

# Tri-Basin Irrigator

Volume 17, Issue 2

June 8, 2017

## PROGRAM INFORMATION

### ***EQIP & CSP:***

**EQIP** – PROJECTED SIGN-UP DEADLINE FOR 2018 FUNDS WILL BE MID-OCTOBER 2017.

**CSP** – WE ARE CURRENTLY RANKING THE 2017 APPLICATIONS.

**NSWCP:** NSWCP FUNDS ARE ONLY AVAILABLE FOR FLOW METERS AND SOIL MOISTURE SENSORS AT THIS TIME.

**ENERGY EFFICIENCY GRANT:** SIGNUP DEADLINE FOR 2018 FUNDS WILL BE OCTOBER 31, 2017. FOR MORE INFORMATION CONTACT KELLEY AT RURAL DEVELOPMENT AT THE KEARNEY USDA SERVICE CENTER AT 308-237-3118, EXT. 4 OR AT 308-455-9837.

## CALENDAR OF EVENTS

**JUNE 13:** FORAGE, WHEATLAGE, COVER CROPS MEETING IN ELWOOD. SEE ARTICLE ON PAGE 2 & ATTACHED FLYER.

**JUNE 14:** FLAG DAY

**JUNE 16:** FIELD PEA, FORAGES, COVER CROPS TOUR AT HASTINGS AND BLADEN. SEE ARTICLE ON PAGE 2 & ATTACHED FLYER.

**JUNE 18:** FATHER'S DAY

**JUNE 20:** TBNRD BOARD MEETING 1:30 PM

**JUNE 21:** WHEAT PLOT TOUR NEAR BEAVER CITY. SEE ARTICLE ON PAGE 2 & ATTACHED FLYER

**JULY 3:** CNPPID BOARD OF DIRECTORS MEETING 9 AM

## ***Tool to Determine Crop Water Use – Part 1***

The Nebraska Agricultural Water Management Network (NAWMN) is underway for the 2017 crop season across the Tri-Basin NRD. This network is a tool for participating and area producers to determine how much soil moisture their 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 15 additional locations. See map on page 3. Having this information more localized allows producers to better determine what their crops are using for soil moisture. Also, they get to use their own crop stage of growth. Having these sites closer to a producers fields and being able to use their own crop stages, this network serves as an excellent tool in determining crop water usage by field.

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.

If you have any questions, call Curtis Scheele at 308-995-6121, Ext. 3 or email to [curtis.scheele@ne.usda.gov](mailto:curtis.scheele@ne.usda.gov).

**REMINDER: Get your soil moisture sensors installed.**

## CURTIS'S COLUMN



### ***Full Soil Moisture Profile to 4 Feet:***

13 NAWMN sites across the Tri-Basin NRD are averaging 100% moisture on June 6, 2017 down to a 4 foot depth. I know some pivots have been running for various reasons. But the one dryland site is also at 100% moisture down to 4 feet. So if irrigating to water, you don't need to be. There is plenty of moisture this early in the season. Over watering now can lead to shallow roots which will lead to additional irrigations in late summer, thus spending money. These early waterings will keep the profile full and provide no room for rain. That could mean the leaching of nitrates which costs you money and is not good for the groundwater. In addition, lack of oxygen in the soil will lead to lower yields as well.

#### ***Pivot Corn and Soybeans Combined***

***All sites No-Till except 2***

***Holdrege Silt Loam soil***

Soil Depth	Sept. 26, 2016	June 6, 2017
1 foot	76%	100%
2 foot	78%	100%
3 foot	77%	100%
4 foot	77%	100%
4 ft. avg.	77%	100%

#### ***Dryland (1 site near Holdrege) - No-Till Soybeans***

Soil Depth	Sept. 26, 2016	June 6, 2017
1 foot	55%	100%
2 foot	40%	100%
3 foot	46%	100%
4 foot	40%	100%
4 ft. avg.	45%	100%

## ***Soil Health Series: Overall Soil Health***

The success and longevity of productive land is dependent upon the overall health of the soil. Producers manage equipment, plants, livestock, etc. in order to increase productivity and profitability for the present and the future. Does soil play a factor in your operation? Do you manage your soils to keep them healthy as you do your plants and livestock? If everything in your operation was at a healthy state and functioning at its maximum, imagine the possibilities, not only now but for future generations.

Managing for soil health is mostly maintaining the habitat for the myriad of creatures that comprise the soil food web. This can be accomplished by disturbing the soil as little as possible, growing as many different plant species as practical (nature doesn't grow monocultures), growing living plants as much as possible, and keeping the soil covered at all times.

Attached is a Nebraska Soil Quality Card. You can use this to rate your soil's health. Then you will have a baseline score to compare 3-5 years later to see if you are improving your soils health or not. You can also go to this link to print this card:

[https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/soils/health/assessment/?cid=nrcs142p2\\_053871](https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/soils/health/assessment/?cid=nrcs142p2_053871)

### Water Conservation:

All of us consume a portion of the water used to grow food but it is the irrigator who can accomplish significant savings to our collective water resource. City water use is low relative to the ag sector in Nebraska so the volume of water city folks can save collectively is also low.

Consider these facts; Kearney uses 6,273 acre-feet (AF) of water annually and Lincoln, seven times that or 40,170 AF. In the ag sector, irrigators in the Platte Basin portion of the Tri-Basin NRD irrigated 298,694 acres in 2015 and Nebraska had 8.56 million irrigated acres in 2007. Assuming an average 12-inch depth applied each season to each of those acres, that is an annual use of 298,694 AF and 8,560,000 AF respectively.

Producer's must fill the domestic and export market demand; so many depend on them. But they now have the equipment they need to get top yields and protect the water resource. Every irrigator can likely find an inch of water savings from every field in any given year. In the TBNRD-Platte Basin alone that is collectively 24,891 AF annually and across Nebraska irrigated acres it amounts to 713,333 AF.

Tracking the soil moisture balance in the root zone allows irrigators to determine when to irrigate, when to start the season and when to end it. Irrigators normally shut down systems in a rain event but the ability to do that job from a cell phone can save hours of irrigation time on several pivots. No-till or strip-till saves massive amounts of water from evaporating off the soil surface prior to full canopy; water that must be replaced by rain or irrigation. These management tactics, carried out in both the wet and dry years, will reap immense rewards in volume of water stored for future use.

### TRI-BASIN NRD NEWS



#### 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.



### Forage & Cover Crops Meeting – June 13 - Elwood

Forage sorghum, wheatlage, cover crops & grazing options meeting is scheduled for **Tues., June 13<sup>th</sup>, 2017**, in the Community (American Legion) Building at the Gosper County Fairgrounds beginning at **10:00 a.m.** ~ one hour length meeting.

Jerry Volesky, Nebraska Extension – West Central Range specialist, will provide keynote update on forage sorghum and grazing options for farmers and ranchers.

Todd Whitney, Nebraska Extension Educator, will provide update on the 2-year Nebraska Extension Wheatlage study in cooperation with South Central Feeders - Bertrand and outline new Soil Health tests for cover crop production.

Attendance is free-of-charge with light refreshment. For more information, contact the Phelps-Gosper Extension office at: 308-785-2390 OR Todd Whitney – Nebraska Extension – Crops Educator (308-995-7272).

#### **Wheatlage Harvest Date Effects**

South Central Feeders



### Field Peas, Forage & Cover Crops Mtg – June 16<sup>th</sup>

Nebraska Extension is hosting a free "Field Peas, Forages and Cover Crops Field Day on **Friday, June 16<sup>th</sup>, 2017** with free breakfast & lunch. (See attached flyer).

Gavilon's Field Pea Processing Facility tour (4935 E J Street, Hastings) will be run from 8:00 – 9:00 am. Field Peas plot tour (5 miles south of Bladen, NE on Rd 800 then ½ mi. east Rd T) from 10:00 – 11:30 am. Free lunch from 11:30 am – 12:45 pm Register by Jun 14. For more information: call Perkins County Extension (308-352-4340) or [ssteponovic2@unl.edu](mailto:ssteponovic2@unl.edu)

### Wheat Varieties Plot Tour – Beaver City – June 21<sup>st</sup>

The Nebraska Extension – WC Wheat Varieties Plot Tour (Beaver City) is scheduled for **Wed., June 21<sup>st</sup>, 2017** beginning at **9:00 a.m.** (45 min.) Participants will have hands-on viewing of wheat varieties and in-depth updates. Special thanks to Rex McClain for again hosting this Furnas county plot 3 miles west of **Beaver City, NE**. In 2016, McClain's plot location NE of Beaver City was the top yielding wheat plot statewide among all Nebraska Extension plots.

GPS location for the 2017 Furnas County Plot Tour is: 40°07'56.9"N 99°53'02.2"W. Otherwise, from Beaver City, NE: travel west on NE Highway 89 about 3 miles. Plot is on north side of highway next to field driveway. OR, from Arapahoe, NE: travel 12 miles south on US Highway 283 to the NE Highway 89 junction; then turn east and go ½ mile east on the north side.

This year's Furnas County plot features 44 different public and private wheat varieties. Todd Whitney, Nebraska Extension Educator, will be leading the plot tour with emphasis on wheat diseases and insect management along with forage and wheat grain yield potential research updates

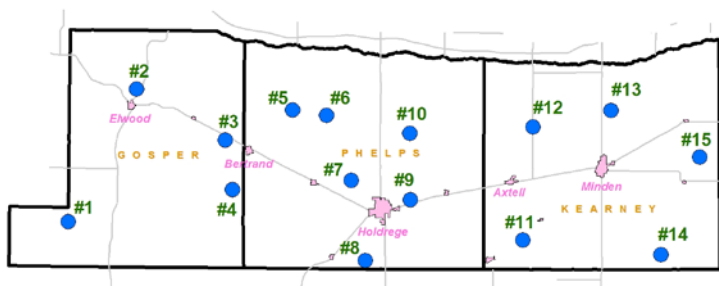
Attendance is free-of-charge with light refreshment at the tour site. For more information, contact the Furnas County Extension Office (308-268-3105) and/or Todd Whitney – Nebraska Extension – Crops Educator (308-995-7272).

## NAWMN CROP ET INFORMATION

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

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

	May 22 – May 28		May 29 – June 4	
Site	Evaporation	Rain	Evaporation	Rain
1	1.80	0.38	2.00	0.00
2	1.90	0.32	2.10	0.01
3	1.10	0.39	1.80	0.10
4	1.60	0.37	1.85	0.13
5	NA	NA	2.00	0.00
6	1.50	0.48	1.60	0.70
7	1.40	0.49	2.10	0.04
8	1.80	0.40	2.00	0.02
9	NA	NA	2.00	0.00
10	1.20	0.75	1.60	0.25
11	1.70	0.34	2.00	0.00
12	1.80	0.30	1.70	0.12
13	1.80	0.32	1.70	0.33
14	1.70	0.42	1.70	0.11
15	1.60	0.48	1.50	0.64



2017 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 (V2-2 Leaf to V8-8 Leaf stage):** At about 5-leaf, the growing point and tassel is at or near the soil surface. At 6-leaf, the growing point and tassel are above the soil surface and the stalk is beginning a period of increased elongation.

Avg. daily water use from May 29 – June 4 was 0.02"-0.15".

**Soybeans (Planted to V1-First Node stage):** Loss of one cotyledon has little effect on plant growth, but both can reduce yields 8-9%. After V1, photosynthesis by the developing leaves is adequate for the plant to sustain itself.

Avg. daily water use from May 29 – June 4 was 0.00"-0.06".

May 29-June 4 (15 of 15 NAWMN sites reporting): Average weekly rainfall was 0.16 (range 0.00 to 0.70). Average weekly ET for corn was 0.41 and for soybeans was 0.27.

### 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
V4	4 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. <b>TIP:</b> 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.
V6	6 Leaves	
V8	8 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://cnppid.com/wp-content/uploads/2016/06/lakeRiverData.html>.

	June 8, 2017, 8:00 AM	1 Year Ago
<b>Capacity of Lake McConaughy</b>	<b>86.4%</b>	<b>NA</b>
<b>Inflows to Lake McConaughy</b>	<b>4786 cfs</b>	<b>6817 cfs</b>
<b>Flows on the North Platte at North Platte</b>	<b>481 cfs</b>	<b>3234 cfs</b>
<b>Flows on the South Platte at North Platte</b>	<b>1995 cfs</b>	<b>3742 cfs</b>
<b>Flows on the Platte at Overton</b>	<b>3389 cfs</b>	<b>7414 cfs</b>

*The ability to accept responsibility is the measure of a man.*

- Roy L. Smith

## WEBSITES OF INTEREST

Soil Health:

[www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/](http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/)

Climate [agclimatenbraska.weebly.com](http://agclimatenbraska.weebly.com)  
 SAM Registration [www.sam.gov](http://www.sam.gov)  
 NRCS Nebraska [www.ne.nrcs.usda.gov](http://www.ne.nrcs.usda.gov)  
 Central Irrigation District [www.cnppid.com](http://www.cnppid.com)  
 TBNRD Home Page [www.tribasinnrd.org/](http://www.tribasinnrd.org/)  
 Farm Service Agency [www.fsa.usda.gov](http://www.fsa.usda.gov)  
 UNL Cropwatch [cropwatch.unl.edu](http://cropwatch.unl.edu)  
 UNL Extension [extensionpubs.unl.edu/](http://extensionpubs.unl.edu/)  
 K-State SDI Website [www.ksre.ksu.edu/sdi](http://www.ksre.ksu.edu/sdi)  
 No-till On The Plains [www.notill.org](http://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:	May 25 – June 7	May 1 – June 7
Arapahoe 6.9 NW:	0.50	5.42
Bertrand 6.1 mi. SE:	0.58	5.97
Funk 4.1 mi. NNE:	1.35	6.95
Minden 0.855 mi. W:	0.52	9.47
Minden 8.8 mi. ESE:	0.78	7.52

**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](mailto: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 2<sup>nd</sup> 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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## NEBRASKA EXTENSION FIELD DAY Field Pea, Forages and Cover Crops



### FRIDAY, JUNE 16, 2017 Webster County, NE (near Bladen)

#### AGENDA

**8:00 - 9:00 AM - Gavilon's Field Pea Processing Facility TOUR**

@ 4935 E J Street, Hastings, NE 68901

**10:00-11:30 AM Field Pea Varieties PLOT TOUR**

@ Tim Engelhardt farm, 5 miles south of Bladen on Rd 800 then 1/2 mile east Rd T

**11:30-12:45 LUNCH and REGISTRATION**

@ Webster County Fairgrounds - 459 North Crescent Street, Bladen, NE

**12:45-2:00 INDOOR SESSIONS**

Todd Whitney - Increasing Wheatlage Biomass Prior to Corn Silage Production  
Rodrigo Werle - Research Update - Cover Crops After Wheat Harvest  
Strahinja Stepanovic - Herbicide carryover in field pea production system  
Lucas Haag - Growing Field Pea in Kansas

**2:00 - 4:00 PM - Green Cover Seed PLOT TOUR**

Over 70 different cool season cover crop species and mixes

**Get Registered by June 14 - Great Networking Opportunity !!!**

Call: (308) 352 4340 Perkins Co Extension or Email: [sstepanovic2@unl.edu](mailto:sstepanovic2@unl.edu)



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## NEBRASKA EXTENSION Gosper-Furnas-Harlan-Phelps



**TUESDAY, JUNE 13, 2017**

**Forage, Wheatlage &  
Cover Crops Meeting**



For more information  
contact:

Nebraska Extension  
in Furnas County,  
(308) 268-3105

or e-mail

Todd Whitney  
[whitney3@unl.edu](mailto:whitney3@unl.edu)



Sponsor:

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**Gosper County Fairgrounds  
(American Legion Building)**

**Elwood, NE**

**10:00 am to 11:15 am**

**Jerry Volesky—Nebraska Extension  
WC Range Specialist**

Topics: Forage Sorghum  
Cattle Grazing Options

**Todd Whitney—Nebraska Extension  
Cropping Systems & Soils**

Topics: 2-Year Wheatlage Study—Bertrand  
Soil Health & Cover Crops

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6/20/16

**Cooperator: Rex McClain— Beaver City, NE**

**Free  
Meeting**

For more information  
contact:

Nebraska Extension  
in Furnas County,  
(308) 268-3105

or e-mail

Todd Whitney  
twhitney3@unl.edu



Sponsor:

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**WEDNESDAY, JUNE 21, 2017**

**Wheat Plot Tour (Rainfed)  
Schedule:**

**Tour Begins:  
9:00 am**

**Plot Location: 40°07'56.9"N 99°53'02.2"W**

From Beaver City, NE: Go west on NE Highway 89 about 3 miles.  
- Plot on north side of road next to field driveway.

- OR -

From Arapahoe, NE: Go 12 miles south on US Highway 283 to  
Highway 89 junction; then, 1/2 mile east on north side.

**Featuring:**

**44 public and private wheat varieties**

**Plot Tour Leader:**

**Todd Whitney  
Nebraska Extension Educator**