

Performance Incentives Enable Stewardship Ethic and Systems Approach to Environmental Protection



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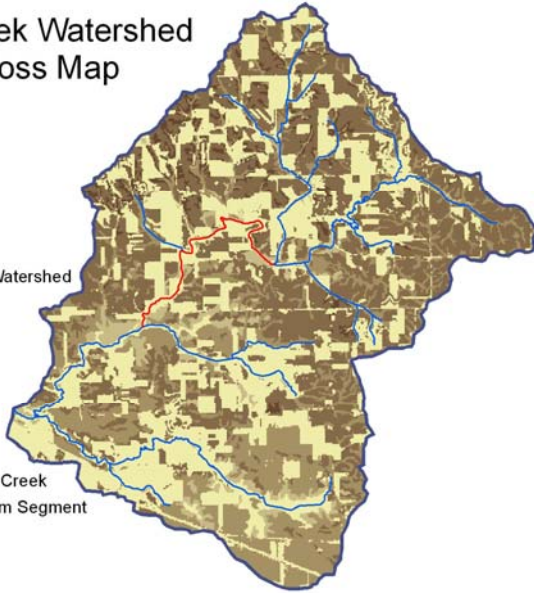
**Partners: CSREES , WIRB, Iowa Farm Bureau, Iowa Corn Growers,
Region 7 EPA and Farm Operators**

Agricultural-Environmental Performance Issues

- Ninety percent of Iowa water contaminants have been attributed to agriculture.
- Farm operators have never been asked to organize and collectively address water quality.
- Watershed residents will provide aggressive local leadership for water improvement.
- Farm operators will change to practices that yield higher water quality.
- Participants find the performance program structure to be practical and profitable, and to have a positive effect on the environment.

Hewitt Creek Watershed Soil Loss Map

□ Hewitt Creek Watershed
Soil Loss
tons/acre/yr
0-2.5
2.5-5
5-10
10-50
50-120
— Hewitt-Hickory Creek
— Impaired Stream Segment



Field by field variables

Phosphorus soil test – application

Manure rates – method – timing

Tillage – timing – management

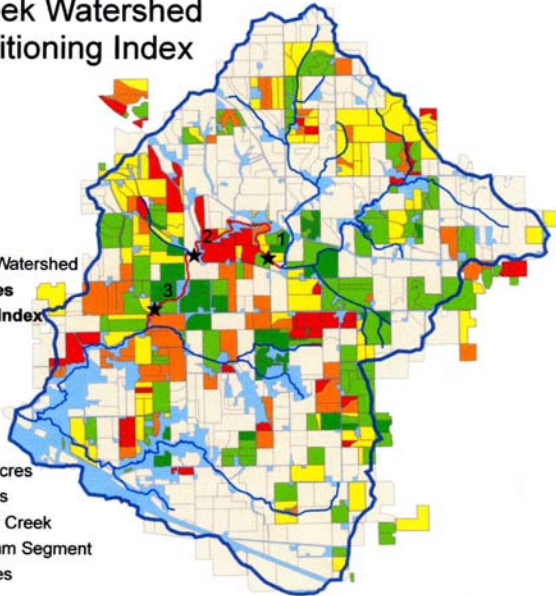
Cover crops – residue cover

Crop rotation – row direction

Nitrogen rates – timing – method

Hewitt Creek Watershed Soil Conditioning Index

□ Hewitt Creek Watershed
2007 Enrolled Acres
Soil Conditioning Index
-0.25 - 0.20
0.21 - 0.40
0.41 - 0.60
0.61 - 0.80
0.81 - 1.10
□ Not Enrolled Acres
□ Non-crop Acres
— Hewitt-Hickory Creek
— Impaired Stream Segment
★ Monitoring Sites



Performance Measures

Phosphorus Index – Risk of P loss

Soil Conditioning Index – Organic matter

Cornstalk Nitrate – Sufficient/Excess N

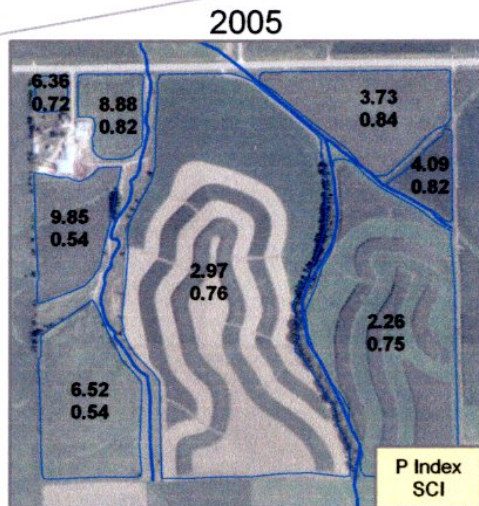
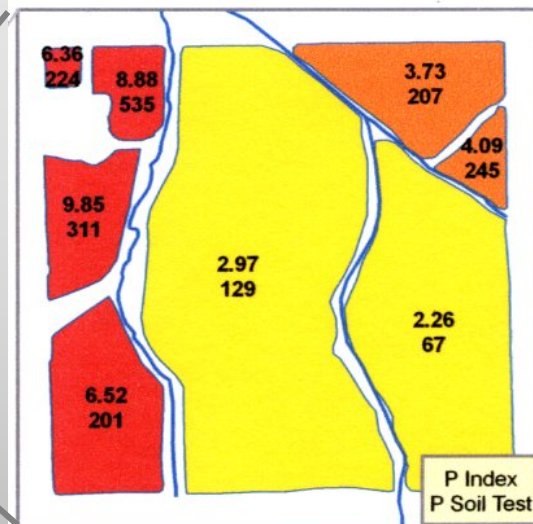
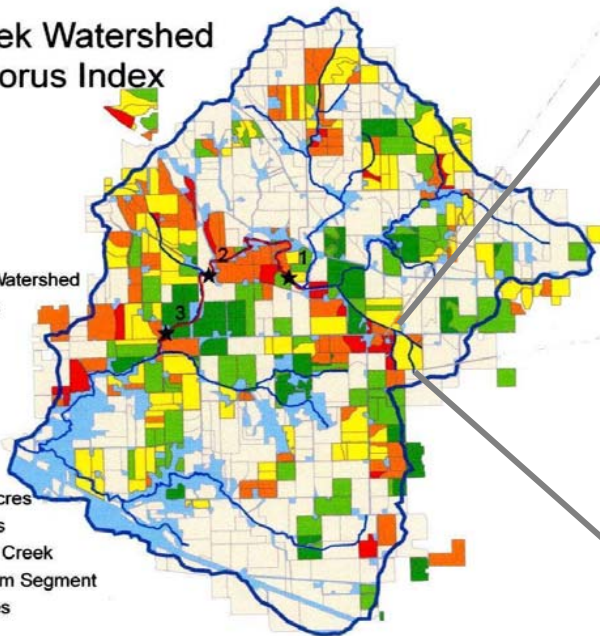
Residents work together as a watershed community on environmental goals.





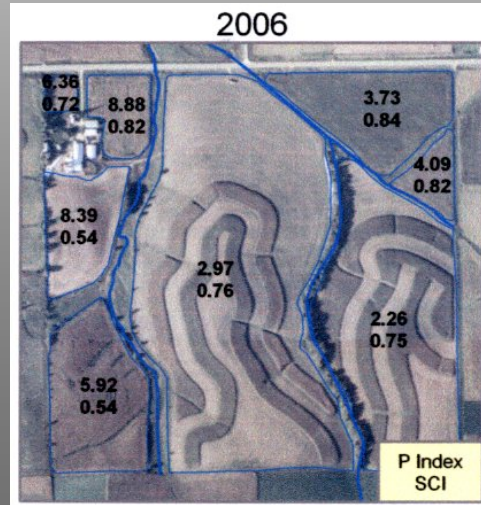
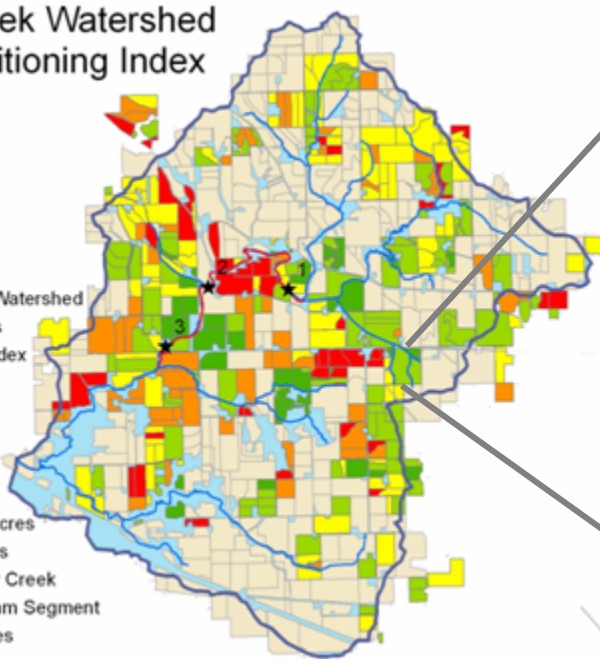
Hewitt Creek Watershed Phosphorus Index

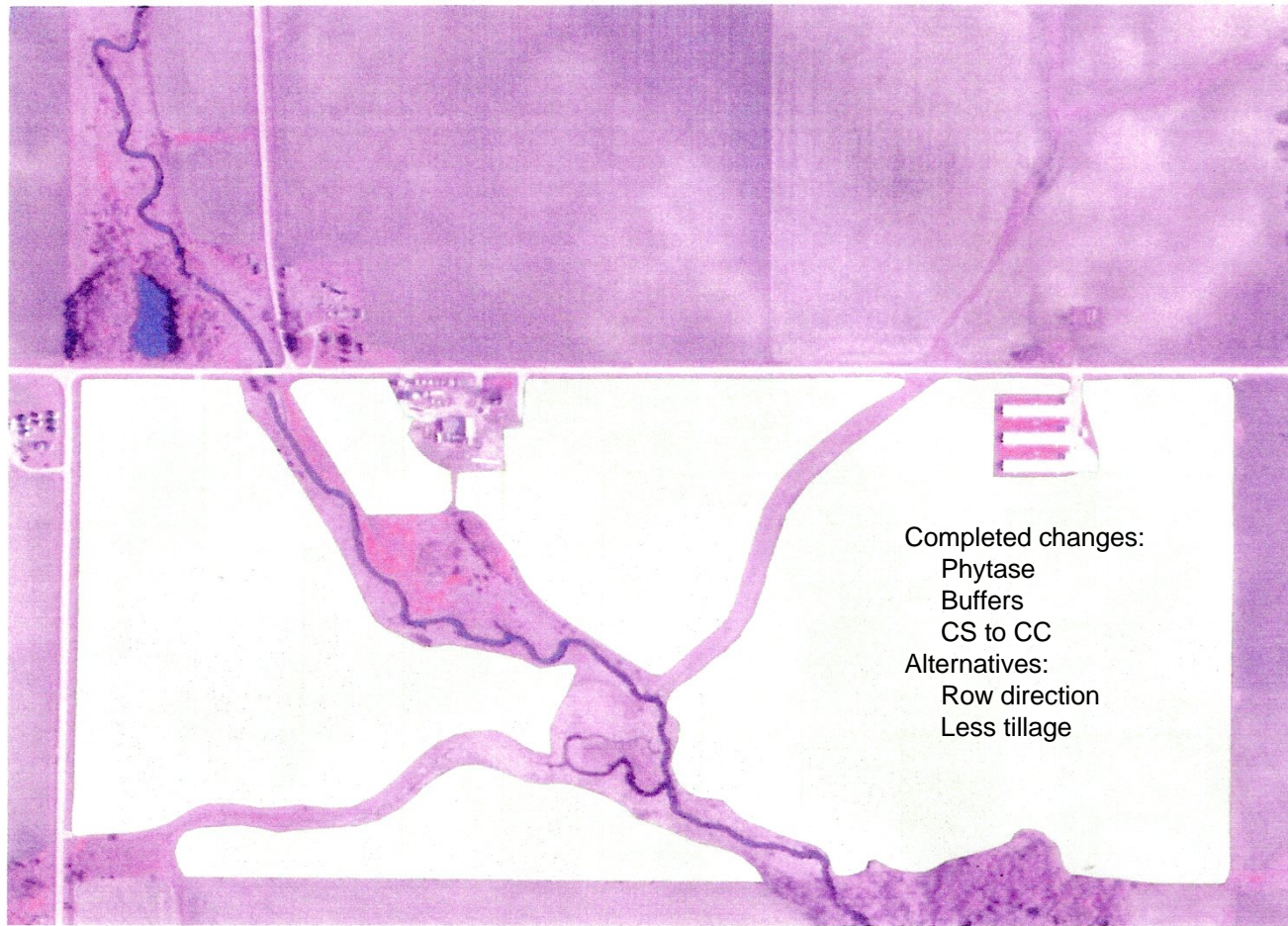
- Hewitt Creek Watershed
- 2007 Enrolled Acres
- Phosphorus Index**
- 0.00 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 5.00
- 5.01 - 10.00
- Not Enrolled Acres
- Non-crop Acres
- Hewitt-Hickory Creek
- Impaired Stream Segment
- Monitoring Sites



Hewitt Creek Watershed Soil Conditioning Index

- Hewitt Creek Watershed
- 2007 Enrolled Acres
- Soil Conditioning Index**
- 0.25 - 0.20
- 0.21 - 0.40
- 0.41 - 0.60
- 0.61 - 0.80
- 0.81 - 1.10
- Not Enrolled Acres
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- Monitoring Sites





600 0 600 1200 1800 2400 3000 Feet

P-Index list – Coldwater/Palmer

P-Index list – Hewitt

Coldwater-Palmer Watershed
Phosphorus Index Rating - 2007

PRODUCER_ID	FIELD_ID	FIELD_ACRES	P_INDEX	SCI	SOILTEST_P	STALK_N	STREAM_DIS	ROTATION	CONTOUR	NOTILL
28	4	4.7	6.12	0.15	401	0	1200	CS	N	
33	2	9.6	2.57	0.29	150	0	1240	CS	N	
12	5	53.9	2.54	-0.59	8	0	2500	CS	N	
33	3	8.9	2.52	0.42	149	0	1580	CS	N	
3	NW	18.1	2.29	0.17	68	0	320	CCS	N	
32	E Ty 1	11.2	2.28	0.01	47	0	500	CC	N	
1	3	28.0	2.24	0.12	93	0	1130	CC	N	
1	4	71.1	2.13	0.12	80	0	6280	CS	N	
20	18-6	13.8	2.13	-0.18	40	0	990	CS	N	
16	3e	18.8	2.03	0.33	138	0	480	CS	N	
16	3w	33.2	1.98	0.34	138	0	2610	CS	N	
26	2	41.7	1.98	0.15	71	0	2010	CS	N	
14	H-south	148.3	1.97	-0.09	43	0	3700	CS	N	
32	Wag	173.2	1.96	0.38	145	0	570	CC	N	
1	1	44.0	1.93	0.37	108	0	600	CC	N	
22	A-A	22.7	1.87	0.06	18	0	470	CS	N	
17	8	38.9	1.83	-0.01	35	0	270	CC	N	
32	Dol E2	2.6	1.82	0.56	48	0	2110	CS	N	
26	5	52.8	1.81	0.15	58	0	230	CS	N	
20	18-1	2.9	1.80	0.08	17	0	1530	CS	N	
26	1	38.8	1.73	0.15	43	0	4000	CS	N	
32	W Ty	143.9	1.70	0.36	113	0	480	CS	N	
18	L-2	36.2	1.69	0.58	20	0	2320	CS	N	
23	D-D	5.0	1.68	-0.22	19	0	500	CS	N	
4	3	3.8	1.65	0.13	23	0	2180	CS	N	
22	A-B	14.6	1.62	0.10	31	0	1020	CC	N	
25	BI	77.3	1.61	-0.09	20	0	3270	CSCOOAA	N	
33	1	14.3	1.61	0.46	71	0				
34	M9	8.3	1.60	0.04	11	0				

Hewitt Creek Watershed
Phosphorus Index Rating - 2007

PRODUCER_ID	FIELD_ID	FIELD_ACRES	P_INDEX	SCI	SOILTEST_P	STALK_N	STREAM_DIS	ROTATION	CONTOUR	NOTILL
9	12	7.9	9.85	0.54	311	0	320	CCOHH	Y	
33	b2	17.6	9.56	0.46	399	0	570	CS	Y	
9	11	4.4	8.88	0.82	535	0	200	CCOHH	N	
19	H6	10.0	8.84	0.14	248	0	3230	CCOMMM	N	
25	2	8.2	7.51	0.23	217	0	560	CCB	N	
41	4A	20.3	7.20	-0.04	145	0	800	CC	Y	
45	V-1	20.8	7.19	-0.31	23	0	260	CS	Y	
25	3	18.4	6.86	-0.11	130	0	1360	CCB	N	
44	H-2	36.5	6.65	-0.02	125	0	940	CS	Y	
25	4	64.7	6.61	-0.11	111	0	860	CCB	N	
9	13	13.8	6.52	0.54	201	0	440	CCOHH	Y	
44	K-3	7.9	6.51	-0.76	23	0	1610	CS	Y	
9	10	1.1	6.38	0.72	224	0	630	CCOHH	N	
13	1	38.3	5.90	0.25	105	0	330	CC	N	
31	5	6.6	5.84	0.56	148	0	480	CCOMMM	Y	
41	4B	9.5	5.82	0.42	145	0	185	CC	Y	
12	2	36.6	5.56	0.17	126	0	2120	CS	Y	
12	4	18.4	5.55	0.17	93	0	1075	CS	Y	
26	2	8.8	5.55	0.14	46	0	380	CCOHHH	Y	
33	b1	12.7	5.43	0.66	399	0	300	CS	Y	
26	8	5.8	5.42	0.49	45	0	280	CCOHHH	N	
30	N4	20.7	5.26	0.06	22	0	220	CS	Y	
43	1	32.4	5.24	-0.23	32	0	1080	CC	Y	
6	B4	11.4	5.20	-0.02	73	0	740	CC	Y	
23	H-east	67.6	5.14	0.43	277	0	1550	CC	N	
35	W4	12.4	5.09	0.23	58	0	670	CCOHHH	Y	
13	2	117.0	4.99	0.24	145	0	1090	CC	N	
26	7	8.4	4.96	0.35	58	0	990	CCOHHH	N	
6	R3	19.9	4.92	0.49	99	0	600	CCOHHH	Y	

35	R2	17.8	0.00	0.66	0	0	1040	SOAAAA	N	
35	R3	19.1	0.00	0.66	0	0	660	SOAAAA	N	
35	R4	9.6	0.00	0.52	0	0	700	SOAAAA	N	
35	T2	34.4	0.00	0.16	0	0	4160	CS	N	
35	T3	22.6	0.00	0.07	0	0	3960	CS	N	
35	T1	37.9	0.00	0.16	0	0	3350	CS	N	

PI Category	# of fields	total acres	avg. PI	avg. SCI	avg. P test	avg N	avg. distance	% hay/graze	% contour	% no till
>5	1	4.7	6.12	0.15	401	0	1200	0		
3 to 5	0	0.0								
2 to 3	9	233.4	2.28	-0.03	70	0	1589	0		
1 to 2	111	4900.0	1.32	0.29	45	0	2265	5	1	1
0 to 1	105	5033.7	0.78	0.51	24	0	2513	19	1	4
no P Index	28	1486.8		0.37		0	3491	18	0	
	254	11658.6								

2007 Watershed weighted average										
			1.08	0.39	35	0	2515			
>5	0	0.0								
3 to 5	0	0.0								
2 to 3	1	18.8	2.03	0.33	138	0	990	0		
1 to 2	53	2288.4	1.25	0.31	41	0	1823	2	2	
0 to 1	74	3274.4	0.79	0.45	23	0	2268	7	1	1
no P Index	23	1277.6		0.44		0	2665	0		4
	151	6859.2								
2006 Watershed weighted average										
			0.98	0.42	31	0	2187			

21	2	42.9	0.47	1.00	18	0	1040	RGraze	N	Y
4	R6	36.6	0.44	0.83	32	0	2960	CS	N	Y
21	6	5.4	0.44	1.00	21	0	500	RGraze	N	Y
14	a5	5.6	0.38	0.85	23	0	240	CS	N	Y
21	1	32.3	0.20	1.10	19	0	730	RGraze	N	Y
5	14	52.6	0.00	0.46	0	0	4200	CCCCS	Y	
38	P-fs	3.0	0.00	0.64	0	0	380	CS	N	Y
38	H-fsw	3.2	0.00	0.63	0	0	720	CS	N	Y

PI Category	# of fields	total acres	avg. PI	avg. SCI	avg. soil P	avg N	avg. distance	% hay/graze	% contour	% no till	% of fields
>5	28	513	6.24	0.13	150	0	958	35	62	0	7
3 to 5	98	2236	3.83	0.34	79	0	1488	52	48	2	26
2 to 3	112	3039	2.51	0.50	55	0	1693	65	57	5	30
1 to 2	83	2351	1.54	0.62	48	0	2534	34	48	30	22
0 to 1	50	1319	0.74	0.79	26	0	1569	28	22	80	13
No PI	3	59	0.00	0.48	0	0	3816				
	372	9516									

2007 Watershed Weighted Average											
			2.54	0.51	60	0	1785	47	48	19	
>5	20	413	6.62	0.15	181	0	1054	45	40	0	6
3 to 5	84	1692	3.72	0.41	86	0	1661	58	52	1	27
2 to 3	106	2628	2.46	0.54	57	0	1572	67	57	7	34
1 to 2	70	2169	1.61	0.59	49	0	2336	47	50	27	22
0 to 1	36	1085	0.72	0.76	29	0	1380	24	26	91	11
	316	8187									
2006 Watershed Weighted Average											
			2.48	0.54	63	0	1741	54	50	19	

**Coldwater-Palmer Watershed
Phosphorus Index and Soil Conditioning Index examples**

1 Corn/Soybean Rotation fall chisel after corn, field cultivate, manure

		Acres	P Index	SCI value
1	178B P=52	44.0	1.55	0.36
2	198B P=17	12.7	1.08	0.45
3	214B P=60	28.0	1.86	0.37
4	214B P=45	71.1	1.45	0.37
total acres =		155.80		
weighted average P Index =			1.52	
weighted average soil conditioning index =				0.37

5 Continuous Corn w/buffer

		Acres	P Index	SCI value
1	178B P=52	44.0	1.08	0.71
2	198B P=17	12.7	0.73	0.74
3	214B P=60	28.0	1.31	0.70
4	214B P=45	71.1	1.06	0.70
total acres =		155.80		
weighted average P Index =			1.08	
weighted average soil conditioning index =				0.71

2 Continuous Corn fall chisel, field cultivate, annual manure

		Acres	P Index	SCI value
1	178B P=52	44.0	1.26	0.71
2	198B P=17	12.7	0.87	0.74
3	214B P=60	28.0	1.54	0.70
4	214B P=45	71.1	1.24	0.70
total acres =		155.80		
weighted average P Index =			1.27	
weighted average soil conditioning index =				0.71

6 Corn/Soybean Rotation w/buffer

		Acres	P Index	SCI value
1	178B P=52	44.0	1.30	0.36
2	198B P=17	12.7	0.89	0.45
3	214B P=60	28.0	1.55	0.37
4	214B P=45	71.1	1.22	0.37
total acres =		155.80		
weighted average P Index =			1.28	
weighted average soil conditioning index =				0.37

4 Corn/Corn/Soybean fall chisel after corn, field cultivate, manure for 2nd corn

		Acres	P Index	SCI value
1	178B P=52	44.0	1.35	0.55
2	198B P=17	12.7	0.94	0.59
3	214B P=60	28.0	1.64	0.53
4	214B P=45	71.1	1.31	0.53
total acres =		155.80		
weighted average P Index =			1.35	
weighted average soil conditioning index =				0.54

8 No-till Corn/Soybean low disturbance manure prior to corn

		Acres	P Index	SCI value
1	178B P=52	44.0	1.01	0.74
2	198B P=17	12.7	0.65	0.75
3	214B P=60	28.0	1.20	0.74
4	214B P=45	71.1	1.03	0.74
total acres =		155.80		
weighted average P Index =			1.02	
weighted average soil conditioning index =				0.74

2* CC for cellulose fall chisel, field cultivate, annual manure, cellulose

		Acres	P Index	SCI value
1	178B P=52	44.0	1.74	0.20
2	198B P=17	12.7	1.25	0.26
3	214B P=60	28.0	2.14	0.16
4	214B P=45	71.1	1.64	0.16
total acres =		155.80		
weighted average P Index =			1.73	
weighted average soil conditioning index =				0.18

2 No-till CC for cellulose** low disturbance manure, cellulose

		Acres	P Index	SCI value
1	178B P=52	44.0	0.96	0.69
2	198B P=17	12.7	0.65	0.70
3	214B P=60	28.0	1.13	0.68
4	214B P=45	71.1	0.91	0.68
total acres =		155.80		
weighted average P Index =			0.94	
weighted average soil conditioning index =				0.68

2007 Cornstalk nitrate test results

COLDWATER/PALMER CREEK CORNSTALK NITRATE TEST RESULTS - 2007

ID	Sample #	Stalk NO3-N (ppm)	Nitrogen application	Estimated N (lbs/a)	Rotation	Yield (bu/a)	
3	1	4,670	Ostrander - 394 soil			210	
17	2 (8)	4,131	Spring - 130# as urea + Spring-Fall cattle manure	130 +	C-B-C	174	
22	1	3,627	Siddress 25# as 28% + Fall manure	Tiled 25 + manure	B-C-C	134	
17	1 (5)	3,418	Spring - 130# as urea	130	C-B-C	161	
22	2	2,935	Spring - 10# as 28% + Fall manure	130	C-B-C	178	
17	3 (3)	2,935	Spring - 130# as urea	130	C-B-C	121	
25	4	2,813	Spring - 190# as 32%	Tiled 190	C-C-C	168	
21	1	2,626				227	
14	2	2,437	Fall - 156# NH3	Tiled 156	C-B-C	139	
4	2	2,281	Spring - 125# as urea	Rockton - 213 soil No tile	125	C-B-C	197
17	4 (7)	2,030	Spring - 185 as urea + Spring-Fall cattle manure	130 +	C-C-C	231	
5	1	2,026	Sp 49# as 28%+27# as DAP+77#as 28%SD 783,399.84 soil	153	C-B-C	164	
14	1	1,880	Fall - 156# NH3	Tiled 156	C-B-C	204	
12	1	1,735	Spring - 180# as urea	No tile 180	C-C-C	180	
23	1	1,683	Spring - 140# + Fall-Spring 2-4T/A manure	Some tile 140 +	C-B-C	209	
25	3	1,324	Fall - 156# NH3 + 3,000 gal liquid hog manure	Tiled 306	C-B-C	201	
4	1	1,259	Spring - 125# as urea	Bassett - 171 soil Tiled 125	C-B-C	178	
23	4	1,203	Spring - 140# as liquid	Some tile 140 +	C-B-C	163	
23	3	1,172	Spring - 140# as liquid	Some tile 140 +	C-B-C	124	
20	2	1,003	Siddress - 155# as 28% + Cattle man.; Heavy soil; some tile	155 +	B-C-C	188	
8	3 (5)	961				155	
1	2	932	Sp 35# as 32% + 3,000gal(56-32-38); 213, 178, 174; Tiled	204	C-C-C	160	
8	3	810				157	
23	2	711	Spring - 140# as liquid + Fall-Sp-2-4T/A manure	Some tile 140 +	C-B-C	207	
6	4	705	Sp - 105# as NH3 + 40 as 28% over top; Ostrander soil; tile	145	C-B-C	180	
15	2	691	Fall - 120# NH3 + 17A Dayton 30	No tile 120 +	C-B-C	179	
1	3	682	Sp 35# as 32% + 3,000gal(56-32-38); 213, 178, 174; Tiled	204	C-C-C	133	
6	3	681	Fall - 105# NH3 + 40 as 28%; Ostrander - 394 soil	Tiled 145	C-B-C	128	
20	1	593	Siddress - 130# as 28% + Fall 13#; Light to dark soil; Tiled	143	C-B-C	144	
5	2	590	Sp 49# as 28%+27# as DAP+77#as 28%SD 783,399.84 soil	153	C-B-C	194	
3	2	522	Waukee - 178 soil			248	
6	1	493	Sp - 105# NH3 + 40# as 28% over top; Floyd - 198 soil; Tiled	145	C-B-C	206	
8	2	396				187	
12	2	381	Spring - 200# as urea	No tile 200	C-C-C	169	
6	2	321	Sp - 105# NH3 + 40# as 28% over top; Cresco-783 soil; Tile	145	C-B-C	175	
15	1	262	Fall - 120# NH3 + 17A Dayton 30	No tile 120 +	C-B-C	158	
1	1	153	Sp 35# as 32% + 3,000gal(56-32-38); 213, 178, 174; Tiled	204	C-C-C	175	
8	1	151				217	
38		1,506	38 samples from 2006 & 2007 cooperators	165		177	
28	3	7,275				155	
28	2	7,015				145	
34	1 (M2)	5,999	Spring - 130#NH3 + Fall cattle Manure; Kenyon-83 soil; Tile	130 + manure	C-B-C	174	
28	2	4,763	150# as NH3	150	B-C	151	
24	1	4,735				214	
24	2	4,670				169	
28	4	4,085				157	
30	1	3,929				163	
36	1 (RP)	3,710	183# N	183		159	
28	1	3,432				189	
31	1	3,059				199	
36	3 (NE C)	3,052	183# N	183		203	
31	4	2,975				128	
30	2	2,727				147	
26	1	2,611	150# as NH3	150	B-C	211	
36	2 (NB)	2,586	183# N	183		143	
31	3	2,216				160	
34	3 (M9)	2,096	170# as NH3	Donnan - 782 soil	Tiled 170	C-C-C	142
31	2	2,081				185	
34	2 (M7)	1,684	130# as NH3	Rockton - 213 soil	No tile 130	C-B-C	161
33	2	1,288				?	
27	2-E	1,171	Sp - 110# as NH3 + 27/A cattle manure; Kenyon-83 Tiled	134	C-B-C	160	
34	4 (N2)	1,149	170# as NH3	Donnan - 782 soil	Tiled 170	B-C-C	152
37	3	940				215	
29	1	863	Fall - 160 as NH3 + Spring 30# liquid; Ken.83, Cly.84 Tiled	190	C-C-C	186	
27	1-W	805	Spring - 110# as NH3	Kenyon-83 Tiled	110	C-B-C	131
37	2	796				173	
29	2	732	Fall - 160 as NH3 + Spring 30# liquid; Ken.83, Cly.84 Tiled	190	C-C-C	152	
33	1	586				?	
37	1	393				219	
11	1	187	Spring - 100# as 32%	Tiled 100	C-B-C	204	
		2,697	31 samples from new 2007 cooperators	157		171	
			69 samples average 2,041ppm : average yield - 174 Bu/A				

HEWITT CREEK CORNSTALK NITRATE TEST RESULTS - 2007

ID	Sample #	Stalk NO3-N (ppm)	Nitrogen application	Estimated N (lbs/a)	Rotation	Yield (bu/a)
26	3	9,900	Spring - 92# as urea + 10T/A season Bed Pk	142	C-C	198
26	2	9,087	Spring - 92# as urea + 10T/A season Bed Pk	142	C-C-C	189
34	1	8,743	Fall - surface 3,000 hog + 30# as 28% W/plant	130	C-Rye-C	224
33	1	6,891	Spring - 100# as 28% + 20T/A shed manure	200	C-C	150
18	2 (3B)	6,719	Fall - 92# as urea + Seasonal 14.4T/A Bed Pk	164	H-C	171
28	3	6,705	Spring - 90# as 32% + 15,000 liquid dairy	390	C-C	197
18	4 (8A)	6,256	Fall - 148# as urea + 20T/A (6.4-4.2-9.0) Bedding Pk	248	C-C	170
28	2	5,997	Spring - 90# as 32% + 15,000 liquid dairy	390	HHHH-C	204
28	1	5,842	Spring - 90# as 32% + 15,000 liquid dairy	390	HHHH-C	204
9	14	5,791	Spring - 60# as Am S + Fall-Spring 22T/A Dairy	170	C-C	206
10	2	5,544	Fall-Spring 60T/A Dairy	300	H-C	175
3	1	5,316	Spring - 64# as 28% + 5T/A (20-17-14) Bed Pk in fall	164	C-C	175
29	3	5,028	Fall - 12,000 gal liquid dairy	240	C-C	198
35	1	5,004	Spring - 103# as 46% + 5T/A seasonal bedding pack	128	B-C	176
10	1	4,440	Fall-Spring 50T/A Dairy	250	C-C	175
9	11	4,262	Spring - 60# as Am S + Fall-Spring 22T/A Dairy	170	C-C	206
34	4	4,167	W/planter - 5# as 28% + 10T/A seasonal Bed Pack	100	C-C	169
6	2	4,082	Spring - 165# as urea	165	C-C	189
37	1	3,960	Spring - 140# N + Fall 15T/A cow pit	365	C-C	
18	1 (2A)	3,950	Fall - 148# as urea + 14.4T/A (6.4-4.4-9.0) Bed Pk	220	C-C	154
6	1	3,686	Spring - 140# as urea + 10T/A (12-7-7) dairy gutter	280	C-C	166
29	1	3,271	Spring - 15,000 gal liquid dairy	300	C-C	163
18	3 (4A)	3,249	Fall - 148# as urea + 20T/A (6.4-4.2-9.0) Bedding Pk	248	C-C	209
1	1	3,215	Spring - 120# as 28%	120	C-C	188
37	2	2,995	Spring - 100# + 15T/A pen pack	175	H-C	
28	4	2,984	Spring - 90# as 32% + 15,000 liquid dairy	390	C-C	197
34	2	2,859	W/planter - 50# as 28% + 8-10T/A seasonal Bed Pk	95	C-C	182
32	2	2,340	Spring - 100# as 28%	100	B-C	176
35	2	2,324	Spring - 103# as 46% + 5T/A seasonal bedding pack	128	B-C-C	180
26	1	2,209	Spring - 92# as urea + 10T/A seasonal bedding pack	142	C-C-C	189
26	4	2,179	Spring - 92# as urea + 10T/A seasonal bedding pack	142	C-C-C-C	215
19	1	2,100	Fall - 20T/A Dairy liquid	200	H-C	161
19	3	2,000	Spring - 50# as 28% + 20T/A Dairy liquid	250	C-C	175
19	4	2,000	Spring - 50# as 28% + 20T/A Dairy liquid	250	C-C cow-C	200
33	2	1,865	Spring - 100# as 28%	100	H-C	131
34	3	1,767	W/planter - 30# as 28% + 5,000 liquid hog	280	H-C	152
15	1	1,667	Planting - 45# as 28% + Seasonal 15T/A free stall	225	B-C	180
32	1	1,485	Spring - 100# as 28%	100	B-C	
12	1	1,404	Post-plant - 120# as 28%	120	B-C	220
3	3	1,261	Spring - 180# as 28%	180	C-C	159
28	2	1,190	Spring - 165# as NH3	165	C-C	182
29	2	1,178	Spring - 15,000 gal liquid dairy	300	C-C	164
4	1 (H)	1,043	W/planter - 120# as 32% = Sp 3,000G/A (69-64-92)	120	C-C-C-C	
15	2	1,006	Spring - 100# as ESN + 45# with planter as 28%	145	C-C	161
3	4-3R	1,050	W/planter - 120# as 32% = Sp 3,000G/A (69-64-92)	120	B-C	187
4	2	957	Spring - 64# as 28% + Spring Bed Pk (20-17-14)	164	C-C	175
1	2	934	Spring - 120# as 28%	120	B-C	199
4	2 (H)	730	W/planter - 120# as 32% = Sp 3,000G/A (69-64-92)	120	SoC-C	167
13	4	599	Spring - 42# as A. Sulfate + Fall 2,700 Gal liquid hog	177	C-C	169
12	2	586	Post-plant - 120# as 28%	120	B-C	181
13	3	544	Spring - 42# as Ammonium Sulfate	42	C-C	142
4	2-R	540	W/planter - 150# as 32%	150	B-C	189
3	1	457	Siddress 85# as 28% + Fall 2,650gal Hog 19.6#N	137	B-C	170
4	1-R	349	W/planter 80# as 32%	80	B-C	198
13	2	303	Spring - 42# as Ammonium Sulfate	42	C-C	125
3	4	289	Spring - 36# as 28% + 3,000 fall + 1,000 Sp (20 N)	116	B-C	175
13	1	228	Spring - 42# as A. Sulfate + Spring 2,700 G liquid hog	177	C-C	171
38	3	218	Spring - 110# as NH# + 3,500 gal liquid hog	179	C-C	182
38	4	192	Spring - 85# as 28% + Fall 2,650 gal hog 19.6#/1000	137	B-C	141
14	2	188	Spring - 100# as 28%	100	B-C	198
14	1	131	Spring - 100# as 28%	100	B-C	170
8	1	68				235
		2,860	Average of 62 samples from 21 multi-year cooperators	182		180
21	2	6625	Spring - 42# as A.S. + 95# as liquid pop-up	137	PastH-C	154
30	1	5487	Spring - 140# as NH3	140	C-C	192
21	1	4945	Spring - 42# as A.S. + 95# as liquid pop-up	137	PastH-C	153
23	2-S	3995	Spring - 140 N + Fall 15T/A pen pack	175	C-C	
23	1-E	3750	Spring - 140# N + 15,000 pig pit	515	C-C	
43	1	3272	Spring - 150# as 28%	150	C-C	185
30	2	3106	Winter ->20T/A Beef cattle dry manure	100	H-C	186
40	1	2897	Pre-emerge - 180# as liquid 32%	180	C-C	193
45	2	2150	Spring - 157 as 28% and starter Fertilizer	157	B-C	208
43	3	2062	Spring - 150# as 28%	150	C-C	196
43	2	1633	Spring - 150# as 28%	150	Grass-C	150
45	1	1600	Spring - 129# as 28% and starter fertilizer	129	B-C	180
40	2	1567	Pre-emerge - 120# as liquid 32%	120	B-C	190
45	3	1190	Spring - 129# as 28% and starter fertilizer	129	B-C	175
		3163	Average of 14 samples from 6 new 2007 cooperators	169		180

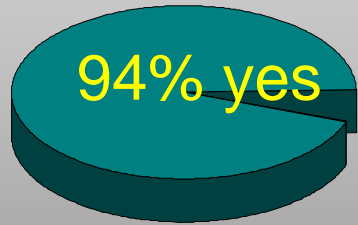
Program – Client Targeting

- Farm operators: day to day decision-makers
- Low resource and new farm operators
- Livestock producers – manure credits
- Flexibility to select low-cost alternatives
- Neighbor-to-neighbor sharing and peer pressure
- On-farm demonstrations of alternative nutrient, tillage, planting and other management
- Local stakeholder involvement – over 50%

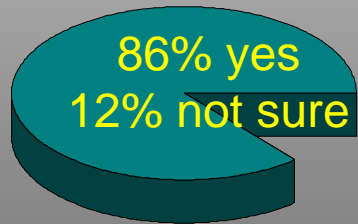
Program Evaluation – Survey



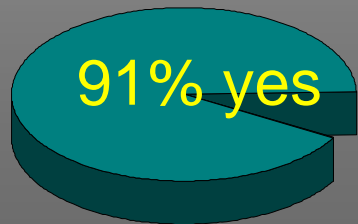
- The performance-incentive program rewards a conservation systems approach.



- Program encourages management changes.



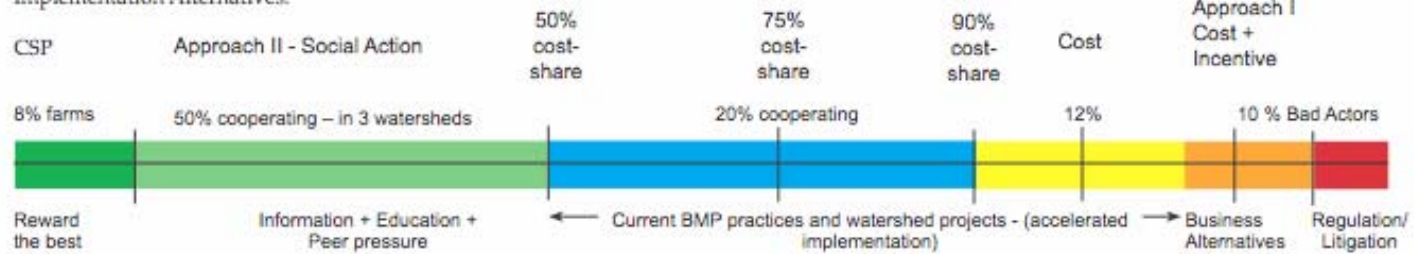
- 86% – program has a positive effect on the environment – 12% not sure yet.



- Program helped make their operation somewhat or more profitable.

Performance Driven Watershed – Water Quality Improvement

Implementation Alternatives:



Cover Crops: Cooperator EQIP eligible – CAFO hog confinement – (10 cooperators - cover crops - Hewitt Creek)



Waterways: \$400/ farm year 1, \$0.50/ft year 2 + 3 – (Hewitt Creek - year 1 -17.1 mi., year 2+3 - 7.56 mi. - Average cost \$0.18/ft)



Estimated total cost relationships – Implementation and Administration



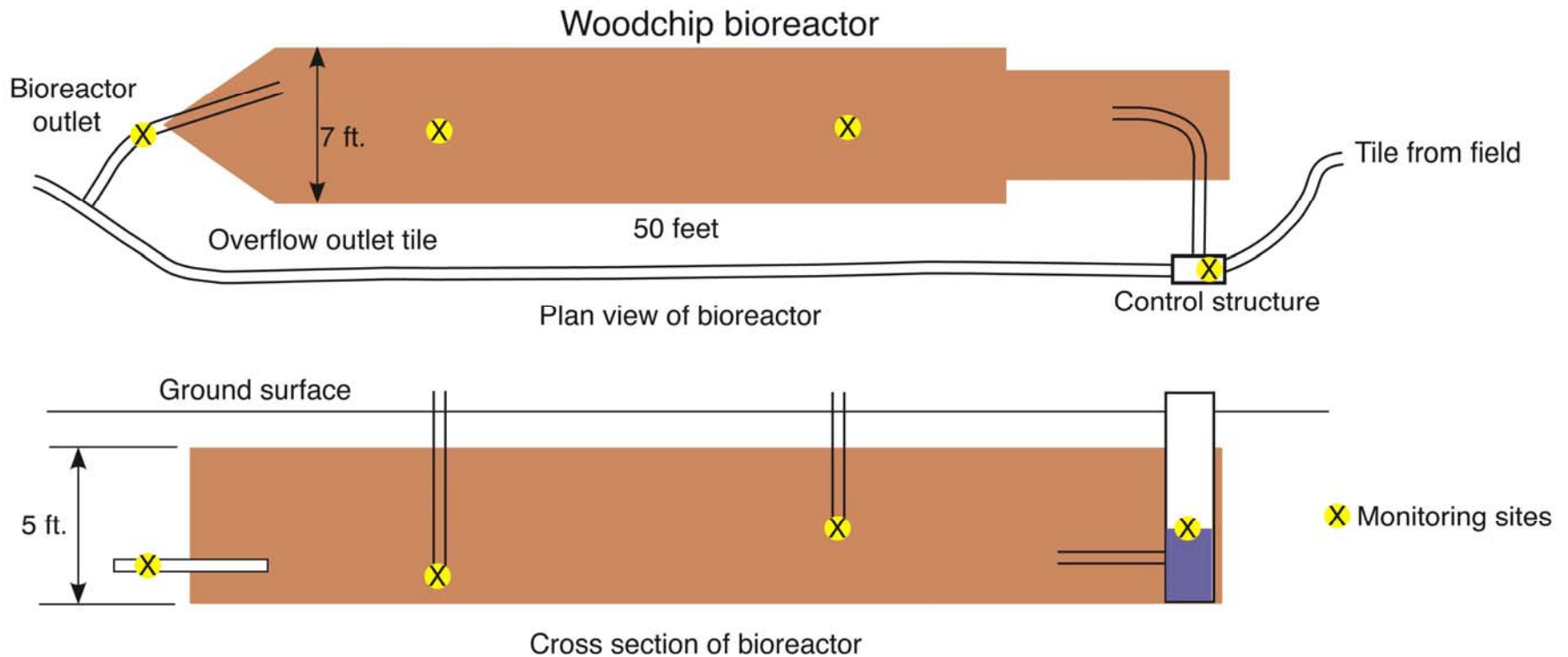
Desirable outcomes

Questions may be directed
to staff at:

ISUE Performance-based
Watershed Projects
PO Box 487
Fayette, Iowa 52142
Ph. (563) 425-3233
jrodecap@iastate.edu



Lime Creek Bioreactor

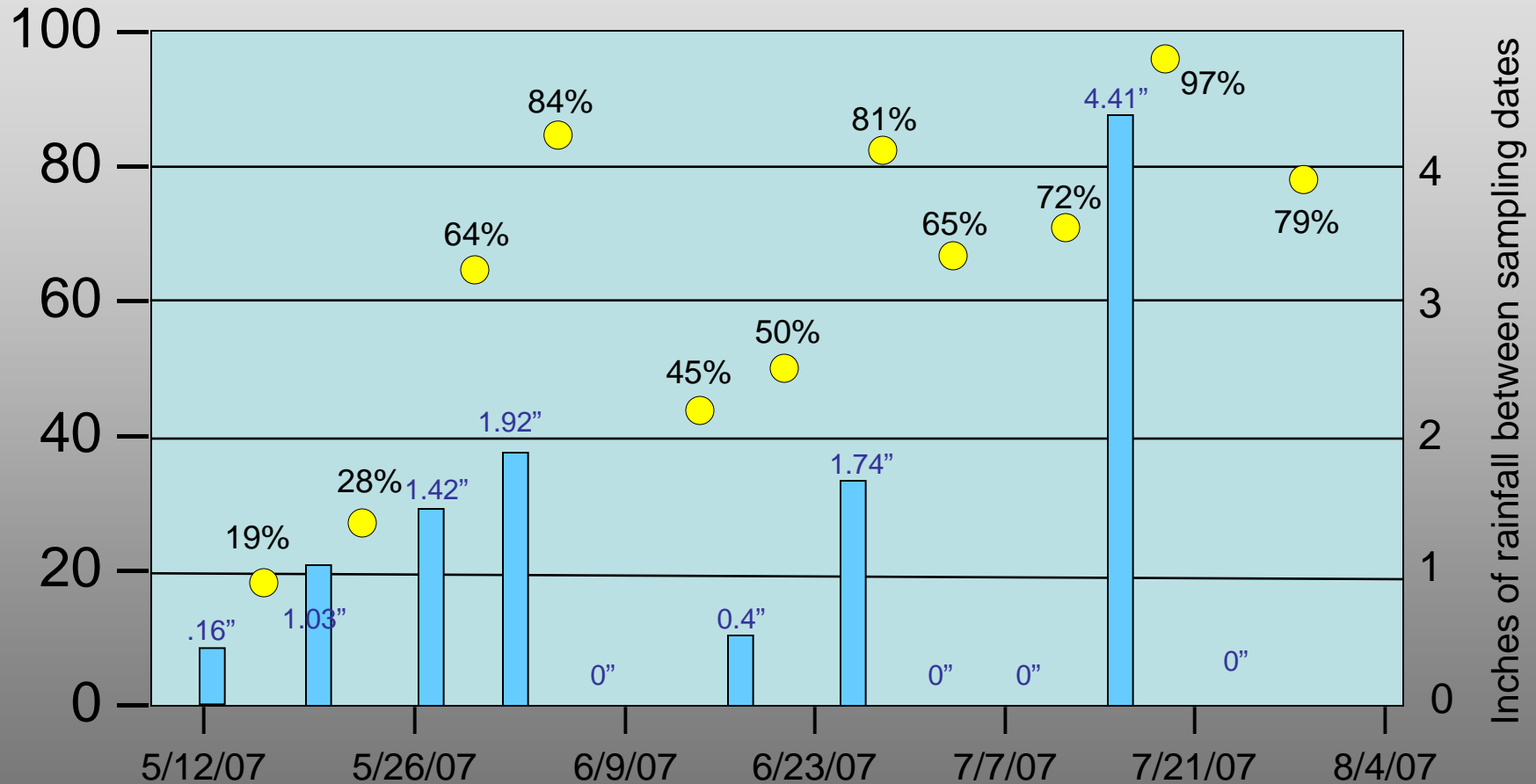


Drainage Area: Approximately 100 acres
 Biofilter capacity: 1,600 cubic feet
 Crop history: Soybean/corn rotation. The 27,013-acre Lime Creek watershed land use is 80.31% row crops. Most watershed fields are pattern tiled.

Cost:	Control structure	\$905.00
	Wood chips	450.00
	Backhoe work	595.00
	Tiling supplies	254.18
	Total	\$2,204.18

Percent Nitrate Removal

Removal



Rainfall: May 2.75", June 4.06", July 4.89"



AgSource
Belmond Labs

1245 Hwy 69
Belmond, Ia 50421
Fax (641)-444-4361
Phone (641)-444-3384
www.belmondlabs.com

Waste Analysis Report

Dealer: AGRI-ZONE INC.
2079 95TH ST.
GENEVA, IA 50633

Analyzed on: 09/10/2007

Customer:

Lab I.D.: 1040890
Sample I.D.: Muth

Type Hog Pit Manure

Test	Results		Lb. per Ton	Lb. per 1000 Gal.
Dry Matter	3.9	%		
Moisture	96.1	%		
Nitrogen	0.650	%	13.0	54.0
P2O5	0.213	%	4.3	17.7
K2O	0.379	%	7.6	31.5
Sulfur	0.05	%	1.0	4.2



AgSource
Belmond Labs

1245 Hwy 69
Belmond, Ia 50421
Fax (641)-444-4361
Phone (641)-444-3384
www.belmondlabs.com

Cornstalk Nitrate Report

Dealer: ROCKFORD FFA
1460 210TH ST. P.O. BOX 218
ROCKFORD, IA 50468
Customer: DAVE MUTH

Date: 10/03/2007

Lab I.D.	Field I.D.	Sample I.D.	Results (PPM) NO3-N
1041597	E WATERWAY-W CONF	1	163
1041598	W BLDG SITE	2	932
1041599	W FENCE-HOG CONF	3	682