

PROGRAM INFORMATION

EQIP: NATIONAL PLANS TO USE REMAINING FUNDS FOR DISASTER AND WILDLIFE PROJECTS. ADDITIONAL IRRIGATION FUNDS MAY NOT HAPPEN IN 2019.

CSTWP: 2019 APPROVED APPLICATIONS ARE BEING WRITTEN INTO CONTRACTS.

NSWCP: NEW FUNDS CAME JULY 1ST. FIRST ROUND OF IRRIGATION APPLICATIONS TO BE REVIEWED FOR APPROVAL NEEDS APPLICATIONS SIGNED BY THE OWNER BY AUG. 28TH.

ENERGY EFFICIENCY GRANT: APPLICATIONS DUE OCTOBER 31, 2019. CONTACT KELLEY AT RURAL DEVELOPMENT AT 308-455-9837 OR KELLEY.MESSENGER@USDA.GOV.

CALENDAR OF EVENTS

- AUG 5: CNPPID BOARD OF DIRECTORS MEETING 9 AM
- AUG 7: SDI 30TH ANNIVERSARY FIELD DAY AT COLBY, KS – CONTACT VICKI BROWN AT 785-462-6281 FOR MORE INFO.
- AUG 8: NO-TILL SEEDING SCHOOL AT LEBANON, KS - \$85.00 – CALL 785-820-8000 TO ENROLL. LUNCH PROVIDED.
- AUG 9-11: KEARNEY COUNTY FAIR
- AUG 13: TBNRD TOUR (AM) AND BOARD MEETING 1:30 PM
- AUG 22: WCREC FIELD DAY AT NORTH PLATTE – SEE NEBRASKA EXTENSION EXTRAS ARTICLE ON PAGE 3 FOR MORE INFO.

NO-TILL ON THE PLAINS EVENTS: GOTO [HTTP://WWW.NOTILL.ORG/UPCOMING-EVENTS](http://www.notill.org/upcoming-events) FOR MORE INFO.

- AUG 13: COMPANION CROP DEMO FIELD DAY @ TIPTON, KS
- AUG 29: COMPANION CROP DEMO FIELD DAY @ OSAGE CITY, KS
- SEPT 10: SOIL HEALTH FIELD DAY @ ALMENA, KS

Irrigation Safety!!!

Last week at Elm Creek, most of you know a 7 year old girl was electrocuted with some faulty wiring on a farm. In 2013, a Texas farmer was electrocuted while working on his center pivot. This article is a reminder of some of the dangers involved with farming or around the farming community.

Here is a quick list of hazards, but not limited to this list:

- Electrical contacts such as overhead power lines, short circuits, energized equipment, lightning, etc. Irrigation / water and electricity is a powerful combo.
- Entanglements with moving parts such as PTO shafts, gear boxes, etc.
- Chemicals/Poisons when working with chemigations, fertigations, etc.
- Falls from center pivots, slick spots around operating power units, etc.
- Drownings, especially around canals, reuse pits, etc.
- Physical damage to your body from just the nature of the job such as smashed fingers, ear damage from loud well motors, etc.

We work around this stuff all the time and it becomes a routine. Bad things happen when we have other things on our mind, we are tired, or in a hurry. **We just need to remember to take it easy and err on the side of caution.**

CURTIS'S COLUMN



Current Moisture Levels on Corn!!!

A lot of rains this year until about July 22nd. Then the faucet has been shut off. Irrigation is kicking in. We arrived at peak water use season without much irrigation if any. Now as most are in peak season and some coming out of it, where are we at across the TBNRD moisture wise? Based on the corn sensors I use for the NAWMN project, all Holdrege Silt Loam soil across the TBNRD, it appears we are at 86% moisture based on 4-foot average. What's good information for me and moving forward is knowing the top 2 feet are at 76% and the 3rd and 4th feet are at 98%. So, with the 3rd and 4th feet wet, there are three things that come to mind: 1. either the roots are not there to utilize moisture at those depths, 2. we irrigate enough to prevent utilization of the free moisture at those depths, or 3. maybe as wet as it has been this year, maybe the plants just haven't needed that moisture yet.

If the roots are not there, and don't get there, we will be irrigating with a 2-foot profile the remainder of the year. If the roots are there, then we will need to manage our top 2 feet in order to utilize the lower depth moisture. This is where soil moisture sensors to 4 feet come in real handy.

Projecting forward, from 2011 through 2018 at a 4-foot depth across the Tri-Basin NRD, we averaged ending the year at 76% moisture. That is utilizing 2.16 inches of soil moisture out of a 4-foot profile. I think a good goal is to get to 65% at the end of the season. That would mean utilizing 3.15 inches of free soil moisture out of the soil profile to a 4-foot average depth.

Attached is a chart showing the NAWMN sensors for this year. The black line is the average soil moisture level based on root depth. The other colors represent the various depths for each sensor. The chart also shows the year ending average from 2011-2018. This chart basically shows average moisture levels across the NRD as of July 29th and gives us a target to reach the goal of 65% at years end.

WCREC SDI Field Update:

I mentioned in the last newsletter an SDI field we are managing at the WCREC in North Platte. Below is the current season summary. Our roots are to 44 inches. This is a summary of moisture levels to that depth. We are at 84% on average and approaching blister stage. Green is the optimum area with the bottom of that at about 76% moisture during this peak season. The horizontal orange line at the very bottom is a refill point at the 60-65% moisture level. The projection based on the last 72 hours is we will be at the bottom of the optimum zone (76%) Sunday evening. We can't irrigate over the weekend. With the weather forecast, this projection may change due to cooler temps versus the last three days. That will extend the projection to a later date. Our plan is to hold out over the weekend. Hopefully we will catch a rain. We'll reevaluate Sunday PM and Monday AM to see if we need to irrigate Monday.





Rain Volume:

Heavy rain events can be missing one thing; wind. Storms associated with a light “steering” wind and a well-connected water source might nearly stall or move slowly and dump massive amounts of rain on the same acres for an extended time interval. If these storms develop over already saturated soils, conditions exist for flash floods and flooded fields; ditches, culverts, drains, creeks and small streams are overwhelmed with the accumulating volume of rain that is nearly 100% runoff.

The rain gauge at our Holdrege office has measured 22.11 inches of precipitation since April 1st. Using that as a decent average across the 972,160 land acres of Phelps, Kearney, & Gosper counties, we can roughly estimate these acres may have received 1,791,205 acre-feet of rain water in 4 months.

By comparison, Lake McConaughy is 3.1 miles wide and 142 feet deep at the dam, 22 miles long at full pool and stores 1,743,000 acre-feet. Our area has likely received more than a full Lake McConaughy from the sky in 4 months; a third of that coming within a 6-day period in early July.

Add to that another 14.55 inches measured at this Holdrege gauge since the water year began (September 1st – March 30th) or 1,178,744 more acre-feet across the three counties and we likely have had the equivalent of 1.7 Lake McConaughys fall as rain or snow (melted measure) since the 2018 irrigation season.

Similar precipitation totals have been seen across much of Nebraska and its 49,549,440 land acres. Flooded Kansas has 52,657,280 land acres. Our method of estimation is unreliable for all those acres, but given our tri-county math, it is safe to say many Lake McConaughy equivalents have been recorded across Nebraska and Kansas in Water Year 2019.

TRI-BASIN NRD NEWS



Irrigation Season Reminders:

Chemigation: Our staff has been busy with chemigation inspections on newly permitted systems, as well as routine inspections of renewal permits. If your systems are due for a routine inspection, you’ll receive a call from our office to schedule those.

Water Samples: Staff and our summer interns have also started taking samples from irrigation wells for our Water Quality testing program. If you have crop reports due each year, don’t forget to take water samples from your irrigation wells for those reports.

Irrigation Meters: You should periodically check your irrigation flowmeters to make sure they are working correctly. If you don’t think your meter is working correctly, our staff or Curtis Scheele at the NRCS office can check flow rates using an ultrasonic flowmeter. If you have a meter repaired during the irrigation season, note the meter reading before operating that irrigation equipment. Doing so will make it easier to reconcile any movement of the propeller while the meter was being repaired. If you have questions about reinstalling your flowmeter or about your meter readings, contact our office at 1-877-995-6688.



Soybean Mgt Field Days (4 locations) - Aug. 13-16:

The 2019 Nebraska Soybean Management Field Days locations include: Aug. 13 – Sargent; Aug. 14 – Pilger; Aug. 15 – Plymouth; and Aug. 16 – Waverly. Field days begin with free registration at 9:00 a.m. and end at 2:30 p.m. Visit: <http://enrec.unl.edu/soydays> or call Nebraska Extension at 1-800-529-8030.

WCREC Fall Field Day (North Platte) – Aug. 22:

The UNL West Central Research & Extension Center Fall Field Day at North Platte is scheduled for **Thurs., Aug. 22, 2019** the WCREC Experiment Station just south of Interstate 80 at North Platte. This free educational program will run from 9:00 a.m. until 3:30 p.m. with a free lunch provided by the over 30 sponsors.

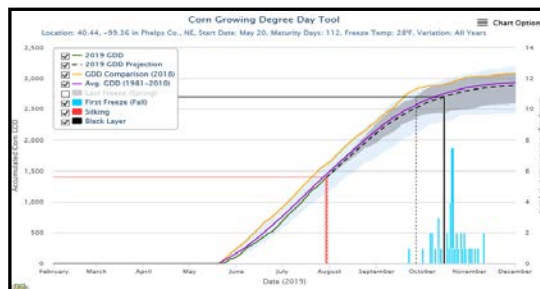
This year’s Fall Field Day will feature the new Subsurface Drip Irrigation (SDI) demonstration used for the newest TAPS (Testing Ag Performance Solutions) competitions. Eighteen teams are competing in 2019 at the WCREC using variable rate technology in sprinkler corn and sprinkler grain sorghum competitions along with the new SDI category.

Participants will have their choice of educational tracks including: Water Management; Economics; and Agronomy. Field site visits and booth demonstration topics will be: What you need to know about Subsurface Drip Irrigation; Soil Moisture Monitoring Tools; Groundwater/Surface Water Interactions; Sprinkler Placement In/Over Canopy; Irrigating Soybeans in Western NE; Increasing Farm Profitability; Best Practices in Crop Marketing; New Technology for controlling Western Bean Cutworm and Western Corn Rootworm; Soil Health Toolbox & Cover Crop Benefits; Oat/Field Pea and Winter Annual Forage Studies; Using Biological Products with Fungicide Seed Treatment to Manage Root Diseases; and Managing Herbicide Resistance.

Useful to Usable (U2U) – Corn Maturity Projection:

The Midwest Regional Climate Center provides several free online decision tools based on a 30-year historical data pool. Nebraska Extension is among the 11-states in the Midwest Region providing the Corn Growing Degree Day (GDD) decision tool. 30-year average and year-to-year comparison can be used to make decision regarding: climate risk; activity planning and/or marketing. The free online download for this Corn GDD tool is: <https://mrcc.illinois.edu/U2U/gdd/>. For county specific data, click on your Nebraska county using the MRCC state map.

Below is an illustration using this tool for a Phelps county corn field planted on May 20, 2019 with a 112 days maturity hybrid. The projected black layer full maturity (2703 GDD’s) date is Oct. 15th. Please note that the same field planted on May 20, 2018 reached black layer on Sep. 19. Further, if the planting date is moved earlier in the same to May 10th; then, projected black layer date for the same 112-days hybrid moves up to Oct. 1st.



NAWMN CROP ET INFORMATION

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

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

| Site | July 15- July 21 | | July 22 - July 28 | |
|------|------------------|------|-------------------|------|
| | Evaporation | Rain | Evaporation | Rain |
| 1 | 2.20 | 0.70 | 2.00 | 0.00 |
| 2 | 2.10 | 1.83 | 1.90 | 0.00 |
| 3 | 1.90 | 0.67 | 1.80 | 0.00 |
| 4 | 1.90 | 1.60 | 1.90 | 0.00 |
| 5 | 1.60 | 1.72 | 1.70 | 0.00 |
| 6 | 1.20 | 1.75 | 1.40 | 0.00 |
| 7 | 1.80 | 0.61 | 1.70 | 0.00 |
| 8 | 2.00 | 0.45 | 1.90 | 0.02 |
| 9 | 1.80 | 1.03 | 1.50 | 0.00 |
| 10 | 2.00 | 0.75 | 2.00 | 0.00 |
| 11 | 2.00 | 0.85 | 1.50 | 0.02 |
| 12 | 1.80 | 0.69 | 1.80 | 0.00 |
| 13 | 1.50 | 0.87 | 1.60 | 0.06 |
| 14 | 2.00 | 0.65 | 1.70 | 0.02 |
| 15 | 1.70 | 0.74 | 1.80 | 0.02 |
| 16 | 2.10 | 0.80 | 1.70 | 0.08 |

| 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 (V12-12 Leaf to R2-Blister stage): Silking is the peak water use period for corn. Moisture stress at this time causes poor pollination and seed set. The result will usually be a nubbin.

Avg. daily water use from July 22 – July 28 was 0.22"-0.31".

Soybeans (R3-Beginning Pod to R4-Full Pod stage): Demand for water and nutrients is large throughout the rapid seed filling period. Environmental stress from now til shortly after R6 (Full Seed) needs to be avoided. R4 (Full Pod) is the most crucial period.

Avg. daily water use from July 22 – July 28 was 0.22"-0.31".

July 22-July 28 (16 of 16 NAWMN sites reporting): Average weekly rainfall was 0.01 (range 0.00 to 0.08). Average weekly ET for corn was 1.89 and for soybeans was 1.87.

ET INFORMATION SITES

NAWMN Sites:

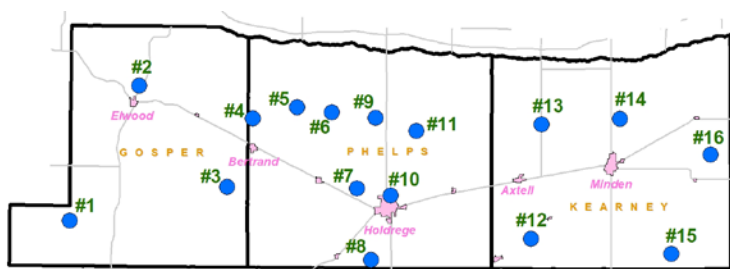
<https://www.cnppid.com/weatheret-data/nebraska-agricultural-water-management-network/>

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

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

CNPPID: <https://www.cnppid.com/weatheret-data/>

Water Use Hotline: 1-800-993-2507



2019 Map of NAWMN Sites across the Tri-Basin NRD.

| Corn Stage | | DESCRIPTION |
|---------------|----------------|---|
| R2 | Blister | The kernels are white on the outside and resemble a blister in shape. The cob should be close to, if not, full size by R2. The silks are beginning to dry out and darken in color. |
| R3 | Milk | The kernels display a yellow color on the outside. Inner fluid is milky white. Silks are brown and dry or becoming dry. |
| Soybean Stage | | DESCRIPTION |
| R3 | Beginning Pod | At least one pod 3/16" length is present at any one of the four upper most main stem nodes that have a fully developed leaf. Pods of greater length at the lower nodes is possible. |
| R4 | Full Pod | At least one pod 3/4" length is present at any one of the four upper most main stem nodes that have fully developed leaves. |
| R5 | Beginning Seed | At least one pod containing small seeds is present at one of the four uppermost main stem nodes that have fully developed leaves. A pod held up to the bright sky can see the small developing seeds in the pods. |

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>.

| | August 1, 2019, 8:00 AM | 1 Year Ago |
|---|----------------------------|------------|
| Capacity of Lake McConaughy | 89.5% | NA |
| Inflows to Lake McConaughy | 1800 cfs | 1486 cfs |
| Flows on the North Platte at North Platte | 1100 cfs | 441 cfs |
| Flows on the South Platte at North Platte | 248 cfs | 292 cfs |
| Flows on the Platte at Overton | 422 cfs | 1433 cfs |

When the power of love overcomes the love of power, the world will know peace.

- Jimi Hendrix

WEBSITES OF INTEREST

Soil Health:

www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/

Climate aqclimatenebraska.weebly.com
 NRCS Nebraska www.ne.nrcs.usda.gov
 Central Irrigation District www.cnppid.com/
 TBNRD Home Page www.tribasinrrd.org/
 Farm Service Agency www.fsa.usda.gov
 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

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 18 – July 31 | May 1 – July 31 |
|----------------------|-------------------|-----------------|
| Arapahoe 9.8 NNE: | 0.89 | 24.56 |
| Bertrand 6.1 mi. SE: | 0.88 | 23.31 |
| Holdrege 0.99 mi. E: | 0.63 | 21.95 |
| Minden 7.2 mi. W: | 0.76 | 18.66 |
| Minden 5.8 mi. E: | 0.70 | 19.45 |

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
 1005 South Brown Street
 PO Box 798
 Holdrege, NE 68949-0798
 308-995-6121, Ext. 3

309 Smith
 PO Box 41
 Elwood, NE 68937-0041
 308-785-3307, Ext. 3



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



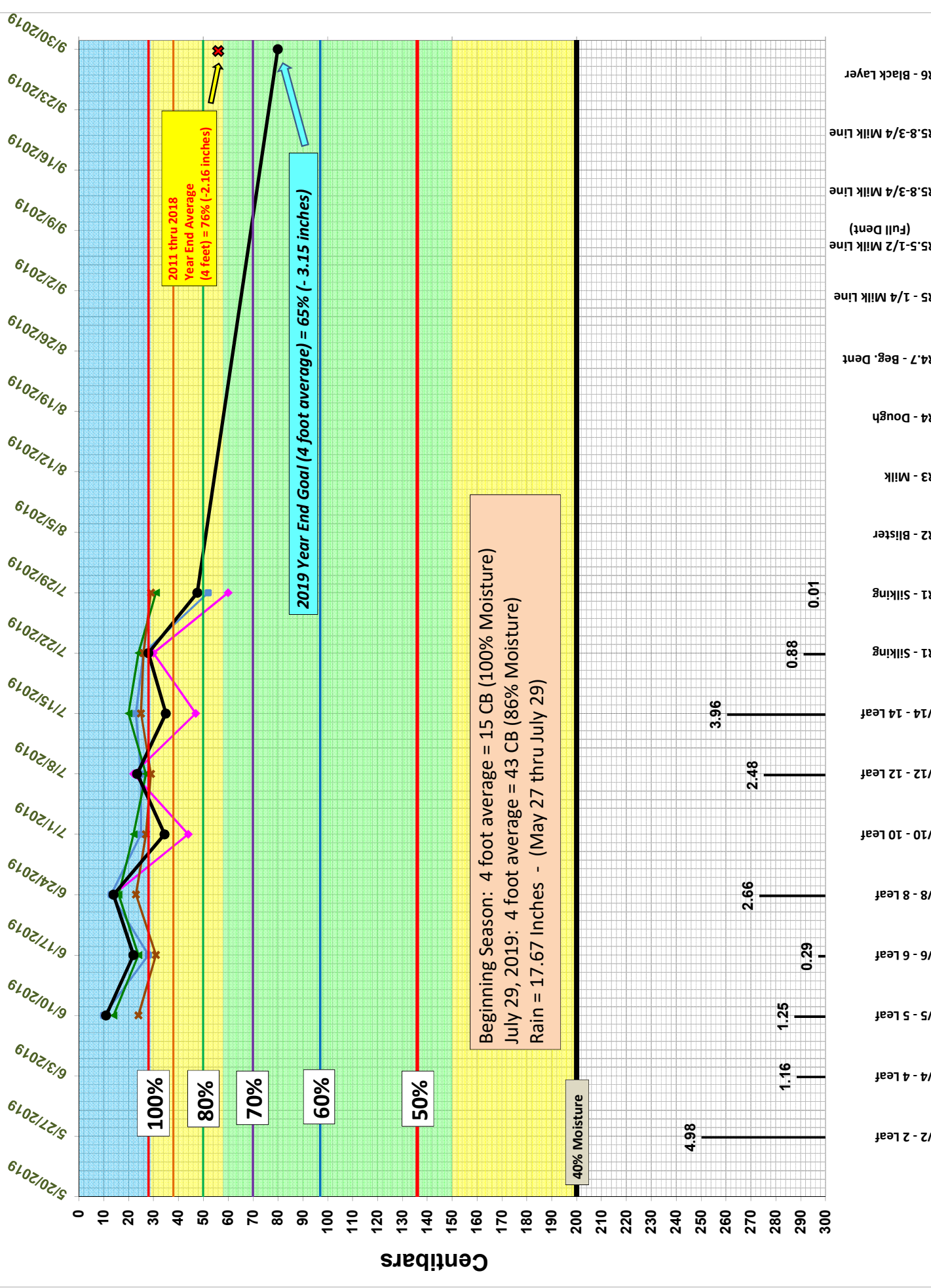
1308 2nd Street
 Holdrege, NE 68949
 308-995-4222

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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2019 Soil Moisture Sensor Averages Pivot Corn - Silt Loam - AWC = 2.25 in/ft



High Drainage Water Zone
Rain, Week Ending Inches: 4 ft (black line with diamond), 70% Moisture (purple line)

Rain Storage Water Zone
Irrigation, Inches: 2 ft (blue line with square), Average (black line with circle), 60% Moisture (blue line)

Desired Water Zone
1 ft (pink line with triangle), 100% Moisture (red line), 50% Moisture (orange line)

Low Water Zone
2 ft (blue line with square), 90% Moisture (orange line), 40% Moisture (black line)

Rain / Irrigation Data Zone
3 ft (green line with triangle), 80% Moisture (green line)

Soil Layers:
R6 - Black Layer
R5.8-3/4 Milk Line
R5.5-1/2 Milk Line (Full Dent)
R5 - 1/4 Milk Line
R4.7 - Beg. Dent
R4 - Dough
R3 - Milk
R2 - Blister
R1 - Silking
V14 - 14 Leaf
V12 - 12 Leaf
V10 - 10 Leaf
V8 - 8 Leaf
V6 - 6 Leaf
V5 - 5 Leaf
V4 - 4 Leaf
V2 - 2 Leaf

