Flickner Innovation Farm

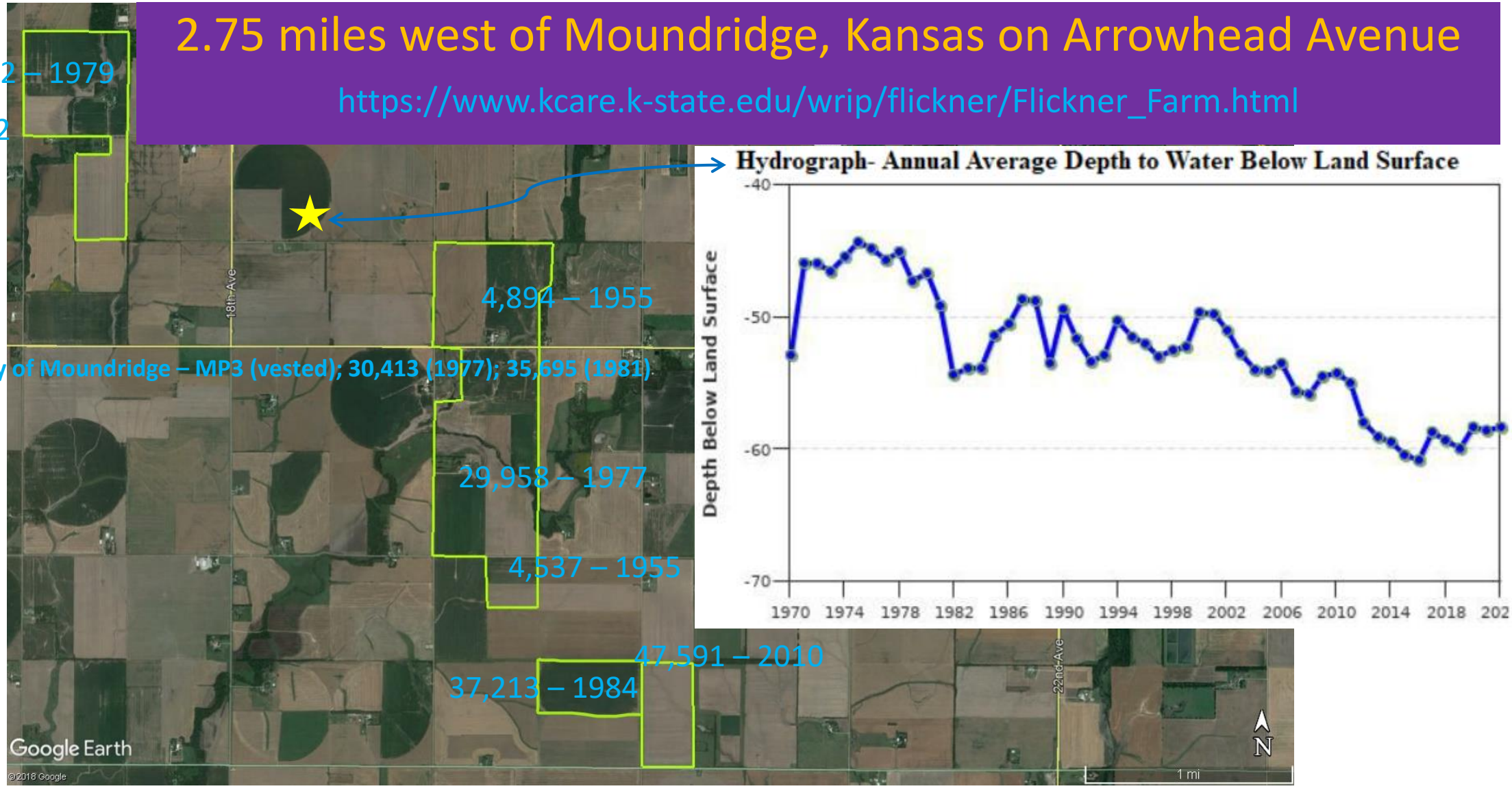
https://www.kcare.k-state.edu/wrip/flickner/Flickner_Farm.html

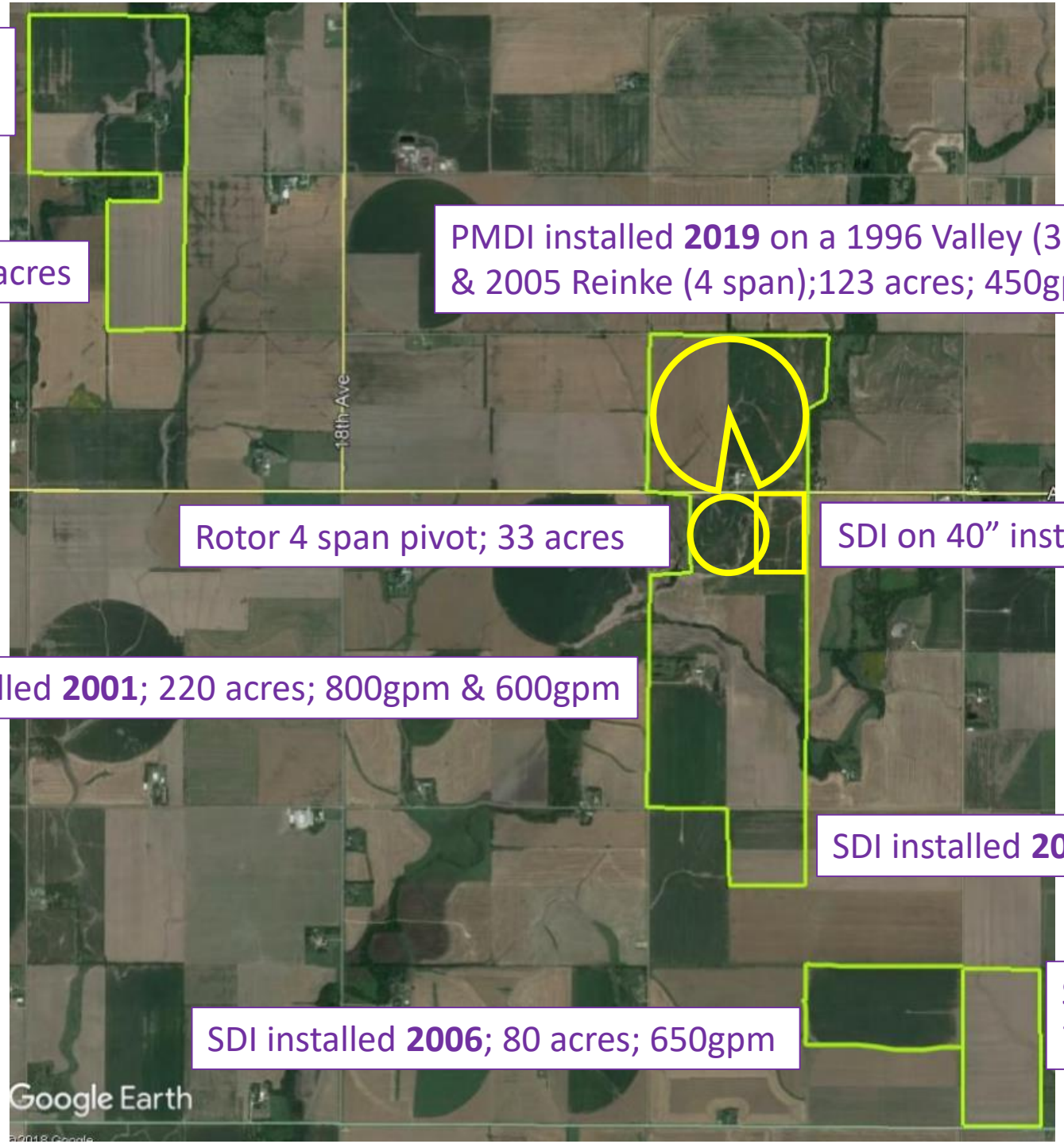

FLICKNER
FARMS

Flickner Innovation Farm

2.75 miles west of Moundridge, Kansas on Arrowhead Avenue

https://www.kcare.k-state.edu/wrip/flickner/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

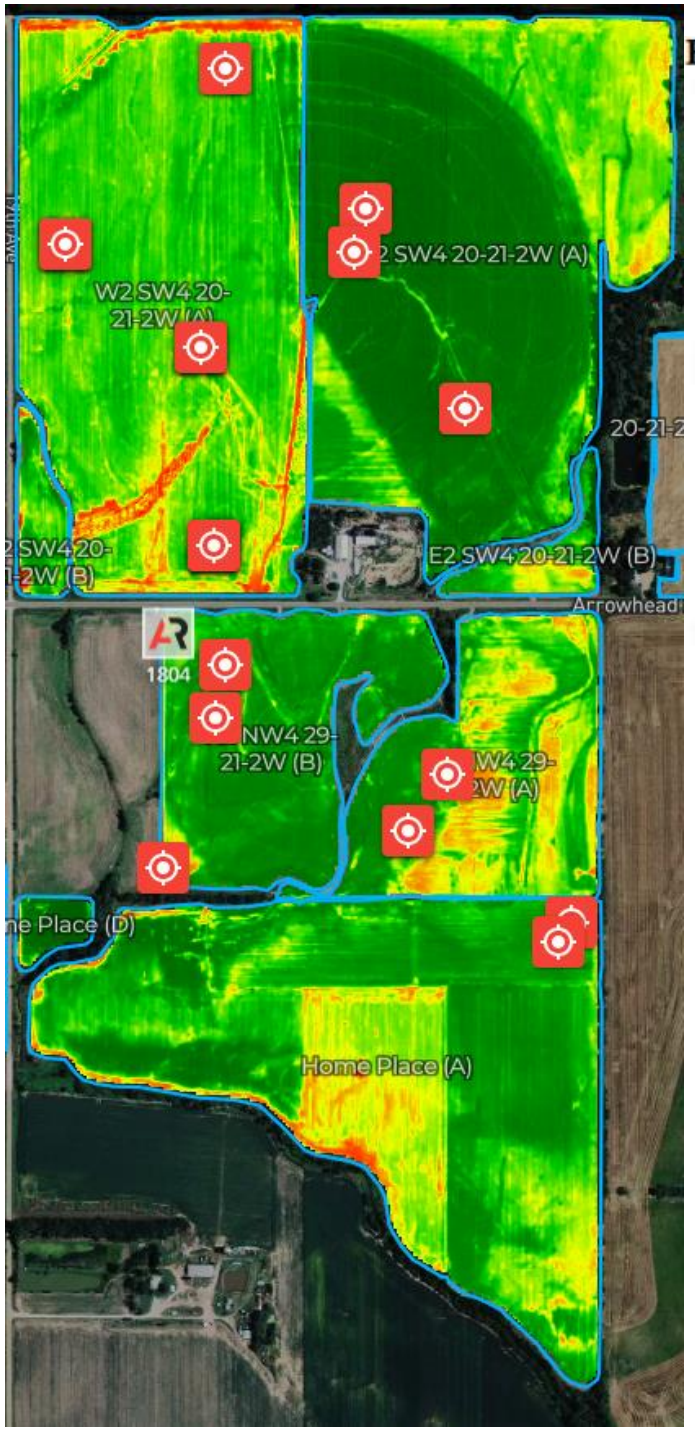
SDI on 40” installed **2020**; 23 acres

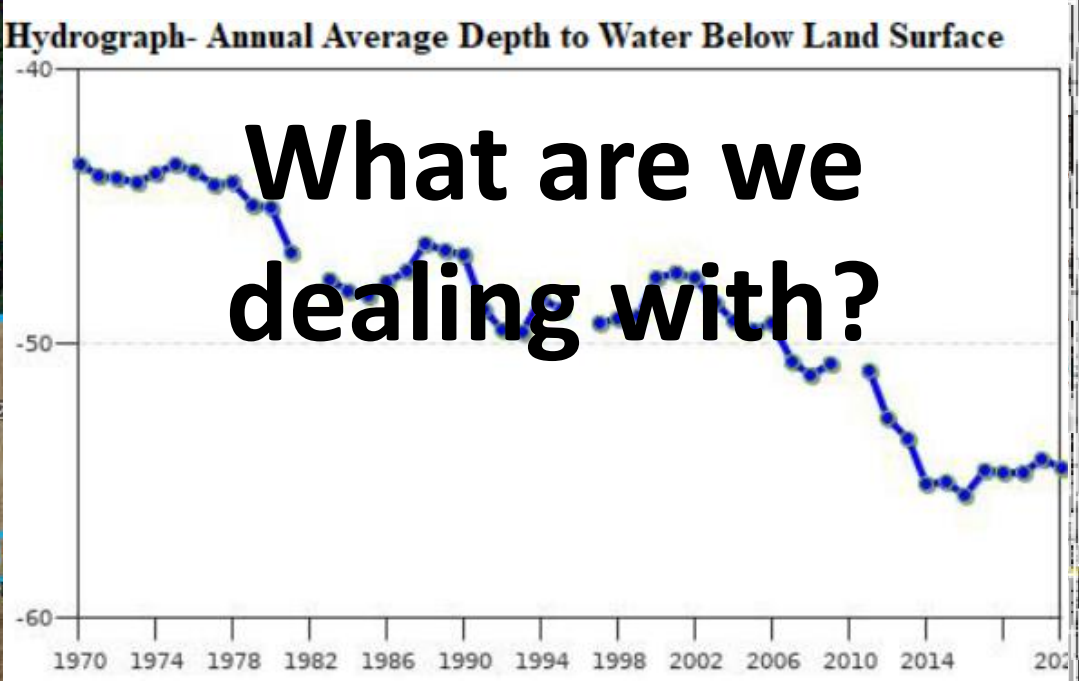
SDI installed **2001**; 220 acres; 800gpm & 600gpm

SDI installed **2010**; 40 acres

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

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





What are we dealing with?

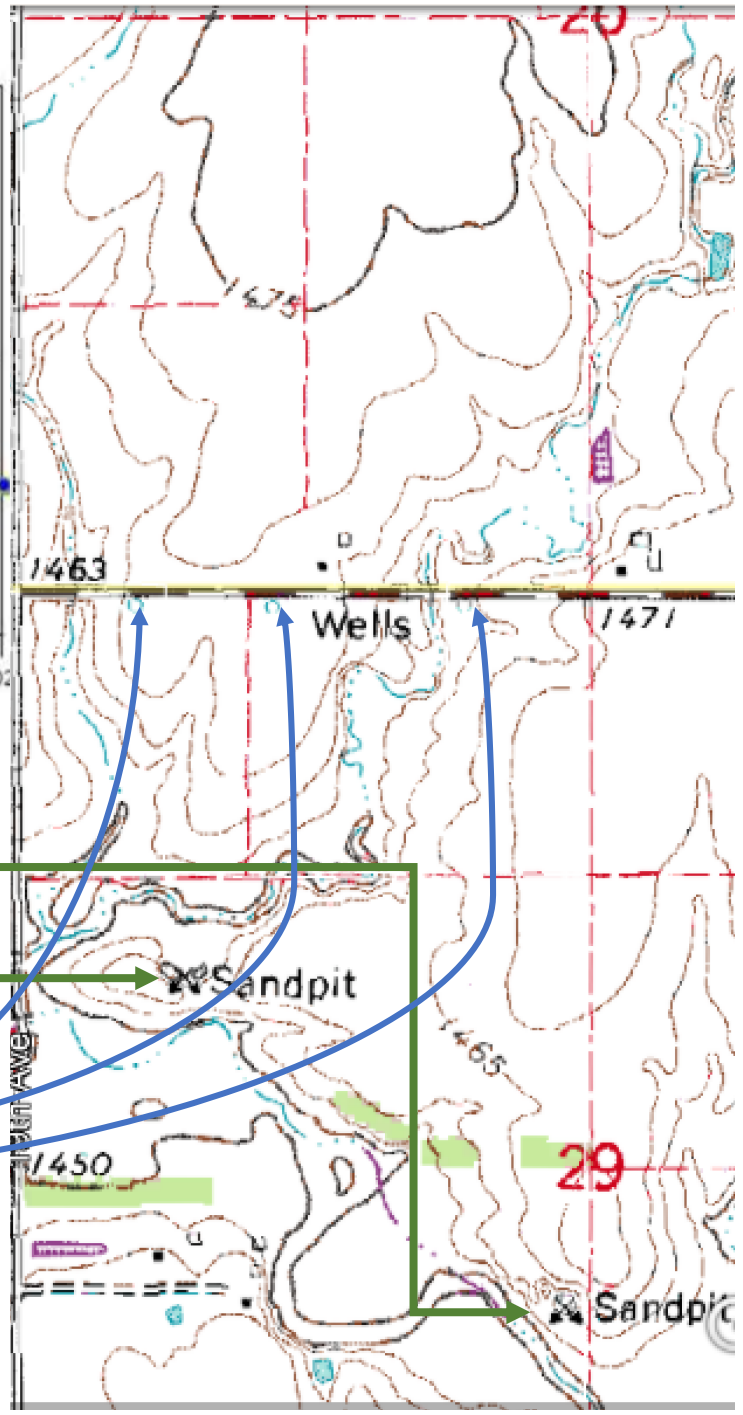
-Topography (>25’ change)

-Sand pits

-Creek & slough

-3 muni wells (quality concerns)

-Declining aquifer



Sample Name	EC	pH	NH4-N	No3-n	Na	date Analyzed	Water Right#	Date collected	WR#
Home South	0.5	7.19	<0.01	7.52	21.49	6/18/2020	4537	6/15/2020	4537
Home South	0.44	7.15	<0.01	6.88	21.17	7/24/2020	4537	7/21/2020	
Dave	0.6	7.3	<0.01	7	28.41	6/18/2020	4894	6/15/2020	4894
Dave	0.67	7.27	0.02	8.65	33.51	9/19/2020	4894	9/16/2020	
Home Yard White bottle	0.56	7.9	<0.01	18	27.72	6/18/2020	29958	5/20/2020	29958
Home Yard Nalgene	0.52	7.48	0.54	9.2	22.58	6/18/2020	29958	6/15/2020	
Home Yard	0.5	7.37	0.33	7.89	24.82	7/24/2020	29958	7/21/2020	
Home Yard	0.56	7.06	0.01	9.01	26.23	9/19/2020	29958	9/16/2020	
Jonas Yard	0.7	7.11	<0.01	8.42	23.45	6/18/2020	32552	6/15/2020	32552
Jonas Yard	0.67	7.25	0.02	7.94	26.2	8/13/2020	32552	7/30/2020	
Jonas Yard	0.74	7.18	0.03	9.03	27.97	9/19/2020	32552	9/16/2020	
Kirby	0.85	7.2	<0.01	3.68	40.79	6/18/2020	37027	6/15/2020	37027
Kirby	0.78	7.28	0.01	4.3	45.76	8/13/2020	37027	8/6/2020	
Kirby	0.88	7.25	0.02	4.21	47.77	9/19/2020	37027	9/16/2020	
Gringo	1440	7.46		28.4		2/22/2006	37213		
Gringo	1400	7.3		19.3		7/12/2019	37213	7/11/2019	37213
Gringo	1.28	7.25	0.39	20.58	92.51	7/24/2020	37213	7/18/2020	
Gringo	0.71	7.22	0.01	7.57	34.34	9/19/2020	37213	9/16/2020	
Jonas West	0.66	7.17	0.06	3.92	23.65	7/1/2020	40699	6/29/2020	40699
Jonas West	0.61	7.38	0.01	3.96	26.17	7/24/2020	40699	7/21/2020	
Jonas West	0.68	7.24	0.02	4.02	25.68	9/19/2020	40699	9/16/2020	
Lone Elm	524	7.28		1.6		12/12/2014	47591	12/8/2014	47591
Lone Elm	0.46	7.18	0.01	2.31	21.17	7/1/2020	47591	7/1/2020	
Lone Elm	0.55	7.35	0.01	3.08	20.89	8/13/2020	47591	7/30/2020	
House	0.51	7.23	<0.01	4.42	18.66	7/1/2020		7/1/2020	Domestic

City Well nitrate

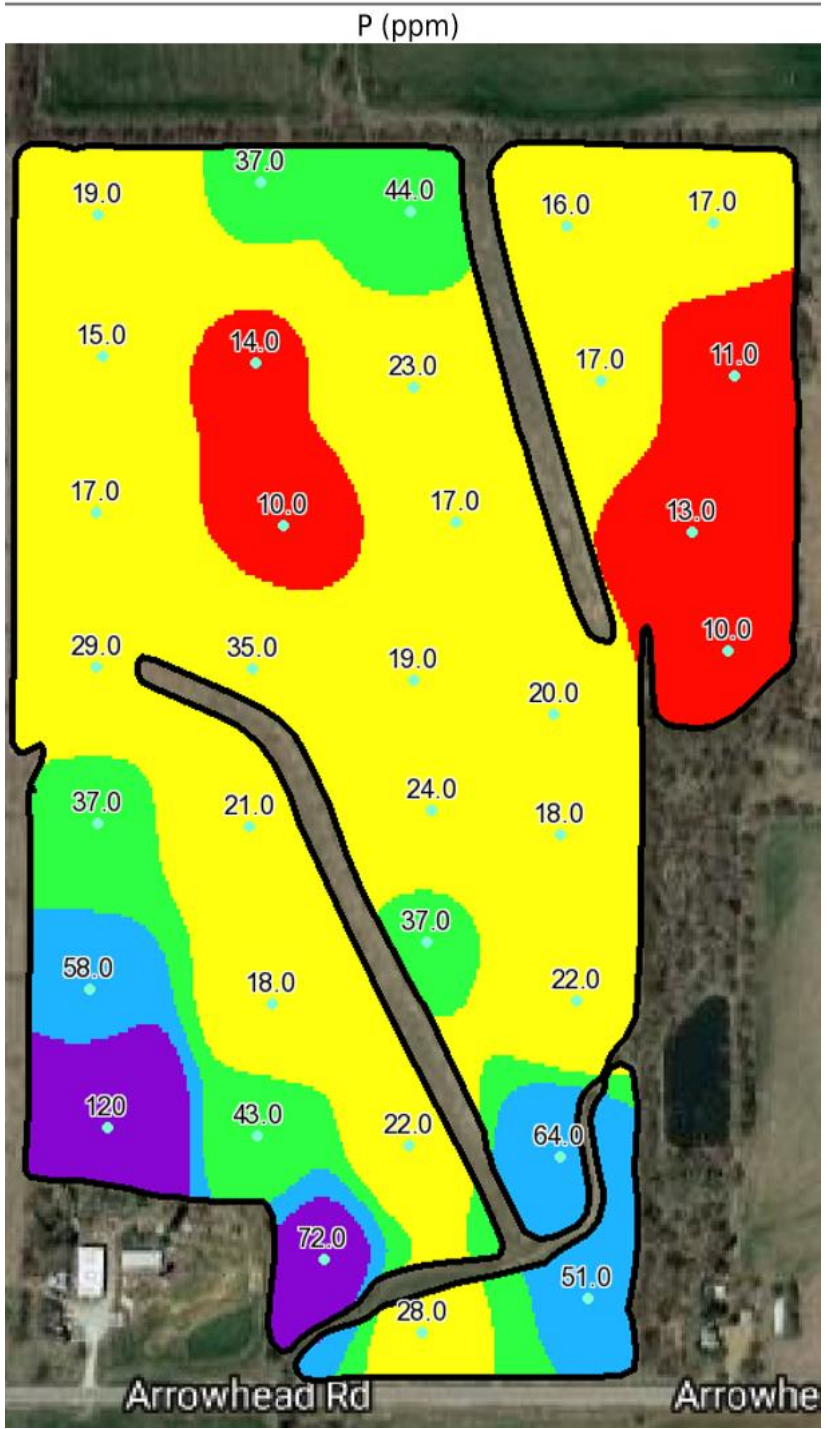
Date	Well # 8	Well # 9	Well # 12	POE	Lab	Well # 10	Well # 13	POE	
5/23/2016				1.6	KDHE			6	KDHE
8/30/2016	13.9				SDK				
8/30/2016				1.8	SDK				
8/30/2016		7.84			SDK				
8/30/2016			1.91		SDK				
8/29/2016					SDK	5.68			SDK
8/29/2016					SDK		3.1		SDK
8/29/2016					SDK			6.48	SDK
5/22/2017	14.00				SDK				
5/22/2017				10.2	SDK				
5/22/2017		5.77			SDK				
5/22/2017			2.07		SDK				
5/22/2017					SDK	5.86			SDK
5/22/2017					SDK		2.54		SDK
5/22/2017					KDHE			2.2	KDHE
5/22/2017				9.1	KDHE				
5/22/2017					SDK			2.62	SDK
5/7/2018	12.6				SDK				
5/7/2018		19.2			SDK				
5/7/2018			2.32		SDK				
5/7/2018				9.65	SDK				
5/7/2018					SDK	7.07			SDK
5/7/2018					SDK		2.71		SDK
5/7/2018					SDK			NA	NA
5/16/2018					KDHE			2.2	KDHE
5/16/2018				6.3	KDHE				
5/21/2019				6.3	KDHE				
5/21/2019					KDHE			6.7	KDHE

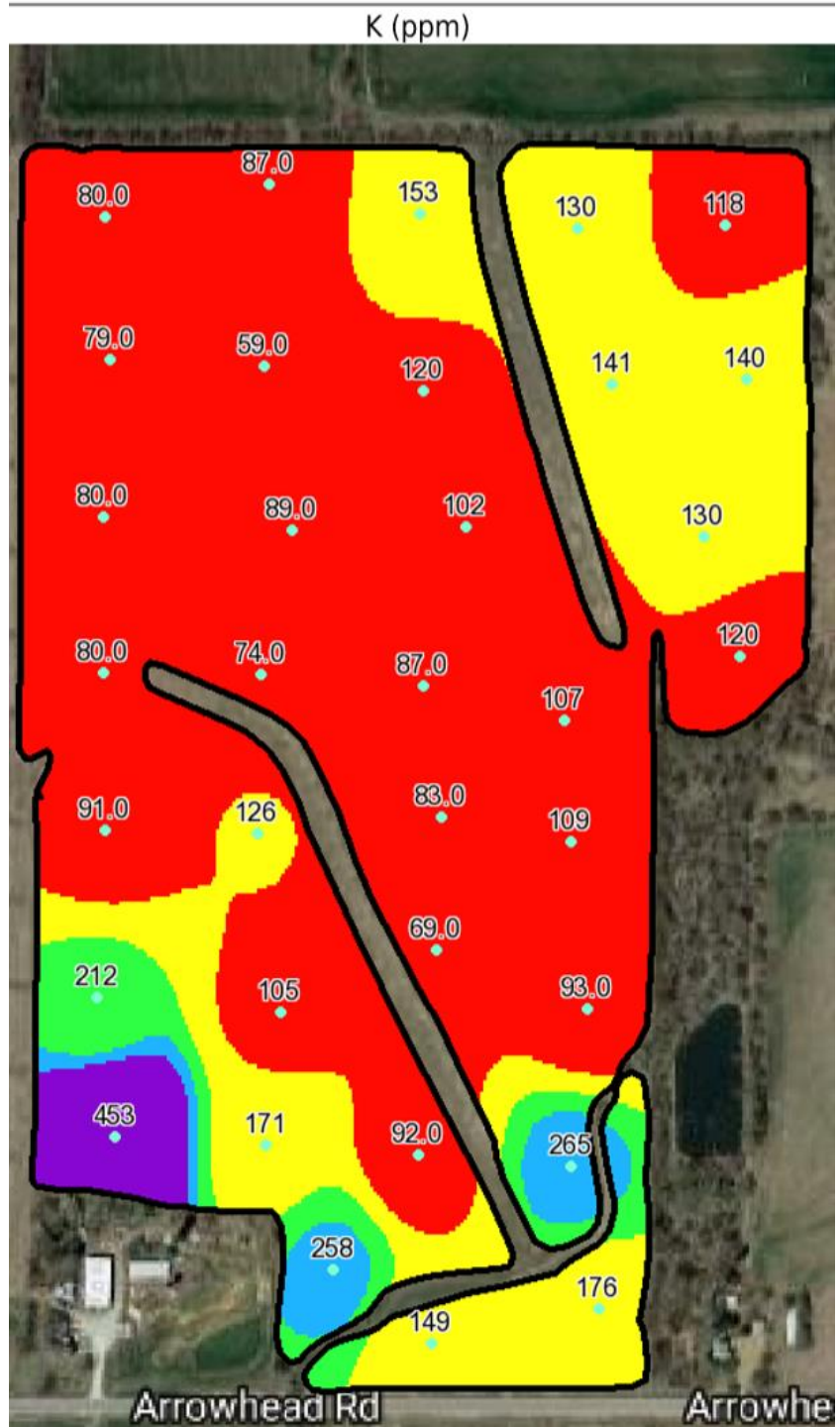
Types of Irrigation

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

PMDI


pH (none)
5.6
5.2
4.8
4.9
5.3
6.1
5.7
5.7
5.1
5.7
6.1
5.5
5.9
5.2
5.4
5.9
5.8
5.8
5.9
5.8
5.7
5.8
6.0
5.4
5.3
5.7
6.2
5.6
5.6
6.3
5.2
6.0
6.4
5.9
Arrowhead Rd
Arrowhea


P (ppm)
19.0
37.0
44.0
16.0
17.0
15.0
14.0
23.0
17.0
11.0
17.0
10.0
17.0
13.0
10.0
29.0
35.0
19.0
20.0
37.0
21.0
24.0
18.0
37.0
58.0
18.0
22.0
120
43.0
22.0
64.0
72.0
51.0
28.0
Arrowhead Rd
Arrowhe


K (ppm)
87.0
80.0
153
130
118
79.0
59.0
120
141
140
80.0
89.0
102
130
80.0
74.0
87.0
107
120
91.0
126
83.0
109
69.0
212
105
93.0
453
171
92.0
265
258
176
149
Arrowhead Rd
Arrowhe

Tissue Sampling = 6/10/2019 @ **V5**

NutriSolutions® By WinField United

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**

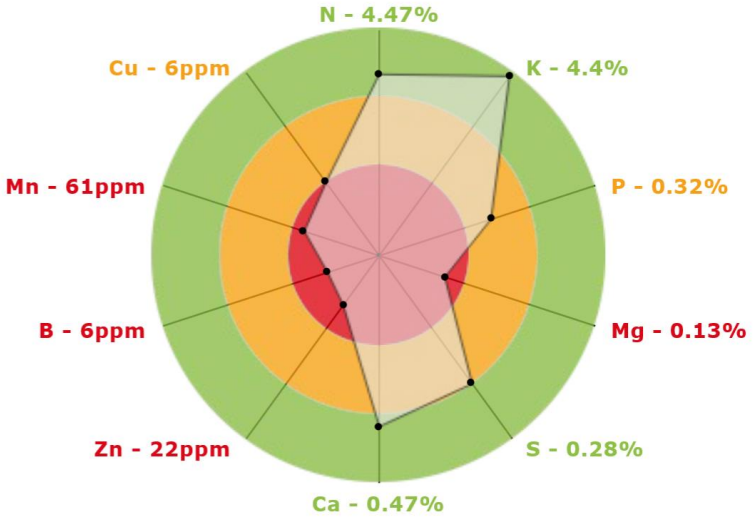
Crop: **CORN**
Stage: **V5**

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

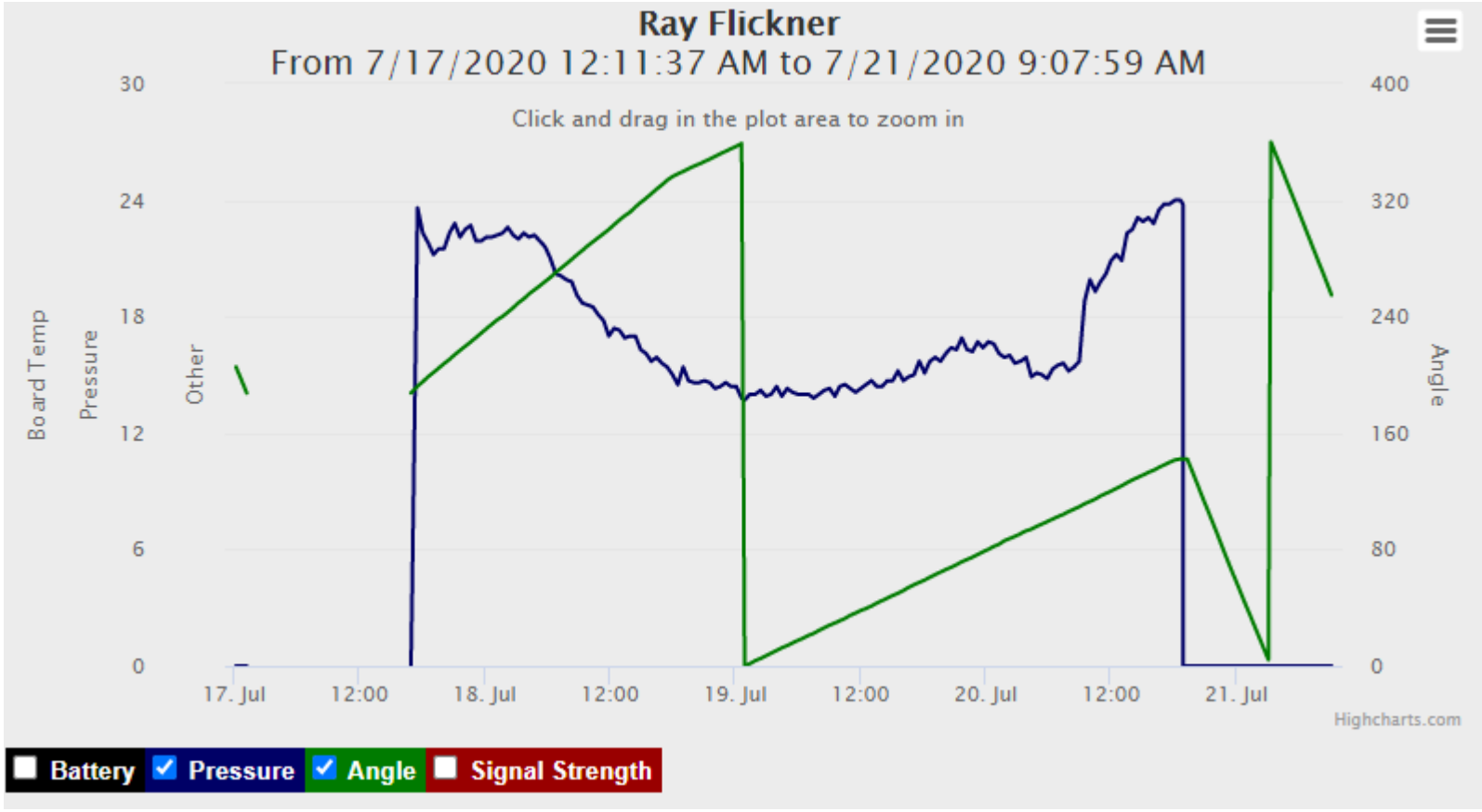
GPS Latitude: **38.205292**
GPS Longitude: **-97.568374**

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	



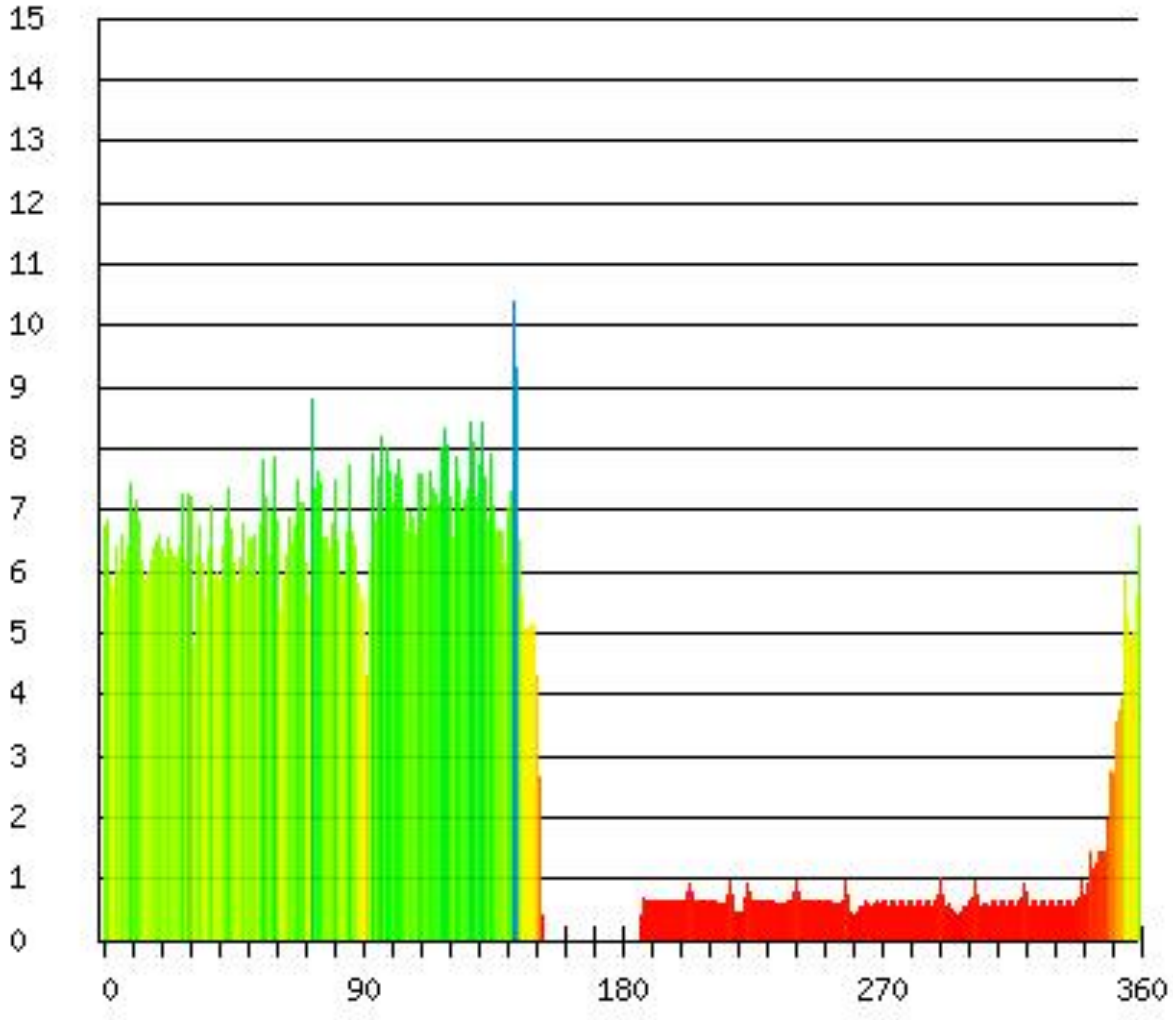
AgSense 2020

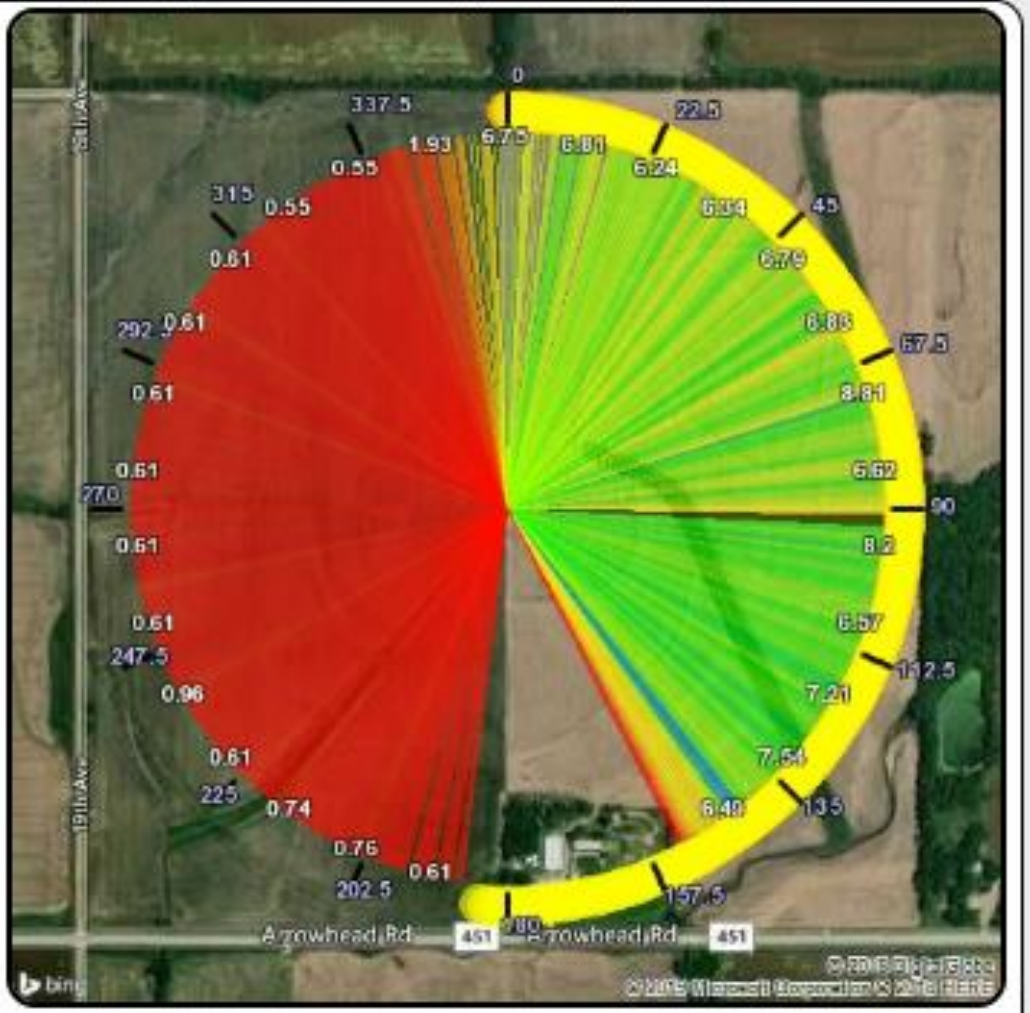


AgSense 2019

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

Inches Applied by Angle





Total Inches Applied

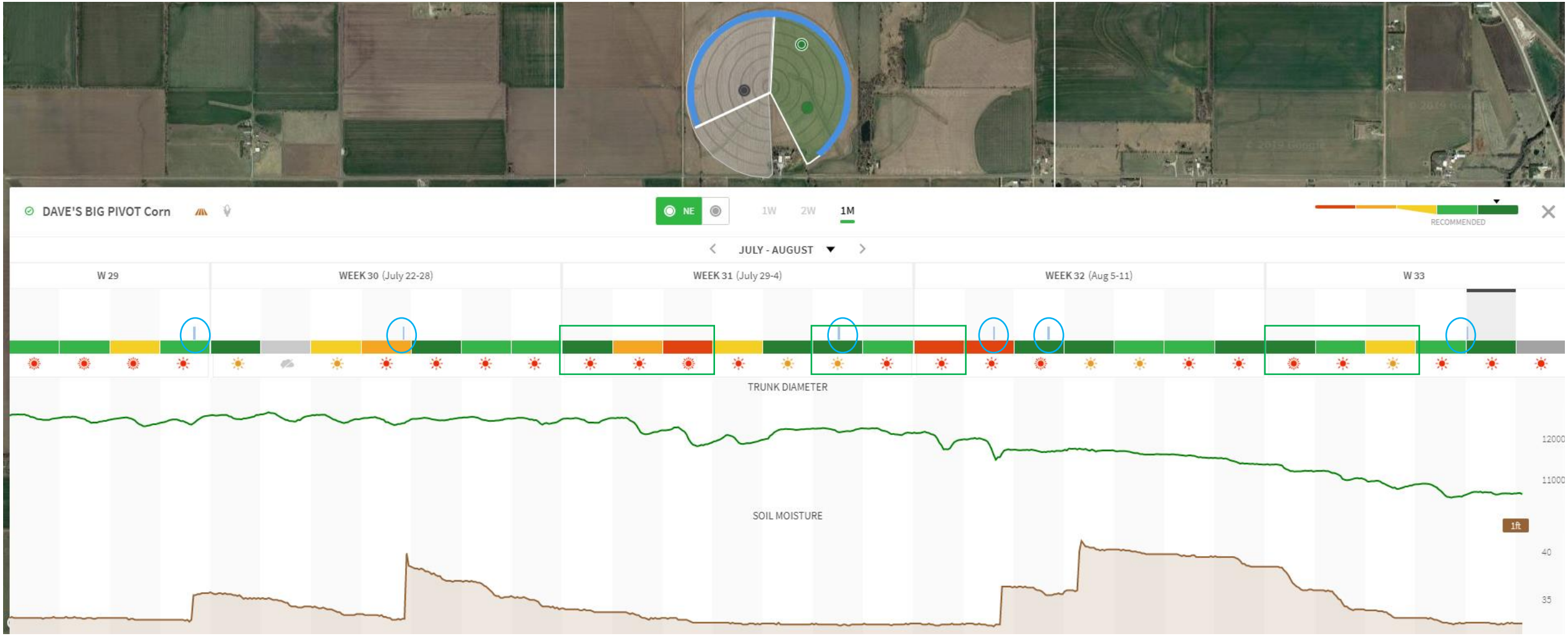
Ways We Monitored Crop Stress

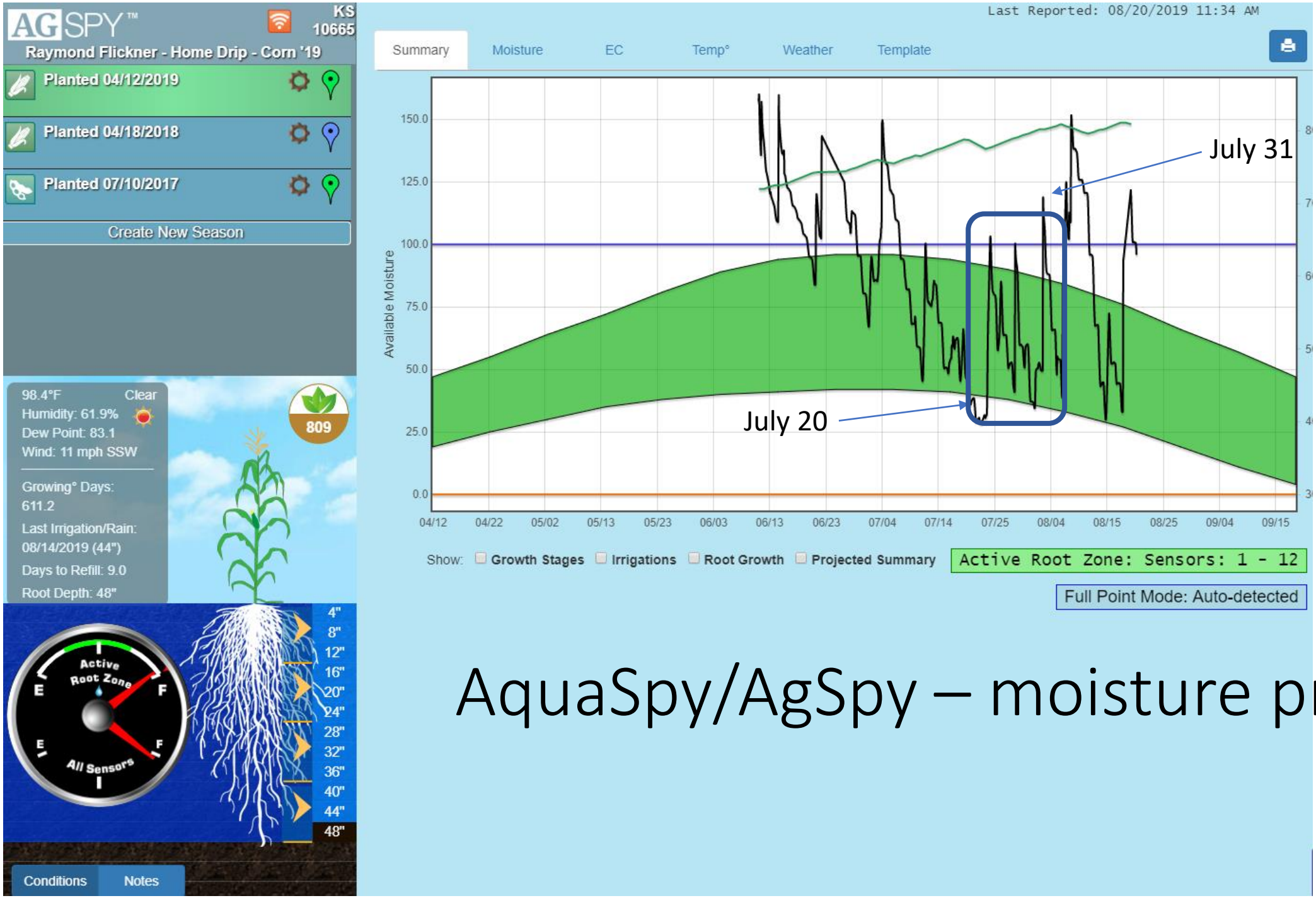
Plant Based

Ground Moisture

Imagery

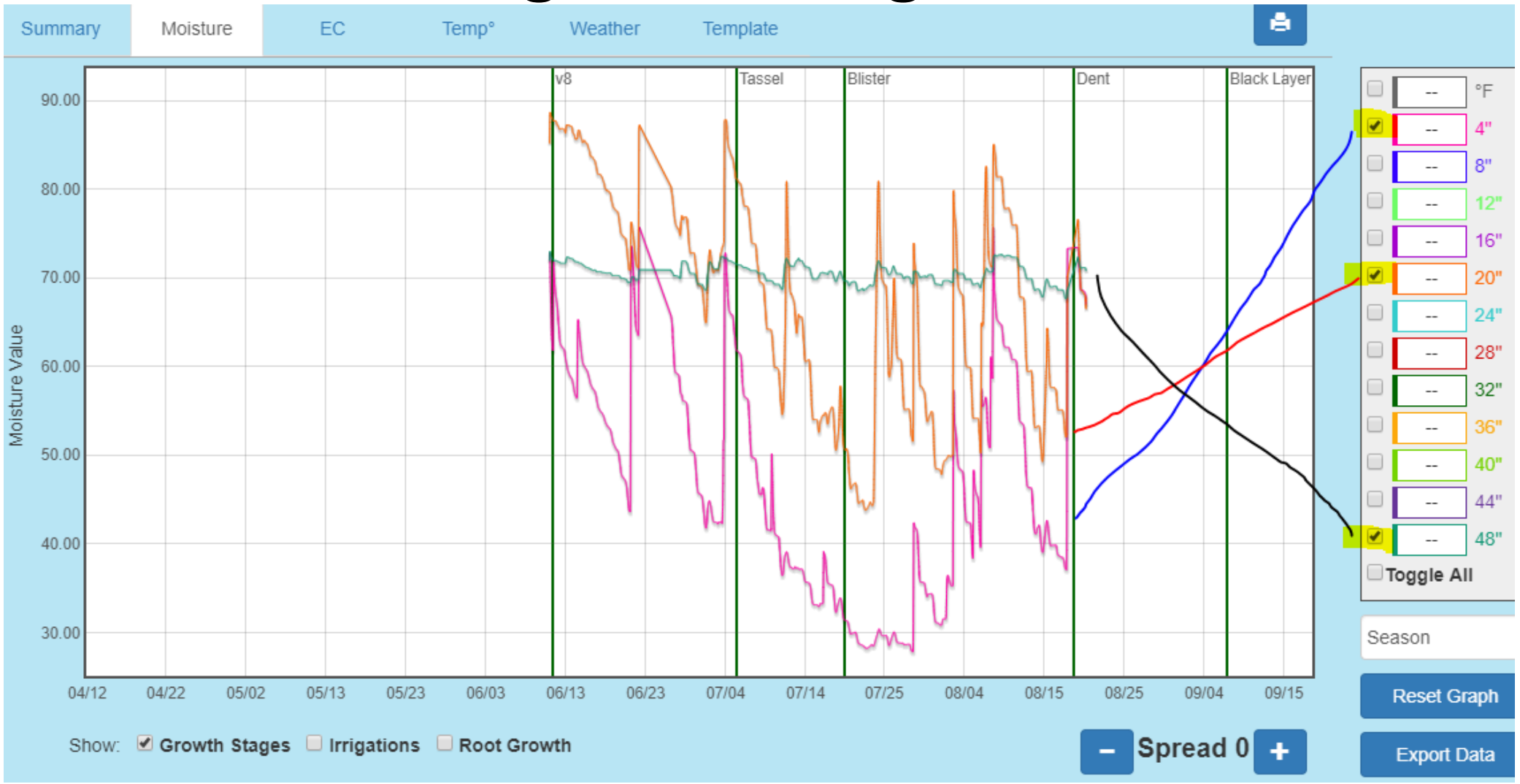
Phytech – irrigation events; plant health

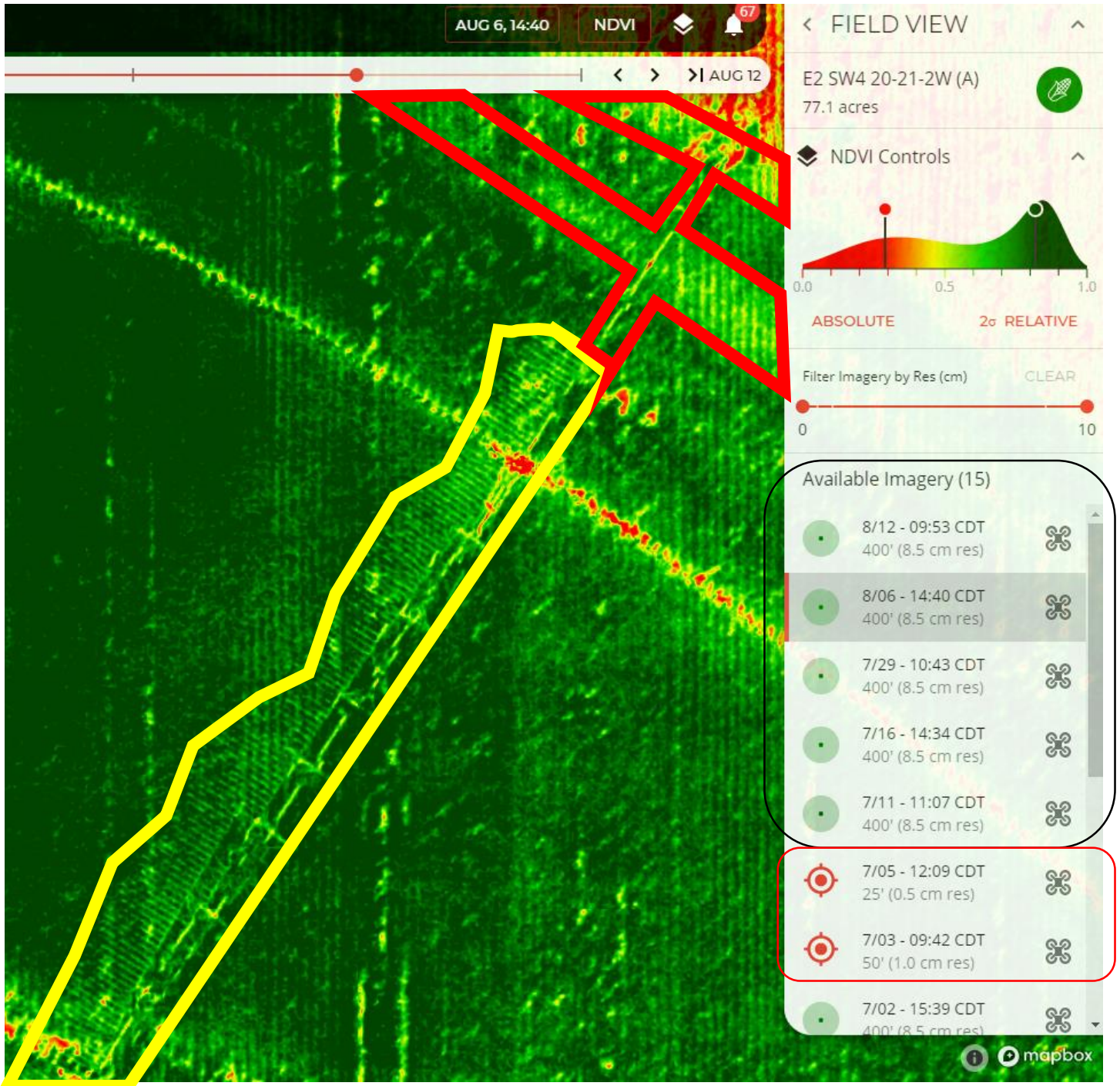




AquaSpy/AgSpy – moisture probe

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



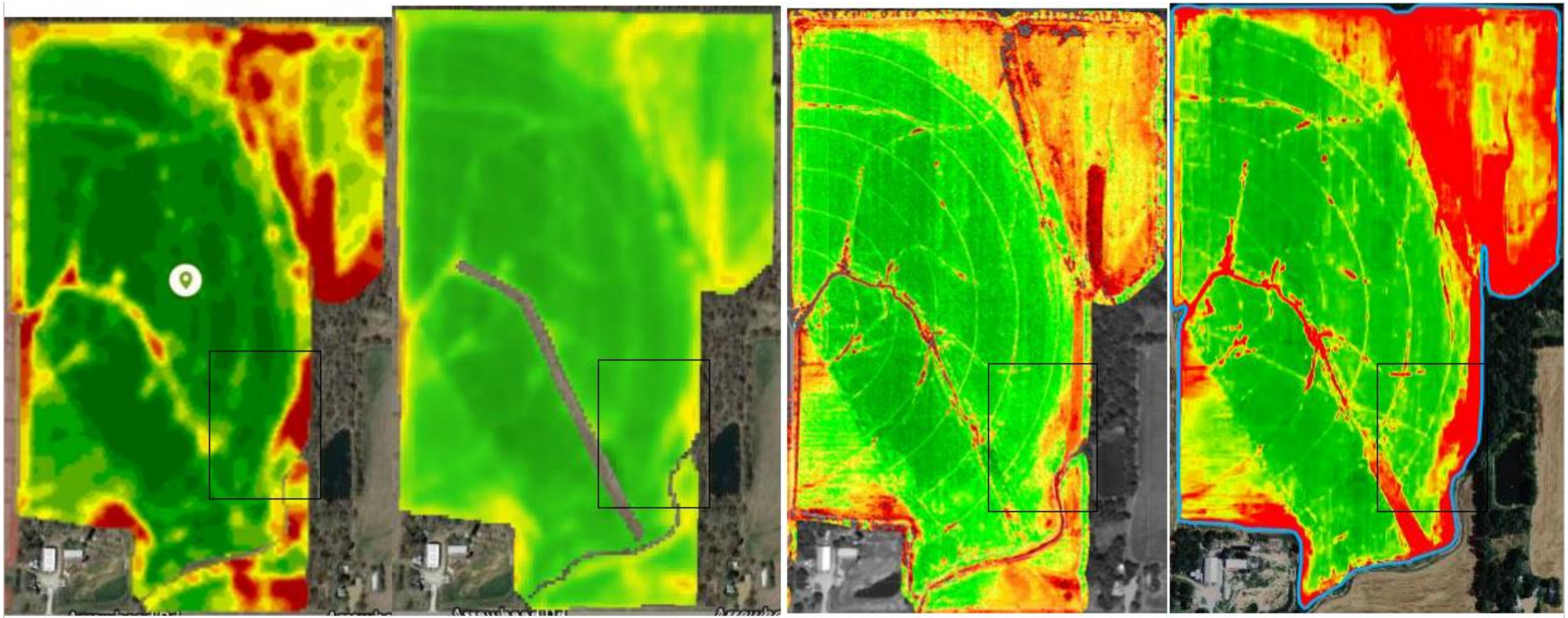


American Robotics

–

“UAS/drone in a box”

Imagery comparison = R7, ClimateView, Terravion, American Robotics



R7
7/19/2019

Climate
7/19/2019

Terravion
7/18/2019

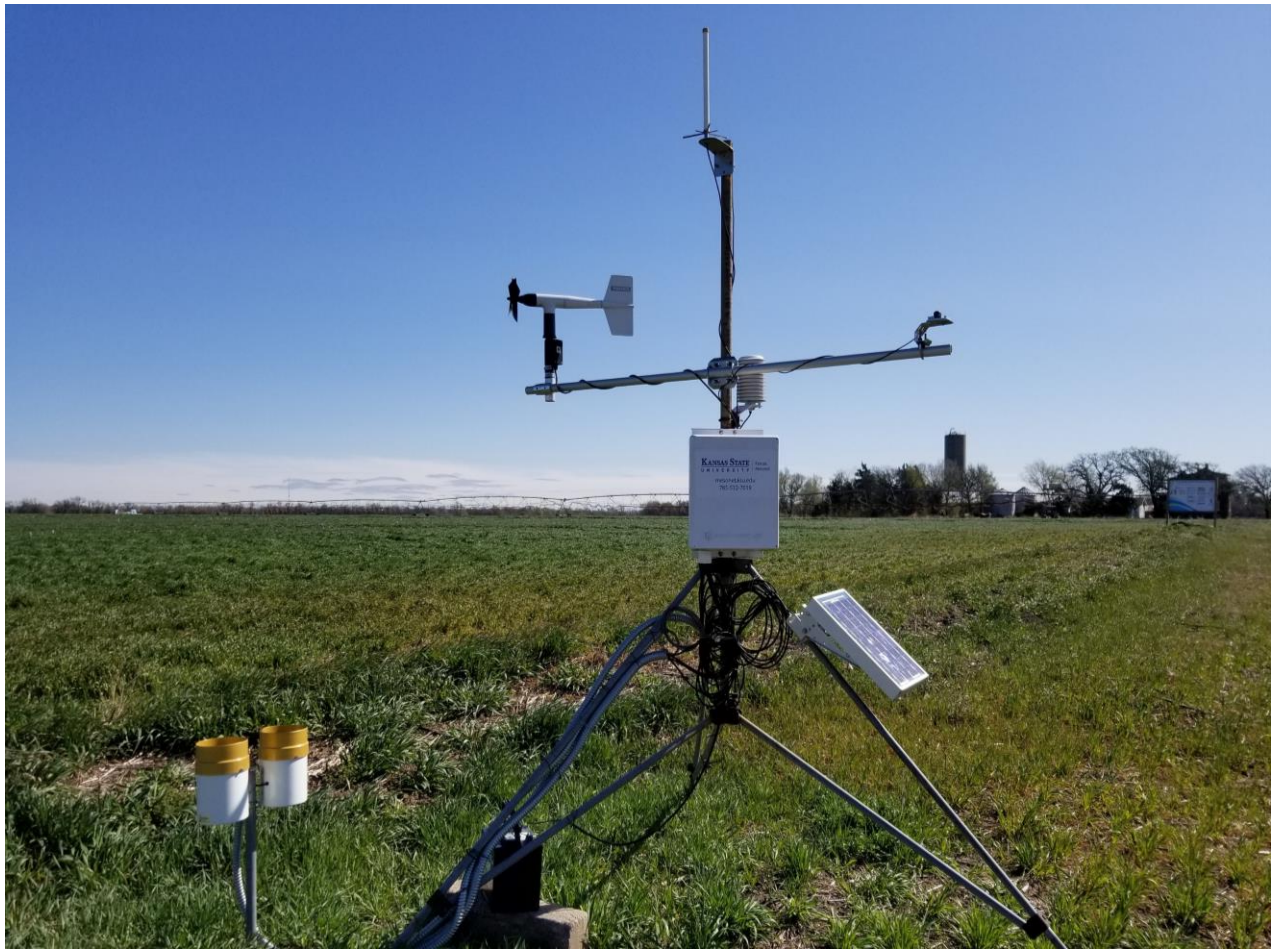
American Robotics
7/16/2019

https://mesonet.k-state.edu/

Flickner Tech Farm

2021-04-01 — 2021-04-14

	Air Temperature		Relative Humidity	Precip	Wind Speed		2" Soil Temperature		4" Soil Temperature		Solar Radiation	ETo	
	Max °F	Min °F	Avg %	Total inches	Avg mph	Max mph	Max °F	Min °F	Max °F	Min °F	Total ly	Grass inches	Alfalfa inches
04-01	60.6	25.1	40.8	0	7.3	22.7	54.1	45.0					
04-02	69.8	38.0	38.8	0	12.5	34.3	54.9	46.7					
04-03	74.8	43.4	52.6	0	7.9	20.8	58.8	49.1					
04-04	78.0	47.1	67.8	0	9.6	26.3	61.2	52.6					
04-05	78.2	53.1	66.5	0	13.7	36.5	62.7	55.9					
04-06	73.4	58.9	72.7	0.01	16.3	38.8	60.7	58.0					
04-07	59.4	41.6	87.8	0.17	13.3	26.6	59.7	51.1					
04-08	70.8	41.9	51.7	0	11.6	30.0	57.3	49.5					
04-09	71.3	37.3	68.2	0.03	8.9	41.6	56.1	50.1					
04-10	63.0	34.6	64.8	0	10.0	26.8	57.3	49.3					
04-11	75.8	34.7	48.4	0	7.7	24.6	60.3	48.5					
04-12	55.2	33.4	54.1	0	9.2	24.3	57.9	52.0					
04-13	54.3	30.7	61.4	0	4.3	16.7	55.6	49.5					
04-14	55.2	31.4	60.9	0	5.5	17.8	56.6	48.1					
summary	67.1	39.4	59.7	0.21	9.8	41.6	58.1	50.4					



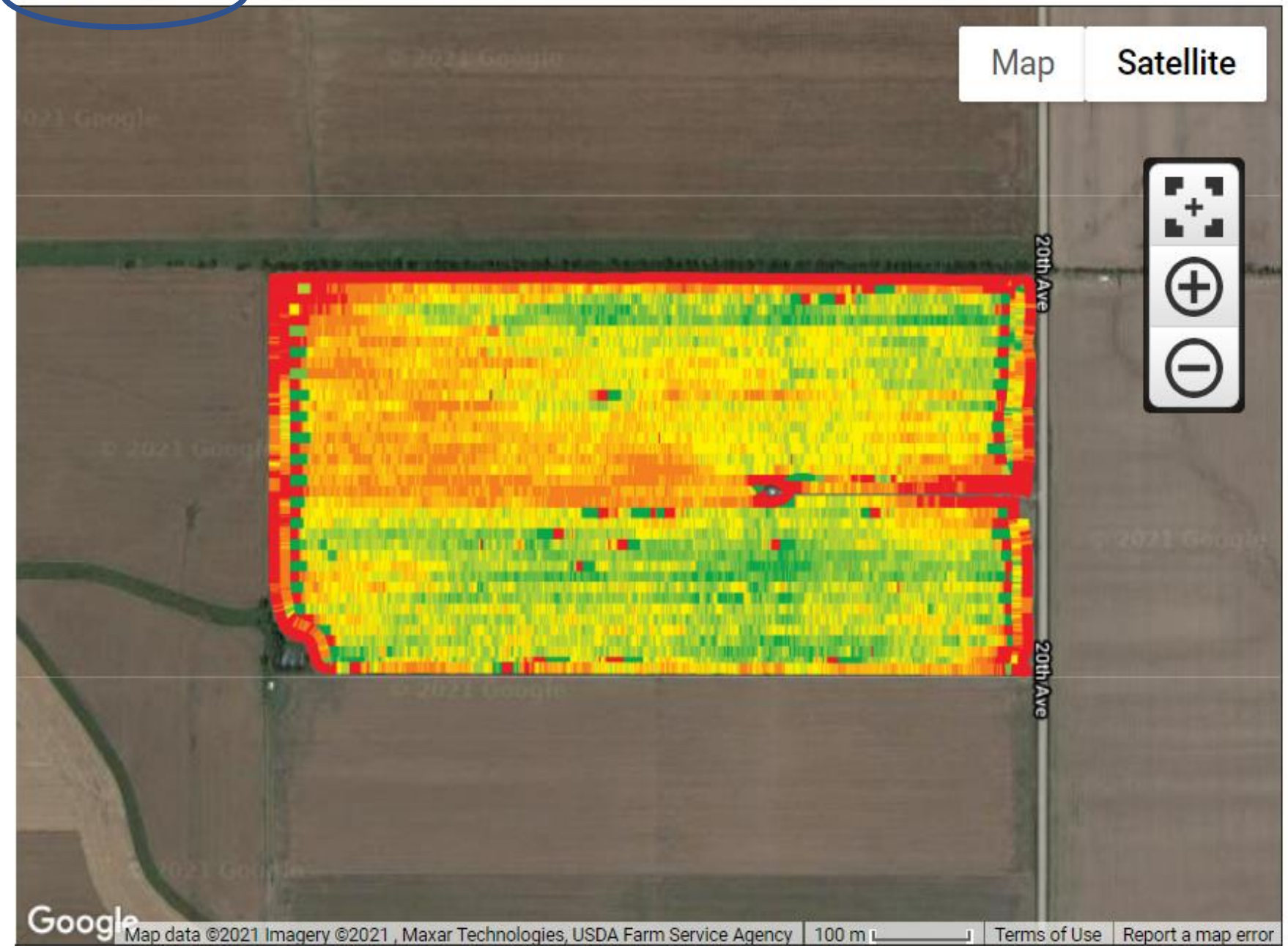
2020 Soybeans: Harvest

Layer: Dry Yield

Gringo

Ray Flickner | Flickner Farms

Operation Dates: 10/14/2020 - 10/14/2020



AGRONOMIC DATA

TOTAL DRY YIELD 3,426.39 bu	**AVG. WET WEIGHT** 2,704.2 lb/ac
AVG. DRY YIELD 44.33 bu/ac	**AVG. CRUDE PROTEIN** 42.32 %
AVG. MSTR 12.75 %	**AVG. STARCH** 5.1 %
AVG. SPEED 4.16 mi/h	
AREA WORKED 77.29 ac	
WET WEIGHT 209,007.63 lb	

LEGEND

57.6	4 %
52.1	13 %
48.1	23 %
44.3	26 %
40.2	20 %
32.7	11 %
0	3 %

2020 Soybeans: Harvest

Layer: Crude Protein

Gringo

Ray Flickner | Flickner Farms

Operation Dates: 10/14/2020 - 10/14/2020

AGRONOMIC DATA

TOTAL DRY YIELD 3,426.39 bu	**AVG. WET WEIGHT** 2,704.2 lb/ac
AVG. DRY YIELD 44.33 bu/ac	**AVG. CRUDE PROTEIN** 42.32 %
AVG. MSTR 12.75 %	**MAX PROTEIN** 63.83 %
AVG. SPEED 4.16 mi/h	
AREA WORKED 77.29 ac	
WET WEIGHT 209,007.63 lb	

LEGEND

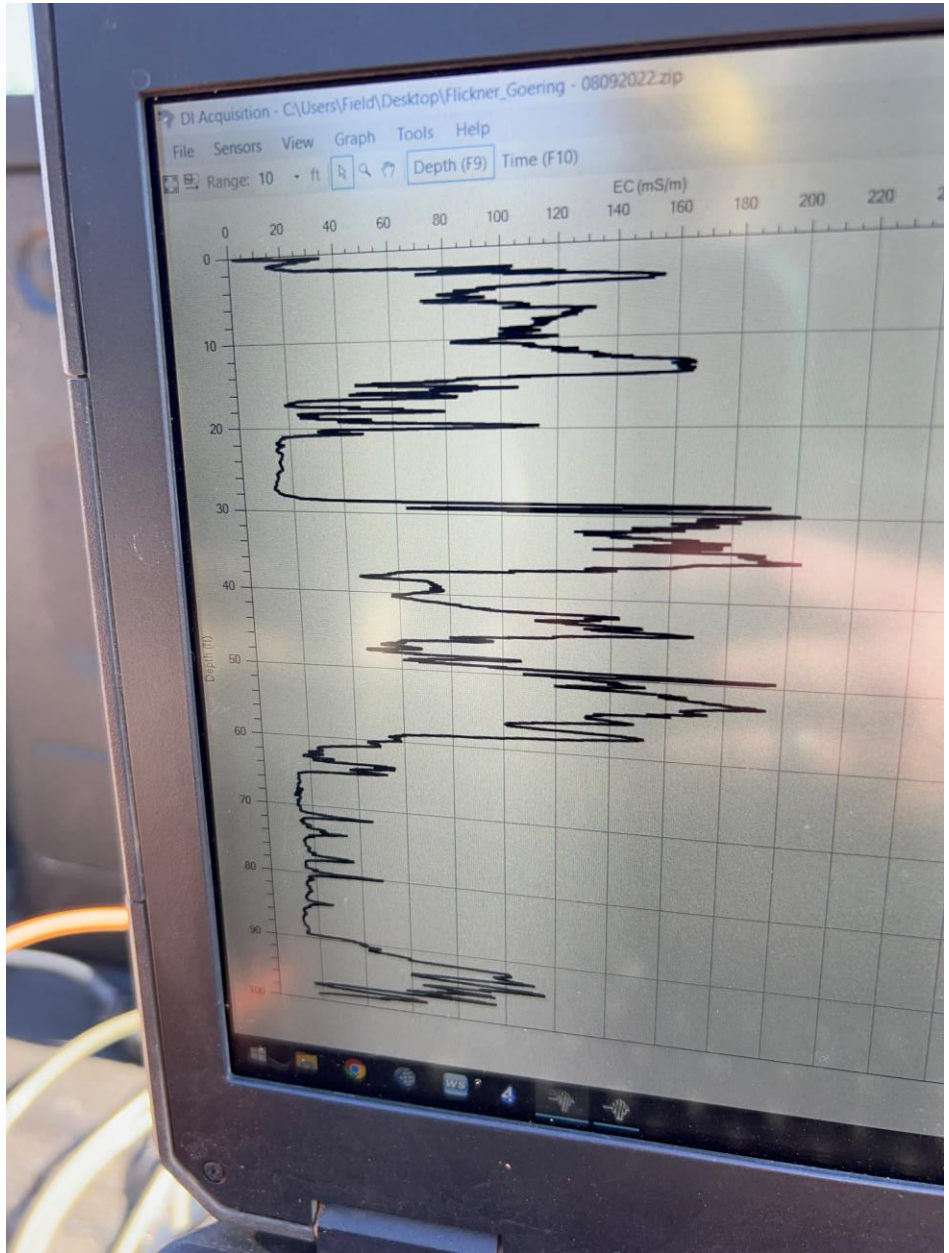
48.1	9 %
44.9	4 %
42.9	17 %
41.5	13 %
40.3	21 %
39.1	23 %
0	13 %

Xtendimax = right

Enlist = left

Greenfield Robotics

Kansas Geological Survey – “direct push”



Cover crop versus no cover

Same field

Planted at same time

North Carolina State University: cover crop study

Dryland

- Interseed rye (August 2020)
- Drilled rye (September 2020)
- Drilled wheat (October 2020)

- Moisture probes in each trial

WINTER MEETING

January 13,2023

Inman Community Center

Topics