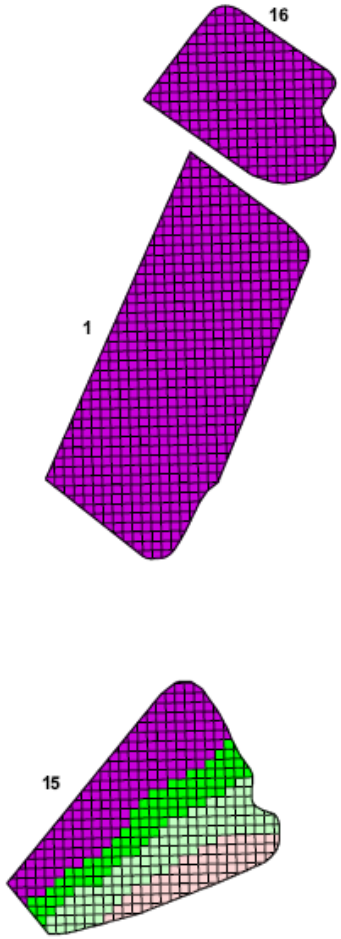
The Disparity of Available Hydration and Nutrition Through Soils

Part 1 of 2

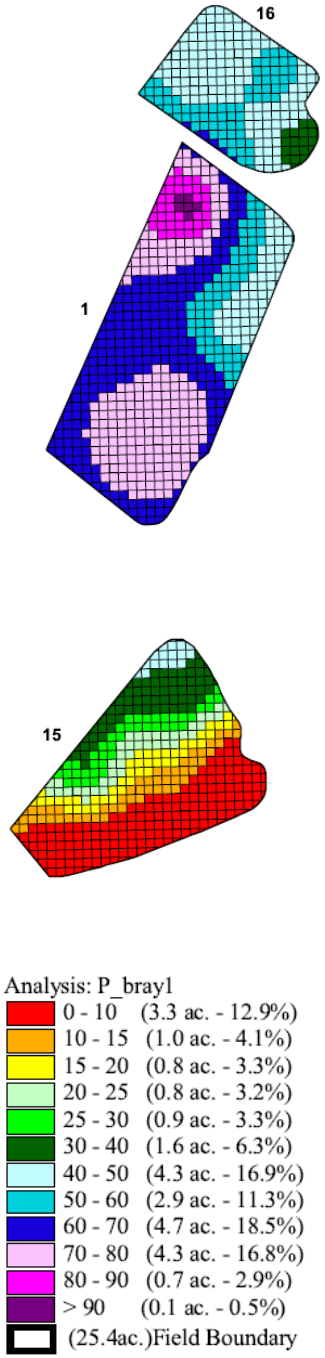
Data by Agri Technovation
Location Near San Luis Obispo, CA
Top Soil Samples (Depth ??)

Blocks where Soil was Sampled – No's 16, 01 and 15



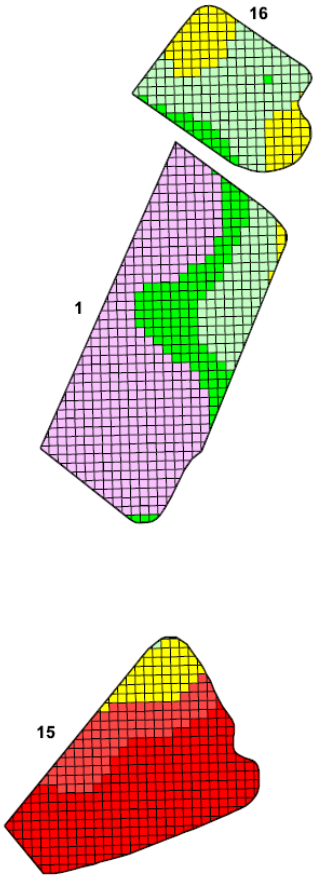
Analysis: pH

- <4 (0.0 ac. - 0.0%)
- 4-4.5 (0.0 ac. - 0.0%)
- 4.5 - 5 (0.0 ac. - 0.0%)
- 5 - 5.5 (0.0 ac. - 0.0%)
- 5.5 - 6 (1.2 ac. - 4.9%)
- 6 - 6.5 (2.0 ac. - 8.0%)
- 6.5 - 7 (1.7 ac. - 6.7%)
- 7 - 8 (20.5 ac. - 80.4%)
- >8 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary



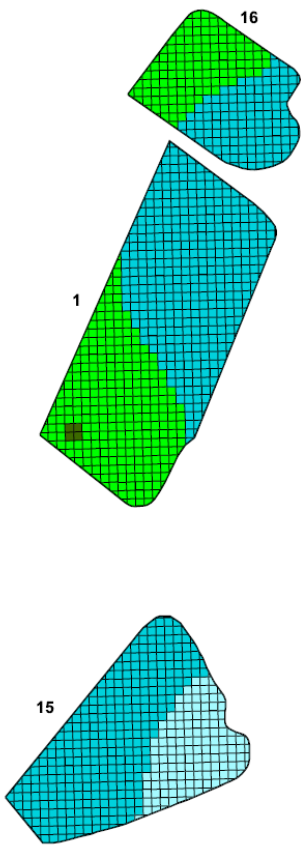
Analysis: P_bray1

- 0 - 10 (3.3 ac. - 12.9%)
- 10 - 15 (1.0 ac. - 4.1%)
- 15 - 20 (0.8 ac. - 3.3%)
- 20 - 25 (0.8 ac. - 3.2%)
- 25 - 30 (0.9 ac. - 3.3%)
- 30 - 40 (1.6 ac. - 6.3%)
- 40 - 50 (4.3 ac. - 16.9%)
- 50 - 60 (2.9 ac. - 11.3%)
- 60 - 70 (4.7 ac. - 18.5%)
- 70 - 80 (4.3 ac. - 16.8%)
- 80 - 90 (0.7 ac. - 2.9%)
- > 90 (0.1 ac. - 0.5%)
- (25.4ac.)Field Boundary



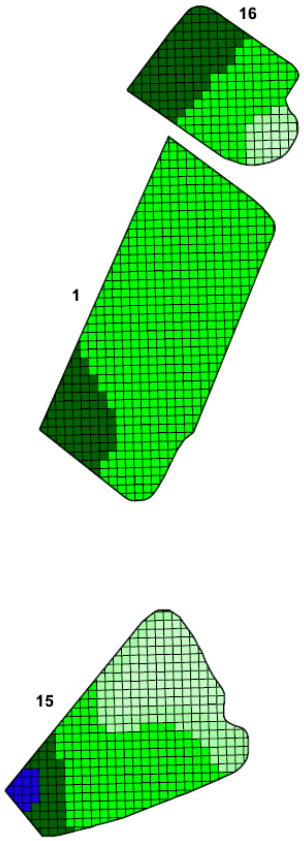
Analysis: P_olsen

- < 10 (5.5 ac. - 21.7%)
- 10 - 15 (1.9 ac. - 7.3%)
- 15 - 20 (2.5 ac. - 9.9%)
- 20 - 25 (4.7 ac. - 18.6%)
- 25 - 30 (2.6 ac. - 10.3%)
- 30 - 50 (8.2 ac. - 32.3%)
- 50 - 100 (0.0 ac. - 0.0%)
- > 100 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary



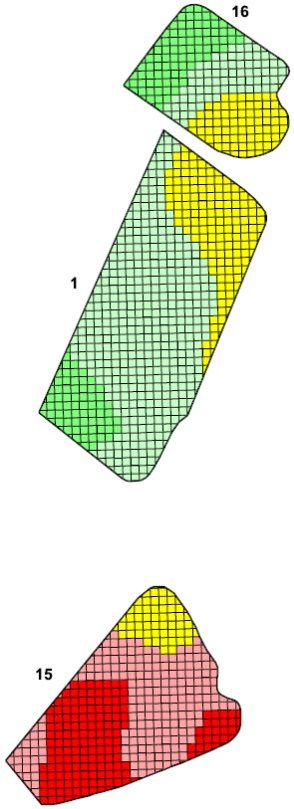
Analysis: Ca

- 0 - 50 (0.0 ac. - 0.0%)
- 50 - 100 (0.0 ac. - 0.0%)
- 100 - 150 (0.0 ac. - 0.0%)
- 150 - 200 (0.0 ac. - 0.0%)
- 200 - 400 (0.0 ac. - 0.0%)
- 400 - 600 (0.0 ac. - 0.0%)
- 600 - 1000 (2.5 ac. - 9.9%)
- 1000 - 2000 (15.4 ac. - 60.4%)
- 2000 - 3000 (7.5 ac. - 29.4%)
- 3000 - 4000 (0.1 ac. - 0.3%)
- 4000 - 5000 (0.0 ac. - 0.0%)
- > 5000 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary



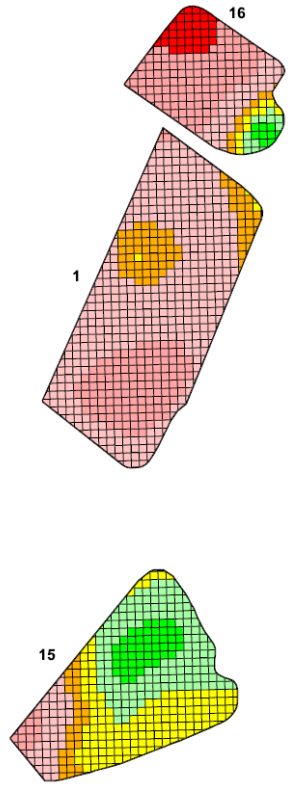
Analysis: Mg

- 0 - 50 (0.0 ac. - 0.0%)
- 50 - 75 (0.0 ac. - 0.0%)
- 75 - 100 (0.0 ac. - 0.0%)
- 100 - 150 (2.4 ac. - 9.4%)
- 150 - 200 (1.9 ac. - 7.4%)
- 200 - 400 (16.6 ac. - 65.3%)
- 400 - 600 (4.3 ac. - 16.8%)
- 600 - 800 (0.3 ac. - 1.1%)
- 800 - 1000 (0.0 ac. - 0.0%)
- 1000 - 1300 (0.0 ac. - 0.0%)
- 1300 - 1600 (0.0 ac. - 0.0%)
- > 1600 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary



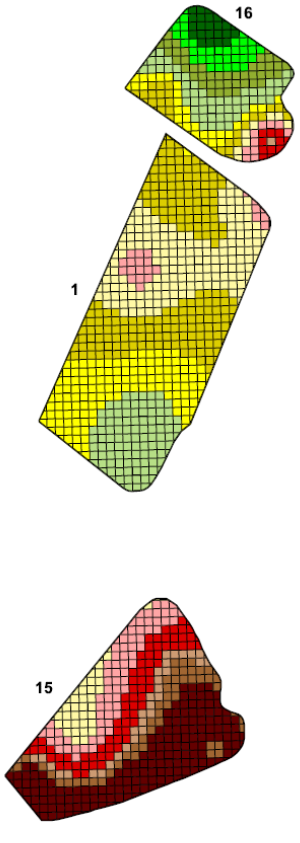
Analysis: K

- 0 - 25 (0.0 ac. - 0.0%)
- 25 - 50 (0.0 ac. - 0.0%)
- 50 - 75 (3.2 ac. - 12.7%)
- 75 - 100 (4.1 ac. - 16.2%)
- 100 - 150 (5.3 ac. - 20.9%)
- 150 - 200 (9.7 ac. - 38.2%)
- 200 - 300 (3.0 ac. - 12.0%)
- 300 - 400 (0.0 ac. - 0.0%)
- 400 - 500 (0.0 ac. - 0.0%)
- 500 - 600 (0.0 ac. - 0.0%)
- 600 - 700 (0.0 ac. - 0.0%)
- > 700 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary



Analysis: Na

- 0 - 20 (1.2 ac. - 4.5%)
- 20 - 30 (3.1 ac. - 12.1%)
- 30 - 40 (3.1 ac. - 12.1%)
- 40 - 50 (2.3 ac. - 8.9%)
- 50 - 75 (9.8 ac. - 38.7%)
- 75 - 100 (5.4 ac. - 21.0%)
- 100 - 150 (0.7 ac. - 2.6%)
- 150 - 200 (0.0 ac. - 0.0%)
- 200 - 300 (0.0 ac. - 0.0%)
- 300 - 400 (0.0 ac. - 0.0%)
- 400 - 500 (0.0 ac. - 0.0%)
- > 500 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary



Analysis: Sulfur

- 0 - 5 (3.2 ac. - 12.5%)
- 5 - 10 (1.0 ac. - 3.9%)
- 10 - 15 (0.7 ac. - 2.6%)
- 15 - 30 (1.7 ac. - 6.5%)
- 30 - 45 (2.0 ac. - 8.0%)
- 45 - 60 (4.2 ac. - 16.5%)
- 60 - 80 (4.5 ac. - 17.7%)
- 80 - 100 (3.2 ac. - 12.6%)
- 100 - 150 (3.1 ac. - 12.0%)
- 150 - 200 (0.9 ac. - 3.4%)
- 200 - 250 (0.7 ac. - 2.6%)
- 250 - 300 (0.4 ac. - 1.7%)
- 300 - 400 (0.0 ac. - 0.0%)
- > 400 (0.0 ac. - 0.0%)
- (25.4ac.)Field Boundary

Data

Sample	Bulk Density	Soil pH	PO4-P If pH < 6.0	PO4-P If pH >6.0	K (ppm)	Mg (ppm)	Ca (ppm)	S (ppm)	Zinc (ppm)	Mn (ppm)	Copper (ppm)	Iron (ppm)	Boron (ppm)	% K	% Mg	% Ca	% Na	% H	Ca:Mg	(Ca+Mg)/K	Mg:K	Na:K	Total CEC	So4 (ppm)	Sodium (ppm)	Ecmmhos/cm
	oz/in³	-	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	%	1.5-4.5	10.0-20.0	3.0-4.0	-	meq/100g	ppm	ppm	mmhos/cm
ATGV5001	0.462432	7.6	45.3	20.4	228.5	480.6	2325.8	68						3.5	24	69.9	2.4	0	2.91	26.83	6.86	0.69	16.6	204	92.5	1.2
ATGV5002	0.462432	7.3	40.4	18.2	213.6	468.4	2491.9	282.2						3.1	22.4	71.7	2.6	0	3.2	30.35	7.23	0.84	17.3	846.6	104.9	1.8
ATGV5003	0.462432	7.1	56.4	25.4	190.4	346	1986.5	187.8						3.5	21	72.6	2.6	0	3.46	26.74	6	0.74	13.6	563.4	84.3	1.9
ATGV5004	0.693648	7.7	35.3	15.9	100.2	102.4	983.2	9.9						4.2	14	80.8	0.8	0	5.77	22.57	3.33	0.19	6	29.7	12.3	0.3
ATGV5005	0.462432	7.3	51.9	23.4	121.2	287.3	1540	120.2	2.8	3.9	1	14.9	0.4	2.8	22.2	71.5	3.2	0	3.22	33.46	7.93	1.14	10.7	360.6	81	1.4
ATGV5006	0.462432	7.4	44.4	20	55.2	218.1	999.5	122.6						1.9	25.1	69	3.8	0	2.75	49.53	13.21	2	7.2	367.8	64.1	1.2
ATGV5007	0.57804	7.5	96.3	43.4	142.4	295.1	1701	74.8						3.1	21.1	73.3	2.3	0	3.47	30.45	6.81	0.74	11.6	224.4	62.5	0.9
ATGV5008	0.57804	7.5	65.3	29.4	176.4	307.3	1831.7	36.3						3.6	20.7	74.2	1.3	0	3.58	26.36	5.75	0.36	12.3	108.9	38.1	0.7
ATGV5009	0.57804	7.6	68.4	30.8	178.5	358.7	2221.9	75.5						3	20.1	74.7	2	0	3.72	31.6	6.7	0.67	14.8	226.5	70.8	0.9
ATGV5010	0.57804	7.7	70.2	31.6	216.8	451.3	3053.9	93.4						2.7	18.8	76.6	1.6	0	4.07	35.33	6.96	0.59	19.9	280.2	75.2	1.2
ATGV5011	0.520236	7.6	74.6	33.6	196.6	371.4	2432.5	124.2						3.1	19.2	75.5	2.1	0	3.93	30.55	6.19	0.68	16.1	372.6	78.4	1.3
ATGV5012	0.520236	7.6	76.6	34.5	155.5	319.4	1951.2	90.7						3	20.1	74	2.7	0	3.68	31.37	6.7	0.9	13.1	272.1	83	1.1
ATGV5013	0.520236	7.7	78.6	35.4	175.8	306.7	2118.9	67.9						3.2	18.3	76.2	2.1	0	4.16	29.53	5.72	0.66	13.8	203.7	68.3	0.9
ATGV5014	0.520236	7.5	45.5	20.5	156.4	283.4	1788.1	61.9						3.3	19.7	74.8	1.9	0	3.8	28.64	5.97	0.58	11.9	185.7	53.8	0.9
ATGV5015	0.57804	7.5	52.2	23.5	140.7	294.2	1975.8	59.9						2.7	18.9	76.4	1.8	0	4.04	35.3	7	0.67	12.9	179.7	54.6	1
ATGV5016	0.57804	7.3	9.8	4.4	79.2	658.5	1466.3	0.7						1.5	41	54.7	2.6	0	1.33	63.8	27.33	1.73	13.3	2.1	82.4	0.3
ATGV5017	0.635844	6.2	0.2	0.1	69	381.9	1050.6	1						1.8	33.2	54.9	1.9	8	1.65	48.94	18.44	1.06	8.7	3	42.5	0.2
ATGV5018	0.635844	6	1.9	0.9	73.6	372.5	1175.1	0.1						1.8	30	56.8	1.2	10	1.89	48.22	16.67	0.67	9.3	0	30.8	0.2
ATGV5019	0.635844	6.1	9.8	4.4	89.6	323	842.4	0.1						2.8	33.6	52.6	1.8	9	1.57	30.79	12	0.64	7.2	0	34.8	0.2
ATGV5020	0.693648	5.8	3.3	1.5	70.6	200.2	845.4	6.6						2.5	23.5	59.5	2.3	12	2.53	33.2	9.4	0.92	6.2	19.8	38	0.3
ATGV5021	0.693648	6.3	6.2	2.8	79.3	147.8	627.8	0.1						4	24.5	62.5	1.8	7	2.55	21.75	6.13	0.45	4.6	0	21.4	0.2
ATGV5022	0.635844	7.3	34.4	15.5	103.2	101.9	1203.1	10.7						3.6	11.7	83.4	1	0	7.13	26.42	3.25	0.28	7.2	32.1	17.9	0.4
ATGV5023	0.693648	7.1	21.1	9.5	73.1	123.3	1272.3	31.3						2.4	13.4	83.3	0.7	0	6.22	40.29	5.58	0.29	7.6	93.9	12.7	0.5
ATGV5024	0.57804	7.5	19.5	8.8	42.1	219.8	835.8	74						1.6	28.3	64.7	5.2	0	2.29	58.13	17.69	3.25	6.4	222	77.6	0.6
ATGV5025	0.635844	7.6	29.3	13.2	57.7	246	1858.4	59.1						1.2	17.5	79.5	1.6	0	4.54	80.83	14.58	1.33	11.6	177.3	43.8	0.6

HCT Observations, Interpretations

Tissue, SPe or Exchangeable, Soil Depths
Data wise looks perfect
Problems?

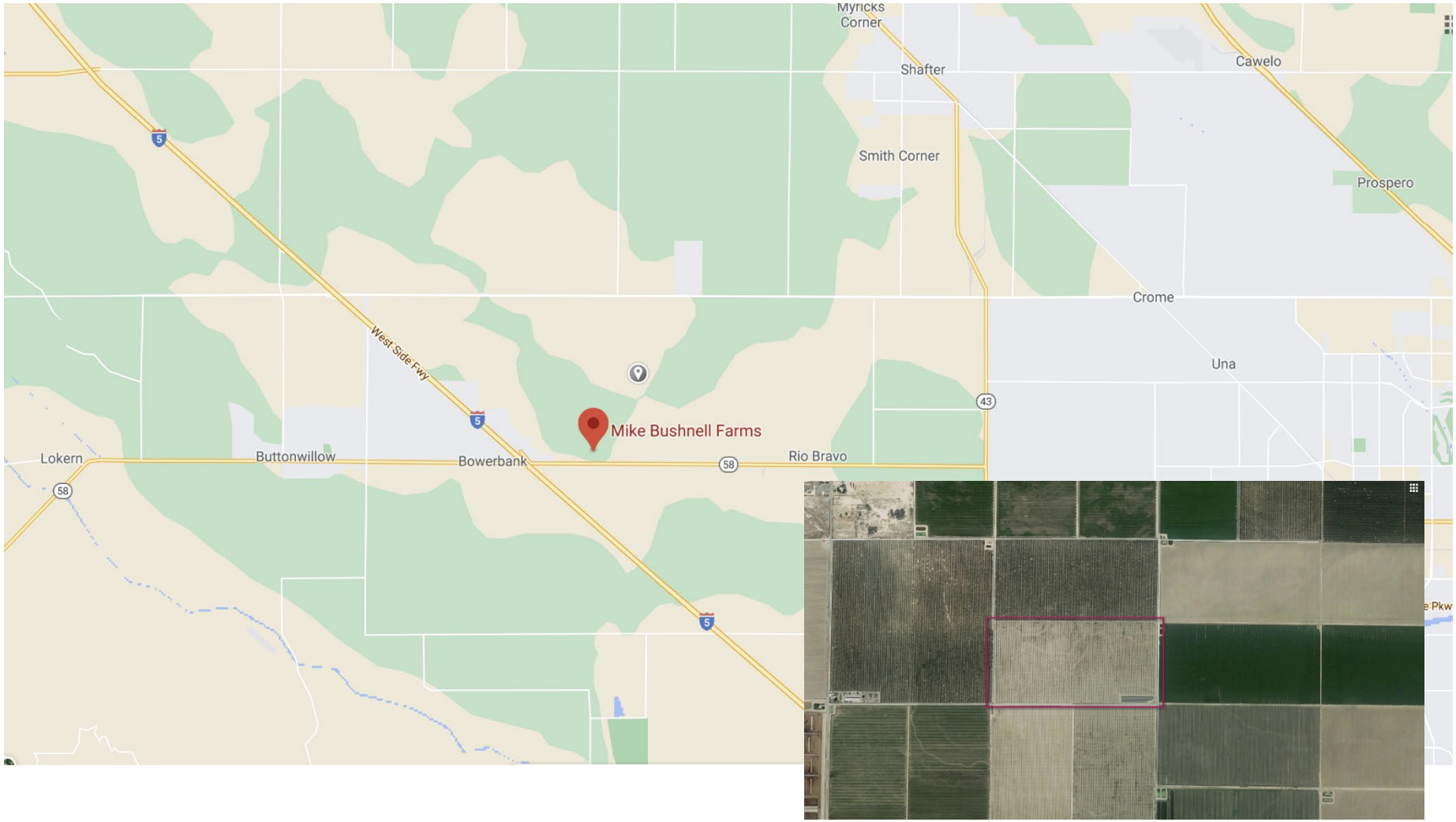
1. I have a hard time interpreting percentage versus ppm because the percentages of elements is not a precise data point to nutritional demands.
2. If you look at the DATA, what is not in good shape in terms of conventional agronomy? It all looks good.
3. What problems are they seeking to overcome, specifically? Was it iron staining and tip burn?
4. How do those problems relate to this data? It doesn't.
5. What were the soil depths? The report says top soil.
6. What were the titration methods, available or exchangeable and is it relevant based on the soil sample depths?
7. What was the soils moisture content at varying depths?
8. What are they doing relating to bacteria, bio-slimes and oxygen content in the soil? Do they need to do anything?
9. Are they experiencing challenges from black layer, root rot and iron staining?
10. Did they mention tip burn?

Based on the data they are likely suffering from dehydration versus toxicity, not getting water down, not enough water when the crops are in demand of it, that supplemented with nutritional deficiency due to its unavailability.

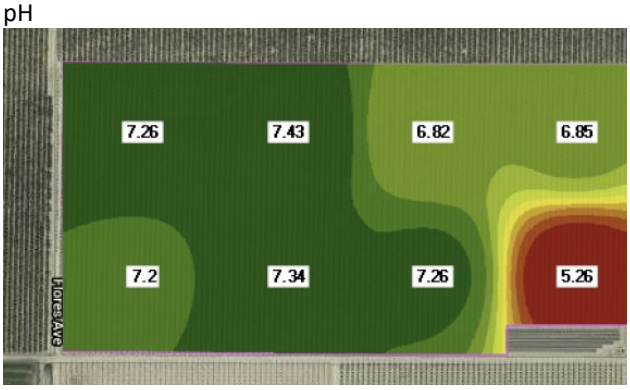
The Disparity of Available Hydration and Nutrition Through Soils

Part 2 of 2

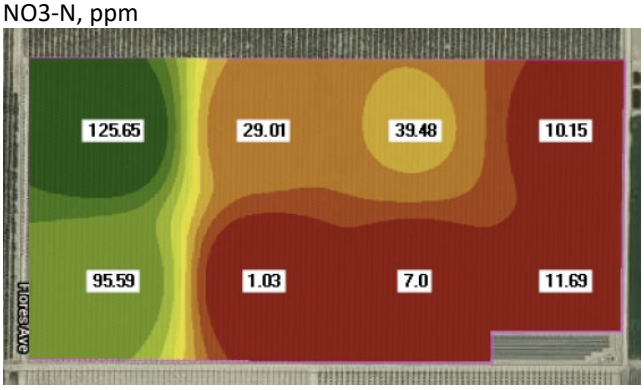
Data by Ag Verdict
Location Near Shafter, CA
Soil Sample Depths “roughly 3-18 inches”


Myricks Corner
Shafter
Cawelo
Smith Corner
Prospero
Crome
Una
West Side Fwy
Mike Bushnell Farms
Lokern
Buttonwillow
Bowerbank
Rio Bravo
5
58
43

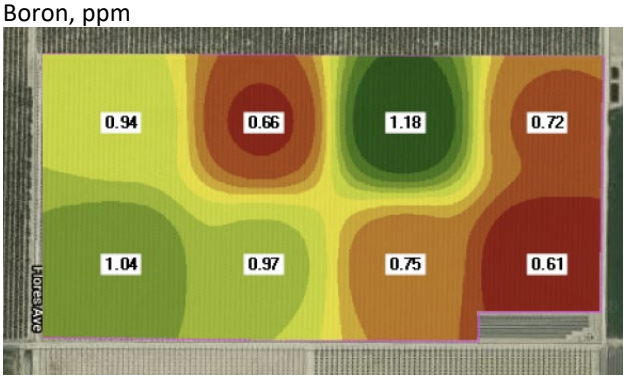
pH



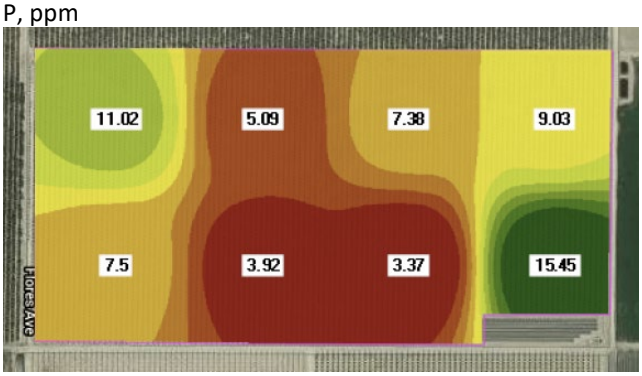
NO3-N, ppm



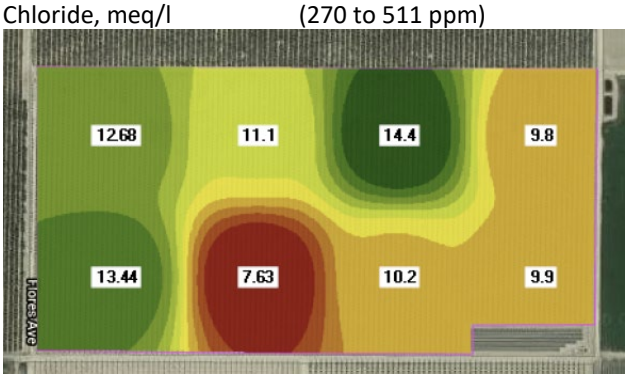
Boron, ppm



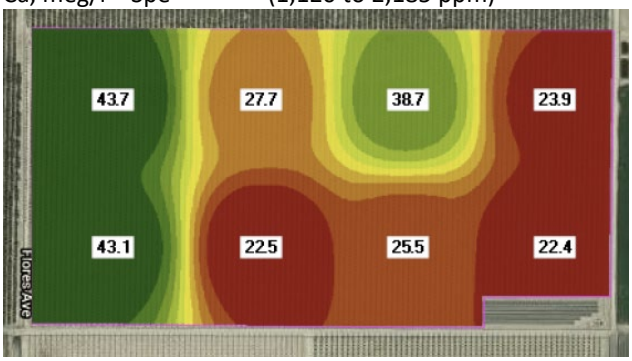
P, ppm



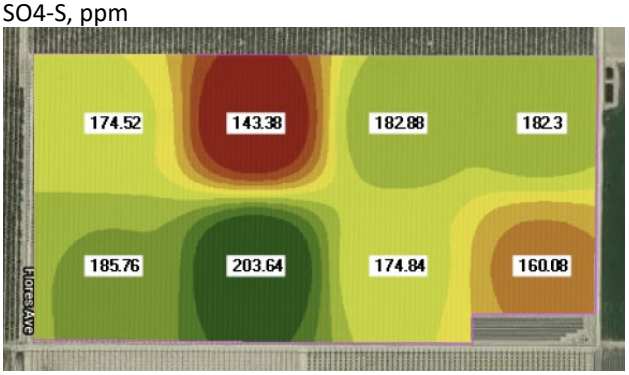
Chloride, meq/l (270 to 511 ppm)



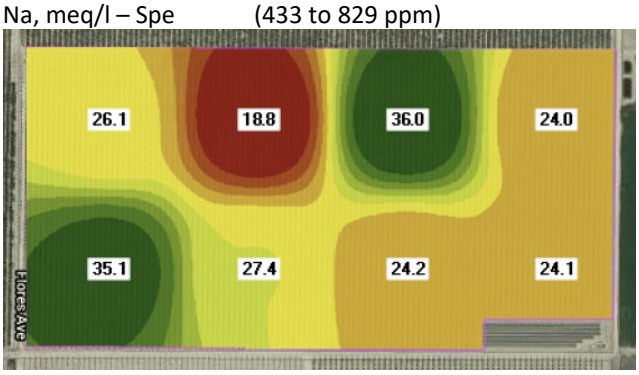
Ca, meq/l – Spe (1,120 to 2,185 ppm)



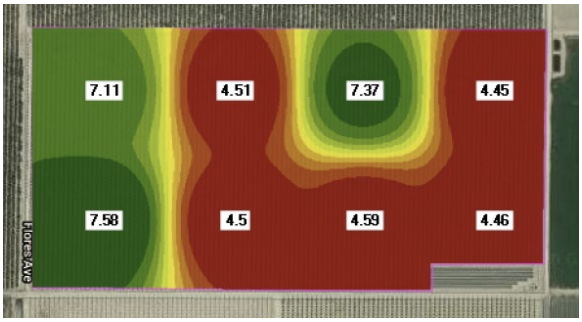
SO4-S, ppm



Na, meq/l – Spe (433 to 829 ppm)



ECe



HCT Observations, Interpretations

Tissue, SPe or Exchangeable, Soil Depths
Data wise looks perfect
Problems?

1. The Legends were difficult from the data provided. We had to get a separate table. See following page
2. What about the biology, the bacteria and potential biofilms, oxygen soil content, moisture retention?
3. Metals concentrations?
4. Depths?
5. pH disparity in itself.
6. How do you deal with conventional chemistry with chloride salts (NaCl) at these levels? Is there $FeCl_3$, $CaCl_2$ and $ZnCl_2$ as well? Likely so.

1:16 LTE

Sampling Summary

NO3-N	PPM	D1
P (B1 1:10)	PPM	D1
K (M3)	PPM	D1
Zn (DTPA)	PPM	D1
Mn (DTPA)	PPM	D1
Fe (DTPA)	PPM	D1
Cu (DTPA)	PPM	D1
B (HW)	mg/L	D1
Cl	meq/L	D1
pH (1:2)	NONE	D1
OM (WB)	%	D1
BS-Ca	%	D1

1:16 LTE

Sampling Summary

ECe (1:1)	dS/m	D1
Mg (AA)	PPM	D1
Mg (SP)	meq/L	D1
Mig-SP	%	D1
Mig-TEC	meq/100g	D1
Na (AA)	PPM	D1
Na (AA)	PPM	D1
Na (SP)	meq/L	D1
P (B1 1:10)	PPM	D1
SAR	NONE	D1
SO4-S	PPM	D1
SO4-S (CaPO4)	meq/L	D1

1:16 LTE

Sampling Summary

BS-Ca	%	D1
BS-H	%	D1
BS-K	%	D1
BS-Mg	%	D1
BS-Na	%	D1
BS_OtherBase	%	D1
Ca (AA)	PPM	D1
Ca (AA)	PPM	D1
Ca (AA)	PPM	D1
Ca (SP)	meq/L	D1
CaCO3	NONE	D1
ECe (1:1)	dS/m	D1