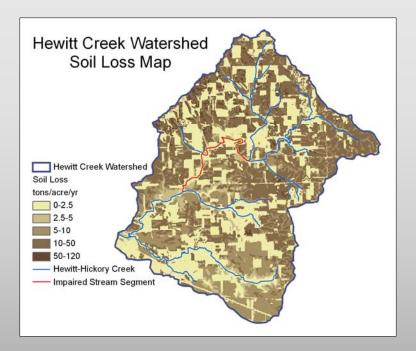
Performance Incentives Enable Stewardship Ethic and Systems Approach to Environmental Protection

Gerald Miller, Lois Wright-Morton
Susan Brown, John Rodecap, Chad Ingels
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 <u>collectively</u> address water quality.
- Watershed residents will provide aggressive local leadership for water improvement.
- Farm operators will <u>change</u> to practices that yield higher water quality.
- Participants find the performance program structure to be <u>practical and profitable</u>, and to have a positive effect on the environment.



Field by field variables

Phosphorus soil test – application

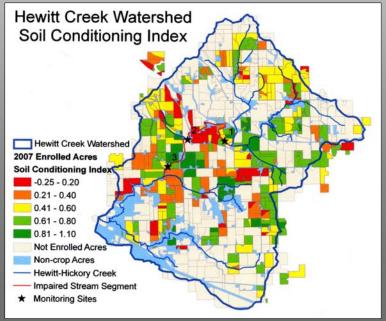
Manure rates – method – timing

Tillage – timing – management

Cover crops – residue cover

Crop rotation – row direction

Nitrogen rates – timing – method



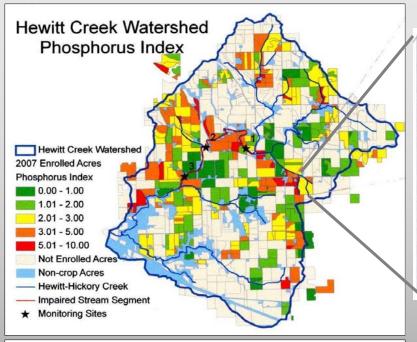
Performance Measures

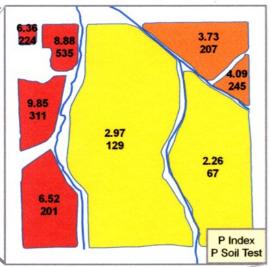
Phosphorus Index – Risk of P loss
Soil Conditioning Index – Organic matter
Cornstalk Nitrate – Sufficient/Excess N

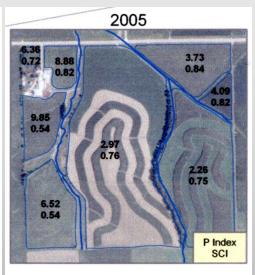
Residents work together as a watershed community on environmental goals.

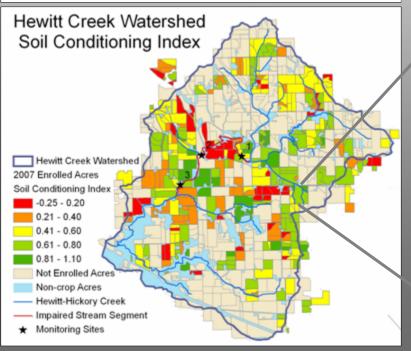


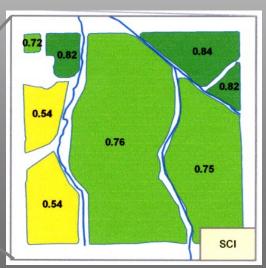


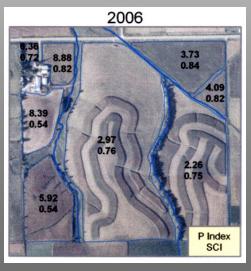


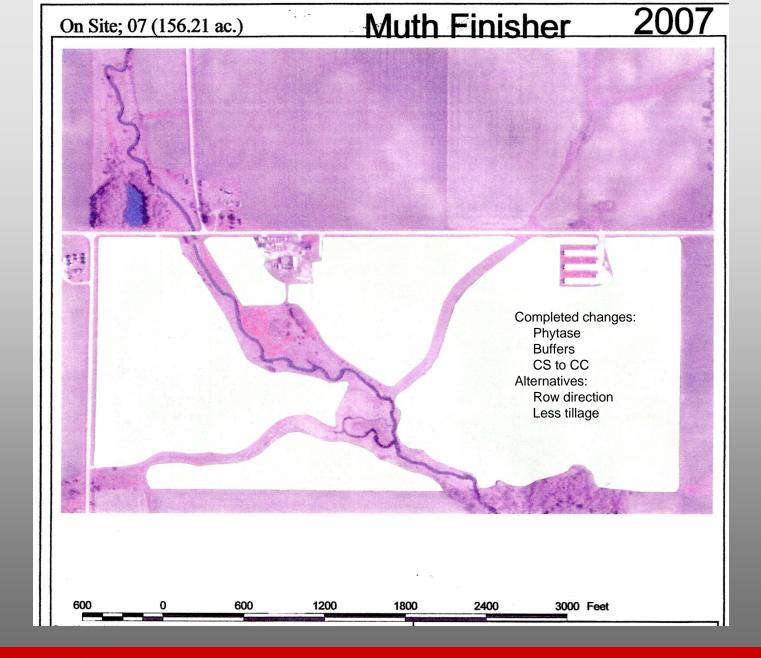












P-Index list – Coldwater/Palmer

P-Index list – Hewitt

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>5 1 4.7 3 to 5 0 0.0 2 to 3 9 233.4 2 1 to 2 111 4900.0 1 0 to 1 105 5033.7 0 no P Index 28 1488.8 254 11659.6 2007 Watershed weighted average 1 >5 0 0.0	.00 0.1	6 0	0	3350	CS	N	
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3 to 5 0 0.0 2 to 3 9 233.4 2 1 to 2 111 4900.0 1 0 to 1 105 5033.7 0 10 P Index 28 1486.8 254 11658.6 2007 Watershed weighted average 1 >5 0 0.0	g. Pl avg. .12 0.1		avg N	1200	% hay/graze 0	76 contour	% no till
2 to 3 9 233.4 2 1 to 2 111 4000.0 1 0 to 1 105 5033.7 0 no P Index 28 1486.8 254 11656.5 2007 Watershed weighted average 1 >5 0 0.0	Contract of the Contract of th	1000	10.50	1255	-		
1 to 2 111 400.0 1 0 to 1 105 5033.7 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	.28 -0.0	3 70	0	1589	0		
no P Index 28 1486.8 254 11658.6 2007 Watershed weighted average 1 >5 0 0.0	.32 0.2	9 45	0	2265	5	1	1
254 11658.6 2007 Watershed weighted average 1 >5 0 0.0	.78 0.5	1 24	0	2513	19	1	4
2007 Watershed weighted average 1 >5 0 0.0	0.3	17	0	3491	18	0	
>5 0 0.0							
	.08 0.3	9 35	0	2515			
3 to 5 0 0.0							
			0	990	0		
	.03 0.3		0	1823	2	2	
	.25 0.3		0	2268	7	1	1
no P Index 23 1277.6 151 6859.2	.25 0.3 .79 0.4	4	0	2665	0		4

				Hewit	t Creek	Watershe	:d			
				Phosphoru	s Index	Rating -	2007			
PRODUCER_ID	FIELD_ID	FIELD_ACRES	P_INDEX		SOILTEST_F	STALK_N	STREAM_DIS	ROTATION	CONTOUR	NOTILI
9	12	7.9	9.85	0.54	311	0	320	ССОНН	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	ССОНН	N	
19	H6	10.0	8.84	0.14	248	0	3230	СССОМММ	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	ССОНН	Y	
44	K-3	7.9	6.51	-0.76	23	0	1610	CS	Y	
9	10	1.1	6.36	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	СССОННН	Y	
33	b1	12.7	5.43	0.66	399	0	300	CS		
26	8	5.8	5.42	0.49	45	0	280	СССОННН	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	СССОННН	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	СССОННН	N	
6	R3	19.9	4.92	0.49	99	0	600	СССОННН	Y	

21	2	42.9	0.47	1.00	18	0	1040	KGraze	N	Y	
4	R6	36.6	0.44	0.83	32	0	2980	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	
Pl Category	# of fields	total acres	avg. Pl	avg. SCI	avg. soil P	avg N	avg. distance	% hay/graze	% contour	% no till	% of field
>5	26	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									1
2007 Water	shed Weighte	d 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	2828	2.48	0.54	57	0	1572	67	57	7	27 34
1 to 2	70	2169	1.61	0.59	49	0	2336	47	50	27	22 11
0 to 1	36	1085	0.72	0.76	29	0	1380	24	26	91	11
	316	8187	0.00000								115
2006 Water	shed Weighte	d Average	2.48	0.54	63	0	1741	54	50	19	

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

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

Index value P=52 44.0 1.55 0.36 1 178B 2 198B P=17 12.7 1.08 0.45 28.0 1.86 0.37 3 214B P=60 71.1 1.45 0.37 4 214B P=45

> 155.80 total acres =

weighted average P Index =

0.37 weighted average soil conditioning index =

5 Continuous Corn w/buffer

				Acres	P	SCI	
				Acres	Index	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 =

weighted average soil conditioning index =

0.71

fall chisel, field cultivate, annual 2 Continuous Corn manure P SCI Acres value Index P=52 44.0 1.26 0.71 1 178B

0.74 198B P=17 12.7 0.87 1.54 0.70 P=60 28.0 3 214B 71.1 1.24 0.70 P=45 4 214B

> total acres = 155.80

weighted average P Index = 1.27

weighted average soil conditioning index =

6 Corn/Soybean Rotation w/buffer

			Acres	Index	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	

155.80 total acres =

weighted average P Index =

weighted average soil conditioning index =

4 Corn/Corn/Soybean

fall chisel after corn, field cultivate, manure for 2nd corn

0.71

		Acres	P Index	SCI value	
178B	P=52	44.0	1.35	0.55	
198B	P=17	12.7	0.94	0.59	
214B	P=60	28.0	1.64	0.53	
214B	P=45	71.1	1.31	0.53	

155.80 total acres =

weighted average P Index =

weighted average soil conditioning index = 0.54

8 No-till Corn/Soybean

low disturbance manure prior to

0.37

				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 =

weighted average soil conditioning index = 0.74

2* CC for cellulose

3

2 3 fall chisel, field cultivate, annual manure cellulose

0.18

			P	SCI
		Acres	Index	value
178B	P=52	44.0	1.74	0.20
198B	P=17	12.7	1.25	0.26
214B	P=60	28.0	2.14	0.16
214B	P=45	71.1	1.64	0.16

155.80 total acres =

weighted average P Index = 1.73

weighted average soil conditioning index =

low distrubance manure, 2** No-till CC for 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 avera	age P Index =	0.94		
		weighted aver	age soil conditi	oning index =	0.68	

2007 Cornstalk nitrate test results

ID	Sample #	Stalk NO3-N	Nitrogen application	Estimated N	Rotation	Yield
	N. 10 PH P. 10 PK	(ppm)	0-11	(lb/a)		(bu/a
3 17	2 (8)	4,670	Ostrander - 394 soil Spring - 130# as urea + Spring-Fall cattle manure	130 +	C-B-C	174
22	1	3,627	Sidedress 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 - 100# as 28% + Fall manure	130	C-B-C	178
17	3 (3)	2,935	Spring - 130# as urea Spring - 190# as 32% Tiled	130 190	C-B-C C-C-C	121
25 21	1	2,813 2,626	Spring - 190# as 32% Tiled	190	6-6-6	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	176
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	184
20	2	1,003	Sidedress - 155# as 28% + Cattle man.; Heavy soil; som tile	155 +	B-C-C	128
8	3.5	961	the same of the state of the st	1000	0202	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		440.4	000	157
23	2	711	Spring - 140# as liquid + Fall-Sp-2-4T/A manure Some tile	140 +	C-B-C C-B-C	207
6	4	705 691	Sp - 105# as NH3 + 40 as 28% over top; Ostrander soil; tile Fall - 120# NH3 + 1T/A Dayton 30 No tile	145	C-B-C	180
15	2	691	Fall - 120# NH3 + 1T/A Dayton 30 No tile Sp 35# as 32% + 3,000gal(56-32-38); 213, 178, 174; Tiled	120 +	C-C-C	179
6	3	682	Sp - 105# NH3 + 40 as 28%; Ostrander - 394 soil Tiled	145	C-B-C	133
20	1	593	Sidedress - 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		-50	248
6	1	493	Sp - 105# NH3 + 40# as 28% over top; Floyd - 198 soil; Tiled	145	C-B-C	206
8	2	396		2020		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 + 1T/A Dayton 30 No tile	120 +	C-B-C	175
1	1	163	Sp 35# as 32% + 3,000gal(56-32-38); 213, 178, 174; Tiled	204	C-C-C	158
8	1	151				217
38		1,506	38 samples from 2006 & 2007 cooperators	165		177
	25					
28	3	7,275				155
28	2	7,015 5,999	Carine 1208NU2 + Fall calls Manual Vaning 62 1. Til-	130 + manure	C-B-C	145
34 26	1 (M2) 2	4,763	Spring - 130#NH3 + Fall cattle Manure: Kenyon-83 soil; Tile 150# as NH3	130 + manure 150	B-C	151
24	1	4,763	100F da HITO	130	B-C	214
24	2	4,670				169
28	4	4.085				157
30	- 7	3,929				163
36	1 (RP)	3,710	183# N	183		159
28	1	3,432	1/00/20	-		189
31	1	3,059				199
36	3 (NE C)	3,052	183# N	183		203
31	4	2,975		(7000)		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	Co. 4408 1010 - 07/8	494	C-R-C	? ea
27 34	2-E	1,171	Sp - 110# as NH3 + 2T/A cattle manure; Kenyon-83 Tiled	134		160
37	4 (N2) 3	1,149	170# as NH3 Donnan - 782 soil Tiled	170	B-C-C	152
29		940 863	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	Oping - 1108 do Hino	110	CBC	173
29	2	732	Fall - 160 as NH3 + Spring 30# liquid; Ken.83, Cly.84 Tiled	190	C-C-C	152
33	1	586	The second opening sow inquire, realities, out of their	100	0.00	? ea
37	1	393				219
11	i	187	_Spring - 100# as 32% Tiled	100	C-B-C	204
		2,697	31 samples from new 2007 cooperators	157		171

D	Sample #	Stalk NO3-N	Nitrogen application	Estimated N	Rotation	Yield
-	Sample ir	(ppm)	macyon approach	(lb/a)		(bu/a
6	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
4	1	8.893	Fall - surface 3,000 hog + 30# as 28% W/plant	130	C-Rye -C	224
3	1	6.741	Spring - 100# as 28% + 20T/A shed manure	200	C-C	150
8	2 (3B)	6,719	Fall - 92# as urea + Seasonal 14.4T/A Bed Pk	164	H-C	171
8	3	6.705	Spring - 90# as 32% + 15,000 liquid dairy	390	C-C	197
8	4 (8A)	6,256	Fall - 148# as urea + 20T/A (6.4-4.2-9.0) Bedding Pk	248	C-C	170
8	2	5,997	Spring - 90# as 32% + 15,000 liquid dairy	390	нннн-с	204
				390	HHHH-C	204
8	.1.	5,842	Spring - 90# as 32% + 15,000 liquid dairy	170	C-C	204
9	14	5,791	Spring - 60# as Am S + Fall-Spring 22T/A Dairy	300		175
0	2	5,544	Fall-Spring 60T/A Dairy		H-C	
3	1	5,316	Spring - 64# as 28% + 5T/A (20-17-14) Bed Pk in fall	164	C-C	175
9	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
0	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 - 50# 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 Pack	220	C-C	154
6	1 (2A)	3,686	Spring - 140# as urea + 10T/A (12-7-7) dairy gutter	260	C-C	166
29	1	3,271	Spring - 140W as trea + 1017A (12-7-7) dairy gutter Spring - 15,000 gal liquid dairy	300	C-C	163
				248	C-C	209
18	3 (4A)	3,249	Fall - 148# as urea + 20T/A (6.4-4.2-9.0) Bedding Pk			188
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	180
26	1	2.209	Spring - 92# as urea + 10T/A seasonal bedding pack	142	C-C-C-C	189
26	4	2,179	Spring - 92# as urea + 10T/A seasonal bedding pack	142	C-C-C-C	161
19	7	2 100	Fall - 20T/A Dairy liquid	200	H-C	215
			Contra COM on 2000 a 2007/A Delay Facility	250	C-C	175
19	3	2,000	Spring - 50# as 28% + 20T/A Dairy liquid	200		
19	4	2,000	Spring - 50# as 28% + 20T/A Dairy liquid	250	C-O cov-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	170
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
38	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	170
				145	C-C	161
15	2	1,006	Spring - 100# as ESN + 45# with planter as 28%			
4	3-R	1,050	W/planter - 120# as 32% = Sp 3,000G/A (69-64-92)	120	B-C	187
3	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	Sod-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
38	1	457	Sidedress 85# as 28% + Fall 2,650gal Hog 19.6#N	137	B-C	170
				80	B-C	198
4	1-R	349	W/planter 80# as 32%			
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	i	68	okinia no rote			235
	1	2,860	Average of 62 samples from 21 multi-year cooperators	182		180
		2,000	triange a scanifina intil ci mantjani wybanios			.00
21	2	6625	Spring - 42# as A.S. + 95# as liquid pop-up	137	Past/H-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	Past/H-C	153
23	2-5	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	
23 43			Coring 150M on 2007	150	C-C	185
	1	3272	Spring - 150# as 28%			
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 - 150W as 28% and starter fertilizer	129	B-C	180
40		1567		120	B-C	190
40	2	1567	Pre-emerge - 120# as liquid 32% Spring - 129# as 28% and starter fertilizer	120	B-C	175

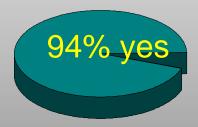
Program – Client Targeting

- Farm operators: day to day decision-makers
- Low resource and new farm operators
- <u>Livestock producers</u> 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 <u>over 50%</u>

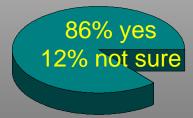
Program Evaluation – Survey



 The performance-incentive program rewards a <u>conservation systems</u> approach.



• Program <u>encourages</u> management <u>changes</u>.

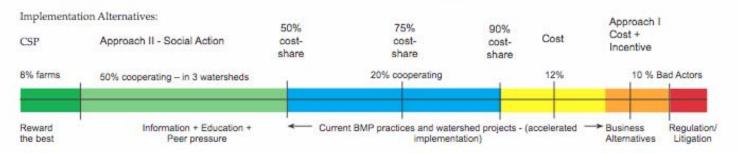


 86% – program has a <u>positive effect on</u> the environment – 12% not sure yet.



 Program helped make their operation somewhat or more profitable.

Performance Driven Watershed – Water Quality Improvement







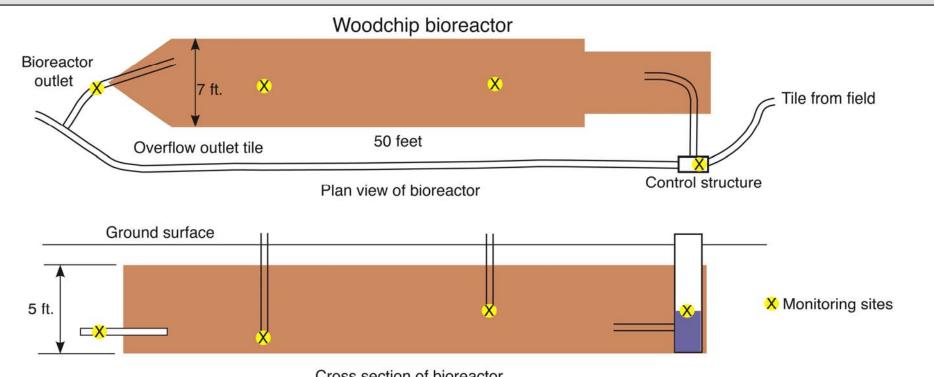
Desirable outcomes

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

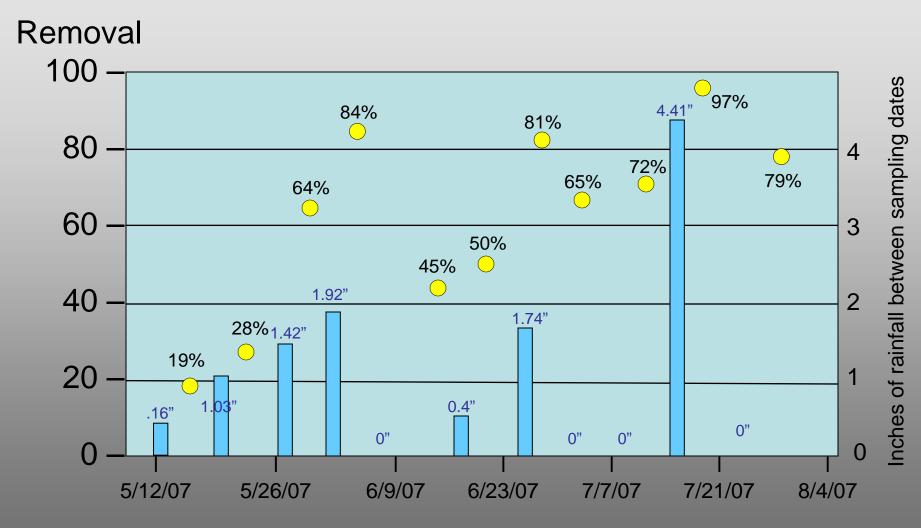


Cross section of bioreactor

Drainage Area: Approximately 100 acres	Cost:	Control structure	\$905.00
Biofilter capacity: 1,600 cubic feet		Wood chips	450.00
Crop history: Soybean/corn rotation. The 27,013-		Backhoe work	595.00
acre Lime Creek watershed land use is 80.31% row		Tiling supplies	254.18
crops. Most watershed fields are pattern tiled.		Total	\$2,204.18

IOWA STATE UNIVERSITY University Extension

Percent Nitrate Removal



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



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

Waste Analysis Report

Dealer:

AGRI-ZONE INC.

Analyzed on: 09/10/2007

2079 95TH ST.

GENEVA, IA 50633

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
P205	0.213	%	4.3	17.7
K20	0.379	%	7.6	31.5
Sulfur	0.05	%	1.0	4.2



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

Date: 10/03/2007

Cornstalk Nitrate Report

Dealer: ROCKFORD FFA

1460 210TH ST. P.O. BOX 218

ROCKFORD, IA 50468

Customer: DAVE MUTH

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