

PROGRAM INFORMATION

EQIP: 2023 APPLICATIONS CONTINUE TO BE PRE-APPROVED AS FUNDS BECOME AVAILABLE.

CSP: 2023 APPLICATIONS CONTINUE TO BE PRE-APPROVED AS FUNDS BECOME AVAILABLE.

NSWCP: FOR IRRIGATION PRACTICES, HAVE YOUR APPLICATION COMPLETE BY AUGUST 31ST FOR FIRST CHANCE AT 2024 FUNDS. APPLICATIONS MUST BE SIGNED BY THE OWNER.

ENERGY EFFICIENCY GRANT: NEXT SIGN-UP DEADLINE IS SEPTEMBER 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

JULY 23-26: PHELPS COUNTY FAIR

JULY 27-29: GOSPER COUNTY FAIR

JULY 28-30: KEARNEY COUNTY FAIR

AUG 7: CNPPID BOARD OF DIRECTORS MEETING

AUG 8: TBNRD ANNUAL TOUR AND BOARD MEETING

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

Ultrasonic Flow Meter Measurements Are Available!!!

The ultrasonic flow meter can be used to determine how much water your well is pumping, how much water is going into your irrigation system, how much water you are losing from leaky gates and gaskets, how much water you are applying to your field, or it can be used as a check against your permanently installed flow meter.

If you wish to request an ultrasonic flow meter measurement, you can contact Curtis Scheele, NRCS, at 308-995-6121, Ext. 3 OR Nolan Little, TBNRD, at 308-995-6688 to schedule an appointment.



CURTIS'S COLUMN



How Does Curtis Use the Calculator?

This year, nitrogen has been my focus. Prior newsletters introduced you to the UNL Corn Nitrogen Calculator which I have referred to as the Calculator. In the last issue, I wrote about the Realistic Yield Goal. In this issue, I am going to talk about how I have used the Calculator to come up with nitrogen recommendations and adjustments I may need to make.

Before I start, I just want to mention that no tool is perfect each and every year. As mentioned in the last issue, there are many variables that affect yield year in and year out such as weather, hybrid, population, fertilizer and irrigation mgt., pests, crop rotation, tillage, soil, etc. Don't be quick to blame it on nitrogen unless you have good comparisons in the same year that truly tell the tale.

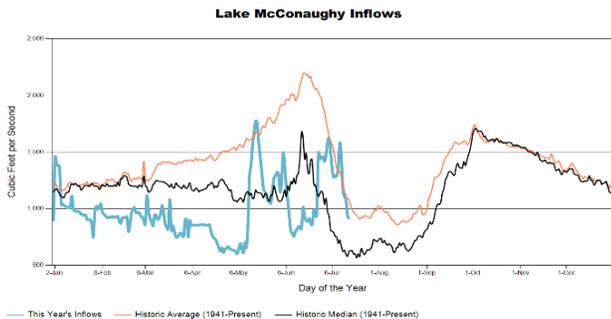
See attachment showing how I have used the calculator. I will add that there are two things I do not do on the calculator. They are on lines 8 & 9 shown on the attachment. 1. I make no adjustments to nitrogen recommendations for pricing. The crop needs so much nitrogen. Corn doesn't change how much nitrogen it needs based on whether it's \$6.00 corn or \$4.00 corn. 2. I also do not adjust the nitrogen recommendation for fall, preplant or split applied nitrogen. Again, the crop needs so much nitrogen. All three of these timing scenarios seem to increase the unadjusted rate which from what I have seen is unnecessary in the results. We all know fall asks for more nitrogen simply for off season losses. Pre-plant is better and split is the best. But again, all end up with higher recommendations than what I think is necessary. The other thing, these adjustments allow us to justify what we are applying which may be more than needed. We should all strive towards split applications and applying nitrogen as the crop needs it rather than dumping it on early, only to lose it, and then having to add additional nitrogen. We should try and save money while at the same time, clean up our high nitrate groundwater.

For our TAPS program at the WCREEC in North Platte, we have competed with an SDI system the last 4 years. During those 4 years, we generally selected the highest nitrogen recommendation from the varying soil samples. See attached sample to see what I mean. This year we are in the pivot competition, but using what we learned with SDI, we have tweaked our program to 15 lbs of N less than the highest recommendation. This is 1-3 lbs higher than the lowest recommendations. We will add a little at Blister or Milk stage if we feel like we need more. We continue to learn. We could have averaged the soil samples or picked one of the lower recommendation's but we chose to go 15 lbs less than the higher. At least we have this Calculator to keep all the data entry and the results consistent. That is key when learning and adjusting our nitrogen program year in and year out.

Remember this is a tool for nitrogen recommendations. It's not perfect as mentioned above. But it is a consistent tool that you can learn from over time to fine tune your nitrogen program. I have mentioned this in earlier newsletter issues that all farms are treated differently and that every field is its own demo field. Learn from your own fields while using this consistent tool. Over time, you should start seeing where your nitrogen recommendations fit into your program. In the end, you might save money while also making efforts to clean up the high nitrates in our groundwater.

South Platte River Flows

Central irrigation releases from Lake McConaughy are expected to be significantly below average for the 2023 season. Heavy rainfall and melting of the snowpack in the South Platte River Basin have allowed Central to divert river flows for irrigation deliveries, rather than releasing storage water from Lake McConaughy. Relief from the South Platte River has allowed Lake McConaughy to slightly rise (even with mostly below average inflows) this summer when typically, it is on a decline this time of year. The graph below shows this year's inflows into Lake McConaughy compared to the historic average/median. Additionally, South Platte River excess flows since late May has allowed Central to deliver ground water recharge totaling over 15,000 acre/feet!!



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

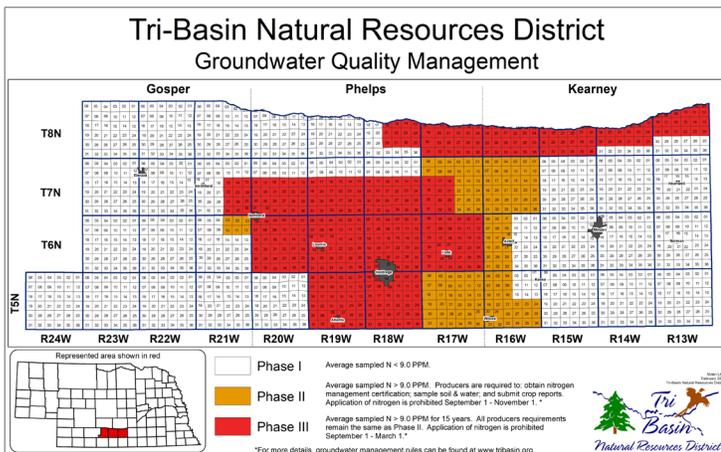
TRI-BASIN NRD NEWS



Time to Take a Water Sample

If you have a field in Phase II or Phase III Groundwater Quality Management Area (map below), you are required to sample your irrigation water and test it for nitrates every year. It is important to collect the water samples once you start irrigating. Take the sample after the well has been running for a while, so you have accurate results.

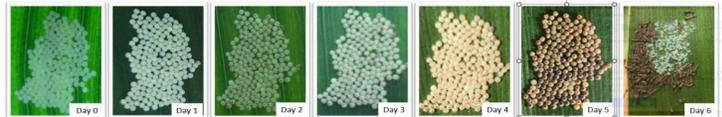
The results from the samples you take this irrigation season will be used in nitrogen planning for next year's crop and reported on your 2024 Nitrogen Management Crop Report. Sample bottles are available at Tri-Basin NRD or NRCS offices.



Western Bean Cutworm Update

According to Julie Peterson, UNL Extension Entomologist, the 2023 Western Bean Cutworm (WBC) flight timeline is similar to 2021-22 with slightly later flights at North Platte. Based on GDD's (Growing Degree Days), 50% of the WBC flight will be completed by July 20th at Holdrege. Full online blacklight trap Western Bean Cutworm & Army Cutworm data for North Platte: <https://entomology.unl.edu/agroecosystems/black-light-trap-data>

Insecticide treatment for WBC should be applied when 95% of the plants in a field have tasseled. If larvae have already moved into the ears, the husks will protect the insects from insecticide treatments. For non Bt (VIP3A) WBC resistant corn hybrids, economic insecticide application thresholds occur when 5-8% of the corn plants have egg masses or larvae.



Western bean cutworm eggs start out white (Day 1), then turn cream, tan, and finally purple (Day 6) right before the young larvae hatch out.

Labelled insecticides include: Carbamates (Sevin), spinosyns (Spinosad®); methoxyfenoxydes (Intrepid®); diamides (Prevathon® and the new formulation Vantacor®); indoxacarb (Steward®); and many pyrethroids. Prevathon and Steward are better for beneficials like lady beetles & lacewings. Registered insecticides, rates, preharvest intervals & grazing restrictions available in Nebraska Extension Guide for Weed, Disease, and Insect Management in Nebraska (EC 130)

<https://go.unl.edu/2023weedguide>

Password: PesticideSafety2023

Corn Fungicide Applications

The single best time to apply a fungicide to corn for gray leaf spot disease control is from corn growth stage VT to R1. Gray leaf spot cause rectangular lesions that are 1-2 inches long and cover the entire area between the leaf veins.

Southern rust scouting generally begins slightly later in the growing season (2nd - 3rd week of July). Pustules appear on the upper leaf surface (unlike common rust which can be found on either side of the leaf). Pustules will be scattered with spores being an orange color and will rub off on your fingers or clothes.

A VT-R1 fungicide application may provide some southern rust suppression, but usually foliar fungicides applied R2 to R5 are more effective for susceptible hybrids when disease pressure is high. Multi-year fungicide efficacy research is available at:

https://cropprotectionnetwork.s3.amazonaws.com/cpn2011_fungicideefficacycontrolcomdiseases_2023-1684787227.pdf

Nebraska Tar Spot Update

Tar spot is a new destructive corn disease which began in 2020 spreading west from Iowa into Nebraska. To date, this disease has been documented in Nebraska as far west as York, Saline, Howard and Gage counties. A nation-wide disease progress map is available at: <https://corn.ipmpipe.org/tarspot/>

When scouting for Tar spot in corn, look in the lower leaves canopy around vegetative leaves 4 or 5. Insect frac may also look like black spots on leaves, but the frac can be rubbed off leaves with a fingernail or removed with spital. Tar spot black spores become imbedded in the corn leaves and cannot be rubbed off. If you suspect tar spot spores in your fields, please contact Tamra Jackson-Ziems, UNL Plant Pathologist, under Our People / Staff at: <https://plantpathology.unl.edu>

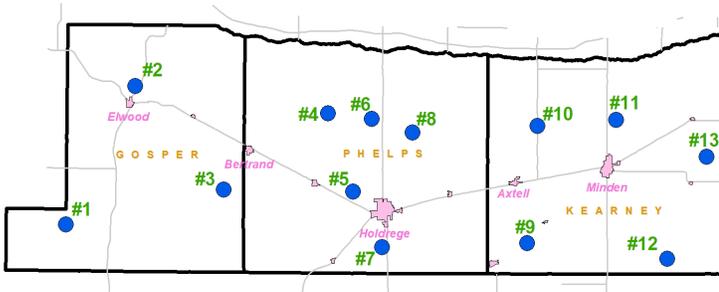
NAWMN CROP ET INFORMATION

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

Inches of Crop Water Use (ET) =

Evaporation x Kc

Site	July 3 – July 9		July 10 – July 16	
	Evaporation	Rain	Evaporation	Rain
1	1.50	0.13	1.70	1.48
2	1.30	0.12	1.60	1.83
3	1.20	0.20	1.50	1.40
4	NA	NA	NA	NA
5	1.20	0.06	1.40	1.64
6	1.20	0.03	1.20	0.61
7	1.10	0.20	1.40	1.70
8	1.40	0.07	1.30	0.71
9	1.20	0.07	1.30	2.09
10	1.20	0.11	1.40	1.28
11	1.20	0.07	1.50	1.05
12	1.45	0.13	1.55	1.43
13	1.30	0.20	1.30	0.70



2023 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 (V10-10 Leaf to R1-Silking stage): We are at the peak water use stage of corn, R1-Silking. Nitrogen and Phosphorous uptake is rapid. Environmental stress at this time can greatly reduce yield.

Avg. daily water use from July 10 – July 16 was 0.12"-0.27".

Soybeans (V8-8th Node to R2-Full Bloom stage): Environmental stress from R3-Beginning Pod through R6-Full Seed will reduce yield more than any other time. R4-Full Pod is the most crucial period.

Avg. daily water use from July 10 – July 16 was 0.15"-0.27".

July 10-July 16 (12 of 13 NAWMN sites reporting): Average weekly rainfall was 1.33 (range 0.61 to 2.09). Average weekly ET for corn was 1.49 and for soybeans was 1.43.

CROP ET INFORMATION

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

TBNRD: <https://www.tribasinrdr.org/tbawmn>

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

Texting (Daily): Sasha @ TBNRD: 308-995-6688

Email (Weekly): Curtis @ NRCS: 308-995-6121, Ext. 3

CORN STAGE		DESCRIPTION
V16	16 Leaves	Leaf stage is defined by number of leaves with collars. The collar is a discolored line where the leaf meets the stalk. This line circles the stalk. After V6-6 Leaf, lower leaves will be lost.
R1	Silking	Begins when any silks are visible outside the husks.
R2	Blister	The kernels are white on the outside and resemble a blister. The cob should be at or near full size by R2. The silks are beginning to dry out and darken in color.

SOYBEAN STAGE		DESCRIPTION
R1	Beg 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.
R3	Beg Pod	At least one pod of 3/16" length is present at any one of the four upper most main stem nodes that have a fully developed leaf. It is not uncommon to see pods of greater length at the lower nodes.

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>.

	July 20, 2023, 8:00 AM	1 Year Ago
El. & Cap. – Lake McConaughy	3235.6 ft - 56.9%	3230.6 ft - NA%
Inflows to Lake McConaughy	787 cfs	195 cfs
Flows on the North Platte at North Platte	342 cfs	1320 cfs
Flows on the South Platte at North Platte	852 cfs	72 cfs
Flows on the Platte at Overton	1680 cfs	206 cfs

Very soon nations will understand that in reality, WATER is the most expensive natural resource for their survivals. Not Middle East oil neither African gold.
- M. F. Moonzajer

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/cropwatch.unl.edu
 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:	July 6 – July 19	May 1 – July 19
Elwood 1.81 mi. NW:	1.91	10.02
Loomis 0.2 mi. SW:	1.75	11.79
Holdrege 1.7 mi. W:	1.55	9.82
Minden 7.2 mi. W:	1.38	8.24
Minden 5.8 mi. E:	1.04	8.21

Average Rain for May-July in Holdrege = 11.32 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

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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UNL Corn Nitrogen Calculator

Curtis's Sample Use

See other side for Line number explanations

Enter each soil sample into each column.

Enter short names in the column headers below (#1 to #4)

Enter field-specific information in columns E to H				Top	Middle	Bottom		
1	Yield goal	5-yr avg. yield + 5-10%	bu/acre	250	250	250		
2	Soil texture			Med./Fine	Med./Fine	Med./Fine		
3	Soil organic matter (OM)	in 0-8" depth	%	2.3	1.9	2.2		
4	Soil test nitrate-N	Effective rooting depth	inches	48	48	48		
		Soil layers sampled	no.	2 Layers	2 Layers	2 Layers		
		Layer 1 bottom	inches	8	8	8		
		Layer 2 bottom	inches	36	36	36		
		Layer 3 bottom	inches					
		<i>select nitrate unit in box</i> ppm	Layer 1 nitrate	ppm	7.0	5.4	7.4	
		Layer 2 nitrate	ppm	2.9	2.8	2.8		
	Layer 3 nitrate	ppm						
5	Previous crop			02 Soybean	02 Soybean	02 Soybean		
6	Irrigation	Water amount	inches	9	9	9		
		Water nitrate-N	ppm	10.2	10.2	10.2		
7	Manure	Type						
		Terms (unit for application)						
		Amount (tons or 1000 gal/acre)						
		Ammonium N	lb/unit					
		Organic N	lb/unit					
		Year applied						
	Application method							
8	Nitrogen management program							
9	Expected corn value		\$/bu					
10	N applied since harvest		lb/acre					
<i>do not enter anything below</i>								
UNL N recommendation				Top	Middle	Bottom	0	
A	N algorithm components	Crop N requirement	lb/acre	335	335	335	Yield goal?	
		SOM credit	lb/acre	81	67	77	OM?	
		Soil nitrate-N credit	lb/acre	29	26	29	Depth?	
		Legume N credit	lb/acre	45	45	45	Prev. crop?	
		Irrigation N credit	lb/acre	21	21	21	Water?	
		Manure N credit	lb/acre	Manure?	Manure?	Manure?	Manure?	
B	Recom. N amount (unadjusted)		lb/acre	160	177	163	#VALUE!	
C	Average nitrogen price		\$/lb N	N progr.?	N progr.?	N progr.?	N progr.?	
D	Corn price : N price ratio			Corn price?	Corn price?	Corn price?	Corn price?	
E	Recom. N amount (adjusted for time and prices)		lb/acre	#N/A	#N/A	#N/A	#N/A	
F	Total N application cost		\$/acre	#N/A	#N/A	#N/A	#N/A	
G	Total cost of N fertilizer + N application		\$/acre	#N/A	#N/A	#N/A	#N/A	

Line 3: OM

Soil	Organic Matter	Nitrogen
g	LOI-%	ppm
E	2.3	7
		2
E	1.9	5
		2
E	2.2	7

Line 4: Soil Nitrates

Nitrate	KCl	Depth
%	Nitrate ppm N	Nitrate Lbs N/A
		0 - 8 in
	7.0	17
		8 - 36 in
	2.9	25
		0 - 8 in
	5.4	13
		8 - 36 in
	2.8	23
		0 - 8 in
	7.4	18
		8 - 36 in
	2.8	23

Line 6: Irrigation

Nitrate, NO ₃ -N	Nitrate, NO ₃ -N	Soil
ppm N	lbs / Acre	9 inch
10.2	20.4	
10.2	20.4	

UNL Corn Nitrogen Calculator

Curtis's Sample Use

See other side for the sample Nitrogen Calculator

Line 1 (Yield Goal): Enter your Realistic Yield Goal of a 5-year proven yield average plus 5%. Toss out extreme years. As you use this year in and year out, keep track of your results to see if you really need to enter a 5 year average plus 5%. My recent findings indicate that we may be entering to high of Realistic Yield Goal.

Line 2 (Soil Texture): Select 1 of 2 options from the dropdown menu to best define the soil in your fields, either med/fine or sandy.

Line 3 (Soil Organic Matter (OM)): Enter the soil OM from your soil sample.

Line 4 (Soil Test Nitrate-N):

(Effective Root Depth): Enter 48 inches as per the Calculator instructions.

(Soil Layers Sampled): Select from the dropdown menu the number of layers sampled. See soil sample report. Ex. Select 2 layers if your soil sample has a 0-8 inch sample and an 8-36 inch sample.

(Layer 1, 2, or 3 Bottom): Enter the bottom inches of each soil sample. See your soil sample report.

Ex. 2 samples – a 0-8 inch sample and an 8-36 inch sample. Enter 8 inches for Layer 1 bottom and enter 36 inches for the Layer 2 bottom. Leave Layer 3 bottom blank if there is no 3rd soil sample.

(Layer 1, 2, or 3 Nitrate): Enter the ppm nitrates in your soil samples. See your soil sample report.

Ex. 2 samples – a 0-8 inch sample and an 8-36 inch sample. Enter the ppm nitrates for the 8 inch sample on Layer 1 nitrate and the ppm nitrates for the 36 inch sample on Layer 2 nitrate. Leave Layer 3 nitrate blank if there is no 3rd soil sample.

Side Note: The yellow cell left of the Layer 1 nitrate cell has a dropdown menu that will allow you to change nitrate units from ppm to lbs/ac. Make sure you are using the proper units from the nitrate numbers you are entering off your soil sample report. Your report may have both ppm and lbs/ac for each soil sample. This can really mess up your recommendation if you don't get these entered correctly.

Line 5 (Previous Crop): Select from the dropdown menu the prior year's crop.

Line 6 (Irrigation):

(Water Amount): If you know what your average annual water pumped in inches is, multiply that by 80%.

Enter that result into the cell. This is figuring 80% of irrigation gets us to the corn's milk stage as per the Calculator instructions. If in doubt, the Calculator says to use 9 inches in Central Nebraska. In the Tri-Basin NRD, you can enter 6.5 inches if in doubt of what your own irrigation records are pumping annually. The 6.5 inches is based off flow meter records across the NRD over the last 20 years.

(Water Nitrate-N): From your irrigation well water samples, enter the ppm of nitrate-N in your water. See your water sample report.

Line 7 (Manure): If you apply manure, enter the appropriate information on these lines.

Lines 8 & 9 (Program and Corn Value): I do not use.

Line A (N algorithm components): Shows your crop needs and the nitrogen credits.

Line B (Recom. N amount (unadjusted)): This is your nitrogen recommendation in lbs/acre for each sample you entered.

Lines C, D, E, F, and G: I do not use.