD will vary with higher, lower, or the same moisture levels as these readings. All readings are on Holdrege Silt Loam soils. It is all dependent upon various factors. Irrigated fields vary based upon the producer's irrigation water management and rainfall events.**

All of the spring rains in 2016 have completely filled the soil profile to a 4 foot depth. Across the entire TBNRD on all 13 sites and at all 4 foot levels, even the dryland site, there was not one recording of less than 100% moisture on May 31st. The entire profile is full which provides the best soil moisture conditions heading into the 2016 crop season.

2015 ended with higher moisture levels than one would like. NRCS and UNL would like to see the year ending moisture levels get to 40% on average to a 4 foot depth. That is difficult to manage. The year ended with 82% average moisture on irrigated pivots and 70% on the 1 dryland site.

In 2015, the average rainfall across the TBNRD on these sites from June 1st through September 14th was 10.75 inches. The one dryland site had 13.59 inches, 2.84 inches more than the average. On August 17th, corn was at beginning dent and soybeans was between beginning seed and full seed. Since August 17th the average rainfall was 0.25 inches and the 1 dryland site had 0.38 inches. This amount of rain gave an opportunity to utilize soil moisture at years end and make added room for off-season moisture. It would be interesting to know how those without soil moisture sensors ended the year.

Pivot Irrigation (13 sites across TBNRD)		
9 sites Corn - 4 sites Soybeans		
All sites No-Till except 1 Soybeans		
Soil Depth	Sept. 14, 2015	May 31, 2016
1 foot	91%	100%
2 foot	82%	100%
3 foot	78%	100%
4 foot	77%	100%
4 ft. avg.	82%	100%
Dryland (1 site near Holdrege) - No-Till Soybeans		
Soil Depth	Sept. 14, 2015	May 31, 2016
1 foot	89%	100%
2 foot	70%	100%
3 foot	76%	100%
4 foot	46%	100%
4 ft. avg.	70%	100%

REMINDER!!!
SAM Registration Renewal
 Website link located on page 4.

E67 Project Begins Second Year:

Producers taking water from Central's E67 Pipeline Canal are involved in our newest precision management pilot project; funded in part by Nebraska lottery dollars through the Nebraska Environmental Trust, McCrometer Inc., Central and Nebraska Extension. McCrometer's Steve Grove (Hemet, CA) and Paul Tipling (Salina, KS), came to NE last week to help Central staff install equipment at 25 new field sites. These sites, added to the 2015 installations, bring total sites in the project to 51. In addition, a third McCrometer weather station was set up next to an existing UNL station to compare measured weather data and the results of the evapotranspiration calculations from each unit.

Each project site using water from E67 has been fitted with a UHF radio/solar panel set and a digitizer added to the existing flowmeter. Most sites have a digital rain gauge unless pivot water will hit it. A gateway unit at the powerhouse near Johnson Lake calls each field station every hour and each weather station every 15 minutes to gather data and transmit it to a host computer at McCrometer. Producers have access to this information from each of their fields and the weather stations immediately from a home computer, tablet or smartphone. Data is graphed, tabled and archived for producers and all data is exportable to an Excel spreadsheet.

The outcome of precision management is expected to be high yields with minimum use of irrigation water. It is possible that an irrigation event can be saved at the beginning or end of the season or both once the producer has reliable information on hand to make those decisions.



Check Flowmeters Before Starting Irrigation

We would like to remind producers to check the flowmeters on their wells before starting irrigation this season. It's 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, as an 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.



Water Use Hotline Available:

The Nebraska Extension – Phelps-Gosper “Water Use Hotline” will again be available for irrigators from June 1 through September 1, 2016 as a “free” service. Cooperating with the High Plains Regional Climate Center, Tri-Basin NRD and CNPPID, Extension will provide updated crop growth and water use calculations for corn, soybeans, wheat, grain sorghum and alfalfa.

Producers can assess this information by calling either: locally (308-995-2255) OR toll-free (1-800-993-2507). Weather station data is recorded from five different station locations: Holdrege; Holdrege 4N; Lexington; Minden and Smithfield. Information can also be accessed through the web: <http://www.cnppid.com/news-info/weatheret-data/>. For future reference, the toll free number above and this website are on page 3 of each Tri-Basin Irrigator newsletter under the “ET Information Sites” section.

The 2016 Water Use Hotline corn growth stage use values are based a May 10th emergence date; while soybean growth staging is based on a May 20th emergence date. Updated data includes: crop water use averages for 3-day and 1 week along with accumulated Growing Degree Days (GDD's).

Crop Water Use based on Plant Growth Staging:

Crop water use increases as plant growth stages advance. Therefore, our Nebraska Extension CropWatch website provides free “Crop Water Use by Plant Growth Stage” charts for alfalfa, corn, sorghum, soybeans and wheat. These illustrated guides provide guidance for irrigators to determine proper plant growth stages.

For season-long corn growth staging, it may be helpful to paint or mark several V6 corn leaves now on several plants within stage monitoring fields. For example, early lower corn leaves will likely fade as the growing season progresses; so making accurate leaf counts for growth staging may become challenging later. Irrigation needs can then be calculated based on: rainfall; soil moisture profile conditions; weather; and ET rates based on accurate crop growth stage(s).

EvapoTranspiration (ET) combines *evaporation* (water loss from the soil surface) and *transpiration* (water used by plants) for defining “crop water use” needed for optimum yield. Field irrigation efficiency may further increased by using an atmometer (ETgage®) near the field just above the crop canopy. Then, ideally crop water use can be more precisely measured; resulting in application rates for just enough irrigation water to meet plant needs. If the crop is under irrigated, yields decline; but if too much water is applied, yields may also decline. Over irrigation may too reduce net income by increasing energy and irrigation application costs. Saturated field soil conditions may also leach chemicals, nitrates, and available soil nutrients (needed by crops) below the root zones into groundwater tables.

ET Referencing May Also Monitor Animal Stress:

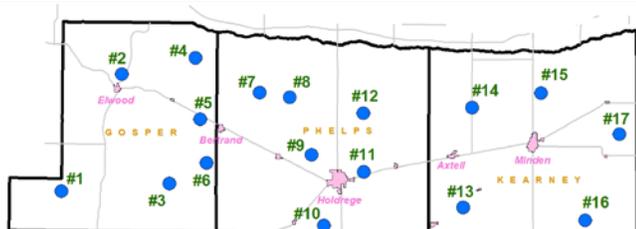
ET reference data can also be used for managing animal stress. The USDA Meat Animal Research Center – Clay Center, NE provides free real-time 7-day livestock heat stress monitor at: www.marc.usda.gov. This resource combines daily relative humidity; cloud cover; wind speed; and temperature to aid cattle and animal managers regarding potential heat stress. For example, extreme heat can cause high animal death losses when air movement slows. This website can provide advance warning and heat stress management tips.

NAWMN CROP ET INFORMATION

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

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

Site	May 16 – May 22		May 23 – May 29	
	Evaporation	Rain	Evaporation	Rain
1	NA	NA	1.00	1.11
2	NA	NA	0.90	1.28
3	NA	NA	1.00	3.00
4	NA	NA	1.30	1.51
5	NA	NA	0.80	1.65
6	NA	NA	1.30	0.57
7	NA	NA	NA	NA
8	0.80	0.40	1.40	1.50
9	0.70	0.02	1.30	2.04
10	NA	NA	1.50	2.65
11	NA	NA	1.20	1.10
12	NA	NA	NA	NA
13	NA	NA	1.40	1.73
14	NA	NA	1.30	1.94
15	NA	NA	1.20	1.40
16	NA	NA	1.20	1.28
17	NA	NA	1.00	1.32



2016 Map of NAWMN Sites across the Tri-Basin NRD.

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 (V1-1 Leaf to V4-4 Leaf stage): Hail, wind, or frost that damages the exposed leaves at the 3-leaf stage have little or no effect on yield due to the below ground growing point.

Avg. daily water use from May 23 – May 29 was 0.01"-0.04".

Soybeans (Emerging to V1-1st Node stage): After V1, photosynthesis by the developing leaves is adequate for the plant to sustain itself. Loss of one cotyledon has little effect on yield while loss of both can reduce yields by 8-9%.

Avg. daily water use from May 23 – May 29 was 0.01"-0.04".

May 23-May 29 (15 of 17 NAWMN sites reporting): Average weekly rainfall was 1.61 (range 0.57 to 3.00). Average weekly ET for corn was 0.19 and for soybeans was 0.15.

ET INFORMATION SITES

NAWMN Sites:

<http://www.cnppid.com/news-info/weatheret-data/nebraska-agricultural-water-management-network/>
http://elkhorn.unl.edu/ETGage/xml/NE_counties_2.jsp

CropWatch: <http://cropwatch.unl.edu/gdd-etdata>

CNPPID: <http://www.cnppid.com/news-info/weatheret-data/>

Water Use Hotline: 1-800-993-2507

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)

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/wp-content/uploads/2016/05/WPelevation_flows.html.

	June 2, 2016, 8:00 AM	1 Year Ago
Capacity of Lake McConaughy	96.0%	83.4%
Inflows to Lake McConaughy	8400 cfs	5957 cfs
Flows on the North Platte at North Platte	3046 cfs	606 cfs
Flows on the South Platte at North Platte	4847 cfs	7094 cfs
Flows on the Platte at Overton	8210 cfs	12,286 cfs

Remember, few dads end up thinking they spent too much time with their kids.

- Lamoyne Schneider

WEBSITES OF INTEREST

SAM Registration www.sam.gov
 Climate agclimatenebraska.weebly.com
 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 <http://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 <http://nerain.dnr.ne.gov/NeRAIN/docs/report.asp>.

Location:	May 19 – June 1	May 1 – June 1
Arapahoe 6.9 NW:	2.57	3.87
Bertrand 6.1 mi. SE:	4.00	5.44
Funk 4.1 mi. NNE:	1.31	3.38
Minden 0.855 mi. W:	1.13	3.07
Minden 8.8 mi. ESE:	2.05	2.92

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@ne.usda.gov. ***

USDA - Natural Resources Conservation Service



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

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



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

"The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, D.C. 20250-9410 or call toll free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer."