Tri-Basin Irrigator

Volume 21, Issue 10 **September 18, 2025**

Program Information

EQIP: **Sign-up by November 21, 2025 for 2026 funds. Get in and get signed up before harvest in case it's a lengthy one. If signing up after the cutoff, you are looking at 2027 funds with installation starting in fall of 2027. Yes, 2 years from now. It can be that far down the road.**

CSP: **Sign-up by November 21, 2025 for 2026 funds.**

NSWCP: **Flow meters and non-irrigation applications are approved monthly. Applications must be signed by the owner. No work can be done on the project prior to approval. Tri-Basin NRD Board meets on the 3rd Wednesday's of the month.**

ENERGY EFFICIENCY GRANT: **Applications for 2026 funds will start being taken on October 1, 2025. Contact Jolene at Rural Development at the Kearney USDA Service Center at 308-455-9840 or at *jolene.jones@usda.gov*.**

Calendar of Events

Oct 6: CNPPID Board of Directors Meeting
Oct 13: Columbus Day – Gov't offices closed
Oct 15: TBNRD Board Meeting
Nov 11: 4th Annual Central Nebraska Regenerative Ag Conference @ Phelps County Ag Center. For more info, goto *https://www.cccneb.edu/agconference*.

Nebraska AgrAbility!!!

Success in Agriculture for Nebraskans with Disabilities and their Families!

Nebraska AgrAbility is a program that helps individuals overcome barriers in order for them to continue their profession in agriculture. The program helps modify farm and ranch operations, adapts equipment to facilitate the disability, increase farmstead accessibility, provides financial counseling, identifies funding sources to help fund some of these items, and it coordinates community services.

Those who can use AgrAbility are those with disabilities resulting from on or off farm injuries, illnesses, health problems, etc. Older farmers experience decreased sight or hearing or a loss of strength. It can help those with increased disability costs that may limit the farm or ranch families ability to manage financially.

Nebraska AgrAbility is a partnership of the University of Nebraska-Lincoln Extension and the Easter Seals Nebraska. For more information, you can go to the following website: *https://agrability.unl.edu/*. The website provides some success stories that show examples of how others have utilized this program. It also provides contact information. One piece of contact info is by calling them at 1-800-471-6425.

Curtis's Column

End of Year Soil Moisture Sensor Evaluation

An attachment to this newsletter show a few soil moisture sensor charts. My goal with the attachment is to show you some things about sensor charts to compare with your own 2025 charts. Most charts on the attachment are summary charts. I highly recommend you review page 2 of the attachment as I dug in deeper into the individual sensors at various depths. Looking at the various depths and what is going on can tell you more than what the summary chart.alone is saying. Look at both for scheduling irrigations.

Some sensor companies go to 4 feet and some barely tap into the 3rd foot zone. I have heard more talk this year about crops taking most of the moisture in the top two feet so no reason to go any deeper. I don't disagree with most moisture is drawn from the top two feet. However, I do believe that having sensors at the 3rd and 4th foot can tell us a lot in how we are managing our irrigations. Crops do root down and take moisture from the 3-4 feet levels, especially across the Tri-Basin NRD with our deep good silt loam soils. If we can manage our irrigations to where we can tap into the 3rd and 4th foot over the course of the year, we will be in good shape.

We also need to make room in the top foot for rain. This is free moisture. We don't want to keep it so full that we lose valuable nitrogen due to leaching into our groundwater. Of course that just means fertigate more nitrogen and more water. More money. Erosion from runoff can also be a problem by not leaving room for rainfall in the top foot.

There is a balancing act of managing all this. That is where the soil moisture sensors come in real handy. It will take a year or two to get used to them and know what they are telling you. Watch them throughout the year and see what they do when it rains or when you irrigate. And quiz your dealer. They are there to help.

For now, look at your own 2025 charts and compare to the charts on the attachment while things are fresh in your mind.

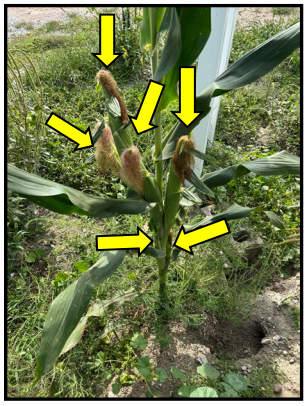
If you have any questions, you can call Curtis Scheele at 308-995-6121, Ext. 3 or email him at *curtis.scheele@usda.gov*.

FINAL Tri-Basin Irrigator for 2025!!!

Another season of the Tri-Basin Irrigator has come to an end. In closing, I hope you received helpful information during this past irrigation season. For 2026, if you would like to receive this newsletter via email, call me at 308-995-6121, Ext. 3 or email me at *curtis.scheele@usda.gov*.

Thank You for receiving the Tri-Basin Irrigator! Until next season, may you be blessed with life's simple little pleasures!!!

6 ears of corn on 1 corn stalk.



CNPPID Notes

Central Irrigation Staff Needs Your Help!

Central is asking for your help during our maintenance season. Moving a fence after it's up is no fun, especially during the winter months!

We're asking that neighbors be mindful of fencing on Central property, so we don't have to ask them to move fence while we do our work. We do understand that it is convenient for some folks to use our maintenance roads along their fields to place electric fence. However, it becomes more work and frustration for everyone if a fence needs to be moved or if repairs are needed to the canal roads and banks caused by cattle.

So, we're asking that folks are cognizant about fencing and keep fences and cattle off the maintenance roads and out of the canals. We would also like to remind those with pivot crossing permits that they are responsible for filling in the pivot tracks.

We appreciate your help and hope you have a safe and bountiful harvest this year!

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

Tri-Basin NRD News

Conservation Tree Planting:

Now is the time to start thinking about planting conservation trees next spring! Windbreaks and shelterbelts provide many benefits, including reducing soil erosion along field boundaries. We can provide tree planting services for your windbreak, as well as bundles of trees that you can plant yourself. Contact Tri-Basin NRD or your local NRCS office to decide the type and number of trees and shrubs you will need. Cost share is available to landowners planting a minimum of 550 feet. The form for ordering hand-plant trees will be available in November on our website, www.tribasinnrd.org.

Nebraska Extension Extras

Harvest Soybean Moisture

First, for corn, I've noticed droopy ears for several weeks now. It can be due to various environmental X genetic factors such as the high night-time temps coupled with cloudy weather both impacting photosynthesis with specific genetics. I also often observe ear droop to be associated with Fusarium crown rot. Estimated yield losses can be from 12-40% per ear (depending on if the shank pinching occurred during late or early dent, respectively). Also, scout fields for shank integrity and seek to prioritize harvest of fields with any increased risk of ear drop.

As we approach soybean harvest, perhaps a frustrating, yet important topic, is seeking to harvest soybeans as close to 13% (the elevator standard) as possible. The frustration is it seems to be such an art and luck in order to do so. For the last several years, it seems that the beans are often drier than what one realizes in spite of green stems and sometimes even leaves remaining on the beans. Test the beans for moisture earlier than you think they may be ready. There's years like last year when I didn't even bring this topic up with the hot, dry winds. Hopefully we don't have a repeat of that.

To avoid beginning harvest when the soybeans are too dry, consider beginning harvest at 14% moisture making combine adjustments and operating at slower speeds as necessary. While there is a dock of around 2.5% for the first 2 points delivering wet beans (the percentage differs by Coops), delivering soybeans much below 13% moisture reduces profits because there's fewer bushels to sell (load weight divided by 60 lbs/bu assuming 13% moisture). Selling soybeans at 8% moisture, you're losing about 5.43% yield; at 9% moisture, it's 4.4%; at 10% moisture, 3.3%; at 11% moisture, 2.25%; and at 12% moisture, it's 1.14% yield loss. That doesn't take into account additional risk for shatter losses during harvest. Only 4-5 beans on the ground can add up to a bushel/acre loss due to shatter. The following are profit examples for a field that's yielding 75 bu/ac:

- Example 1: If the grower was to sell beans at 13.8% moisture, he/she could be docked 2.5% of the selling price of $9.60/bu, reducing the actual price to $9.36 per bushel. Total income per acre would be: 75 bu/ac yield x $9.36/bu = $702 per acre gross
- Example 2: If the soybeans were harvested at 9% moisture, there would be 3.3 fewer bushels per acre to sell (4.4% of 75 bu/ac yield due to water loss): 75 bu/ac – 3.3 bu/ac =71.7 bu/ac yield x $9.60 = $688.32 per acre gross. In this example it's better to take a dockage for selling beans at 13.8% moisture than sell them at 9%. The difference is a positive gain of $13.68 per acre or around $1846.80 on a 135 acre field.
- Example 3: If the soybeans were harvested at 12% moisture, there would be 0.86 fewer bushels per acre to sell (1.14% of 75 bu/ac due to water loss): 75 bu/ac – 0.86 = 74.14 bu/ac yield X $9.60 = $711.74 per acre gross. If you can't hit 13%, it's still pretty profitable to sell them for 12% moisture compared to the other examples.

One more note, we tend to see around 1 day delay in harvest for every 0.1 difference in maturity group. Here's wishing you a safe and profitable harvest!

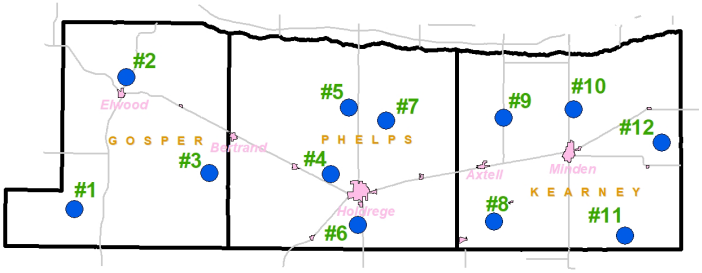
By Jenny Brhel: Nebraska Extension Educator from York, NE

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

	Sept 1 – Sept 7		Sept 8 – Sept 14	
Site	Reference ET	Rain	Reference ET	Rain
1	1.00	0.07	1.30	0.32
2	0.90	0.00	1.30	0.75
3	1.00	0.00	1.40	1.17
4	0.90	0.00	NA	NA
5	0.90	0.00	1.30	0.93
6	1.00	0.00	1.30	0.92
7	1.00	0.00	1.30	1.04
8	0.90	0.11	NA	NA
9	1.00	0.00	NA	NA
10	0.90	0.09	1.10	1.17
11	0.90	0.00	1.40	1.12
12	0.80	0.03	1.20	0.64



2025 Map of TBAWMN Sites across the Tri-Basin NRD.

Crop Coefficients (Kc)

Corn Stage	Kc	Soybeans Stage	Kc
2 leaf	0.10	Cotyledon	0.10
4 leaf	0.18	1st Node	0.20
6 leaf	0.35	2nd Node	0.40
8 leaf	0.51	3rd Node	0.60
10 leaf	0.69	Beg. Bloom	0.90
12 leaf	0.88	Full Bloom	1.00
14 leaf	1.01	Beg. Pod	1.10
16 leaf	1.10	Full Pod	1.10
Silk – Beg. Dent	1.10	Beg. Seed	1.10
¼ Milk Line	1.04	Full Seed	1.10
Full Dent (½ Milk)	0.98	Yellow Leaf	1.00
¾ Milk Line	0.79	Beg. Mat.	0.90
Black Layer	0.60	Full Mat.	0.20
Full Maturity	0.10	Mature	0.10

Crop Stage Information

Corn (R5–1/4 Milk Line to R6–Black Layer stage): Black Layer signals the end of the kernel growth for the season. Many husks and leaves are no longer green although the stalks may be. Average kernel moisture at R6 is 30-35%. 0.0 inches needed for yield at Black Layer.

Avg. daily water use from Sept 8 – Sept 14 was 0.09"-0.21".

Soybeans (R6.5-Full Seed/Yellow Leaf to R8-Full Maturity stage): Beginning Maturity is when 0.0 inches of moisture is needed for yield. Full Maturity is when 95% of the pods have reached their mature pod color.

Avg. daily water use from Sept 8 – Sept 14 was 0.03"-0.20".

Sept 8-Sept 14 (9 of 12 TBAWMN sites reporting): Avg. weekly rainfall was 2.42 (range 0.32 to 1.17). Avg. weekly ET for corn was 1.03 and for soybeans was 1.30.

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
R-5.5	Full Dent - 1/2 Milk Line	Starch line is 1/2 way down the kernel. Top 1/2 is hard and bottom 1/2 is softer near the cob.
R-5.8	3/4 Milk Line	The starch line is 3/4 the way down the kernel.
R-6	Black Layer	The starch line has advanced to the cob. Physiological Maturity. Black layer formed, kernel moisture is between 25%-35% moisture. 0.0 inches needed for yield.

SOYBEAN STAGE		DESCRIPTION
R6.5	Full seed / yellow leaf	Leaves begin to yellow, beginning in the lower canopy and progressing upwards.
R7	Beginning Maturity	At least one (normal) pod that has attained its final mature color (tan or brown, depending on variety) is present on any main stem node. 0.0 inches needed for yield.
R8	Full Maturity	95% of the pods have reached their mature pod color.

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*.

	Sept. 18, 2025, 8:00 AM	1 Year Ago
El. & Cap. – Lake McConaughy	3222.0 ft - 41.4%	3229.3 ft - NA%
Inflows to Lake McConaughy	1760 cfs	1620 cfs
Flows on the North Platte at North Platte	736 cfs	484 cfs
Flows on the South Platte at North Platte	226 cfs	110 cfs
Flows on the Platte at Kearney	540 cfs	265 cfs

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:	Sept 4 – Sept 17	May 1 – Sept 17
Elwood 1.81 mi. NW:	2.03	16.99
Loomis 0.2 mi. SW:	2.45	21.02
Holdrege 1.7 mi. W:	2.37	15.13
Minden 7.2 mi. W:	1.18	17.30
Minden 5.8 mi. E:	2.20	21.08

Average Rain for May-Sept in Holdrege = 16.38 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

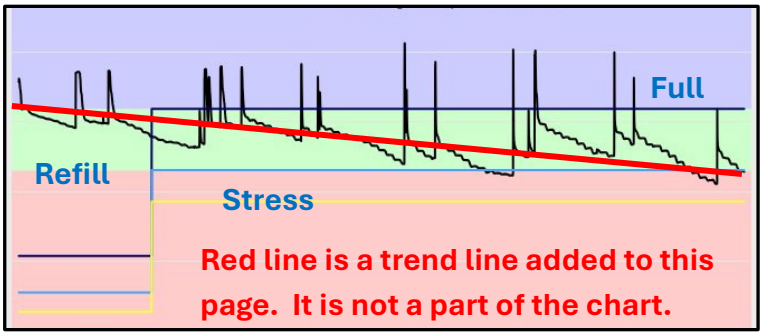
PO Box 146
Elwood, NE 68937

308-785-2390

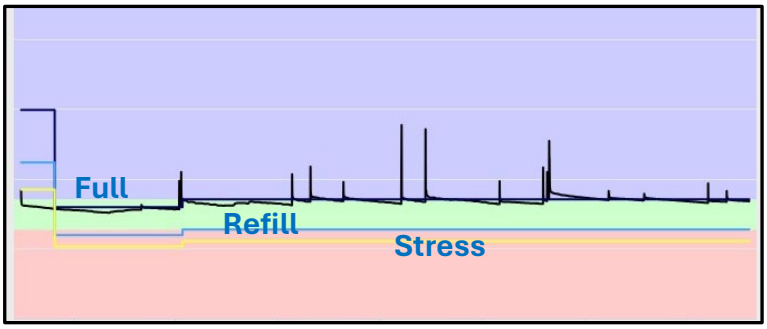
424 North Colorado
PO Box 31
Minden, NE 68959
308-832-0645

Soil Moisture Sensor Charts with Notes

On these two pages are charts from soil moisture sensors across the Tri-Basin NRD. The summary charts show one black line that represents the average soil moisture in the soil profile. The representation on these summary lines can vary by sensor company as some will average the entire profile regardless of root depth and some will average just the root depth. - Green shaded areas are irrigation areas. Companies are going to be conservative to not lose any crop so the bottom of the green areas are fine. Up spikes are additions of moisture to the profile via irrigation or rain. Stair stepping down is moisture being withdrawn from the profile with each step representing one day. - Most charts have a Full Capacity Line (100% moisture) and a Refill Line. Dealers set these Refill Lines at 80% moisture, 70% moisture, etc. Ask and know where your dealer has yours set. Have them change it to a level you want. This is your field, not there's. - I do not know if the charts below are corn or soybeans. Doesn't matter. The basics of sensor charts are the same. Both crops can utilize free soil moisture throughout the year. I simply want to show the very basics in what good and poor irrigation water management looks like. Rain can make a good irrigator look bad. - Look at your own charts from 2025 and see how they compare. You know if you irrigated or not.



The summary chart on the left shows good management of irrigation water. It has a gradual downward trend for the year. Near the end of the year, the profile is dried down to the refill line from a full profile at the beginning of the year. Free soil moisture was utilized. There is room to store off-season moisture which will help prevent leaching of valuable nitrates into the groundwater.

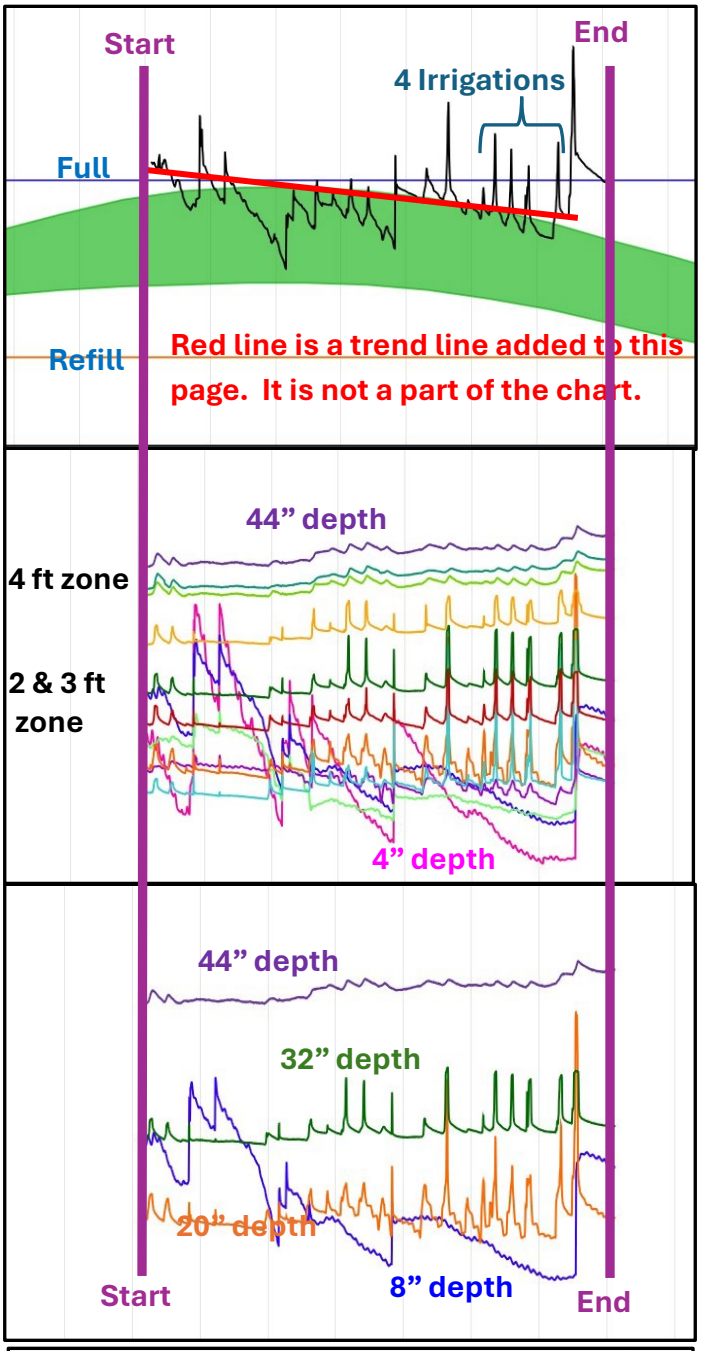


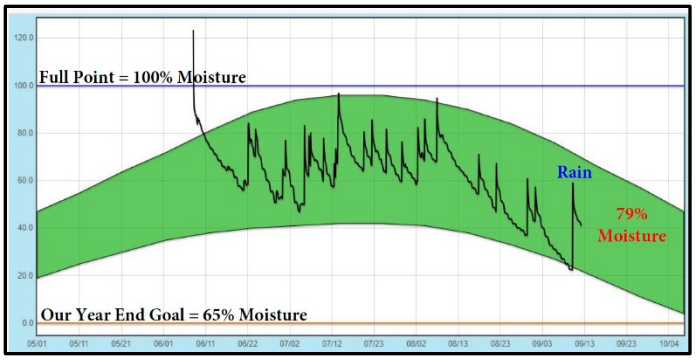
The summary chart on the left shows poor management of irrigation water. There is no utilization of free soil moisture. This profile stayed at 100% moisture all year long. There is no room for rain during the year, nor off-season moisture. Rain and off-season moisture will leach valuable nitrates to the groundwater or cause erosion from runoff. - However, if a hailed-out crop with nothing taking in moisture, then I could see this. But, if not, then poor water management.

The summary chart on the left shows poor management of irrigation water. The moisture profile at the end of the year will basically be the same as the beginning of the year. Upward trend in last half of the year indicates increasing soil moisture. In the yellow circle are three late irrigations. Assuming soybeans. Could we have used free soil moisture to save irrigation money from irrigation to nitrates being leached out?

The summary chart on the left shows good management of irrigation water. The profile was probably full to start the year. Near the end, some free soil moisture was utilized. The last irrigation could have probably put on half the water or less.

Soil Moisture Sensor Charts with Notes





The summary chart on the left relates to the two individual depth sensor charts below it. Note purple bookend lines. This sensor is on an SDI system. Most of this information can be useful for pivots as well. All the colored sensor lines in the second and third charts are from 12 sensors every 4 inches going to 48 inches (4 feet) deep.

- A positive here, we are ending the year with less soil moisture than what we started with based on irrigation water mgt. (Note the downward trend of the red trend line).
- Rain can make good irrigators look bad. The last large up spike on the far right side is a rain event that ended the year at 100% full moisture. It looks like a rain event because SDI irrigates at 14-18 inches below the soil surface. Rain comes in at the soil surface. See the 4 inch line sensor on the second chart on the far right and how it spikes up. Note all 12 depths spiked up, good rain.
- It looks like there are 4 irrigations late (2^{nd}, 3^{rd}, 4^{th}, & 5^{th} up spikes from the right side (start with top chart and follow it down through the other two charts). You can tell this from the consistency in the up spikes at the 16-36 inch sensor depths. No up spikes from rain at the shallower depths of 4, 8, & 12 inches.
- The top summary chart is a nice chart to lean on for irrigation scheduling. However, one also needs to see what all the depths are doing to really get a feel for proper irrigation scheduling. Even though the top chart has a downward trend, that doesn't tell the complete picture. To clean up the clutter from all 12 depths in the middle chart, in the third chart down, I picked the depths of 8, 20, 32, and 44 inches to represent each foot to a four-foot depth. You will notice the 8 inch depth has utilized free soil moisture, see the downward trend. The 20 inch depth is basically level which means the moisture levels didn't change from the beginning of the year to the end. The 32 inch depth has a slight trend upward meaning more water in the third foot than at the beginning of the year. Finally, the fourth foot represented by the 44 inch sensor increased, so like the third foot, it has more water at year's end than at the beginning.
- This SDI spent money adding water to the 3^{rd} and 4^{th} feet. This may have also lost money by leaching valuable nitrates to our groundwater. Basically, this system over irrigated. It could have saved money by irrigating less, letting the summary line work closer to the middle of the green irrigation area during peak use and work towards the bottom of the green by seasons end. Irrigation should have been such that the deeper depths had some downward trend, utilizing free soil moisture. The way to know this is to utilize soil moisture sensors that represent 4 feet of depth. That third and fourth foot can tell us a lot in scheduling irrigations.
- To summarize by looking at the summary chart on top, my thoughts are they let the corn grow early (downward trend to near bottom of green), increased moisture to the upper half of the green during peak use (high usage defined by a steeper down trend), caught a nice rain that brought the moisture to the top of the green area, and continued to irrigate in the latter parts of crop maturity (shown by a not-so steep down trend due to less crop usage), followed by a rain at the end.
- For an overall grade, these three charts show poor irrigation management on an SDI system. The very bottom summary chart is what I see as good irrigation water management.