Tri-Basin Irrigator

Volume 24, Issue 3 **June 20, 2024**

Program Information

EQIP: **Sign-up now for 2025 funds.**

CSP: **Sign-up now for 2025 funds.**

NSWCP: **New funds come July 1st for all eligible conservation practices. Have your applications complete by June 28th. Applications must be signed by the owner.**

ENERGY EFFICIENCY GRANT: **Next sign-up deadline is June 30th. 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

June 26: UNL Weed Mgt Field Day at the Nebr. Extension South Central Ag Lab near Clay Center. Goto *https://go.unl.edu/2024field-day* to pre-register.

July 1: CNPPID Board of Directors Meeting

July 4: Independence Day – Gov't offices closed

July 9: TBNRD Board Meeting

Nitrogen & Pivot Bio Demo – 2023 Results

Last year, I helped the Tri-Basin NRD and 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 4 replications for each of the 3 different nitrogen rates applied: 235 lbs N, 195 lbs N, and 155 lbs N. All of the plots were split in half to compare the application of Pivot Bio and No Pivot Bio.

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

Nitrogen Applied (lbs/ac)	Pivot Bio Applied	All Plots - Average Yield (bu/ac)
155 lbs	---	249 bu
155 lbs	Yes	259 bu
195 lbs	---	256 bu
195 lbs	Yes	249 bu
235 lbs	---	259 bu
235 lbs	Yes	260 bu

The field was strip-tilled corn on corn. You will not see much difference in yield from the 235 lb N rate through the 195 lb N rate to the 155 lb N rate. And that is with or without the Pivot Bio. One could stand back and say there is a drop off from the 235 lb N rate to the 195 lb N rate. But then why no drop off from the 195 lb N rate to the 155 lb N rate? I would think that to be a bigger drop. Financially, what makes sense? Can one guarantee a positive difference by paying for 80 lbs more nitrogen? Statistically, there is no difference in these results to say what was the proper amount of N applied.

As for the Pivot Bio results, there is statistically no difference is these results as well.

See attached UNL On-Farm Research for more information.

Curtis's Column

USDA United States Department of Agriculture
Natural Resources Conservation Service

New Position at Tri-Basin NRD

My name is Carrie Putnam. In April, I started my new role as the Integrated Water Program Specialist for Tri-Basin NRD. I was born and raised in Northeast Missouri where we raised registered Simmental cattle. I graduated from the College of the Ozarks in 2005 with a Bachelor of Science in Agriculture and Animal Science. For the past 15 years I have lived in Overton, NE. I was previously the Supervisor of the Feed Forage and Environmental Department at Ward Laboratories in Kearney, NE.

The Integrated Water Specialist is a role to help find sustainability solutions for both water quality and quantity that is efficient and profitable. Talking to producers about what resources are available and what will best fit their current needs. I will be able to help address issues or concerns that they may have and be able to help direct them to the right place. I will be contacting producers throughout the year but if you have any questions that I can help with, please feel free to reach out to me via email at *cputnam@tribasinnrd.org* or via my cell phone at 308-708-8359.

Summer Inteeerrrrrnnnsss!!! They're Everywhere! They're Everywhere!

If you see an NRCS employee with a bunch of people helping out, they would be summer interns this year. In 2024, we have more than we have ever had. Thus, the title of this article. They are assisting our three offices of Elwood, Holdrege, and Minden. I will give a brief introduction of each.

- **Jennifer Eichenberger:** Jenny has been working for NRCS out of the Elwood office the last few years as a contract employee. Currently, she is taking classes at the Nebraska College of Technical Agriculture in Curtis with a major in Diversified Agriculture.
- **Juan Lino Garza III (Trey):** Trey comes to us from Texas A&M in Kingsville with a major in Rangeland & Wildlife Management.
- **Kiley Rico:** Kiley is majoring in Agriculture Systems Management from the University of Arizona.

The next two are actually Tri-Basin NRD interns. The NRD has interns every summer. They share them with us as needed and available which is greatly appreciated.

- **Megan Tenbensel:** Megan is attending UNK with a major in Wildlife Biology.
- **Hailey Fuqua:** Hailey also attends UNK with a major in Wildlife Biology as well.

They have done other things for us across the NRD, but for me, they all have helped me install the soil moisture sensors and dataloggers that are used on the TBAWMN. They are great help. If you see them, giv'em a good ole Nebraska welcome!

A FREE Regular Rain Gauge to the First Person who can tell me what inspired the title I used for the summer intern's article above. I never did this in a newsletter before. I decided to have a bit of fun. Answer in next issue. Good Luck!!!

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 to see that your meters are working properly and let Tammy Fahrenbruch know if they are not.

Groundwater Quality Management (Nitrogen Management/GMA)

Phase II & III: Take water samples this July or August for your 2025 Nitrogen Management Crop Reports. If you have questions about these requirements or reports, call Pat at our office 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

Revised UNL SoyWater and CornSoyWater Free Apps

Jim Specht and Haishun Yang, UNL Soybean and Corn Irrigation Scheduling Specialists, are now providing new upgrades for the free SoyWater and CornSoyWater softwares.

These irrigation tools provide GPS field specific scheduling recommendations based on: calendar dates, planting date, and soybean cultivar maturity group. It automatically finds the nearest High Plains weather station and estimates daily soil water depletion & crop water usage (daily based ET).

Delay Early Season Soybean Irrigation

Early season irrigation (prior to R2-full bloom reproductive stage) may result in taller soybeans, but may not increase yield proportionally. Further, once producers start irrigating soybeans; then, plants become dependent on continued irrigation.

So, limiting early season soybean irrigation may actually increase yields. Dr. Jim Specht says that waiting to start full irrigation until the soybeans reach the R3 (beginning pod) development stage (when the pods are about 3/16" long --- just beginning elongation) usually results in higher yields.

2024 Wheat Head Scab Concern

Spring rains may have been welcome for row crop irrigators, **but** Dr. Steven Megulo, UNL Wheat Plant Pathologist, says that high humidity and continuous rainy days during wheat flowering (especially on wheat acres following corn) can dramatically increase Fusarium Head Blight (FHB) outbreaks. During pre-harvest, the most notable signs are bleached wheat heads with white or pink spikelets OR orange shriveled kernels. Later, the heads may develop blue-black, scabby fruiting structures which render the nickname 'Head Scab.'

Early flag leaf stage fungicide applications were likely very beneficial for controlling stripe rust fungal diseases. However, Head Scab disease protection usually requires a later stage and/or second fungicide application. And, many effective wheat leaf disease fungicides **do not work well** for Head Scab.

Labelled Group 3 Fusarium Head Blight fungicides include: **Miravis Ace** SE® (pydiflumetofen/propiconazole); **Proline**® (prothioconazole); **Sphaerex** (metconazole/prothioconazole); and **Prosaro**® Pro (prothioconazole/tebuconazole).

2024 UNL Wheat Performance Plot Tour Highlights

The free Nebraska Extension Winter Wheat "Variety Selection Tool" is available at: https://varietytesting.unl.edu. When the 2024 Wheat Harvest begins in late June, actual new yield data will provide valuable varieties comparison.

Preliminary 2024 recommended **Irrigation** wheat varieties for fall drilling include: Westbred **WB4595** (head scab resistance behind corn); AgriPro **Bigfoot** (wheat streak tolerant);Westbred **WB4422** (wheat streak resistant); Husker Genetics = **Epoch** – replacement for Wesley; Polanske Seeds **Rockstar** (head scab resistance behind corn) **;** and Limagrain Cereal Seeds = **Steel AX** (needs fungicide due to susceptible to stripe rust).

Overcoming High Temps Impacting Herbicides

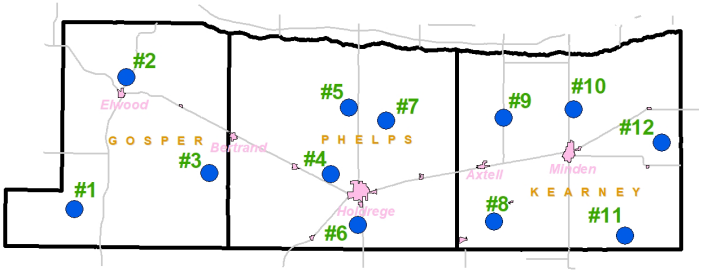
Overcome heat stress reducing herbicide effectiveness by: First, apply systemic herbicides (glyphosate; Select®; and Assure®) in the early morning. Second, avoid applying Group 4 phenoxy products like dicamba and 2,4-D when temperatures are above 90°F due to potential volatility. And, finally, use maximum labelled herbicide & surfactant rates. Spraying during the cooler parts of day will reduce weeds altering leaf angle.

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 3 – June 9		June 10 – June 16	
Site	Reference ET	Rain	Reference ET	Rain
1	1.80	0.36	2.20	0.70
2	1.60	0.41	1.90	0.65
3	1.90	0.18	2.10	0.74
4	1.70	0.10	2.30	0.27
5	1.50	0.86	2.20	0.65
6	1.70	0.10	2.10	0.50
7	1.70	0.78	2.20	0.28
8	1.70	1.08	1.80	1.80
9	2.00	0.69	2.20	0.56
10	1.80	1.54	2.00	0.98
11	1.70	1.00	2.20	1.00
12	1.50	0.76	1.90	1.20



2024 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 stage to V12-12 Leaf stage): Demand for nutrients and water are increasing due to increased growth rate. Moisture and nutrient deficiencies at V10-V11 will influence ear development markedly.

Avg. daily water use from June 10 – June 16 was 0.05"-0.29".

Soybeans (V2-2nd Node to V4-4th Node stage): Nodules pink or red inside are active in nitrogen fixation. White, brown, or green nodules are not efficiently fixing nitrogen and are probably parasitic on the plant.

Avg. daily water use from June 10 – June 16 was 0.10"-0.21".

June 10-June 16 (12 of 12 TBAWMN sites reporting): Avg weekly rainfall was 0.78 (range 0.27 to 1.80). Avg weekly ET for corn was 1.22 and for soybeans was 1.12.

Crop ET Information

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

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

Texting: TBNRD: 308-995-6688 or UNL: 308-995-4222

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.
V10	10 Leaves	
V14	14 Leaves	

SOYBEAN STAGE		DESCRIPTION
V2	Second Node	V2 has 2 nodes on main stem, each with a trifoliate leaf with unfolded leaflets. Plant as 3 nodes total: 1 unifoliate + 2 trifoliates
V(N)	Nth Node	V(N) has N nodes on main stem, each with a trifoliate leaf with unfolded leaflets. Plant as (N+1) nodes total: 1 unifoliate + (N) trifoliates
R1	Beginning Bloom	At least one open flower is present at any main stem node.

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 20, 2024, 8:00 AM	*1 Year Ago*
El. & Cap. – Lake McConaughy	**3239.4 ft - 61.6%**	**3234.0 ft - NA%**
Inflows to Lake McConaughy	**716 cfs**	**868 cfs**
Flows on the North Platte at North Platte	**1140 cfs**	**308 cfs**
Flows on the South Platte at North Platte	**525 cfs**	**6500 cfs**
Flows on the Platte at Kearney	**1960 cfs**	**3070 cfs**

Make *TODAY* so *AWESOME* that *YESTERDAY* gets *JEALOUS* and *TOMORROW* can't *WAIT.*

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/*
K-State SDI Website	*www.ksre.ksu.edu/sdi*
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 6 – June 19	May 1 – June 19
Elwood 1.81 mi. NW:	**0.78**	**6.72**
Loomis 0.2 mi. SW:	**0.82**	**6.67**
Holdrege 1.7 mi. W:	**0.76**	**6.75**
Minden 7.2 mi. W:	**1.79**	**5.67**
Minden 5.8 mi. E:	**2.31**	**6.01**

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 United States Department of Agriculture
Natural Resources Conservation Service

USDA - Natural Resources Conservation Service

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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

CENTRAL Nebraska Public Power and Irrigation District

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

Tri-Basin Natural Resources District

Tri-Basin Natural Resources District

1723 Burlington Street
Holdrege, NE 68949
308-955-6688

Nebraska Extension

N EXTENSION

1308 2nd Street
Holdrege, NE 68949

308-995-4222

PO Box 146
Elwood, NE 68937

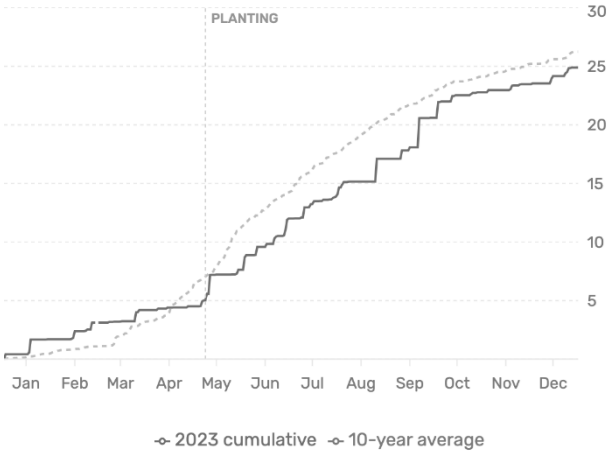
308-785-2390

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

Impact of Pivot Bio PROVEN® 40 at Three Nitrogen Rates on Corn

Study ID: 0064099202301
County: Kearney
Soil Type: Holdrege 3-6% slopes; Hobbs
Planting Date: 5/8/23
Harvest Date: 10/17/2023
Seeding Rate: 32,000
Row Spacing (in): 30
Hybrid: Channel® 214-22STXRIB
Reps: 4
Previous Crop: Corn
Tillage: Strip-till
Herbicides: ***Pre:*** 2 qt/ac Fulltime® and 2/3 pt/ac 2,4-D 6 LVE on 4/17/23 ***Post:*** 2.5 qt/ac Acuron®, 32 oz/ac Roundup® Ultra MAX and 5 oz/ac Status® on 5/30/23
Foliar Insecticides: None
Foliar Fungicides: Fungicide applied by plane on 7/20/23

Fertilizer: 100 lb/ac 11-52-0 broadcast March 2023; 4 gal/ac 10-34-0 applied in-furrow at planting; 32% UAN sidedressed on 6/9/23; 25 lb N/ac applied through fertigation on 7/3/23 and 7/21/23
Irrigation: Pivot, Total: 10”
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. Both the Pivot Bio PROVEN® 40 treatment and check were evaluated at three sidedress nitrogen rates, 90 lb/ac, 130 lb/ac, and 170 lb/ac applied as 32% UAN on June 9. All treatments also received 65 lb N/ac from 11-52-0 in March, 10-34-0 starter at planting, and two fertigation applications of 25 lb N/ac as 32% UAN.

Results:

	Stand Count (plants/ac)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
155 lb N/ac – No Pivot Bio	32,375 A*	249 A	1,354 A
155 lb N/ac – Pivot Bio	32,000 A	259 A	1,382 A
195 lb N/ac – No Pivot Bio	31,875 A	256 A	1,373 A
195 lb N/ac – Pivot Bio	31,875 A	249 A	1,319 A
235 lb N/ac – No Pivot Bio	31,625 A	259 A	1,367 A
235 lb N/ac – Pivot Bio	30,875 A	260 A	1,362 A
P-Value	0.727	0.628	0.890

*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 $5.91/bu corn, $0.67/lb N, and $26/ac for Pivot Bio PROVEN®.

Summary: There were no differences in stand count, yield, or net return between the with and without Pivot Bio PROVEN® 40 treatment or the N rates evaluated. The lowest N rate of 155 lb N/ac yielded as well as the highest N rate of 235 lb N/ac.