Tri-Basin Irrigator

Volume 16, Issue 5 *June 30, 2016*

Program Information

EQIP, CSP, and ACEP:

EQIP – A targeted sign-up cutoff date for 2017 funds is October 21, 2016.

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.

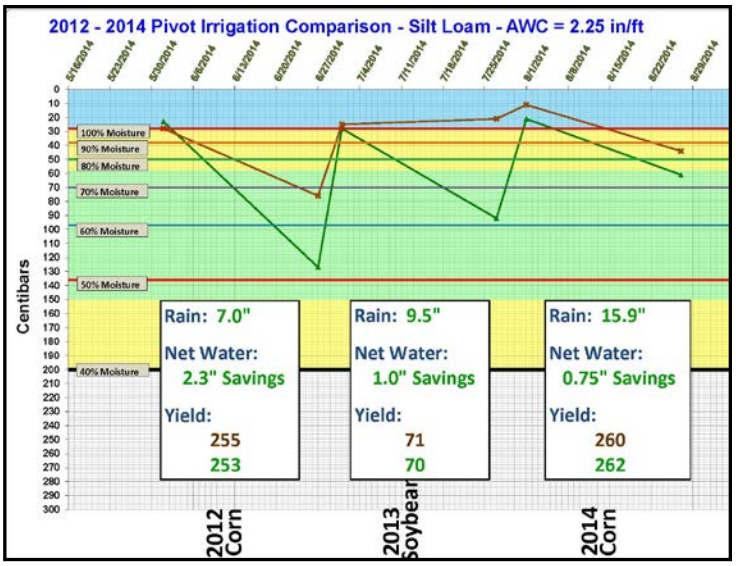
Calendar of Events

July 4: Independence Day – Gov't offices closed
July 5: CNPPID Board of Directors Meeting – 9 am
July 12: TBNRD Board Meeting – 7:30 PM
July 12: Resistant Palmer Amaranth Field Day near Shickley, NE. See article on page 2 for more info.
July 17-20: Kearney County Fair
July 24-28: Phelps County Fair
July 28-30: Gosper County Fair

2012-2014 Pivot Irrigation Comparison!

This comparison is on two pivots on a ½ section farmed exactly the same. It is all no-till. The only difference in the two pivots is how they are managed for irrigation. See chart below.

The points on the lines represent beginning of season and end of season for each year. All three years started the season at 100% moisture. Green line pumped less water than the brown line each year. That is represented by the net water savings pumped each year. Average net water savings pumped over the three years is 1.35 inches per year. That is roughly 2 pivot irrigations. Note not enough yield difference to say water was the difference. Also note variable rain each year.



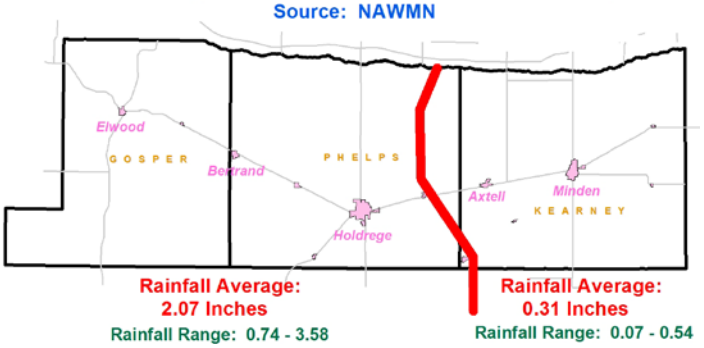
Curtis's Column

NRCS

Should One be Irrigating?

Gosper and Phelps have received on average 1.70 inches more than Kearney County. See map. The chart below shows Phelps and Gosper having 100% moisture at all levels. One dryland site near Holdrege has 96% moisture average to 3 feet. With less rain, Kearney County's average moisture is 87% in the 3 foot profile. Moisture is available to allow root growth if we let it. Having sensors is key to know where moisture levels are.

Average Rainfall (June 1st thru June 26th)
Source: NAWMN



Soil Moisture Levels - June 26, 2016

Pivot Irrigated Corn and Soybeans Combined

	Gosper & Phelps Co. 12 Sites	Dryland 1 Site Holdrege	Kearney Co. 5 Sites
Average Rain: See Map	2.07 Inches	2.20 Inches	0.31 Inches
1 foot	100%	89%	75%
2 foot	100%	100%	87%
3 foot	100%	100%	100%
4th foot	100%	100%	100%
Use 3 ft. avg.	100%	96%	87%

EQIP Dryland, No-till, & Grass Field Checks!!!

The NRCS will be starting their annual field checks for dryland, no-till, and grass contract obligations for EQIP contract holders. These checks will take place over the next month or so. This past spring, EQIP contract holders received a reminder letter with a map indicating which areas needed to be dryland, no-tilled, or have grass maintained. ***Failure to comply with your EQIP contract could result in termination, repayment of funds, and/or penalties.***

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

CNPPID Notes

Conserving water in the wet years:

Applying too little irrigation water would be a mistake this year; so is over-irrigation. Good conservation measures are appropriate in every year, wet or dry. No-till or strip-till is also a good idea in every year to build and hold topsoil and moisture.

It takes time for excess precipitation to soak through the root zone and reach a deep aquifer, and the recharge water takes a lateral as well as a vertical path to get there. Depending on the regional geology, areas of a declining water table may result in the compaction of aquifer materials. Compaction events decrease the total storage volume of the aquifer, likely for all time. Both the current and the future health of the aquifer can be in the hands of the current users.

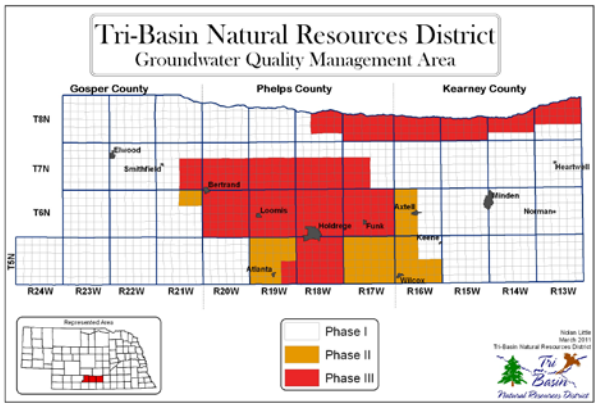
On the surface (river) water side, applying extra water to private lands during a major flood event can be beneficial if it is done prior to nitrogen and herbicide applications, all reservoirs are full and downstream landowners are praying for relief. We will ask for your help if that occurs, but this is not that year. Lake McConaughy is 1.3 ft. below full pool today; there is room for a panhandle storm and room to take the flood pool storage water WY Reclamation held up for NE while the South Platte River was running high. We will have good inflows throughout the summer. The El Nino event that brought these wet conditions is waning now and climatologists predict formation of a moderate La Nina event, a cold and dry winter, perhaps degrading to drought for our area within the next few years. We cannot forget; the 2002 spring water elevation at Lake McConaughy was not reached again until 2010 even with allocations in place, 2005-2009. Water conserved in times of plenty is water stored for use well into the lean years.

Tri-Basin NRD News

Remember to Take Water Samples for Nitrogen Management Reports:

If you have fields in Phase 2 or Phase 3 of our Groundwater Quality Management Area (see map), you are required to sample your own irrigation water and test it for nitrates each year. With above average rains in some portions of the district causing a delayed start to the irrigation season, it's important to remember to collect the water samples once you start irrigating. If possible, you should take samples after the well has been running for a while, in order to get more accurate results.

The results from the samples you take this irrigation season will be used in nitrogen planning for next year's crop and reported on your 2016 Nitrogen Management Reports. Sample bottles are available at Tri-Basin NRD and the NRCS offices.



Nebraska Extension Extras

Resistant Palmer Amaranth Field Day – July 12:

Nebraska Extension is providing an On-Farm "Resistant Palmer Amaranth Management Field Day" on Tuesday, July 12, 2016. This free demonstration will occur near Shickley, NE in Fillmore County (intersection of Rd 2 & Rd Q). Educational topics will provide both chemical and nonchemical troublesome resistant weeds control strategies.

Following the field experiment demonstrations beginning at 9:00 am; a free noon lunch will be served. Then, at 12:15 pm, Dr. Jason Norsworthy, will be the keynote speaker with the field day ending at 1:00 p.m.

More registration information is available on the Nebraska Extension website: *http://agronomy.unl.edu/weedresistmgt*. If interested in carpooling to this event, contact Todd Whitney, Extension Educator (308-995-4222).

Controlling Herbicide Resistant Pigweeds:

Herbicide cross-resistant Palmer amaranth (*Amaranthus palmeri)* and waterhemp (*Amaranthus tuberculatus*) weeds have been especially troublesome in many corn and soybean this year. Although fields vary, confirmed herbicide "mode of action" resistance may now include: ALS *(acetolactate synthase)* inhibitor; Amino Acid Synthesis Inhibitors; triazine (atrazine); glyphosate (Roundup®); and HPPD inhibitor; resulting in more complicated weed control strategies.

Before new weed control tactics can be implemented, it is important to correctly identify the target weeds. Often amaranth weeds are all called, "pigweeds," without proper species identification. In Nebraska, the four most common species are: redroot pigweed (*Amaranthus retroflexus)*; smooth pigweed (*Amaranthus hybridus)*; common waterhemp (*Amaranthus rudis)*; and Palmer amaranthus (*Amaranthus palmeri).*

The most common way to identify young Palmer amaranthus is the rosette (poinsettia) appearance. Both waterhemp and Palmer amaranth stems are hairless; while other pigweeds have hairy stems. Later, Palmer amaranth leaves have white chevron (V-shaped) watermarks that look like the top of a "finger-print" on their leaves.

Palmer amaranth weeds usually emerge later than the other pigweeds with emergence ranging from mid-May until mid-September. Usually, Palmer seeds do not remain viable in the soil as long as the other pigweed species; but can still survive 2 to 5 years; while other pigweed seeds are viable 1 to 7 years. Therefore, cultural weed control such as burying tiny amaranth seeds with deep tillage may reduce Palmer population up to 50 percent. However, since the seeds remain viable for up to five years, deep tillage is only recommended (at most) once every five years. From a soil health perspective, though, the benefits for weed control must be weighed against reducing soil covering residue, which aids in erosion control. Tillage also lowers soil water holding capacity by fracturing soil structure and lowering soil organic matter content.

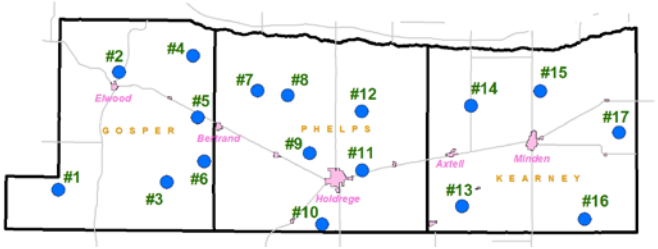
Herbicide rotation and more intense crop rotations may also combat resistant weeds establishment. To further fight resistance, diversify weed control practices by planting cover crops, managing field borders and cleaning equipment before moving to the next field. Also, sterilize manure piles to prevent survival of potential weed seeds. This usually requires raising manure pile internal temperatures to 160ºF. Finally, intentionally limit weed seed production. Although amaranth (emerging after 7-leaf stage corn) may have little impact on crop yields, weed seeds produced this fall may be long-term risks for upcoming cropping systems.

NAWMN Crop ET Information

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

Inches of Crop Water Use (ET) = Evaporation x Kc

	June 13 – June 19		June 20 – June 26	
Site	Evaporation	Rain	Evaporation	Rain
1	2.30	0.74	1.85	0.65
2	2.20	1.80	1.90	0.08
3	2.20	0.50	1.75	0.10
4	2.10	1.15	1.70	0.21
5	2.25	2.30	1.50	0.43
6	2.40	0.50	1.60	0.20
7	1.80	2.65	1.40	0.11
8	2.00	1.10	1.70	0.35
9	2.40	0.90	1.90	0.70
10	2.40	0.49	1.90	0.11
11	2.20	1.05	1.70	0.20
12	1.80	0.89	1.40	0.47
13	2.80	0.34	2.00	0.05
14	2.50	0.23	1.80	0.19
15	2.00	0.00	1.60	0.08
16	2.60	0.00	1.95	0.00
17	2.40	0.00	2.00	0.00



2016 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 (V7-7 Leaf to V14-14 Leaf stage): Corn at the 12-leaf stage should be drawing moisture from 2 feet. The 15-leaf stage is the beginning of the most crucial period of plant development in terms of seed yield.
Avg. daily water use from June 20 – June 26 was 0.09"-0.29".

Soybeans (V3-3rd Node stage to R1-Beg Bloom stage): Soybeans at R1 should be drawing moisture from 2 feet. Vertical root growth increases sharply at R1. Secondary roots and root hairs proliferate after R1 in the top 9 inches.
Avg. daily water use from June 20 – June 26 was 0.12"-0.26".

June 20–June 26 *(17 of 17 NAWMN sites reporting): Average weekly rainfall was 0.23 (range 0.00 to 0.70). Average weekly ET for corn was 1.32 and for soybeans was 1.35.*

ET Information Sites

NAWMN Sites:
http://www.cnppid.com/news-info/weatheret-data/nebraska-agricultural-water-management-network/
https://nawmn.unl.edu/ETdata/DataMap
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
V14	14 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: Add 2-4 leaves when counting leaves due to the lower leaves being lost during plant development.
V16	16 Leaves	
R1	Silking	Begins when any silks are visible outside the husks.

Soybean Stage		DESCRIPTION
V(n)	Nth Node	The V "number" equals the number nodes on mainstem having an unfolded trifoliate leaf.
R1	Beg. Bloom	At least one open flower is present at any main stem node.
R2	Full Bloom	One open flower at any of the two uppermost main stem nodes with fully developed leaves.

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 30, 2016, 8:00 AM	*1 Year Ago*
Capacity of Lake McConaughy	**97.7%**	**NA%**
Inflows to Lake McConaughy	**3022 cfs**	**3932 cfs**
Flows on the North Platte at North Platte	**1227 cfs**	**319 cfs**
Flows on the South Platte at North Platte	**1429 cfs**	**6575 cfs**
Flows on the Platte at Overton	**1705 cfs**	**8548 cfs**

Freedom is never more than one generation away from extinction. We didn't pass it to our children in the bloodstream. It must be fought for, protected, and handed on for them to do the same.

- Ronald Reagan

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	*tribasinnrd.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:	June 16 – June 29	May 1 – June 29
Arapahoe 6.9 NW:	**1.87**	**6.06**
Bertrand 6.1 mi. SE:	**1.72**	**7.71**
Funk 4.1 mi. NNE:	**0.52**	**4.72**
Minden 0.855 mi. W:	**0.18**	**3.36**
Minden 8.8 mi. ESE:	**0.10**	**3.25**

Average Rain for May-June in Holdrege = 8.04 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. ******

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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

415 Lincoln Street
PO Box 740
Holdrege, NE 68949
308-995-8601

Tri-Basin Natural Resources District

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Nebraska Extension

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