

PROGRAM INFORMATION

EQIP: PROJECTED SIGNUP CUTOFF FOR 2020 FUNDS SHOULD BE MID-NOVEMBER. GET IN AND GET SIGNED UP BEFORE HARVEST IN CASE IT'S A LENGTHY ONE. IF SIGNING UP AFTER THE CUTOFF, YOU ARE LOOKING AT 2021 FUNDS WITH INSTALLATION STARTING IN FALL OF 2021. YES, IT CAN BE THAT FAR DOWN THE ROAD.

CSTWP: PARTICIPANTS WITH COMPLETED 2019 RECORDS NEED TO TURN THEM IN AT THEIR LOCAL NRCS PRIOR TO HARVEST. ESPECIALLY IF YOU WANT 2019 PAYMENTS. THIS WILL DEFINITELY BEAT THE RUSH AT SEASONS END SHOULD HARVEST BECOME A LONG SEASON.

NSWCP: FLOW METERS AND SOIL MOISTURE SENSORS ARE APPROVED AT EACH MONTHS TBNRD BOARD MEETINGS. THE NEXT APPROVALS FOR UNDERGROUND IRRIGATION PIPE WILL BE AT THE DECEMBER BOARD MEETING.

ENERGY EFFICIENCY GRANT: APPLICATIONS DUE OCTOBER 31, 2019. CONTACT KELLEY AT RURAL DEVELOPMENT AT 308-455-9837 OR KELLEY.MESSENGER@USDA.GOV.

CALENDAR OF EVENTS

OCT 7: CNPPID BOARD OF DIRECTORS MEETING 9 AM

OCT 8: TBNRD BOARD MEETING 7:30 PM

Highly Erodible Land (HEL) Compliance!

If you are farming HEL fields, you are REQUIRED to control ephemeral gully erosion in order to remain in compliance with USDA farm program benefits. Tillage to smooth the ditches is not a control practice. Tillage hides the problem and allows the problem to continue. Cover crops, terraces, waterways, etc. are ways to help control ephemeral gully erosion.

Each spring a random selection of HEL tracts is pulled for status reviews. NRCS then makes field visits to ensure the HEL acres are meeting the HEL conservation plan requirements. One of the things that will be reviewed in the field will be the presence of ephemeral gullies as well as all the other practices in the HEL conservation plan.

As you harvest, I recommend you think about where and how you need to prevent these gullies from happening. Annual cover crops are a start in addressing these areas. They may need planted up and down the entire side slopes. Addressing the runoff all the way to the top of the hill will prevent the runoff from collecting and building up a head of steam. Will other conservation practices be needed such as terraces, grass, etc? Time will tell. Doing nothing does not help the cause.

Contact your local NRCS office for more information.



Non-compliance



Compliance

CURTIS'S COLUMN



Rate Yourself – 2019 Irrigation Water Management Report Card:

I assume all in the Tri-Basin NRD received some rain Wednesday night/Thursday morning that finished off the irrigation season. I know some gated pipe was pulled earlier. I know pivots were running Wednesday. I know producers who were holding off for a rain. I know some wanted to irrigate a week ago, but their soil moisture sensors said to wait a week and see what the moisture levels are then.

In the last issue, dated August 29th, I had a chart which showed where we are across the NRD when it comes to soil moisture levels at black layer. On average, we end the year at 76%. I also mentioned a goal of reaching that 65% mark at black layer and utilizing another inch of water from the soil. Not only in the last issue but at Nitrogen Certification meetings and in prior year issues of this newsletter, I have thrown a challenge out there of not watering that last irrigation and see if that affects yield.

Sensor readings across the NRD on Monday morning, September 9th before the most recent rain, at a 4-foot depth, the average moisture level on 1/2 to 3/4 milk line corn was 94%, ranging from a field capacity of 100% to 78% moisture. Granted, some rain took place Monday morning prior to these readings. Where would these readings have been had we not gotten the rain Monday morning? Obviously a difference in Irrigation Water Management.

On the SDI field in North Platte on Cozad Silt Loam, we irrigated the last of 2.3 inches on the field on July 30th. That was 0.2 inches. We could have put less on up to that point had we been used to monitoring the sensor. It was our first year. From field visits and soil probe verification, we started trusting the sensor. The sensor showed no need for irrigation since July 30th. With rains there and here as well, on September 5th, the sensor was reading 82% moisture. That's the same as it read on August 5th. More to come on our final results somewhere down the road.

For you and yourself, where do you rate yourself on your 2019 Irrigation Water Management report card?

**** CStwP Participants ****

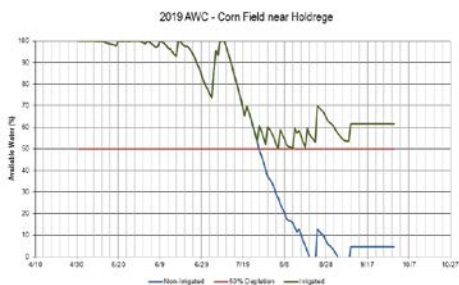
Leaf Tissue Samples did not get done. Still time to complete Stalk Tests.

If you did not complete your required Leaf Tissue Samples in a timely manner because flooding kept you from getting to your field, because you forgot, or for any other reason, you can still get paid for your nutrient enhancement by completing the Stalk Test. Here are the Stalk Test requirements.

- 1 sample per 40 acres
- Samples must be taken 1-3 weeks after black layer has formed on 80% of the kernels
- A sample consists of fifteen 8-inch stalk segments taken 6 inches above the ground
- Send samples to a lab for analysis
- Provide the analysis reports to your local NRCS

Irrigation in a wet season:

Has any yield been left on the table in 2019? Is that possible in this wet year? In a word, yes. Rain falling on already full soil profiles was not productive. Two available soil water balances are shown below. They were calculated from crop water use (ET) and effective rainfall for a hypothetical corn field planted at irrigated rates and emerging May 10th, using actual Holdrege 5N weather station data, a full beginning 42" soil water profile for a Holdrege silt loam, with and without irrigation. Available soil water dips below the UNL recommended 50% depletion line on July 27th without irrigation and on August 20th it falls to 0%. There is still water in the soil, but what remains is bonded so tightly to soil particles that plant energy cannot overcome that bond for uptake and use. Long before 0% available water is reached however, plants are expending too much energy extracting soil water; energy that would otherwise be routed to grain production. Data shows four, well-timed 1" irrigations kept soil water in the 50-100% available range to prevent unnecessary risk. Keeping soil water above the 50% available level though any season will assure water is not limiting yield.



TRI-BASIN NRD NEWS



2019 Chemigation Inspections:

Follow-up inspections must be scheduled immediately.

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 Irrigation Water Management (Water Use) Forms. We hope to have the Water Use forms printed and ready to be filled out by the end of September. If you need them sooner, you can call us at 1-877-995-6688 and we will do our best to accommodate you.

Tri-Basin Staff to Inspect Meters:

With irrigation season winding down, Tri-Basin NRD staff members are beginning annual irrigation meter inspections. Each year, we take readings from meters in about one-third of the townships in the district.

This year we will be doing inspections in the following townships: Kearney County: 5N-16W, 6N-16W, 7N-16W, and 8N-16W; Phelps County: 5N-20W, 6N-20W, 7N-20W, 8N-20W; and Gosper County: 5N-22W, 5N-23W 6N-23W, 7N-23W, and 8N-23W.

If you have irrigation wells in these townships and you put your meters in storage for the winter, you can call the Tri-Basin NRD office at 1-877-995-6688 to schedule an inspection. If there is no meter at the site when we come to inspect, you will receive a letter requesting access to the meter for inspection.



Controlling Harvest Compaction:

The best defensive against field compaction is to wait until soils dry enough to support harvest equipment without creating ruts. However, this is not always a viable option, and Al Dutcher, UNL Climatologist says that there is a strong probability for a wetter fall in Nebraska. So, if fall harvest conditions move into a wet cycle; then the priority goal will likely be to limit compaction as much as possible.

One strategy is to focus on running the grain cart down the same row middles as the combine. Since over 80% of soil compaction damage is done with the first pass of weighted tire loads; establishing traffic lanes within fields will significantly reduce overall field compaction. Once a traffic lane has been driven and firmed up; subsequent passes will have little effect on total field compaction. Further, by using the same traffic lanes year after year, soil structure & water infiltration will be improved in the un-trafficked areas.

Pre-harvest planning, such as adding auger extensions on the combine, may keep grain cart wheel track lanes lining up with the harvester tracks. Planning how to reduce heavy grain trucks movement across fields has advantages as well; since the axle loads and tire pressures are not suitable for soils especially when wet. Harvest managers may also evaluate how to reduce grain cart fill and unload more often. Establishing grain cart pathways such as tramlines across fields and reduced turning around in the middle of the field may further reduce overall field compaction. Combine operators may consider unloading at the ends of the field; rather than on-the-go. Finally, use wide tires with lower pressures.

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 & UNL are providing free "Soybean Cyst Nematode Analysis." Submit to: UNL Plant & Pest Diagnostic Clinic; 448 Plant Science Hall; Lincoln, NE 68583. Bags are available free-of-charge in Nebraska Extension offices.

Predicting Final Soybeans Maturity:

Soybeans react to photo-period (day-length); and most area fields have triggered yellowing of leaves and leaf drop senescing. This soybean reproductive stage, known as physiological maturity stage (R6.5), is equivalent to the black layer formation in corn. Our NebGuide G1871 "Predicting the Last Irrigation of the Season" indicates that when the soybean plants begin their natural leaf yellows; the soybean plants are about 10 days from reaching physiological maturity and will need about 1.9 inches of water per acre to reach full maturity.

James Specht, Nebraska Extension Soybean Specialist Emeritus, says that many methods may be helpful for determining the last irrigation, but observing conditions within the soybean pods is still the most reliable method. For example, the soybean plant will continue to feed the seed until the pod-wall membrane ceases clinging to the seed coat (R7 growth stage).

Our free Nebraska Extension "soywater.unl.edu" App soybean growth & irrigation simulator may also be a good tool for predicting the last irrigation. The challenge, though, is that late season heat stress can cause the soybean plants to use more water before maturing than the growing degree days (GDD) formulas predict(s). For example, hot dry windy conditions may increase soybean water daily usage; whereas, the soybean plants are maturing about the same time as predicted in the computer program; since the plants are responding to daylength.

Another method may be visual plant appraisal where irrigation ceases when the soybean plants begin the R7 stage. The challenge with this method, based on when at least one pod turns brown or tan on the soybean plant, is that not all pods on the R7 plant lose their green color at the same time.

A new Nebraska Extension NebGuide EC3036, "Irrigation Scheduling Strategies When Using Soil Water Data," may be helpful for those strictly following field soil moisture sensors. When irrigation is based solely on stored water leaving the rooting zone, there is a still a chance for over irrigation application. Since mature soybean plants may still wick moisture from the soil after the plants have stopped feeding the seeds in the pods; soil sensor data may trigger some late irrigations resulting in higher water application costs and water usage without increasing over soybean yields.

NAWMN CROP ET INFORMATION

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

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

Site	Aug 26 – Sept 1		Sept 2 – Sept 8	
	Evaporation	Rain	Evaporation	Rain
1	1.20	0.00	1.40	0.29
2	1.40	0.00	1.20	0.42
3	1.20	0.00	1.00	0.53
4	1.00	0.05	1.30	0.45
5	0.80	0.05	1.10	0.46
6	1.00	0.00	0.90	0.53
7	1.00	0.00	1.20	0.91
8	1.30	0.03	0.90	0.34
9	0.90	0.05	1.20	0.00
10	1.00	0.05	1.40	0.45
11	1.30	0.00	0.90	0.70
12	1.00	0.50	1.20	0.32
13	1.00	0.15	0.80	0.36
14	1.20	0.17	0.90	0.23
15	1.10	0.30	0.90	0.65
16	1.00	1.10	1.10	0.44

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 (R5-1/4 Milk Line to R5.8-3/4 Milk Line stage): Corn at ½ milk line needs 2.25 inches of moisture to reach maturity. On Holdrege Silt Loam at 90% moisture, drawing from 4 feet, end goal of 65% you are done irrigating.

Avg. daily water use from Sept 2 – Sept 8 was 0.09"-0.21".

Soybeans (R6-Full Seed to R6.5-Full Seed/Yellow Leaf stage): Soybeans beginning to yellow needs 1.9 inches of moisture to reach maturity. On Holdrege Silt Loam at 85% moisture, drawing from 4 feet, end goal of 65%, you are done irrigating.

Avg. daily water use from Sept 2 – Sept 8 was 0.11"-0.20".

Sept 2-Sept 8 (16 of 16 NAWMN sites reporting): Average weekly rainfall was 0.51 (range 0.00 to 0.91). Average weekly ET for corn was 0.98 and for soybeans was 1.15.

ET INFORMATION SITES

NAWMN Sites:

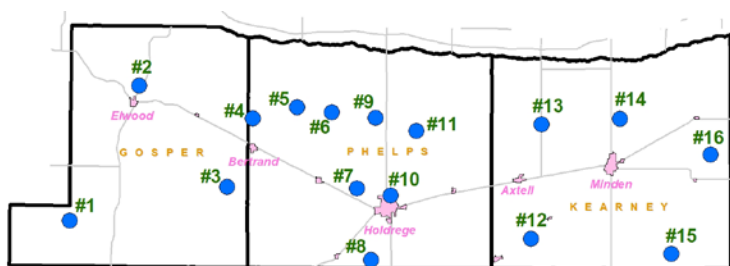
<https://www.cnppid.com/weatheret-data/nebraska-agricultural-water-management-network/>

<https://nawmn.unl.edu/ETdata/DataMap>

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

CNPPID: <https://www.cnppid.com/weatheret-data/>

Water Use Hotline: 1-800-993-2507



2019 Map of NAWMN Sites across the Tri-Basin NRD.

Corn Stage		DESCRIPTION
R5.5	Full Dent - 1/2 Milk Line	The starch line is 1/2 the way down the kernel. Top 1/2 is hard and bottom 1/2 is softer near the cob.
R5.8	3/4 Milk Line	The starch line is 3/4 the way down the kernel.
R6	Black Layer	The starch line has advanced to the cob. Physiological Maturity. Black layer formed, kernel moisture is between 25%-35% moisture. 0.0 inches needed for yield.
Soybean Stage		DESCRIPTION
R6.5	Full Seed / Yellow Leaf	Leaves begin to yellow rapidly, beginning in the lower canopy and progressing upwards.
R7	Beginning Maturity	At least one (normal) pod that has attained its final mature color (tan or brown, depending on variety) is present on any main stem node. 0.0 inches needed for yield.

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>.

	September 12, 2019, 8:00 AM	1 Year Ago
Capacity of Lake McConaughy	89.7%	NA
Inflows to Lake McConaughy	2755 cfs	1496 cfs
Flows on the North Platte at North Platte	1135 cfs	398 cfs
Flows on the South Platte at North Platte	337 cfs	175 cfs
Flows on the Platte at Overton	2385 cfs	2051 cfs

The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.

- Theodore Roosevelt

WEBSITES OF INTEREST

Soil Health:

www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/

Climate aqclimatenebraska.weebly.com
 NRCS Nebraska www.ne.nrcs.usda.gov
 Central Irrigation District www.cnppid.com/
 TBNRD Home Page www.tribasinrrd.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:	Aug 29 – Sept 11	May 1 – Sept 11
Arapahoe 9.8 NNE:	0.83	29.28
Bertrand 6.1 mi. SE:	0.77	26.51
Holdrege 0.99 mi. E:	0.34	24.62
Minden 7.2 mi. W:	0.53	22.11
Minden 5.8 mi. E:	0.68	23.78

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

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

PO Box 146
 Elwood, NE 68937

424 North Colorado
 PO Box 31
 Minden, NE 68959
 308-832-0645

308-995-4222

308-785-2390

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