

Brandon Farms/DCR Soil Health



Brandon Farms/DCCR

- 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





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 | | |
| June 30 2020 | 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 | | | |
| | | | | 0.2 | 5.5 | 103 | difference | | |
| | | | | | 11.75 | 46 | commercial fertilizer variance | | |
| | | Tillage Radish | | | 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 | | | |
| | | | | 0.15 | 12.25 | 37 | difference | | |
| | | | | | 11.75 | 46 | commercial fertilizer variance | | |
| | | Rape Seed | | | 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



| Depth | Organic Matter | CEC | pH | Phosphorus (P) | Potassium (K) |
|--------------|----------------|-----|-----|----------------|---------------|
| 0 to 3 in. | 1.6% | 3.4 | 6.9 | 21 H- | 58 M |
| 3 to 6 in. | 1.0% | 1.9 | 6.4 | 18 M+ | 49 M- |
| 6 to 12 in. | 0.9% | 1.7 | 6.2 | 8 M- | 44 M- |
| 0 to 6 in. | 1.3% | 2.6 | 6.6 | 19 H- | 53 M |
| 0 to 12 in. | 1.1% | 2.1 | 6.4 | 13 M | 49 M- |
| 12 to 24 in. | 0.9% | 1.9 | 6.5 | 2 L- | 44 M- |
| 24 to 36 in. | 1.0% | 3.1 | 6.2 | 2 L- | 49 M- |







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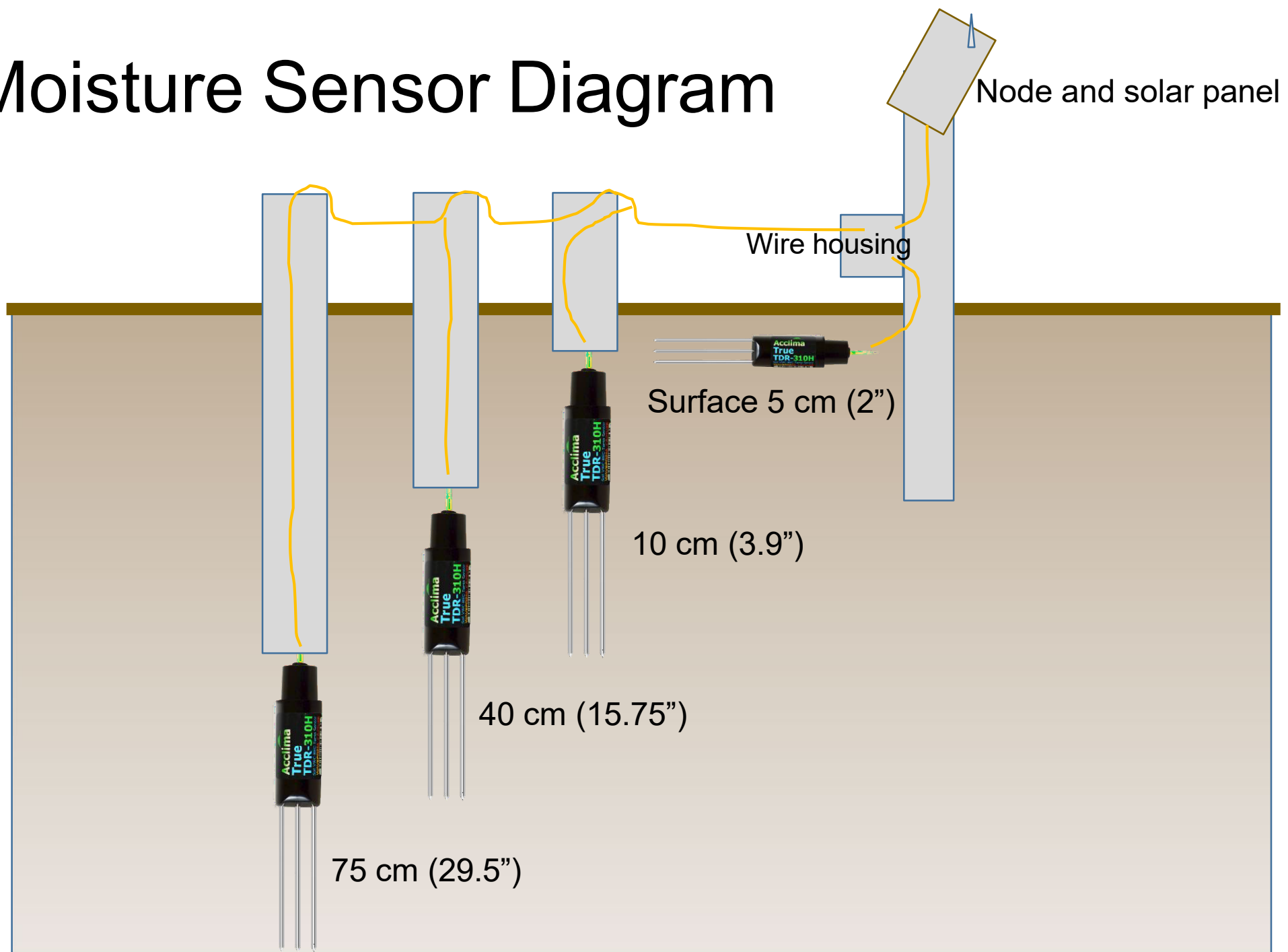
Precision Sustainable Agriculture Project



Precision Sustainable Agriculture Project

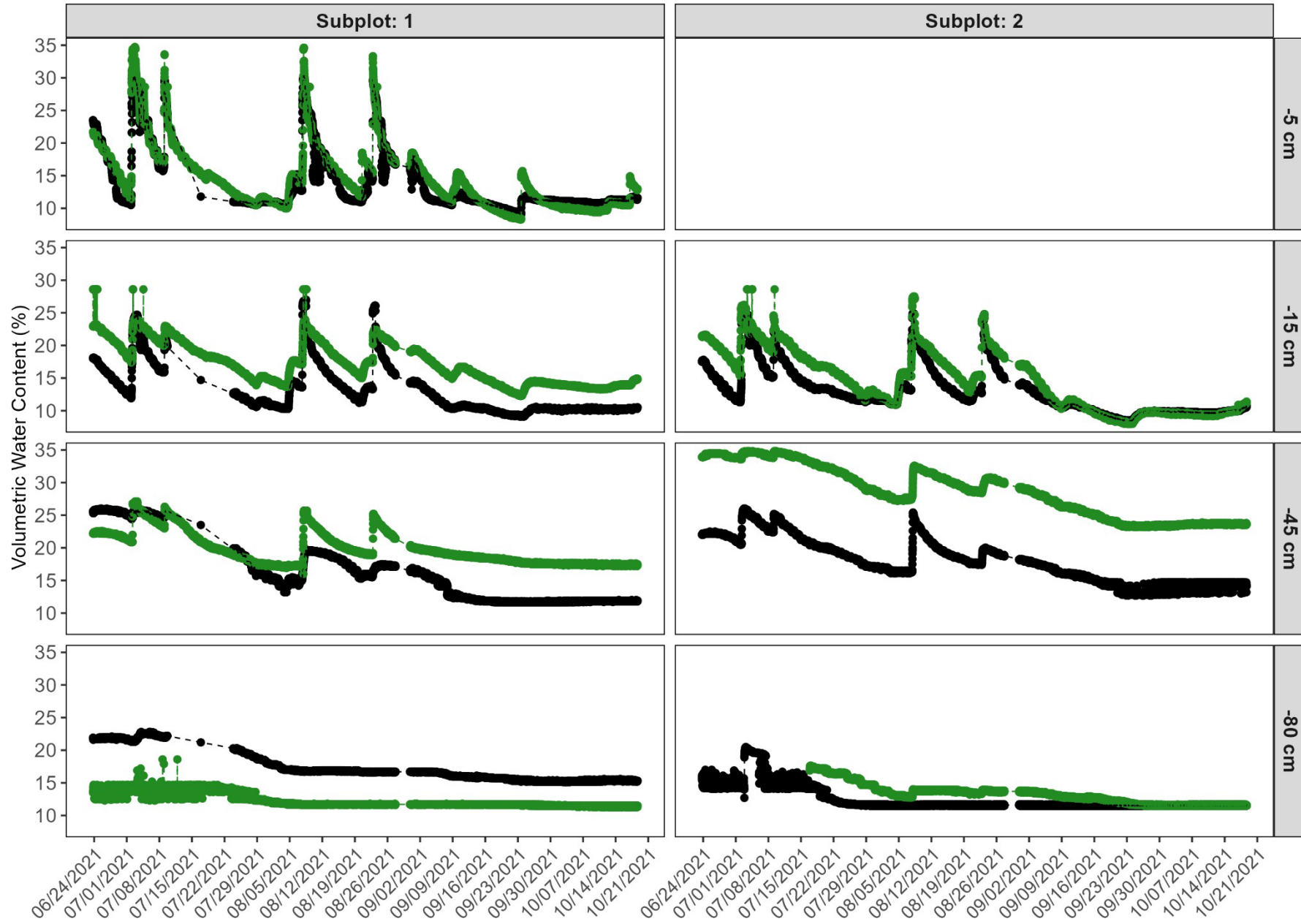


Moisture Sensor Diagram



2021.VA.OJW

Treatment: ● Bare ● Cover Crop



Bad Day!!



Questions?

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