Tri-Basin Irrigator

Volume 21, Issue 4 **June 26, 2025**

Program Information

EQIP: **Sign-up now for 2026 funds.**

CSP: **Sign-up now for 2026 funds.**

NSWCP: **Get your irrigation applications in by August 31st for first chance at the irrigation funds. Flow meters and non-irrigation applications are approved monthly.**

ENERGY EFFICIENCY GRANT: **The next application deadline is September 30th. Financial assistance is for converting gravity systems to pivots or SDI, and natural gas/propane/diesel engines to electric motors, well rebowls, etc. For more `information contact Jolene at Rural Development at the Kearney USDA Service Center at 308-455-9840 or at *jolene.jones@usda.gov*.**

Calendar of Events

July 4: Independence Day – Gov't offices closed
July 7: CNPPID Board of Directors Meeting
July 16: TBNRD Board Meeting
July 18-20: Kearney County Fair
July 19-24: Phelps County Fair
July 24-27: Kearney County Fair

Nitrogen & Pivot Bio Demo – 2024 Results

Last year, I helped the Tri-Basin NRD and UNL Extension with an On-Farm Research project east of Minden. The field was farmed by David and Matt Grimes. The project compared nitrogen rates and Pivot Bio (a biological N-fixing product).

There were 3 replications for each of the 4 different nitrogen rates applied. Half mile plots were 8 rows wide. Strip-tilled corn into soybean residue.

Below is a table showing yield results from the various plots.

Nitrogen Applied (lbs/ac)	Pivot Bio Applied	All Plots - Average Yield (bu/ac)	N Only $4 Corn $0.60 N
200 lbs	---	271 bu	Base
200 lbs	Yes	270 bu	---
160 lbs	---	269 bu	+ $16 ac
160 lbs	Yes	270 bu	---
120 lbs	---	260 bu	+ $4 ac
120 lbs	Yes	260 bu	---
80 lbs	---	230 bu	($92 ac)
80 lbs	Yes	230 bu	---

You will not see much yield difference if any from the recommended 200 lb N rate and the 160 lb N rate. And that is with or without the Pivot Bio. There is a 10 bu drop at the 120 lb N rate and a 40 bu drop at the 80 lb N rate. There is basically no difference in yield with or without Pivot Bio at each N rate.

Nitrogen only, no Pivot Bio considered, based off the 200 lb N rate. At $4 corn and $0.65 per lb of N, there is a profit higher than applying 200 lbs of N at both the 160 and 120 lbs of N.

See attached UNL On-Farm Research page for more information.

Curtis's Column

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

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 starting in July sometime. ***Failure to comply with your EQIP contract could result in termination, repayment of funds, and/or penalties.***

CSP Nutrient Management and Canal Water

I am following up on CNPPID's article on Page 2 about keeping nutrients out of the canals in an effort to eliminate the algae/weed growth in the canal and plugging up the system, ultimately costing more money to clean the canal.

If you have a CSP contract with the E590A nutrient enhancement scheduled, then you have to utilize at least 2 out of the 10 offered nutrient efficiency strategies. One of those strategies is applying 50% or more of your fertilizer after crop emergence. If this is one of the strategies you plan to utilize in order to fulfill your CSP requirements, then, depending on your fertilizer program and how often you plan to fertigate your fields, you will need to make sure you do not apply more fertilizer per application than what your chemigation permit allows.

I know we are mid-season in 2025, so hopefully your fertilizer applications are all planned out and adjustments are not needed. For next year, this will need to be planned out early if you plan to utilize this CSP nutrient efficiency strategy in order to apply the proper amount of fertilizer at the proper times to fulfill both the CSP contract and stay within the rules of your chemigation permit. Other CSP nutrient efficiency strategies are available if this strategy can't fulfill your chemigation permit.

REMINDER!!!

Leaf Tissue Samples

For CSP contract holders who need to complete corn leaf tissue samples as a part of your CSP requirements for your 2020 payment, now would be a good time to start planning for this. The following are guidelines:

- 1 leaf sample per 40 acres or less per management system.
- Samples taken prior to tassel.
- 15-20 plant leaves per sample.
- Sample leaves are ear shoot leaves. If samples prior to ear shoot leaf, samples will be the youngest mature leaf (top leaf with a collar).
- Dirty/dusty samples should be lightly rinsed. Over-rinsing can leach out soluble nutrients.
- Samples should be air dried or placed in a paper bag for shipping.
- Contact your lab for additional information on sampling and analysis.

CNPPID Notes

Help to Keep Your Screen Clean - Eliminating Algae/Weed Growth in Surface Water

CNPPID works hard to keep screens clean against moss that can grow in the canal from an abundance of excess nutrients. Key nutrients that feed algae to bloom are found in the same fertilizers that are applied to the fields through fertigation. These can include phosphorus, nitrogen, potassium, magnesium, iron, zinc, etc. With a permit, CNPPID allows pivots to cross the canal for its customers but regulating fertigation is the responsibility of the Tri-Basin NRD. As such, Tri-Basin works very hard to limit fertigation over the canal as part of their chemigation program.

Producers who apply nutrients to their fields such as manure can help to reduce or eliminate moss by not allowing the nutrients to enter the canal. Excess nutrients from fertilizers, stormwater runoff from fields, and wastewater along with abundant sunlight, and warmer temperatures are key factors in providing the essential needs to fuel and feed algae blooms in surface water. These same factors also are key to the growth of rooted aquatic vegetation such as sego pondweed. So please help to keep your screen clean, and your neighbors, by keeping the surface water in the canal free of nutrients.

Visit www.cnppid.com or follow @CNPPID on Facebook, Instagram and Twitter for updates throughout the year.

Tri-Basin NRD News

Groundwater Management Reminders

Groundwater Quantity Management (Water Use)

Check your flow meters to see that they are working properly. Let Tammy Fahrenbruch at 308-995-6688 know if they are not.

Groundwater Quality Management (Nitrogen Management/GMA)

Phase II & III: Take water samples this July or August for your 2026 Nitrogen Management Crop Reports. If you have questions about these requirements or reports, call Pat Nott at 308-995-6688.

Water Quality Sampling: NRD Staff will be out collecting water samples around the district.

Chemigation

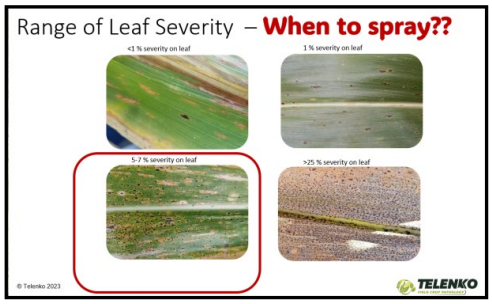
We are currently scheduling chemigation inspections for new and routine inspections. Inspections are required every three years in the Tri-Basin NRD for your system to remain renewable.

If you have problems with your system or make any changes, contact the NRD to have it inspected. If you have questions about these requirements or reports, call Jane or Sasha at 308-995-6688.

Nebraska Extension Extras

Tar Spot of Corn

Tar spot of corn was found in several Nebraska counties. We are not recommending fungicide applications at this time due to the research from Purdue University and other states. They found it best to wait till disease severity was 5-7% and corn was from tassel to dough stage of development. More info. at: https://jenreesources.com/2025/06/17/tar-spot-of-early-corn-update/.



What to do now:

1-Scout fields and wait till a 5-7% threshold on leaves before applying fungicide.

2-Observe fields for hybrids having more tolerance to tar spot.

3-When irrigating, consider less frequent and deeper irrigations, https://go.unl.edu/vipj.

4-Consider plant nutrition?

In managing pests and pathogens, few mention plant nutrition or alternative options. Healthy humans and animals are less prone to disease; why not the same with plants? A book called "*Mineral Nutrition and Plant Disease*" shares published research on roles of minerals in aiding or managing disease. It was written by Dr. Don Huber, Professor Emeritus of Plant Pathology from Purdue University and there's an updated version that I have.

There's a lot of unknowns about tar spot and its control. Dr. Huber shared that the tar spot lesions contain oxidized manganese in addition to the fungal spores. Several journal articles referenced the black "freckles" in Goss' wilt and the vascular plugging in the systemic version also contain oxidized manganese. When manganese is oxidized, it creates a manganese deficiency in the area which doesn't allow for photosynthesis. The area runs out of energy and can't defend itself resulting in disease expansion. Many of us in ag understand that micronutrients are chelated in plants in the process of applying specific herbicides. Companies have developed products to help with chelation and to stimulate plants sooner from the shut-down that occurs from applying herbicides.

I'm wondering about the opportunity to use plant nutrition right now to help stimulate plant defense mechanisms? We may need fungicide at some point, but we don't right now. I have no research on this, but to me, it makes sense. When we have early symptoms of a cold, we're told to take zinc to stimulate our defense system. Manganese and Zinc both travel in the xylem and they aid in plant defense signaling. Addition of zinc and copper in particular can reduce manganese oxidation, aiding in plant defense responses. Thus, wondering if zinc, copper, and manganese may help with preventing and fighting tar spot? Boron and sulfur could play a role too. The addition of Calcium increases the oxidation, so it shouldn't be used alone for this situation. Manganese, Zinc, Copper, Boron, Sulfur all aid in defending plants against pathogens.

Many plant pathologists disagree with using plant nutrition: https://cropprotectionnetwork.org/publications/mythbusting-tar-spot-separating-fact-from-fiction.

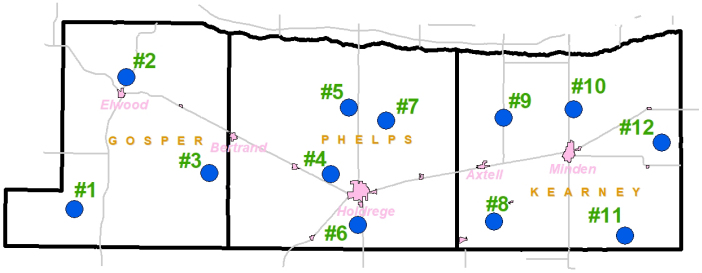
By Jenny Brhel: Nebraska Extension Educator from York

NAWMN Crop ET Information

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

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

	June 9 – June 15		June 16 – June 22	
Site	Reference ET	Rain	Reference ET	Rain
1	2.40	0.18	2.90	0.09
2	2.40	0.72	2.40	0.73
3	2.40	0.60	2.50	0.45
4	2.40	0.00	2.60	1.10
5	2.20	0.01	2.30	0.42
6	2.50	0.00	2.60	1.75
7	2.00	0.00	2.60	0.18
8	2.60	0.00	2.50	0.75
9	2.40	0.03	3.00	0.11
10	2.50	0.00	2.40	0.20
11	2.50	0.00	2.40	1.45
12	2.30	0.00	2.40	0.83



2025 Map of TBAWMN 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 (V4-4 Leaf to V14-14 Leaf stage): Nutrients and water are in greater demand at V10. V15 is the beginning of the most crucial period of plant development in terms of seed yield. R1 (Silking) is the most crucial period.

Avg. daily water use from June 16 – June 22 was 0.11"-0.43".

Soybeans (V4-4th Node to R1-Beg. Bloom stage): Environmental stress from Beg. Bloom through Full Seed will reduce yields more than any other time. Full Pod is the most crucial period. Vertical root growth increases sharply at Beg. Bloom.

Avg. daily water use from June 16 – June 22 was 0.21"-0.39".

June 16-June 22 (12 of 12 TBAWMN sites reporting): Avg. weekly rainfall was 0.67 (range 0.09 to 1.75). Avg. weekly ET for corn was 1.46 and for soybeans was 2.26.

Crop ET Information

TBAWMN Sites: https://www.tribasinnrd.org/tbawmn

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

Texting: Sasha Hahn at TBNRD: 308-995-6688

CORN STAGE		DESCRIPTION
V6	6 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.
V12	12 Leaves	
V18	18 Leaves	

SOYBEAN STAGE		DESCRIPTION
V6	Sixth Node	V6 has 6 nodes on main stem with 6 trifoliates. (7 nodes total: 1 unifoliate + 6 trifoliates)
R1	Beginning Bloom	At least one open flower is present at any main stem node.
R2	Full Bloom	At least one open flower is present at any one of the two uppermost main stem nodes that have fully developed leaves.

Lake and River Levels

CNPPID Reservoir Elevation and Capacity as well as 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 26, 2025, 8:00 AM	*1 Year Ago*
El. & Cap. – Lake McConaughy	**3231.6 ft - 55.3%**	**3238.7 ft - NA%**
Inflows to Lake McConaughy	**540 cfs**	**1190 cfs**
Flows on the North Platte at North Platte	**902 cfs**	**670 cfs**
Flows on the South Platte at North Platte	**433 cfs**	**245 cfs**
Flows on the Platte at Kearney	**2690 cfs**	**1650 cfs**

Happy Birthday America!!!

Websites of Interest

NRCS Nebraska *www.ne.nrcs.usda.gov*
Farm Service Agency *www.fsa.usda.gov*
TBNRD Home Page *www.tribasinnrd.org/*
Central Irrigation District *www.cnppid.com/*
UNL Cropwatch *cropwatch.unl.edu*
UNL Extension *extensionpubs.unl.edu/*
Drought Monitor
https://droughtmonitor.unl.edu/nadm/Home.aspx
No-till On The Plains *www.notill.org*
Soil Health:
www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/
NE State Irrig Assoc
www.nebraskastateirrigationassociation.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:	June 12 – June 25	May 1 – June 25
Elwood 1.81 mi. NW:	**1.35**	**6.01**
Loomis 0.2 mi. SW:	**1.91**	**5.59**
Holdrege 1.7 mi. W:	**2.04**	**4.79**
Minden 7.2 mi. W:	**0.87**	**4.47**
Minden 5.8 mi. E:	**1.32**	**6.33**

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@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
308-995-6688

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

Optimizing N Rate with and Without Pivot Bio PROVEN® 40

Study ID: 0064099202401
County: Kearney
Soil Type: Coly-Kenesaw silt loam; Hersh fine sandy loam
Planting Date: 5/9/24
Harvest Date: 9/24/24
Population: 32,000
Hybrid: Beck's® 5864 AM
Reps: 3
Previous Crop: Soybean
Tillage: Strip-till
Herbicides: ***Pre:*** 2 qt/ac Fulltime® + 44 oz/ac glyphosate ***Post:*** 2.5 qt/ac Acuron® + 24 oz/ac glyphosate + 5 oz/ac Status®
Seed Treatment: Pivot Bio PROVEN® 40 in half of planter
Foliar Insecticides: 7.3 oz/ac bifenthrin on 7/19/24
Foliar Fungicides: 7.1 oz/ac Veltyma® on 7/19/24. 7.1 oz/ac Veltyma® on 8/8/24.
Fertilizer: 15 lb N/ac + 51 lb P/ac fall of 2023; 64 lb N/ac + 9 lb K/ac + 6 lb S/ac from three fertigations

Note: Rye cover crop planted in fall of 2023, grazed with sheep until 4/1/24. Rye was chemically terminated 4/13/24. 20% green snap on July 7.
Irrigation: Pivot, Total: 8.6"
Rainfall (in):

Introduction: Nitrogen fertilizer is a significant input in corn systems. Additionally, N loss through leaching, volatilization, and denitrification pose environmental concerns and reduce profit. Pivot Bio PROVEN® 40 is an N-fixing bacterial inoculant that is expected to fix 40 lb N/ac over the growing season. Biological N fixation for cereal crops has potential to increase N efficiency and decrease N loss. The objective of this study was to evaluate Pivot Bio PROVEN® 40 on corn yield and net return. Pivot Bio PROVEN® 40 was applied as a seed treatment and compared to a check. The entire field received 80 lbs of N between a fall fertlizer application and 3 fertigation applications. Both the Pivot Bio PROVEN® 40 treatment and check were evaluated at four sidedress nitrogen rates, 0 lb N/ac, 40 lb N/ac, 80 lb N/ac, and 120 lb N/ac applied as 32% UAN. Early season stand counts were taken on June 18, 2024. These counts where taken shortly after a hail event.

Results:

	Stand Count (plants/ac)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
80 lb N/ac	32,167 A	230 D	915 B
80 lb N/ac + Pivot Bio PROVEN® 40	31,500 A	230 D	892 B
120 lb N/ac	32,000 A	260 BC	1024 A
120 lb N/ac + Pivot Bio PROVEN® 40	31,500 A	260 C	997 A
160 lb N/ac	31,167 A	269 ABC	1040 A
160 lb N/ac + Pivot Bio PROVEN® 40	31,333 A	270 AB	1020 A
200 lb N/ac	30,833 A	271 A	1026 A
200 lb N/ac + Pivot Bio PROVEN® 40	31,000 A	270 AB	999 A
P-Value:	0.600	<0.0001	<0.0001

*Values with the same letter are not significantly different at a 90% confidence level.
†Yield values are from cleaned yield monitor data. Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $4.35/bu corn, $0.60 N lb/ac and $26/ac for Pivot Bio PROVEN®