

Brandon Farms/DCR Soil Health



Brandon Farms/DCR

- VA Nutrient Management Specialist 20 years VADCR
- Member of the Southern Cover Crops Council Executive Board
- Member of Virginia's Farmer Innovative Roundtable
- Chair of Virginia's BMP TAC cover crop/nm subcommittee
- Member of Essex County Ag and Forestry Advisory Board
- Member Precision Sustainable Ag farmer think at University of Florida
- Second Farm in the state to hold Resource Management Plan
- Yearly CC & seed test plots with Extension, SWCD staff and NRCS
- VT PSA participant for 6 years
- 3 yr VT Crown participant for Phosphorus and sulfur experimentation



Corn: On farm nutrient management planning

NMP #/ac	NMP #/ac	NMP #/ac		11 52 0	0 0 60			broadcast			side n 1	
N	P	K	field name	N/P	K	date	date	N	date	legume	28 0 0 5	date
interior			total ac/int/er			applied	planted	15 gal	applied	ENR	(gal)	applied
125	80	80	BJ14 13.1/9.24/3.86	11 52	60	3 23 2022	4 25 2022	46	4 26 2022	75	none	
143	60	80	H7 7.1/5.44/1.66	11 52	60	3 23 2022	4 21 2022	46	4 22 2022	none	77 (25 gal)	6 2 2022
133	60	60	BJ2/2	11 52	60	3 23 2022	4 25 2022	46	4 26 2022	75	none	
164	120	80	R39 37.6/32/5.6	11 52	60	3 23 2022	4 29 2022	46	4 30 2022	75	31 (10 gal)	6 3 2022
165	80	80	AR4/3.5	11 52	60	3 23 2022	4 25 2022	46	4 26 2022	75	31 (10 gal)	6 3 2022
165	100	80	B3/2.6	11 52	60	3 23 2022	4 22 2022	46	4 22 2022	75	31 (10 gal)	6 3 2022
143	60	80	B5 4/2.55/1.45	11 52	60	3 23 2022	4 22 2022	46	4 22 2022	75	none	
135	60	80	P3/2.4	11 52	60	3 23 2022	4 29 2022	none	4 30 2022	75	46 (15 gal)	6 2 2022

Soy: On farm nutrient management planning

NMP #/ac	NMP #/ac		11 52 0	0 0 60					
P	K	field name	P	K	date	date			
		total ac/int/er			applied	planted			
40	60	BJ6 5.6/4.3/1.3	11 52	60	3 23 2022	5 20 2022			
80	60	AR43 41.9/37.4/4.5	11 52	60	3 23 2022	5 11 2022			92% implemention
80	80	P10R 10.4/8/2.4	11 52	60	3 23 2022	5 23 2022			
80	100	P12L 11.7/8.2/3.5	11 52	60	3 23 2022	5 23 2022			254.1 total ac
60	60	B78 76.7/68.5/8.2	11 52	60	3 23 2022	5 19 2022			235.4 impl
100	80	JG4F	11 52	60	3 23 2022	6 1 2022			18.7 not impl
80	80	JG8	11 52	60	3 23 2022	6 1 2022			
100	60	JG4B	11 52	60	3 23 2022	6 1 2022			
60	60	O5 5.5/3.35/2.15	11 52	60	3 23 2022	6 1 2022			
80	60	O15 14/10.8/3.16	11 52	60	3 23 2022	6 1 2022			



Vetch Cover

- Vetch planted 10 21 2021
- Vetch terminated 4 26 2022
- Fertilizer 11-52-60 on 3 23 2022
- Corn planted 4 25 2022
- Soil sample VT taken 10 28 2021
- Ph 6.3 Buffer 6.35
- P (#/ac) 29 m
- K (#/ac) 114 m
- STBA 257 (N conversion .3)
- Vetch average biomass 7622 #/ac
- moisture 11% **6783 #/ac** (3.4 ton)
- Per Ton N @ 3.25% total #/ac
- N (64.4 #/ac) **218 total #/ac**
- Available N **109 #/ac**
- P205 (20.2 #/ac) **68 #/ac**
- K20 (89.7 #/ac) **304 #/ac**







Vetch PSNT results

Date	height	soil temp	rainfall	weekly temp	6 inch	12 inch
• 5 3 22	0		.28	57.9		5.6
• 5 10 22	2		1.43	59.6		13.5
• 5 17 22	6	68.4	1.38	66.2	26.2	17.1
• 5 24 22	12	78.8	.12	75.3	24.7	16.7
• 5 31 22	18	80.2	1.01	69.1	18.1	11.6
• 6 6 22	27	71.6	.12	73.3	17.2	14.2
• 6 13 22	39	76.6			12.6	21.7
• 6 21 22	58	72.0			dry	
• 6 27 22	81	75.4			5.9	7.7





Oct. 16 2019	planted cover
Oct. 29 2019	baseline soil sample
Apr. 8 2020	Chemical burndown
May 4 2020	first soil sample to 6"
May 6 2020	fertilizer applied 0-35-75
May 12 2020	planted soybeans
June 30 2020	second soil sample to 6"
June 30 2020	nitrate test to 12"

PSNT	Sample ID		pH	P (lbs/ac)	K (lbs/ac)	
June 30 2020	3.8	CHK avg	Oct 29, 2019 baseline	5.85	21.5	128
			May 4, 2020 1st soil test	6.17	23	130
				0.32	1.5	2 difference
			Oct 29, 2019 baseline	5.85	21.5	128
			June 30, 2020 2nd soil test	6.05	33.25	174
		Check		0.2	11.75	46 difference due to commercial fertilizer
	3.8	TR avg	Oct 29, 2019 baseline	6.07	23.75	117
			May 4, 2020 1st soil test	6.2	25.25	127
				0.13	1.5	10 difference
			Oct 29, 2019 baseline	6.07	23.75	117
			June 30, 2020 2nd soil test	6.27	29.25	220
		Tillage Radish		0.2	5.5	103 difference
					11.75	46 commercial fertilizer variance
				6.25	57	NET difference
June 30 2020	4.3	RS avg	Oct 29, 2019 baseline	6.02	26.75	119
			May 4, 2020 1st soil test	5.95	26.5	122.7
				0.07	0.25	3.7 difference
			Oct 29, 2019 baseline	6.02	26.75	119
			June 30, 2020 2nd soil test	5.87	39	156
		Rape Seed		0.15	12.25	37 difference
					11.75	46 commercial fertilizer variance
				0.5	9	NET difference

Rye Cover

- Rye planted 10 28 2021
- Rye terminated 5 11 2022
- Fertilizer 11-52-60 on 3 23 2022
- Soybeans planted 5 19 2022
- Soil sample VT taken 10 28 2021
- Ph 6.4 Buffer 6.4
- P (#/ac) 23 m
- K (#/ac) 117 m
- STBA 163
- Rye average biomass 11842 #/ac
- moisture 28% **8526 #/ac** (4.3 ton)
- Per Ton
- N (38.8 #/ac) **165 total #/ac**
- P205 (16 #/ac) **68 #/ac**
- K20 (57.8 #/ac) **246 #/ac**
- P to P205 2.29 K to K20 1.2

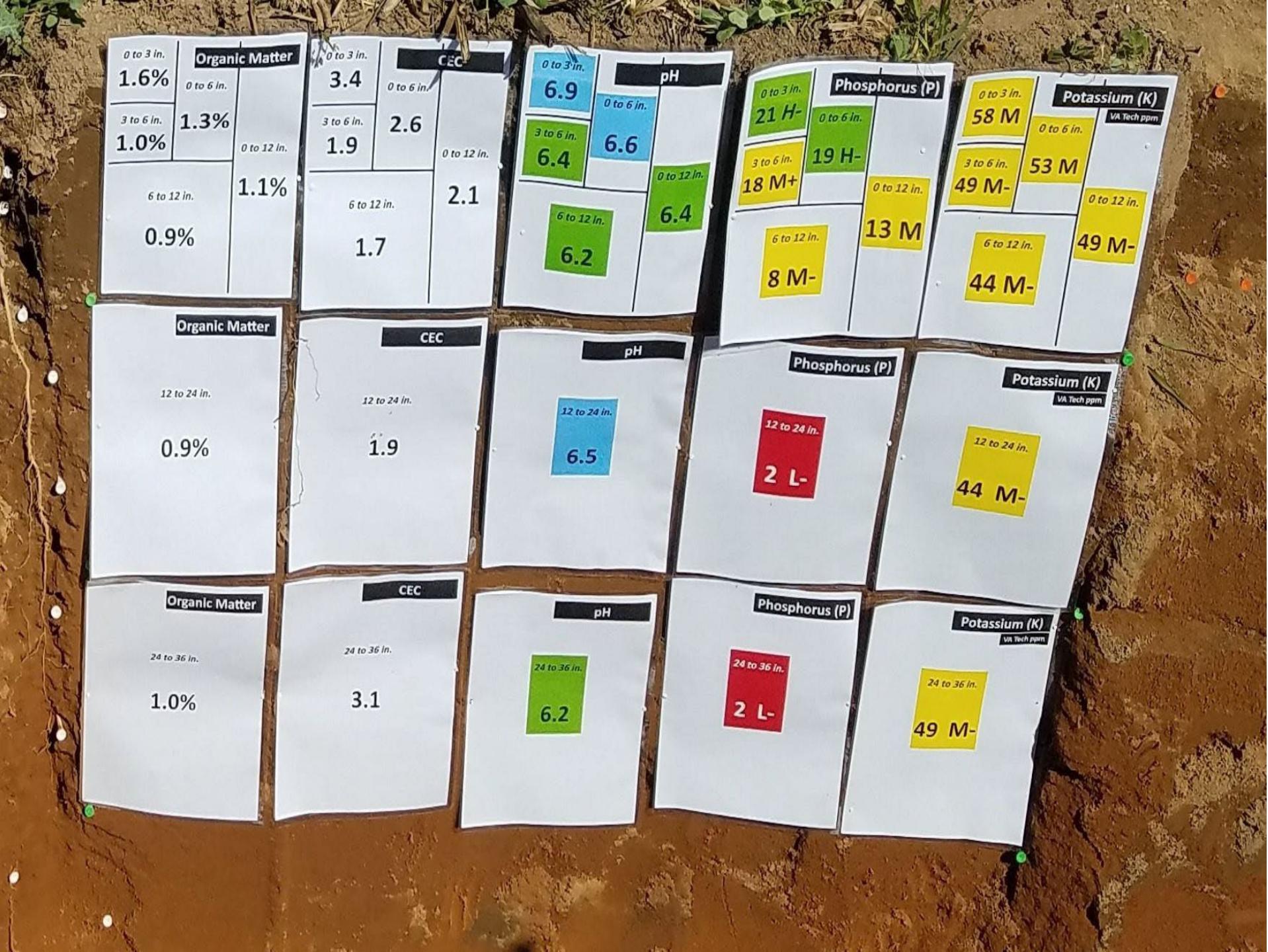
Mix Cover (Black oats, Clover, Turnip, Triticale)

- Mix planted 10 28 2021
- Mix terminated 5 11 2022
- Fertilizer 11-52-60 on 3 23 2022
- Soybeans planted 5 19 2022
- Soil sample VT taken 10 28 2021
- Ph 6.4 Buffer 6.4
- P (#/ac) 23 m
- K (#/ac) 117 m
- STBA 173
- Mix average biomass 12090 #/ac
- moisture 28% **8704 #/ac** (4.4 ton)
- Per Ton
- N (31.8 #/ac) **138 total #/ac**
- P205 (11.5 #/ac) **50 #/ac**
- K20 (52.3 #/ac) **246 #/ac**
- P to P205 2.29 K to K20 1.2



2016 Ag Expo Site











Precision Sustainable Agriculture Project



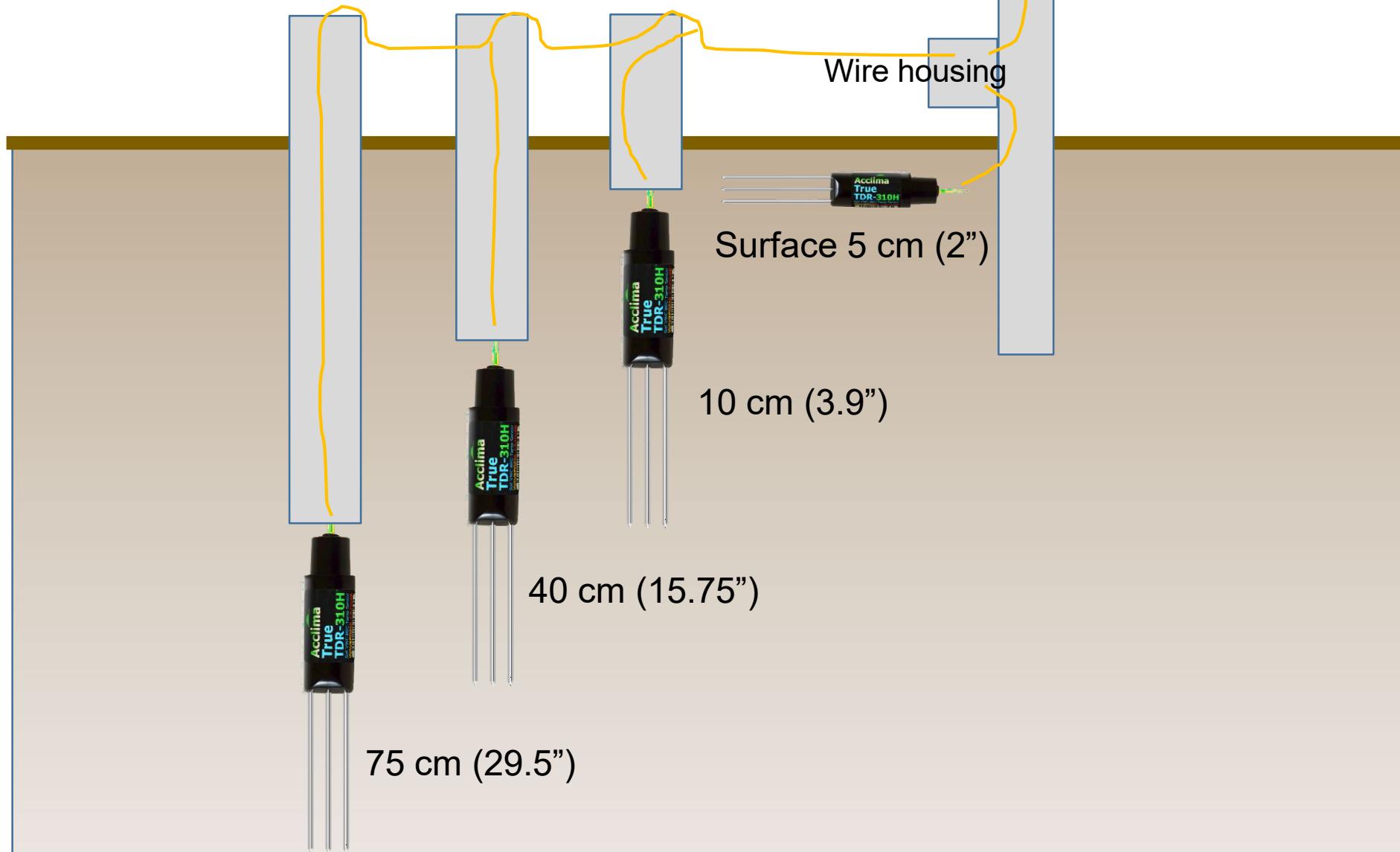
Precision Sustainable Agriculture Project



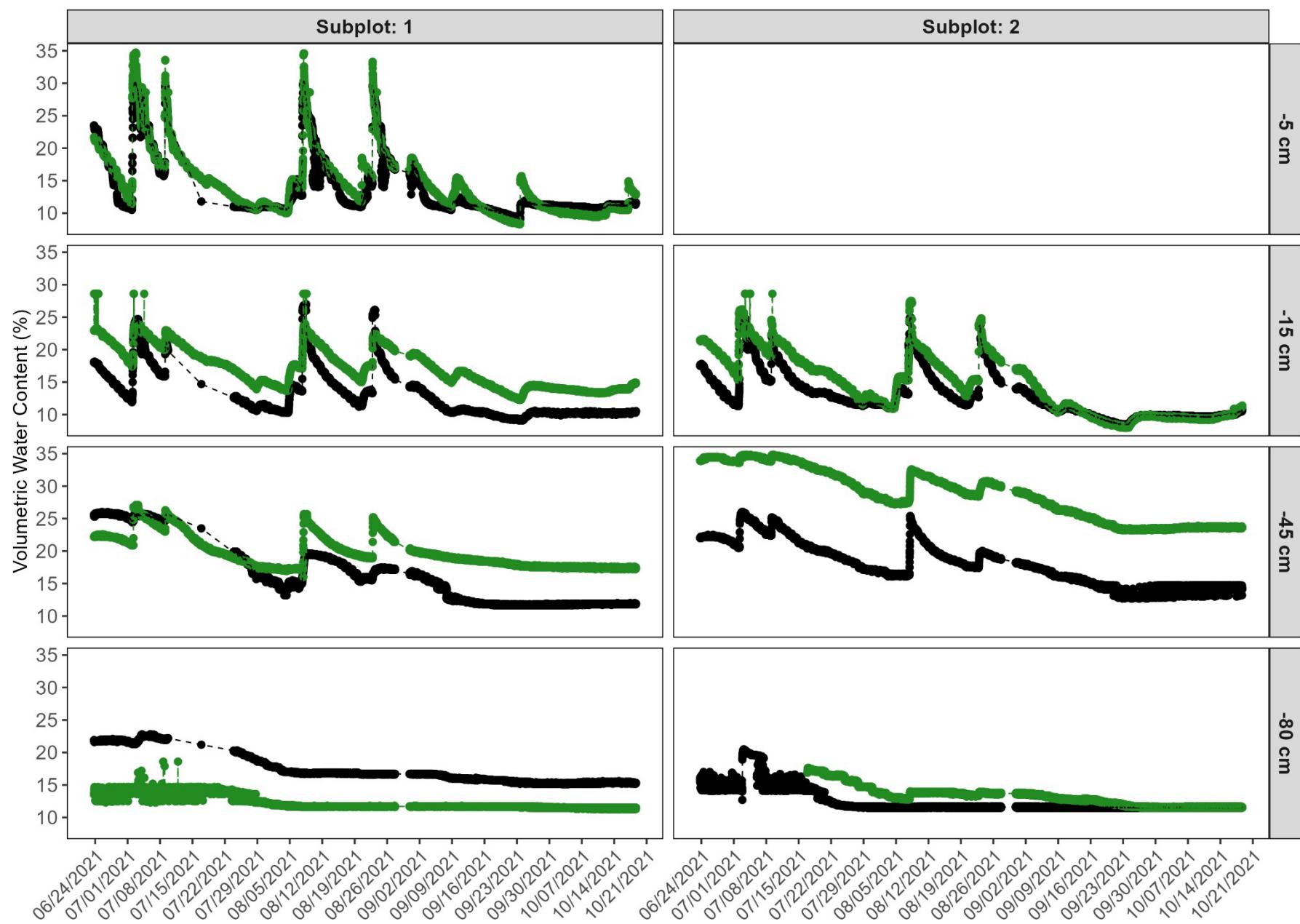
Precision Sustainable Agriculture Project



Moisture Sensor Diagram



Treatment: • Bare • Cover Crop



Bad Day!!



Questions?

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