

Soil Health

Nick Guetterman, Farmer –
Bucyrus, KS



Soil Health Practices – Rye Cover Crop





Soil Health
Practices –

Poultry Litter
Application

Changes in Soil Microbial Community – Bucyrus, KS

- Field 100% No-Till since 1990
- Rye Cover Crop on this field in 2014 and 2016
- In 2018 – Poultry Litter was adopted, and the plot was established with Cover and No-Cover strips



Treatment	Year	AMF
0-2 inches		
No Cover	2018	2.7
Cover Crop		2.6
No Cover	2020	7.7
Cover Crop		8.6
No Cover	2022	8.5
Cover Crop		12.9
2-6 inches		
No Cover	2018	0.7
Cover Crop		
No Cover	2020	3.3
Cover Crop		
No Cover	2022	2.2
Cover Crop		
6-12 inches		
No Cover	2018	0.4
Cover Crop		0.4
No Cover	2020	1.8
Cover Crop		1.8
No Cover	2022	0.8
Cover Crop		1

Soil Physicochemical Properties – Bucyrus, KS

- OM increased by 1% in the top 2” where Cover Crops were used
- Soil pH increasing and neutralizing all the way down to 12” without Lime being applied
 - Lime was last applied to the field in January ‘13



Treatment	Year	OM	pH	P	K
0-2 inches					
No Cover	2018	4.5	6.6	45.3	198
Cover Crop		4.3	6.8	39.9	173
No Cover	2020	4.8	6.8	63	218
Cover Crop		4.8	6.9	51.4	207
No Cover	2022	4.8	6.9	50	179
Cover Crop		5.3	7	46.7	186
2-6 inches					
No Cover	2018	2.9	5.6	17.3	102
Cover Crop			5.7	15.3	103
No Cover	2020	3.1	6.2	26.4	145
Cover Crop			6.3	23.2	136
No Cover	2022	3.5	6.3	17.3	120
Cover Crop			6.6	13.1	117
6-12 inches					
No Cover	2018	2.7	5.7	7.3	113
Cover Crop			5.8	4.1	101
No Cover	2020	3	5.8	11.1	130
Cover Crop			5.9	11.9	129
No Cover	2022	3	5.9	8.6	115
Cover Crop			6.2	8.7	120