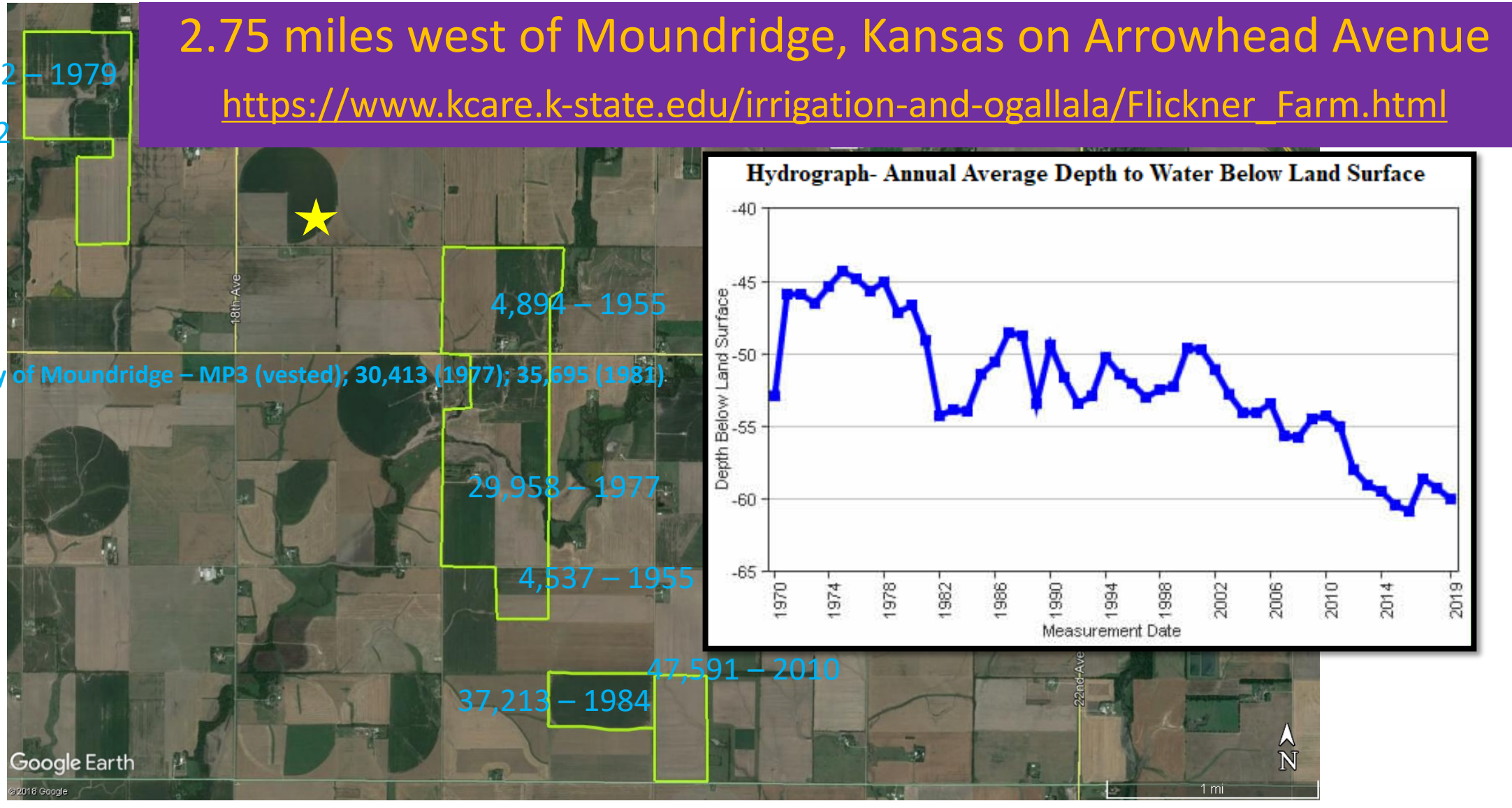
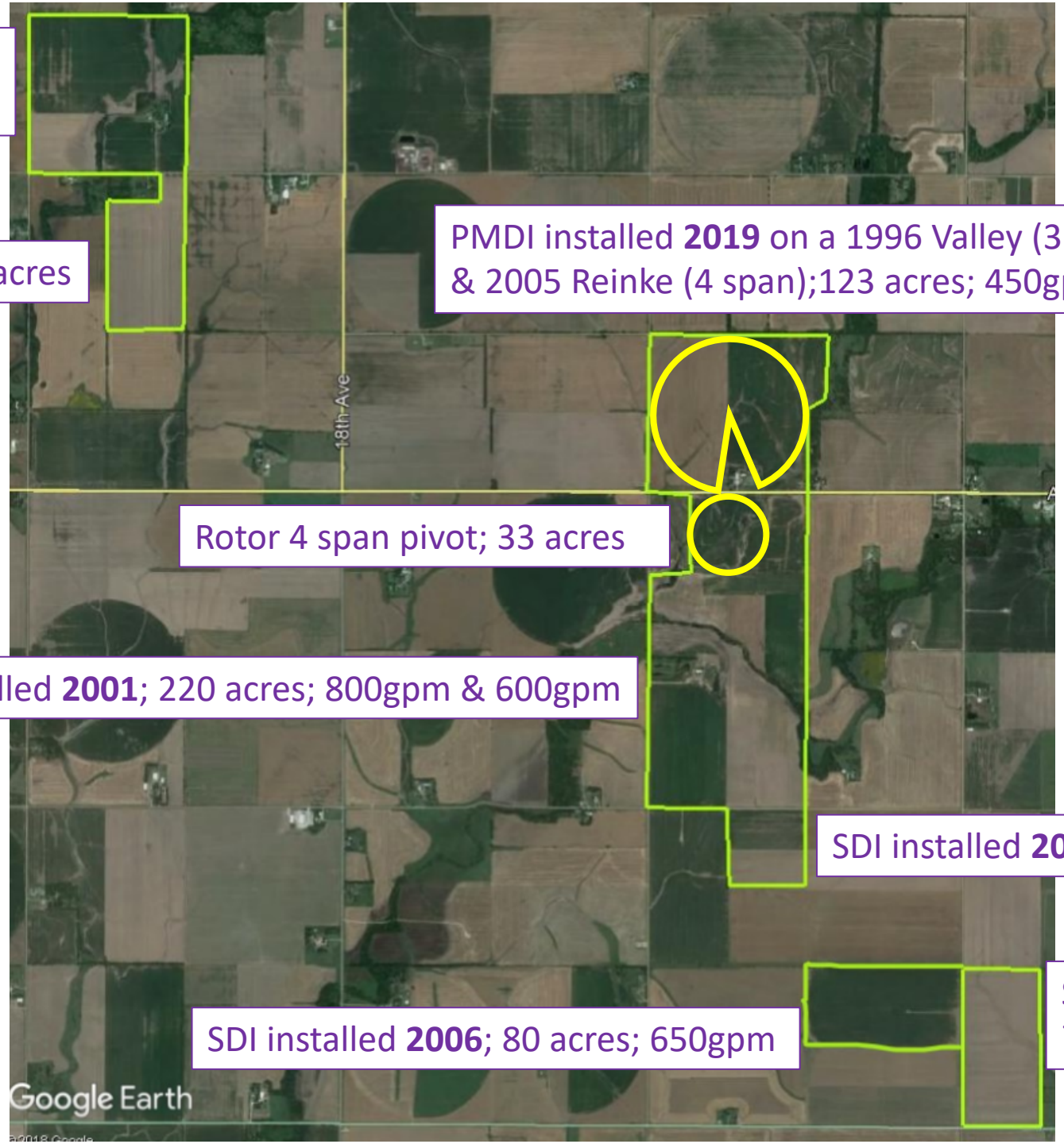
Flickner Innovation Farm

2.75 miles west of Moundridge, Kansas on Arrowhead Avenue

https://www.kcare.k-state.edu/irrigation-and-ogallala/Flickner_Farm.html





SDI installed **2004**; 154 acres; 500gpm & 200gpm

SDI installed **2005**; 71 acres

PMDI installed **2019** on a 1996 Valley (3 span) & 2005 Reinke (4 span);123 acres; 450gpm

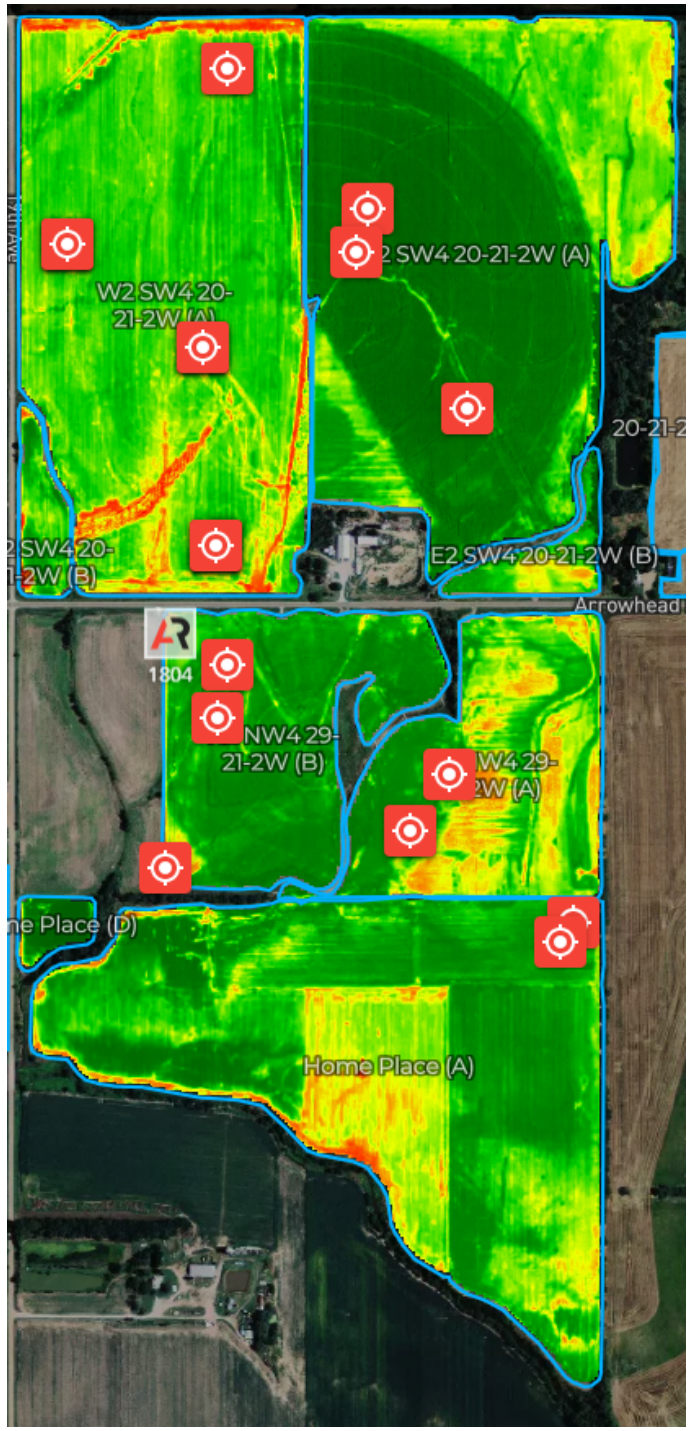
Rotor 4 span pivot; 33 acres

SDI installed **2001**; 220 acres; 800gpm & 600gpm

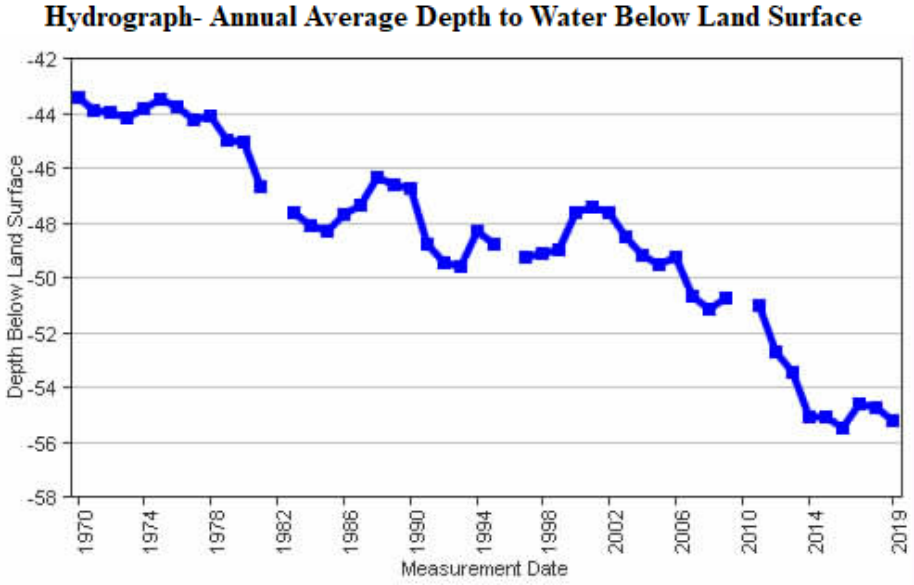
SDI installed **2010**; 40 acres

SDI on 40” installed **2015**; 78 acres; 650gpm

SDI installed **2006**; 80 acres; 650gpm



What are we dealing with?



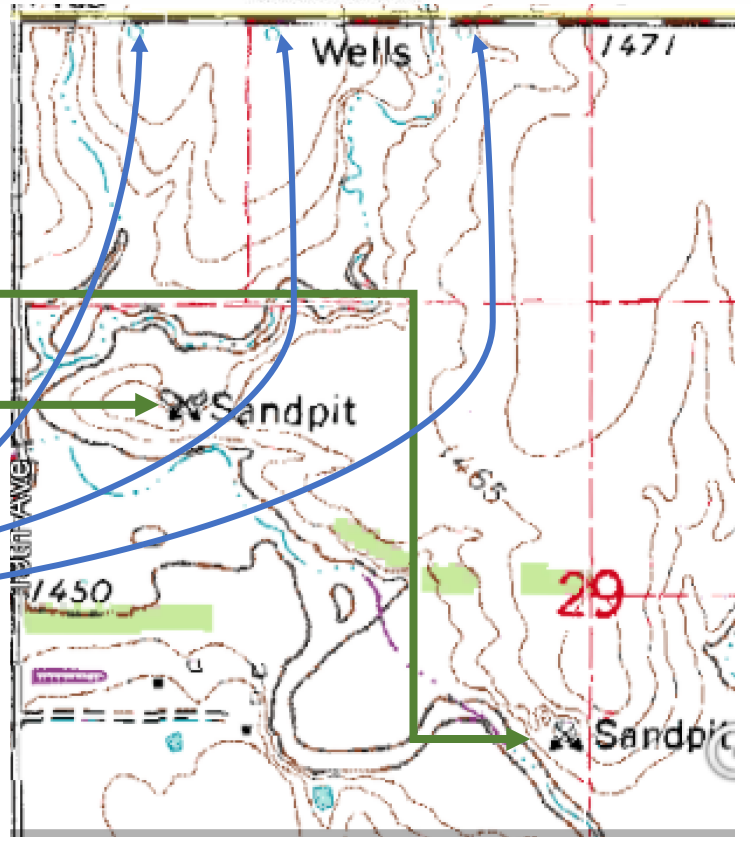
-Topography (>25’ change)

-Sand pits

-Creek & slough

-3 muni wells ~~(quality concerns)~~

-Declining aquifer



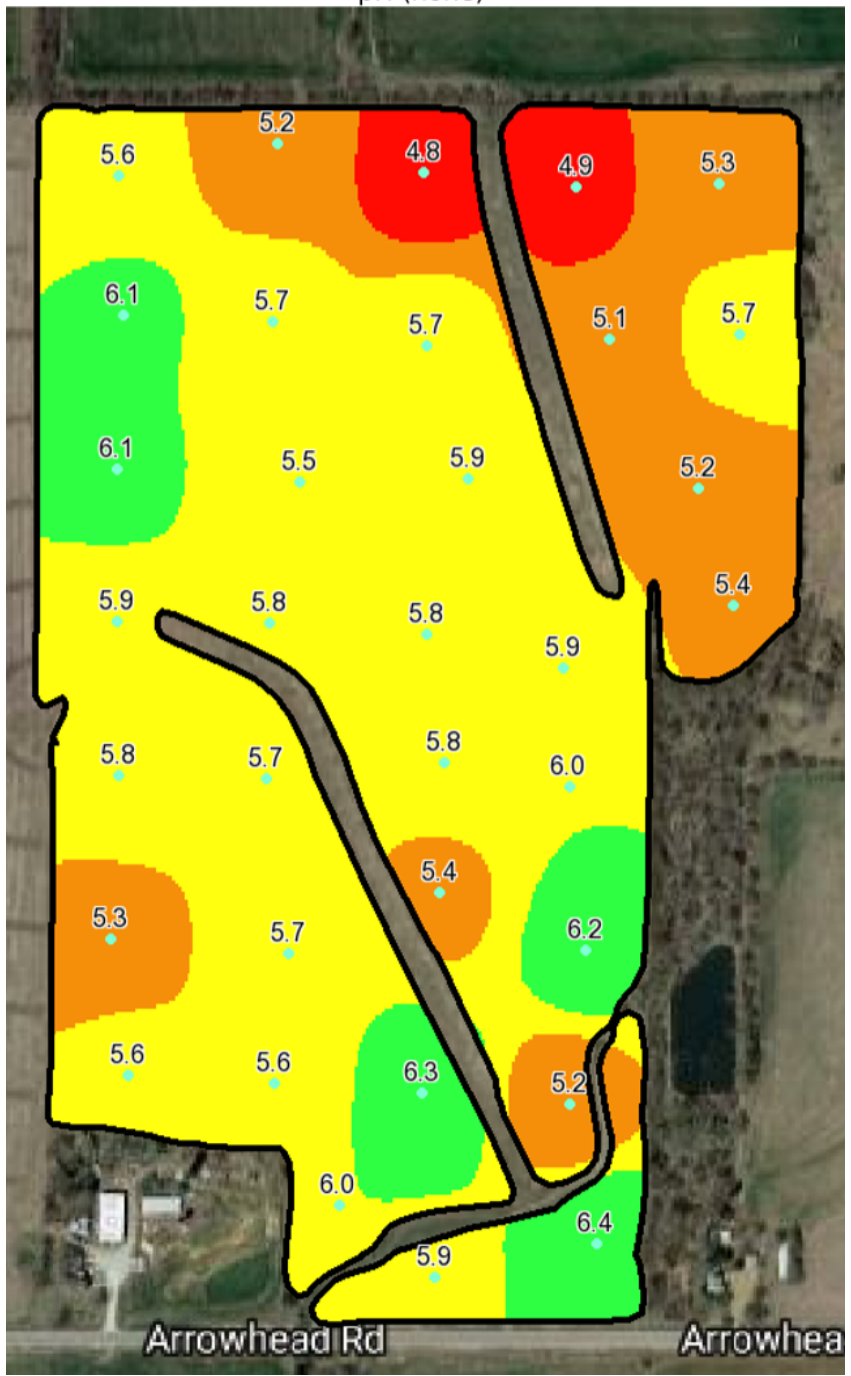
Types of Irrigation

-Poly-pipe flood
-PMDI
-Rotor pivot
-Natural flood
-SDI on 60” and 40”

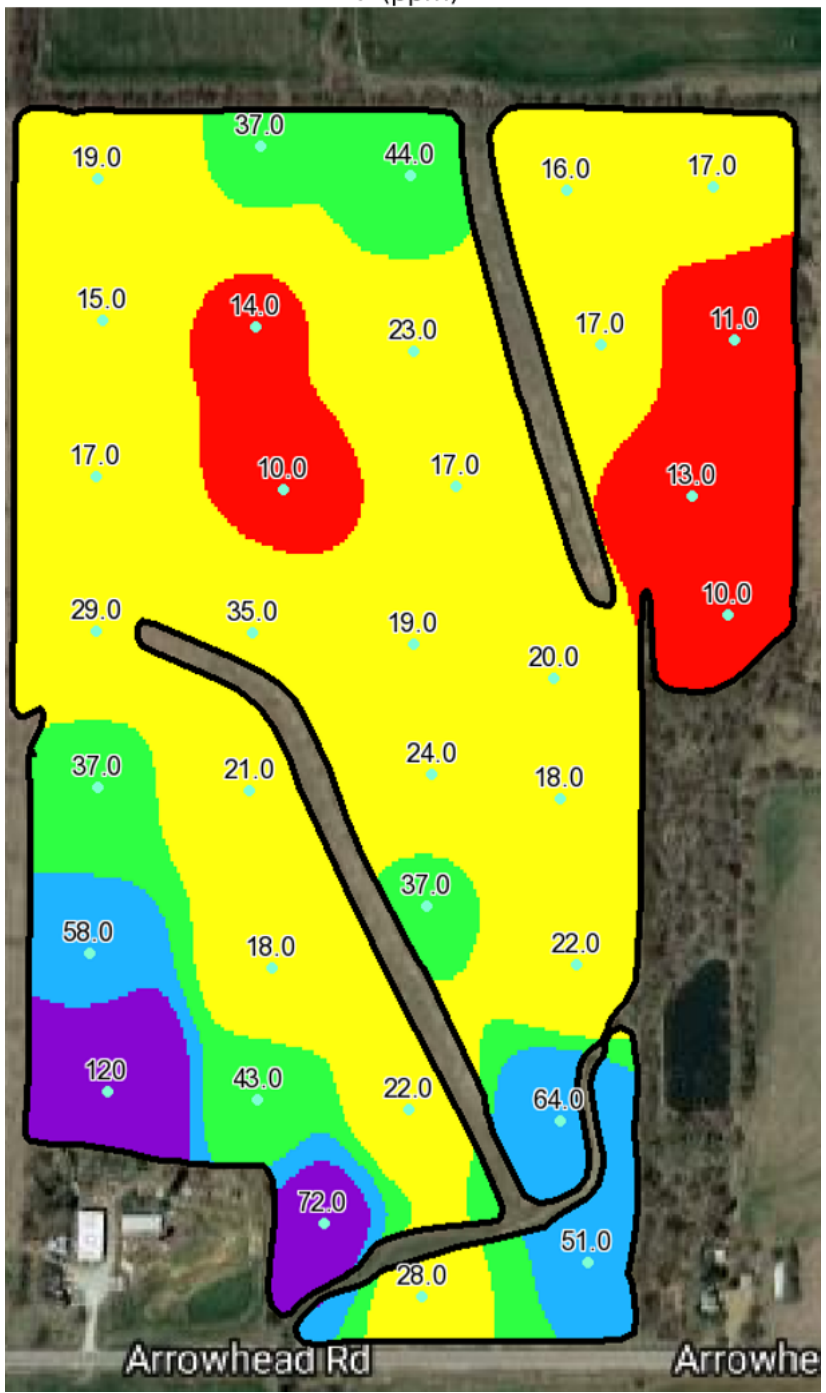
Mobile drip

- GMD 3 study
- Mobile drip on inside 3 spans with bubblers on the rest of the system
- Above average rainfall
- Expected difference in yields was not seen
- Water efficiency of inner spans improved by 38%

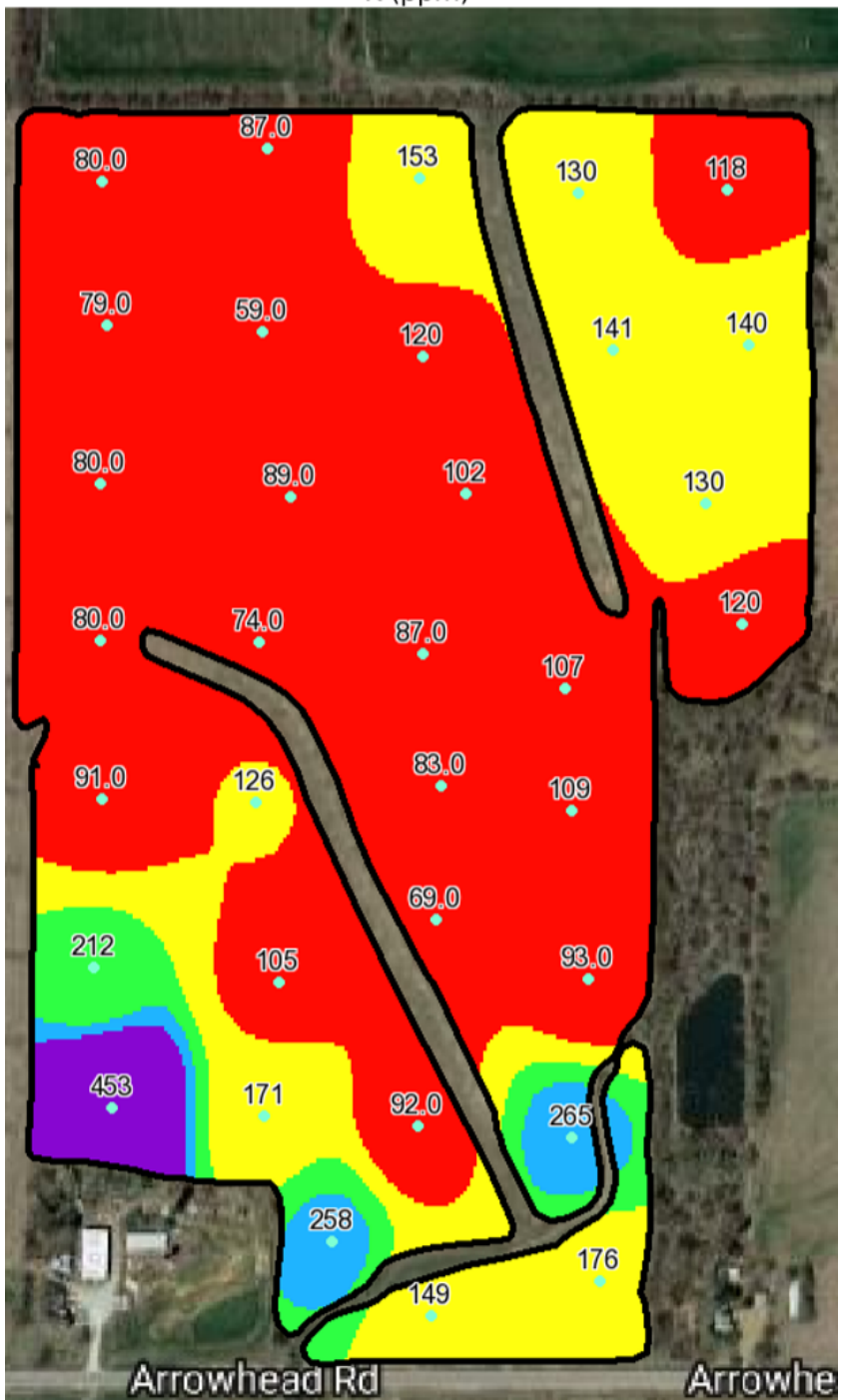
pH (none)



P (ppm)



K (ppm)



Tissue Sampling = 6/10/2019 @ V5

NutriSolutions® By WinField United

Ray Flickner

Farm Name: **SW4 20 21 2W**
Field Name: **E2 SW4 20 21 2W**
Sample Name: **Sample 1**
Submitter Name: **Ashleigh Baker**
Report Date: **06/12/2019**
Sample Date: **06/10/2019**

By WinField United

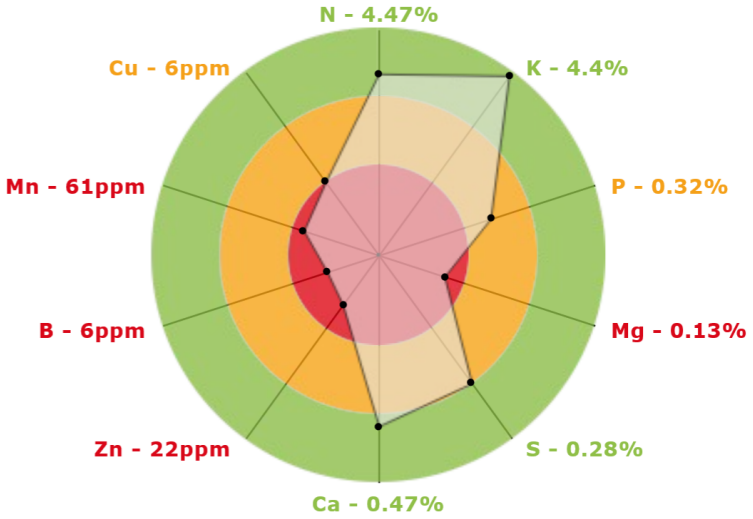
Crop: **CORN**
Stage: **V5**

Sample ID: **NS999049353**
Lab: **Servi-Tech**

GPS Latitude: **38.205292**
GPS Longitude: **-97.568374**

MID KANSAS COOP ASSN-MOUNDRIDGE
307 W COLE ST, PO BOX D, MOUNDRIDGE, KS 67107-7533 US,
Kansas,

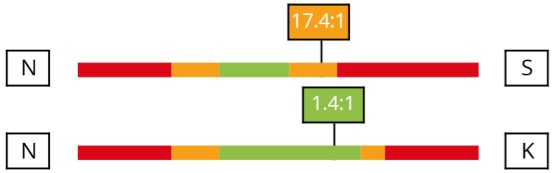
Nitrogen 4.47% / N-Adequate	Manganese 61ppm / Mn-Deficient
Phosphorus 0.32% / P-Responsive	Copper 6ppm / Cu-Responsive
Potassium 4.4% / K-Adequate	
Sulfur 0.28% / S-Adequate	
Boron 6ppm / B-Deficient	
Zinc 22ppm / Zn-Deficient	
Magnesium 0.13% / Mg-Deficient	
Calcium 0.47% / Ca-Adequate	



Tissue Sampling = 6/25/2019 @ V10

NutriSolutions® By WinField United

Ray Flickner



Farm Name: **SW4 20 21 2W**
Field Name: **E2 SW4 20 21 2W**
Sample Name: **Sample 1**
Submitter Name: **Ashleigh Baker**
Report Date: **06/27/2019**
Sample Date: **06/25/2019**

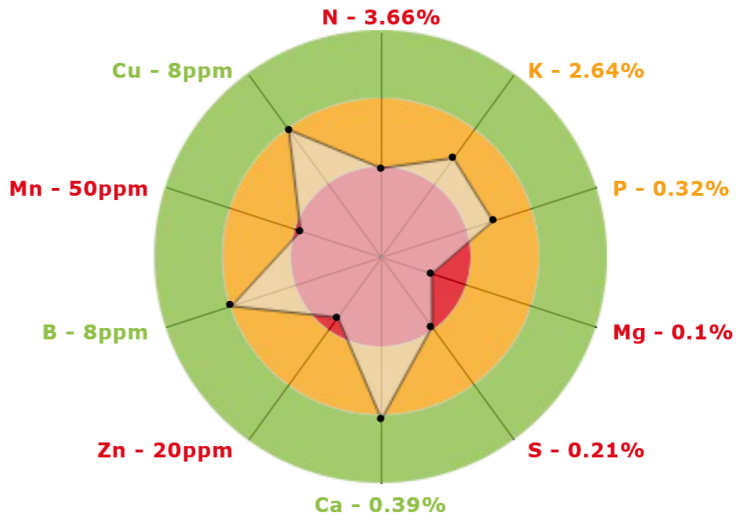
Crop: **CORN**
Stage: **V10**

Sample ID: **NS999049376**
Lab: **Servi-Tech**

GPS Latitude: **38.205292**
GPS Longitude: **-97.568374**

MID KANSAS COOP ASSN-MOUNDRIDGE
307 W COLE ST, PO BOX D, MOUNDRIDGE, KS 67107-7533 US,
Kansas,

Nitrogen 3.66% / N-Deficient	Manganese 50ppm / Mn-Deficient
Phosphorus 0.32% / P-Responsive	Copper 8ppm / Cu-Adequate
Potassium 2.64% / K-Responsive	
Sulfur 0.21% / S-Deficient	
Boron 8ppm / B-Adequate	
Zinc 20ppm / Zn-Deficient	
Magnesium 0.1% / Mg-Deficient	
Calcium 0.39% / Ca-Adequate	



Note: The closer results are to the center of the graph, the more deficient the nutrient.

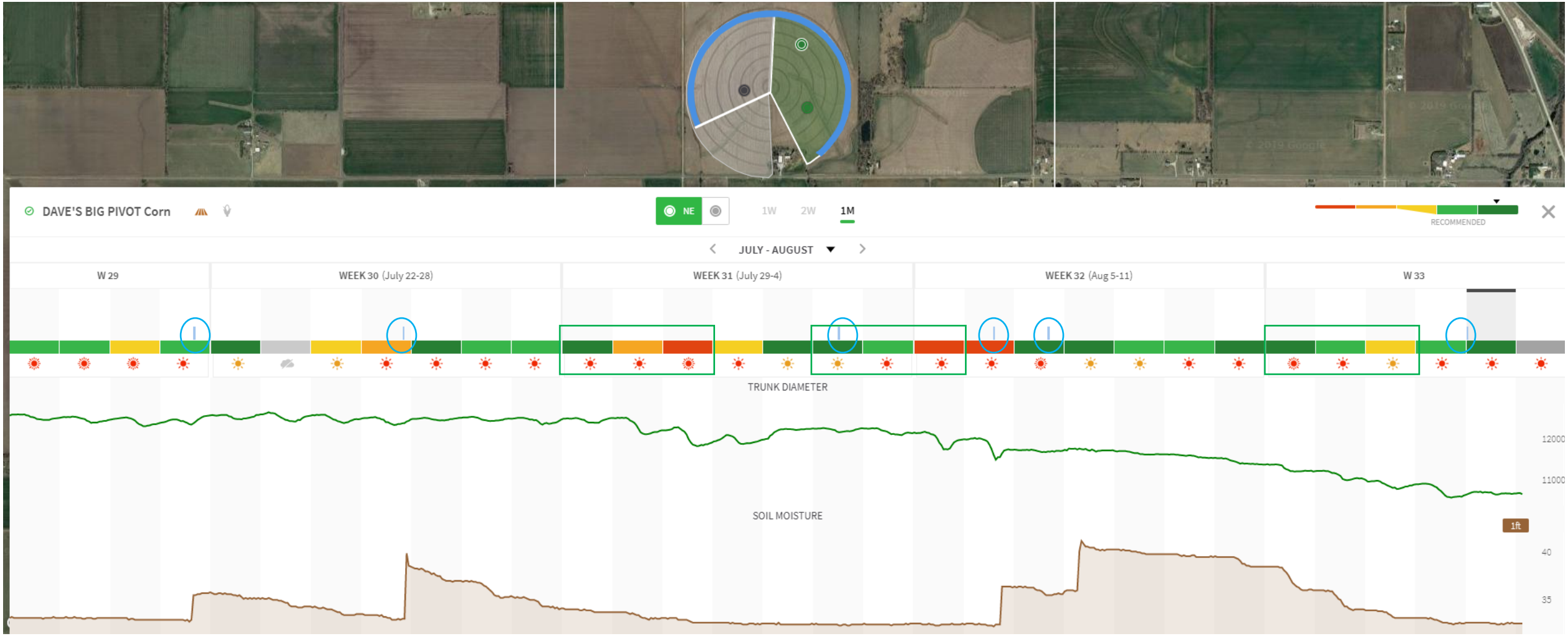
Ways We Monitored Crop Stress

Plant Based

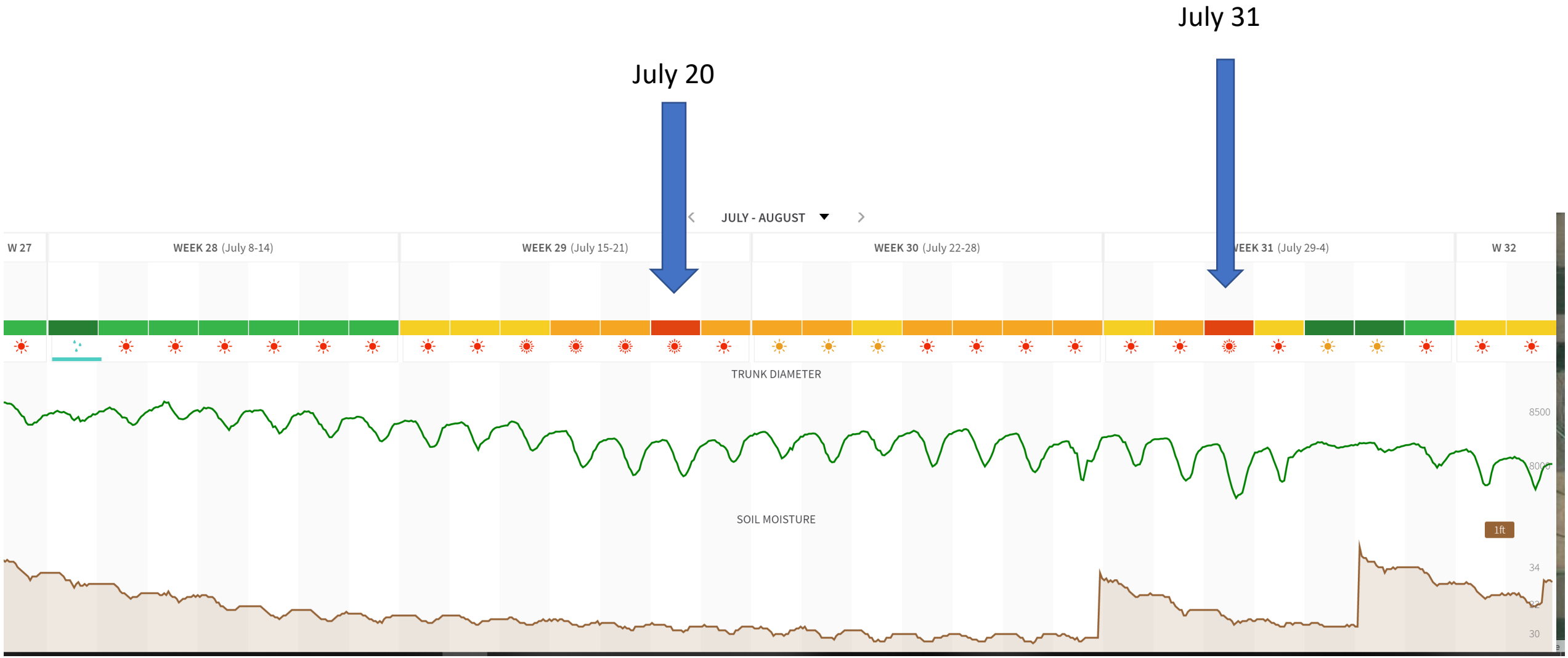
Ground Moisture

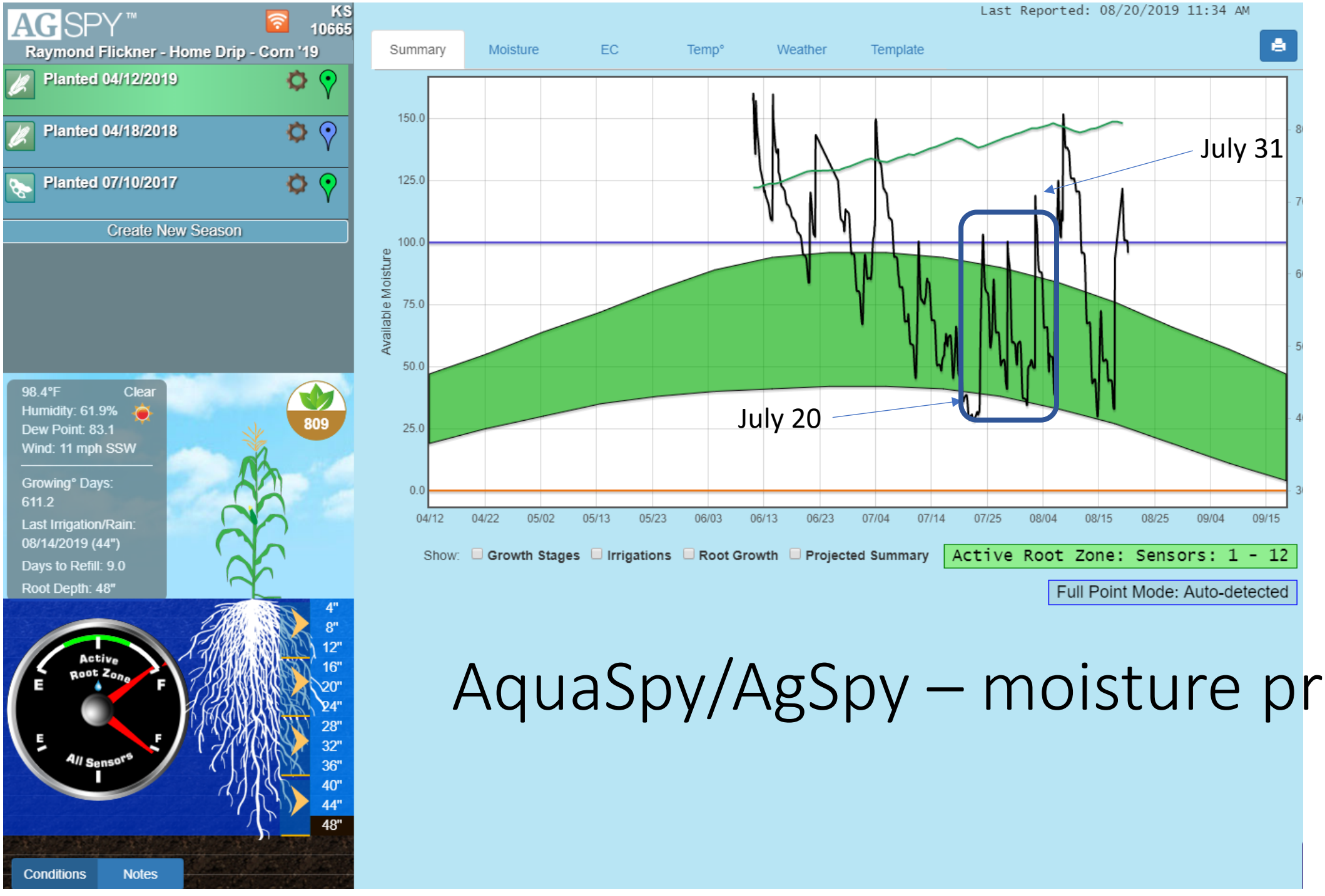
Imagery

Phytech – irrigation events; plant health

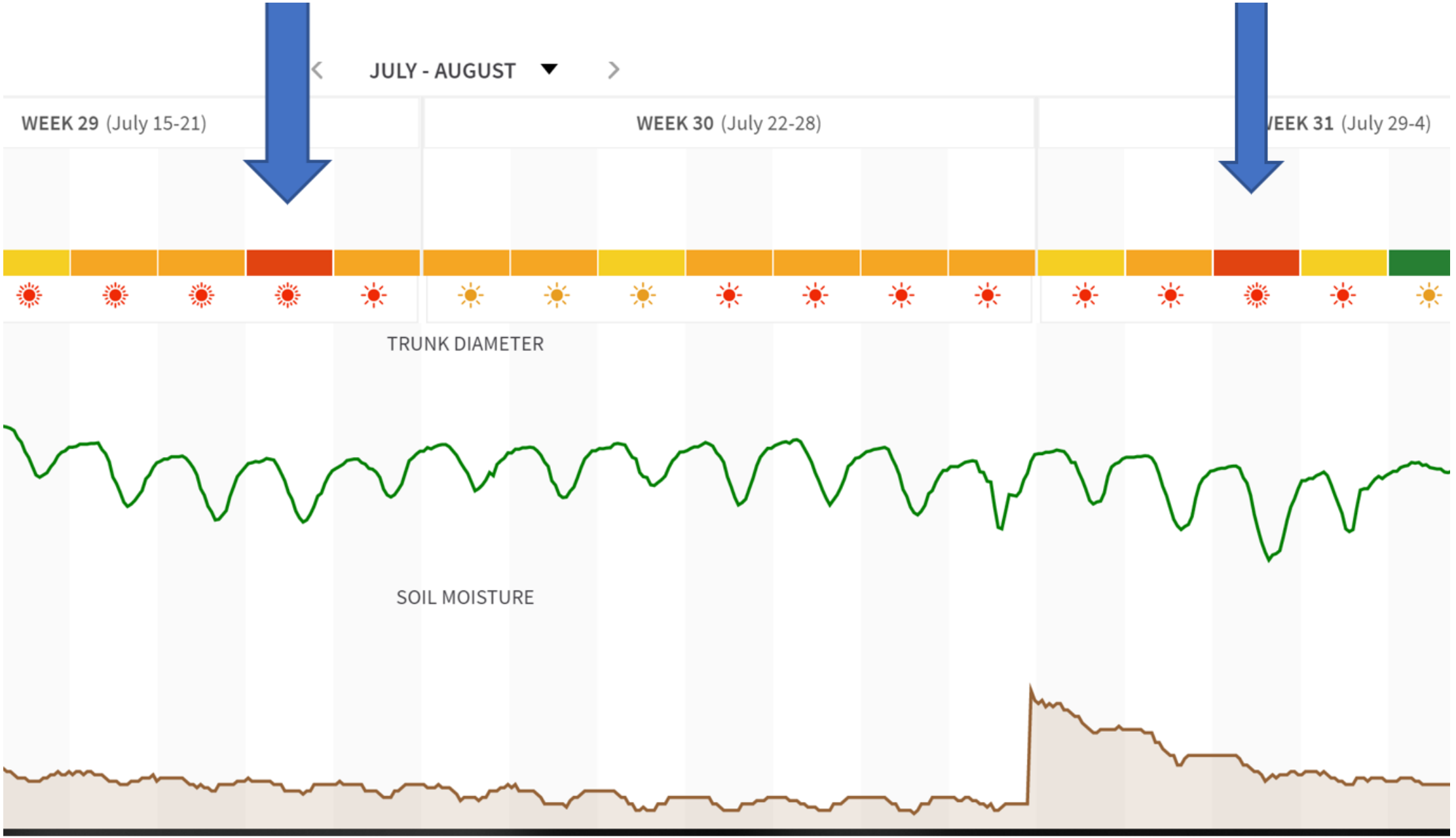


Phytech – Home place SDI

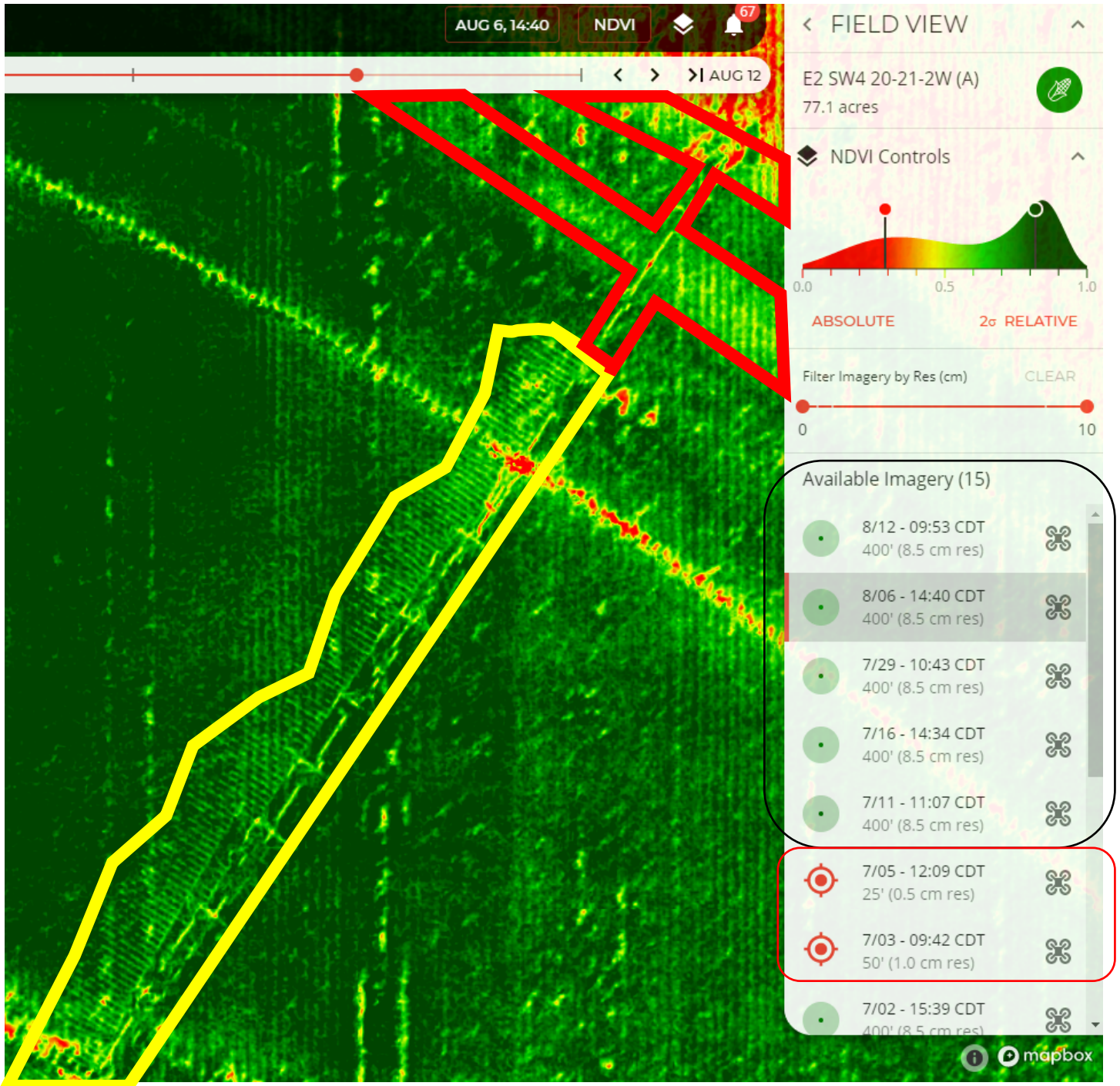




AquaSpy/AgSpy – moisture probe


JULY - AUGUST
WEEK 29 (July 15-21)
WEEK 30 (July 22-28)
EEK 31 (July 29-4)
TRUNK DIAMETER
SOIL MOISTURE

AquaSpy – moisture levels at 4”, 20”, 48”; growth stages

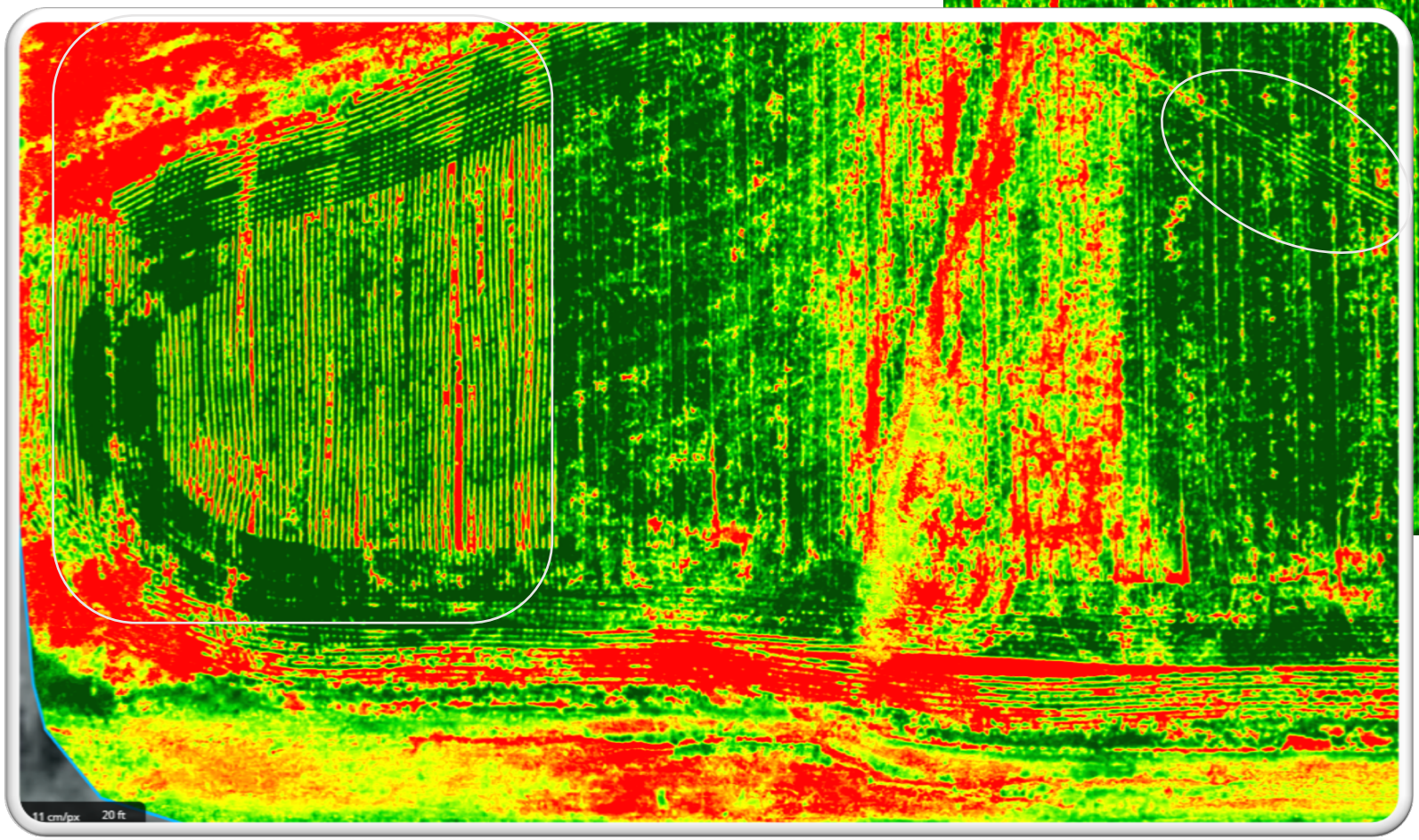


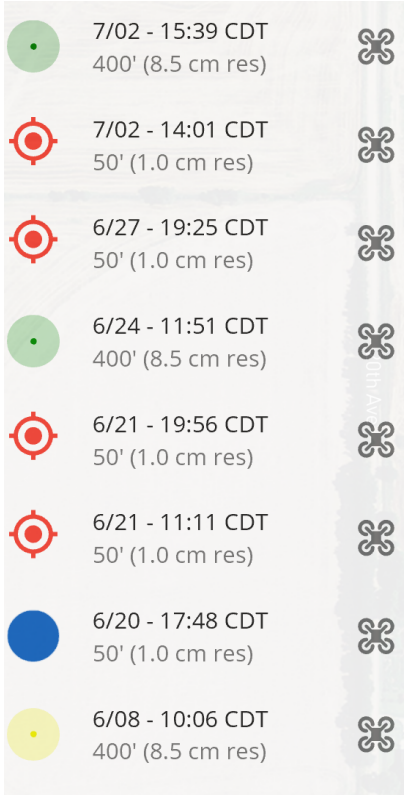
American Robotics

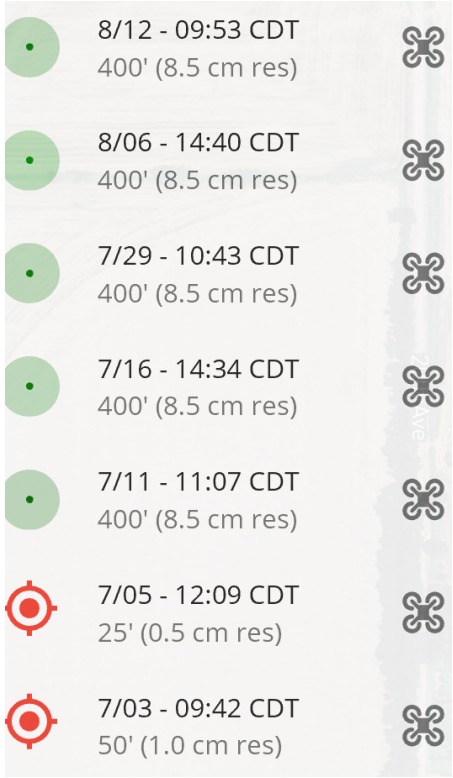
—

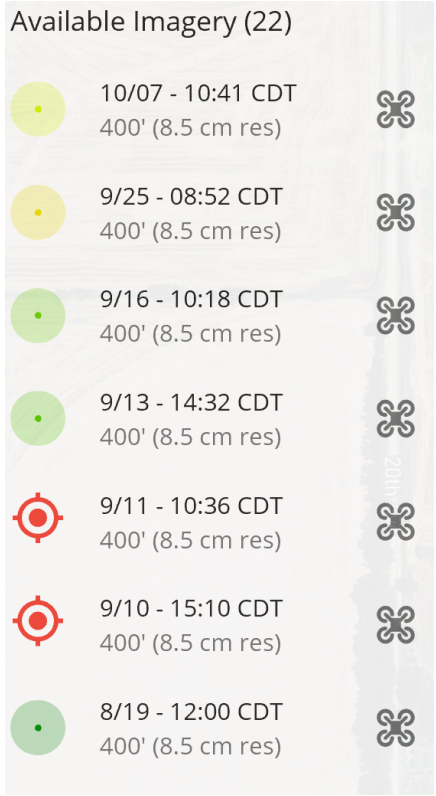
UAS/drone in a box

Ability to take stand count…





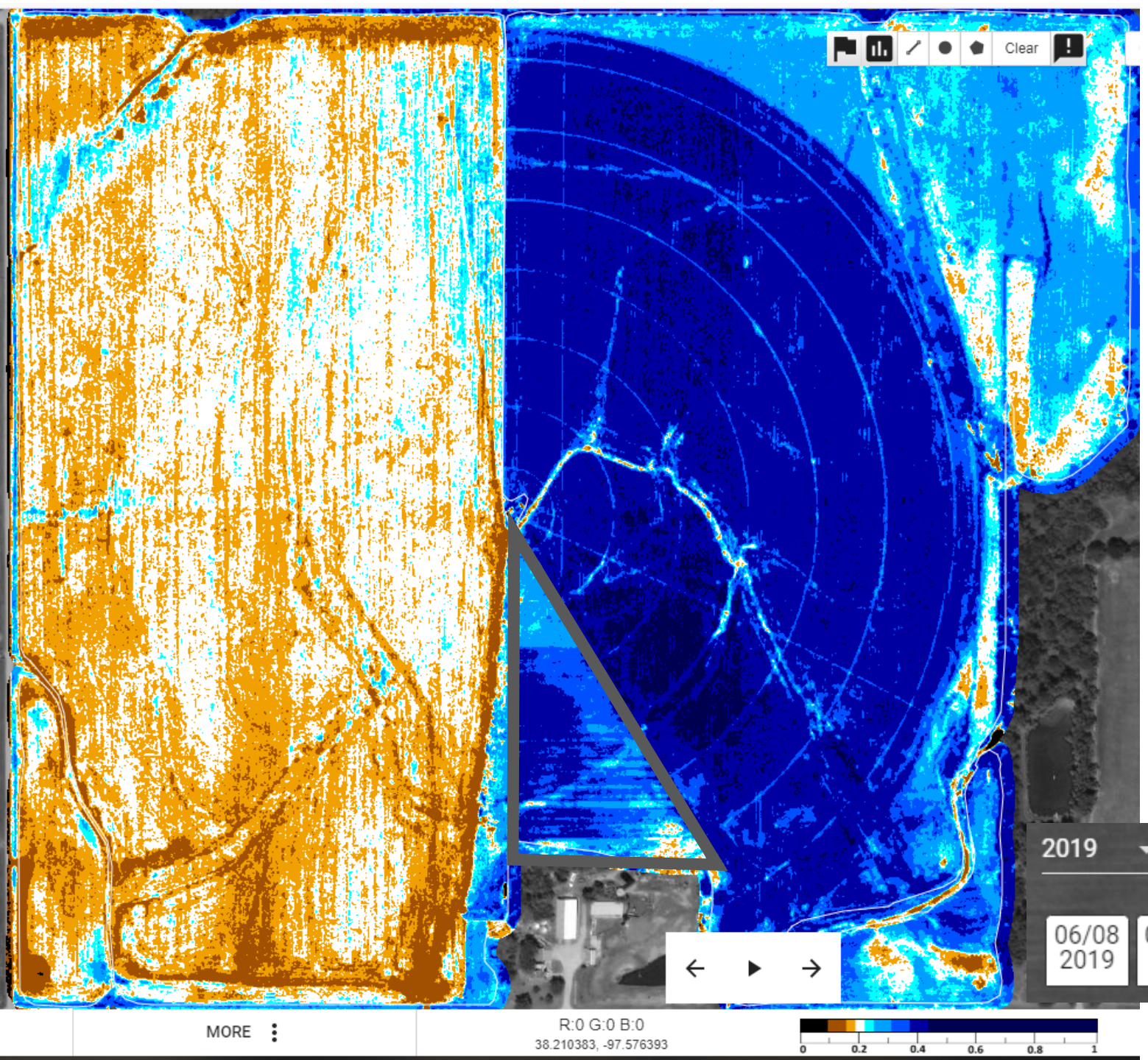




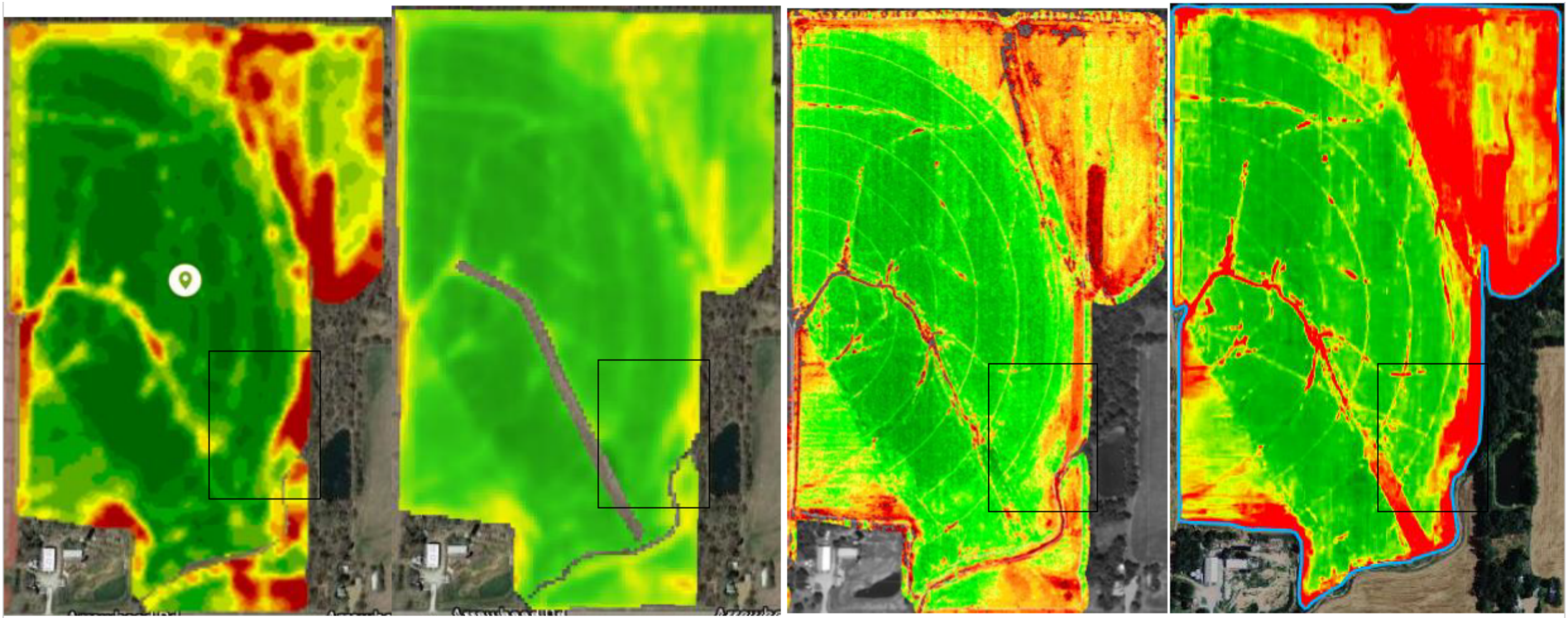
Drone Flights

- E/2 of SW/4 SECTION 20 - CORN

TerrAvion – fixed wing flyovers



Imagery comparison = R7, ClimateView, Terravion, American Robotics



R7
7/19/2019

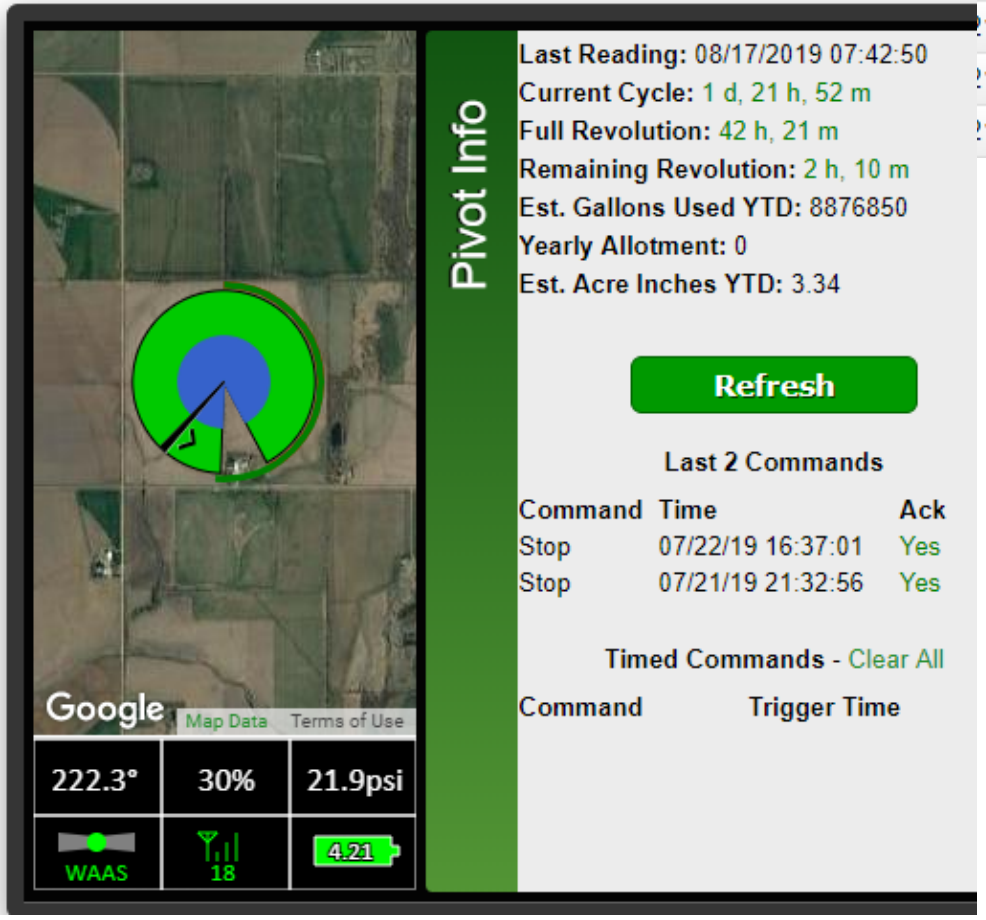
Climate
7/19/2019

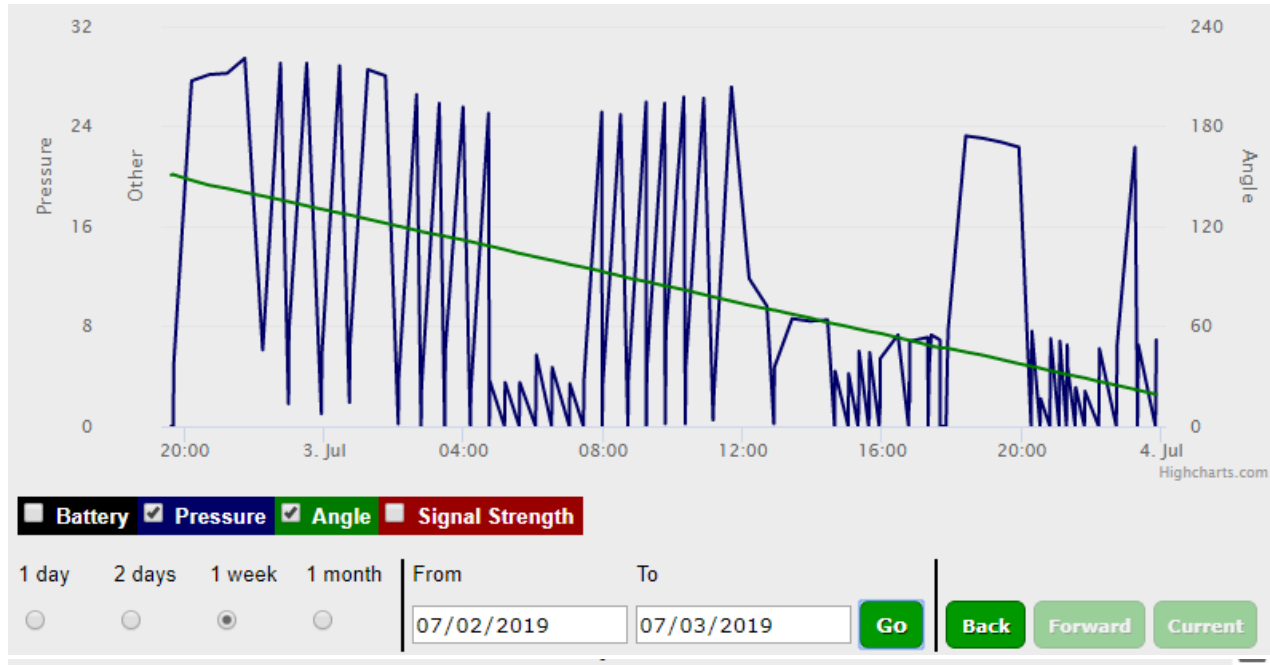
Terravion
7/18/2019

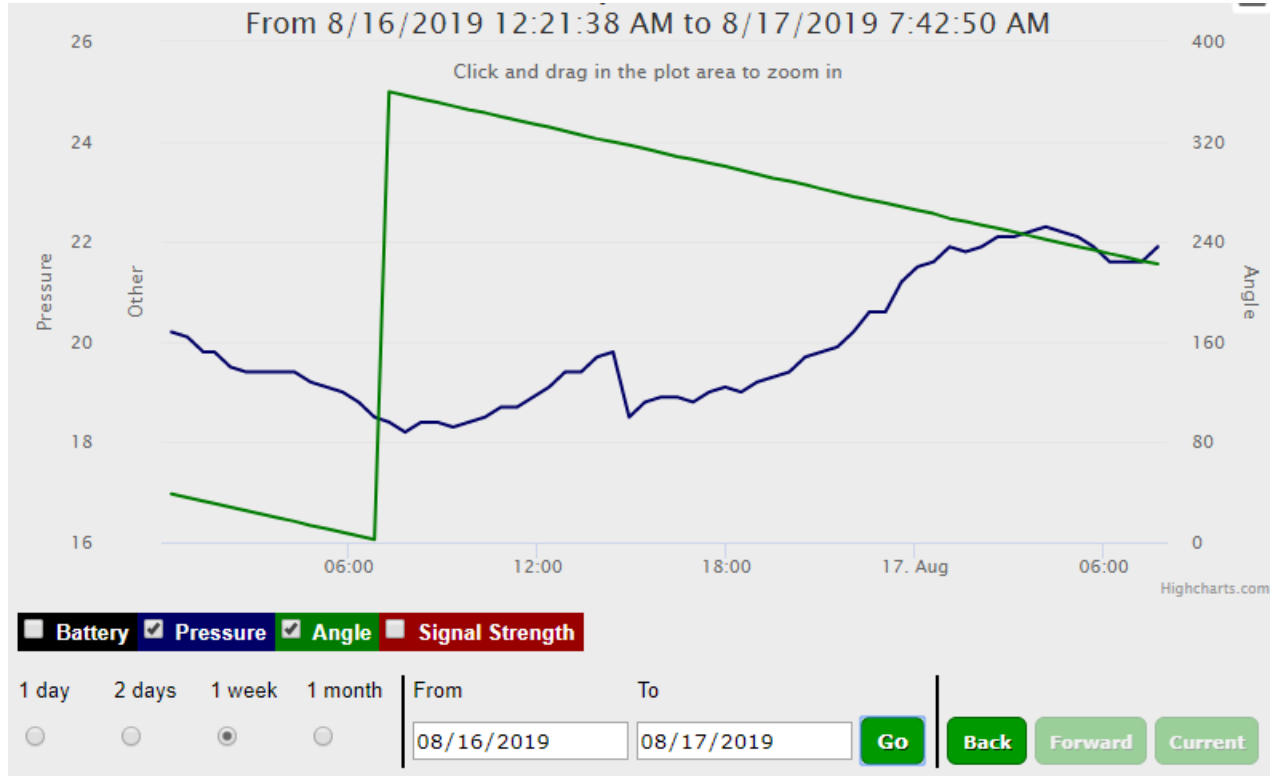
American Robotics
7/16/2019

AgSense

Time	Bat	Pres (psi)	Angle
08/17/19 07:42:50	4.21	21.9	222.3
08/17/19 07:12:15	4.21	21.6	224.7
08/17/19 06:41:44	4.2	21.6	227.8
08/17/19 06:11:08	4.2	21.6	230.5
08/17/19 05:40:35	4.21	21.9	233.5
08/17/19 05:10:13	4.21	22.1	236.2
08/17/19 04:39:37	4.21	22.2	239.1
08/17/19 04:09:11	4.2	22.3	241.9
		22.2	244.9
		22.1	248
		22.1	250.7

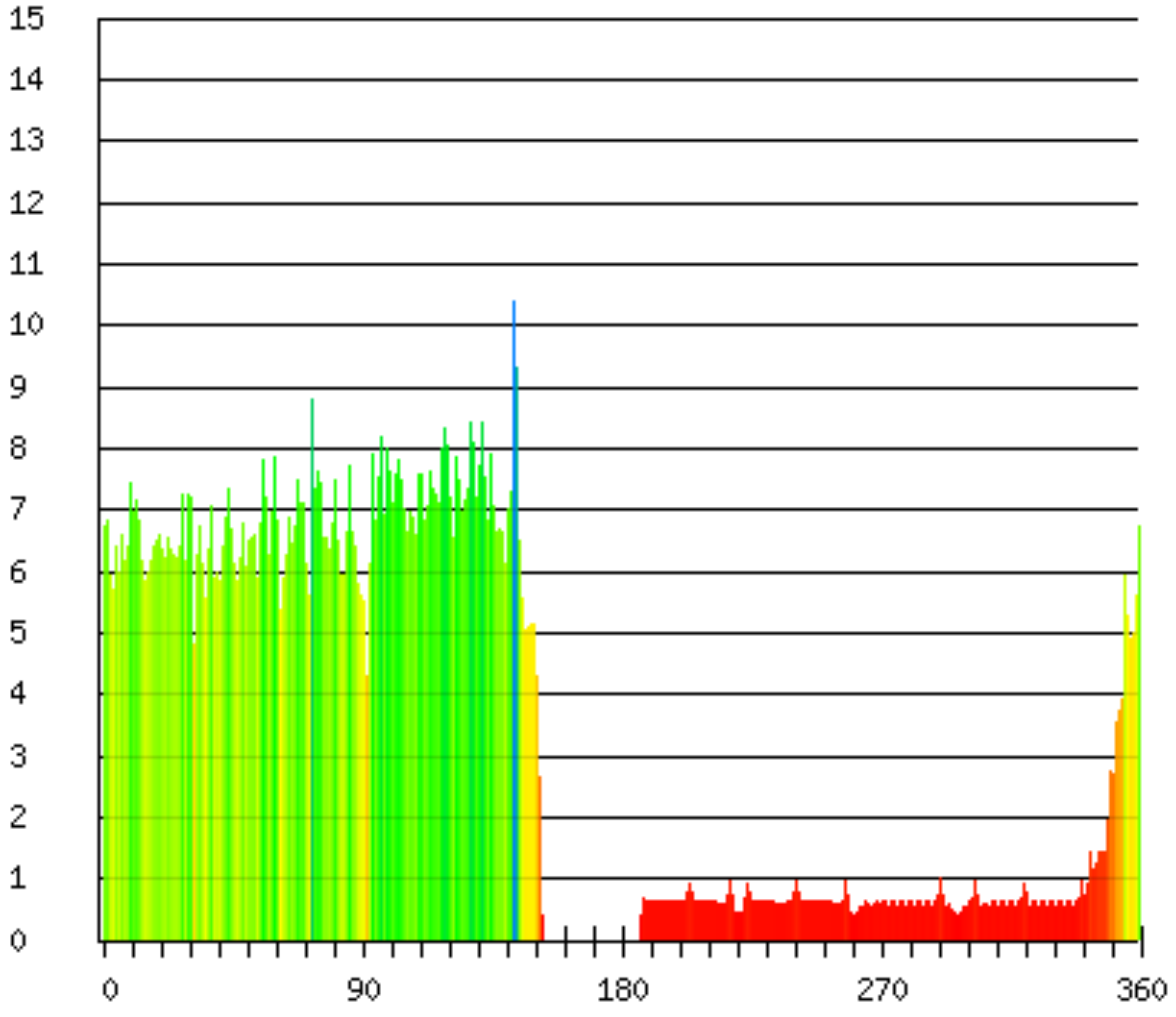


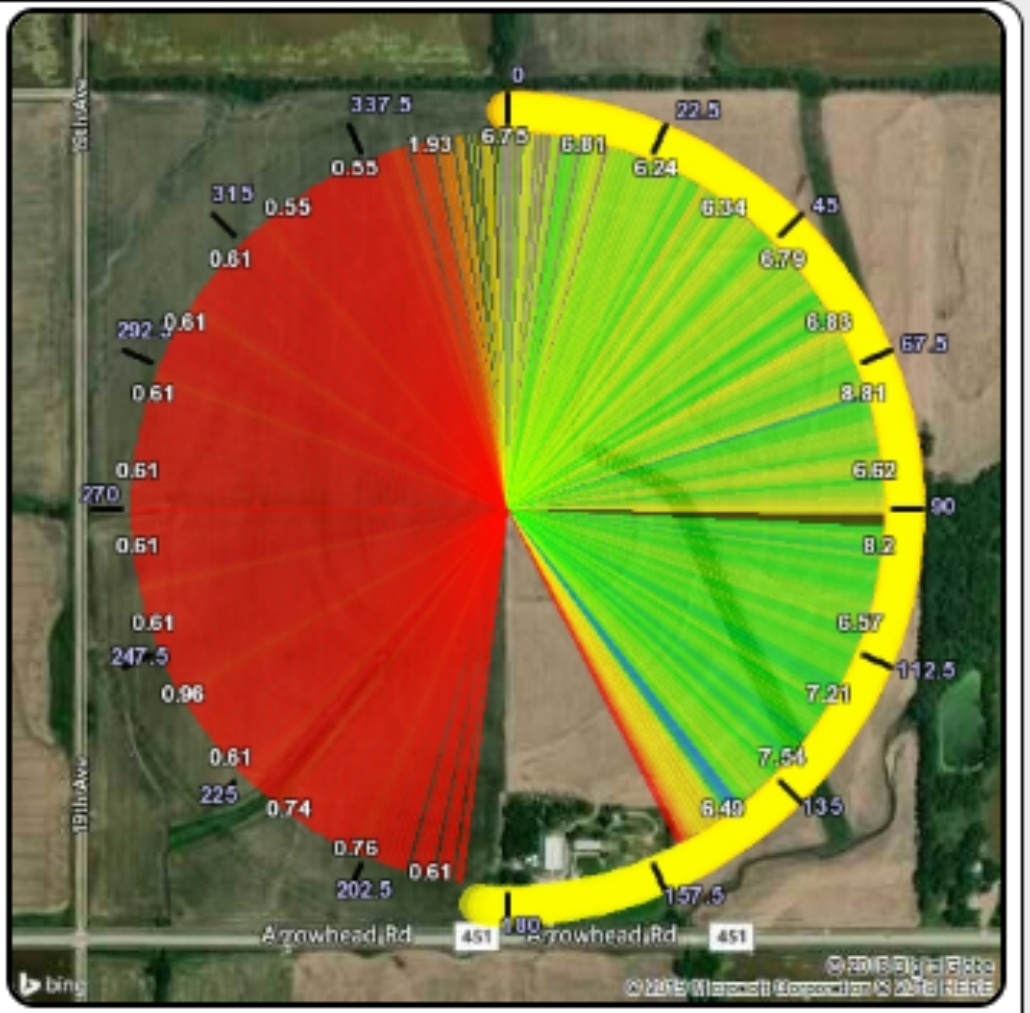




AgSense

May 16, 2019 12:00 AM - Aug 20, 2019 11:59 PM - **Report Type:** Inches Applied by Angle





Total Inches Applied