

***Brandt Family Farms
Carroll, Ohio***





Why use cover crops?





Austrian Winter Peas @ 30 lbs/acre



08.22.2011





10 11 2



LIFTS SOIL

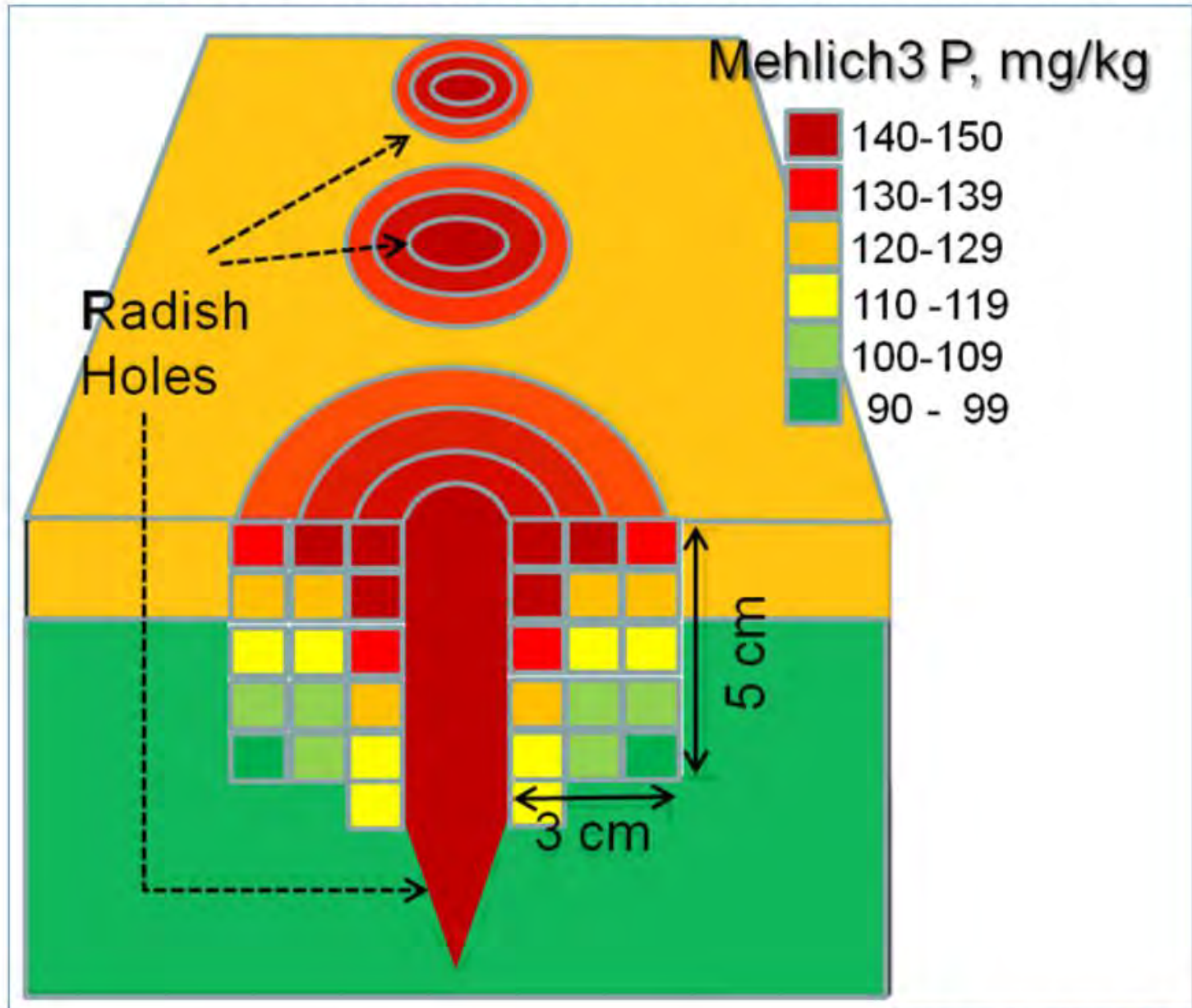
**IMPROVES
WATER
INFILTRATION**

**HOLDS
NUTRIENT (N-P-
K)**

Recycling of nutrients by Oilseed radish

Nutrient	Concentration (%)	Content (lbs/a)
Nitrogen	1.89	250
Phosphorus	0.97	23
Potassium	3.27	230
Sulfur	0.81	60
Calcium	2.17	150
Magnesium	0.26	20

P Concentration around radish holes







Legume Nitrogen Potentials

- Red Clover – 60lbs/A
- Sweet Clover – 80lbs/A
- Crimson Clover – 75lbs/A
- Hairy Vetch – 150lbs/A
- Cahaba/Chickling Vetch – 30lbs/A
- Winter Pea – 125lbs/A
- Cow Pea – 50lbs/A
- Sunn Hemp – 100lbs/A









5/15/17



5/11/18











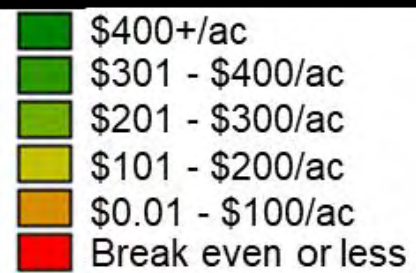
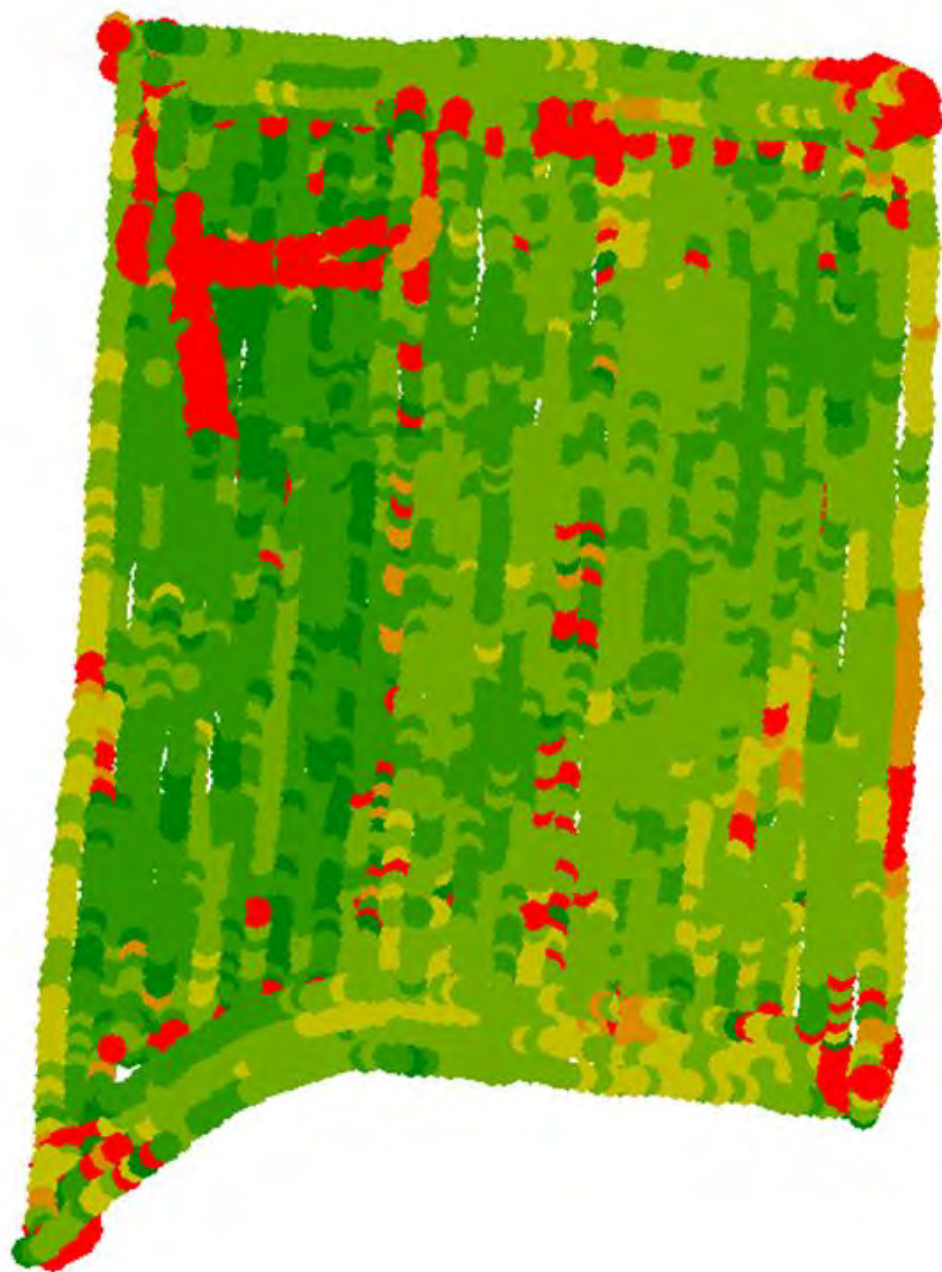
Cover crop:	\$25.00
Seed cost:	\$66.81
Burn down:	\$ 9.72
NPK:	\$28.24
Equipment:	\$55.08
Rent:	\$150.00
Total \$/Ac	\$334.85

Break Even @ 3.11 Oct 2018

107.67 bu/ac

Field average: 192.904 bu/ac

\$262.26 Net profit /Acre







2018 Non-GMO Plots

	Cost/Acre	Crop Return Data						
Herbicide	\$ 30.04	Maturity	Variety	Dry Yield	Population	Gross/Acre		Net Return/Acre
Fertility	\$ 28.24	108	5859	129.7273	16,000	\$ 403.45		\$ 56.55
Seed	\$ 66.81	97	4725	138.9585	16,000	\$ 432.16		\$ 85.26
Cover Crop	\$ 25.00	100	5098	120.5387	20,000	\$ 374.88		\$ 27.98
Equipment	\$ 46.81	102	5285	172.2998	32,000	\$ 535.85		\$ 188.95
Rent	\$ 150.00	104	5452	154.5959	32,000	\$ 480.79		\$ 133.89
		109	5998	153.1974	32,000	\$ 476.44		\$ 129.54
Total	\$ 346.90	111	6105	130.7281	32,000	\$ 406.56		\$ 59.66
		111	6115	185.1054	32,000	\$ 575.68		\$ 228.78
Corn 9/24/18		112	6241	174.841	32,000	\$ 543.76		\$ 196.86
\$ 3.11		112	6244	185.3799	32,000	\$ 576.53		\$ 229.63
		113	6334	182.839	32,000	\$ 568.63		\$ 221.73

2018 Plot Data			Starter 17 N, 27.5 P, 13.5 K				Sidedress 30lb 28%		Corn 9/24/18: \$3.11	
Variety	Maturity	Dry Yield	Protein	Gross/Acre	Seed Cost/Ac	Variable/Ac	Gross/Acre	Labor+Rent	Net Return/Acre	
Spectrum	108	129.73	6.8	\$ 403.45	\$ 66.81	\$ 132.48	\$ 204.16	\$ 149.34	\$ 54.82	}
Spectrum	97	138.96	9.3	\$ 432.16	\$ 66.81	\$ 132.48	\$ 232.87	\$ 149.34	\$ 83.53	
Spectrum	100	120.54	8.1	\$ 374.88	\$ 66.81	\$ 132.48	\$ 175.59	\$ 149.34	\$ 26.25	
Spectrum	102	172.30	11	\$ 535.85	\$ 66.81	\$ 132.48	\$ 336.56	\$ 149.34	\$ 187.22	
Spectrum	104	154.60	7.6	\$ 480.79	\$ 66.81	\$ 132.48	\$ 281.50	\$ 149.34	\$ 132.16	
Spectrum	109	153.20	7.3	\$ 476.44	\$ 66.81	\$ 132.48	\$ 277.15	\$ 149.34	\$ 127.81	
Spectrum	111	130.73	7.6	\$ 406.56	\$ 66.81	\$ 132.48	\$ 207.27	\$ 149.34	\$ 57.93	
Spectrum	111	185.11	6.8	\$ 575.68	\$ 66.81	\$ 132.48	\$ 376.39	\$ 149.34	\$ 227.05	
Spectrum	112	174.84	6.3	\$ 543.76	\$ 66.81	\$ 132.48	\$ 344.47	\$ 149.34	\$ 195.13	
Spectrum	112	185.38	6.3	\$ 576.53	\$ 66.81	\$ 132.48	\$ 377.24	\$ 149.34	\$ 227.90	
Spectrum	113	182.84	6.4	\$ 568.63	\$ 66.81	\$ 132.48	\$ 369.34	\$ 149.34	\$ 220.00	
2019 Plot Data			Starter None				Sidedress		90lb 28% Corn 10/7/19: \$ 3.99	
Variety	Maturity	Dry Yield	Protein	Gross/Acre	Seed Cost/Ac	Variable/Ac	Gross/Acre	Labor+Rent	Net Return/Acre	
Spectrum	97	133.71	9.3	\$ 533.49	\$ 85.00	\$ 141.58	\$ 306.91	\$ 149.34	\$ 157.57	
Spectrum	101	133.06	7.5	\$ 530.90	\$ 85.00	\$ 141.58	\$ 304.32	\$ 149.34	\$ 154.98	
Spectrum	104	142.99	7.2	\$ 570.52	\$ 85.00	\$ 141.58	\$ 343.94	\$ 149.34	\$ 194.60	
Spectrum	106	162.89	9.6	\$ 649.93	\$ 85.00	\$ 141.58	\$ 423.35	\$ 149.34	\$ 274.01	
Spectrum	108	157.66	6.8	\$ 629.05	\$ 85.00	\$ 141.58	\$ 402.47	\$ 149.34	\$ 253.13	
Spectrum	111	163.76	7.2	\$ 653.42	\$ 85.00	\$ 141.58	\$ 426.84	\$ 149.34	\$ 277.50	
OP Tomm	85	104.64	11.4	\$ 417.52	\$ 31.36	\$ 141.58	\$ 244.58	\$ 149.34	\$ 95.24	
Wensink S	103	146.37	9.3	\$ 584.02	\$ 40.90	\$ 141.58	\$ 401.54	\$ 149.34	\$ 252.20	
Ruff 190	103	141.65	7.8	\$ 565.17	\$ 54.54	\$ 141.58	\$ 369.05	\$ 149.34	\$ 219.71	
Ruff 195	105	151.89	7.2	\$ 606.05	\$ 54.54	\$ 141.58	\$ 409.93	\$ 149.34	\$ 260.59	
LG 5470	98	149.75	7.2	\$ 597.49	\$ 63.63	\$ 141.58	\$ 392.28	\$ 149.34	\$ 242.94	
LG 5499	102	151.39	7.5	\$ 604.05	\$ 63.63	\$ 141.58	\$ 398.84	\$ 149.34	\$ 249.50	
LG 5525	105	157.31	7.6	\$ 627.66	\$ 63.63	\$ 141.58	\$ 422.45	\$ 149.34	\$ 273.11	
LG 5565	108	159.40	7.2	\$ 636.02	\$ 63.63	\$ 141.58	\$ 430.81	\$ 149.34	\$ 281.47	
LG 5618	113	153.60	7.8	\$ 612.87	\$ 63.63	\$ 141.58	\$ 407.66	\$ 149.34	\$ 258.32	

Corn Sample from Blends Protein Analysis

No Fertilize 9.1% Protein

Half Rate Fertilizer 8.6% protein

With Fertilizer 7.5% protein

No cover Crop 5.1% protein



05.12.2009



04.28.2009



05.12.2009











10.02.2011

No-till into rye: 72 bu/ac



10.16.2013

Nutrient Sequestration Cereal Rye

	N	P2O5	0-46-0	K2O	0-0-60	Sulfur	Magnesium	Calcium	Biomass
12" rye	82	15	32	76	133	5	4	11	2000
18" rye	120	20	44	128	213	6	6	18	4000
28" rye	134	30	64	169	281	10	12	31	6800
Dead rye	84	29	64	39	65	3	11	29	3500

Credit: Rick Clark

Note: Dead rye sample was taken 2 months after termination.

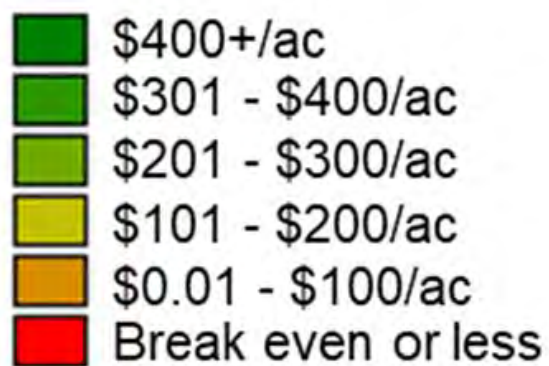
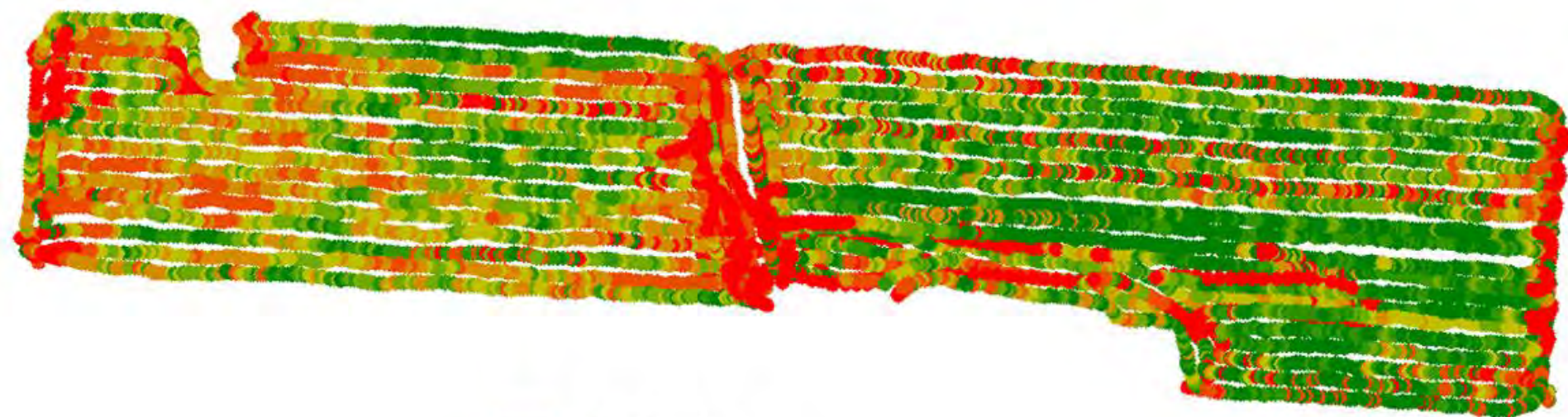
Cover crop:	\$ 9.00
Seed cost:	\$42.00
NPK:	\$ 0.00
Equipment:	\$34.28
Rent:	\$150.00
Total \$/Ac	\$235.28

Break Even @ \$8.40 Oct 2018

28.01 bu/ac

Field average: 72 bu/ac

\$369.52 Net profit /Acre



















10.02.2011

SCAVENGER 10 WAY MIX
High Carbon Mix
24,000lbs/acre Biomass

09.23.2012













10.02.2011



10.16.2013



SOIL
PIT
#4

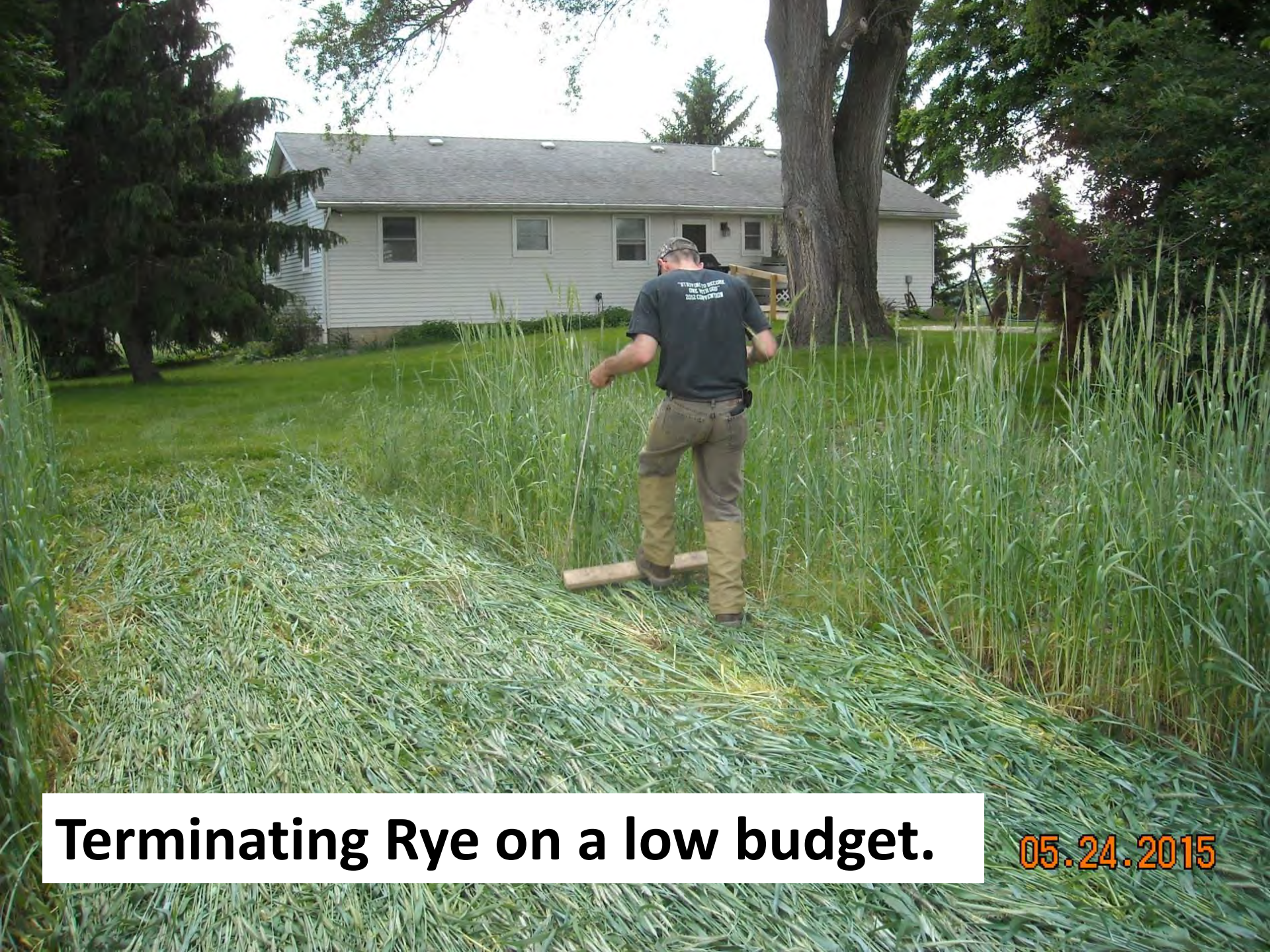






**Can be done on small scale
for vegetable growers**

05.24.2015



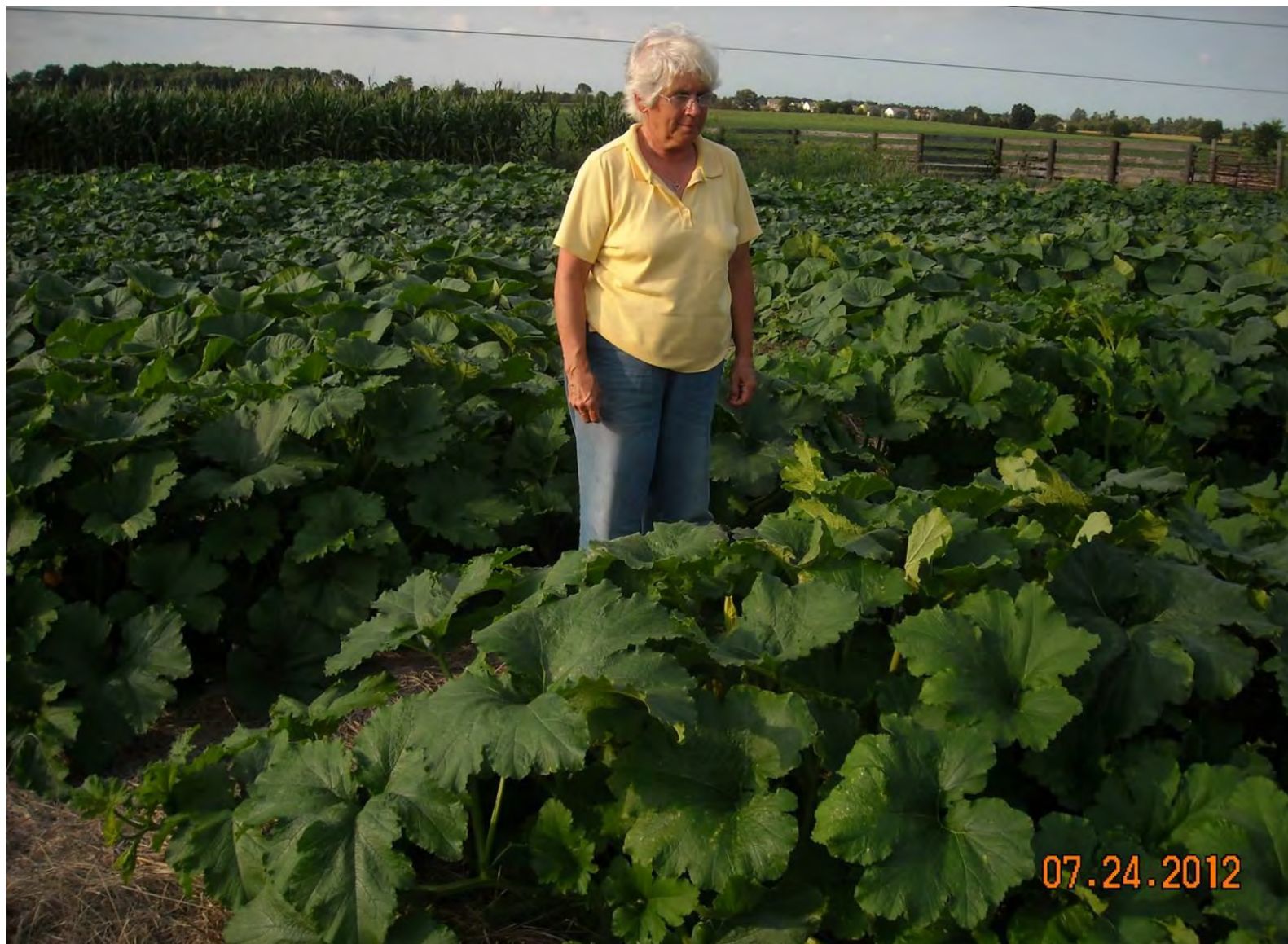
Terminating Rye on a low budget.

05.24.2015

No-Till precision pumpkin planter



No-Till Pumpkins









80 acres of 10 way Cover Crops



Clear water after
a 2.5 inch rain
event on
05/24/2017.

Conventional 80 Acre field



Runoff after a 2.5 inch rain event on 05/24/2017.

Erosion and muddy water and residue runoff into nearby stream.

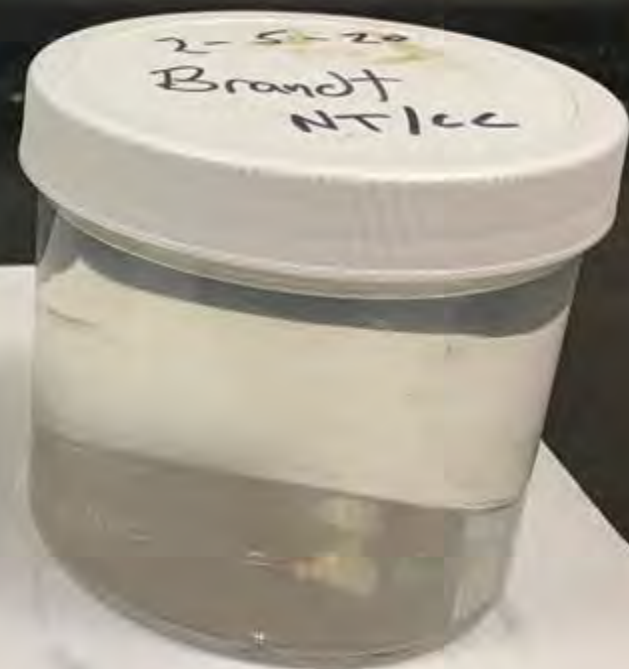
Water samples from tile drainage systems from David Brandt's farm and a neighbor's farm, 2019.

Conventional tillage
(neighbors farm)

Conservation Agriculture
(David Brandt's farm)



CT



NT/CC Brandt

Conservation Agriculture improves water quality!