Appendix A IAC 567.65.112 Linkage to Other Code Sections

NOTE: This is not exhaustive. Linkages not relevant to NMP content requirements or review process are not listed. This is also not a summary of all relevant code sections, just linkage between certain sections that are relevant.

Primary External Linkages IAC 567.65.112 "NMP Requirements"

IAC 567.65.112 (NMP) (4) links to 65.105(459A) regarding construction permits
IAC 567.65.112 (NMP) (7) Public notice – links to IC section 22.2
IAC 567.65.112 (NMP) (8) "a" (1) links to **65.17(17)** (MMP) regarding phosphorus index calculations
IAC 567.65.112 (NMP) (8) "a" (2) links to **65.17(4)** (MMP) regarding land area requirements based upon N or P
IAC 567.65.112 (NMP) (10)"b" (1)"5" links to **65.17(3) "i" (1) & (2)** (MMP) regarding manure phosphorus content
IAC 567.65.112 (NMP) (10)"b" (5) links to **65.17(1)"a"** (MMP)related to over spreading manure
IAC 567.65.112 (NMP) (10)"b" (7) links to **65.112(8)"e"(7)** (NMP) appropriate site-specific conservation practices

First Tier Internal and External Linkages IAC 567.65.17 "MMP Content Requirements"

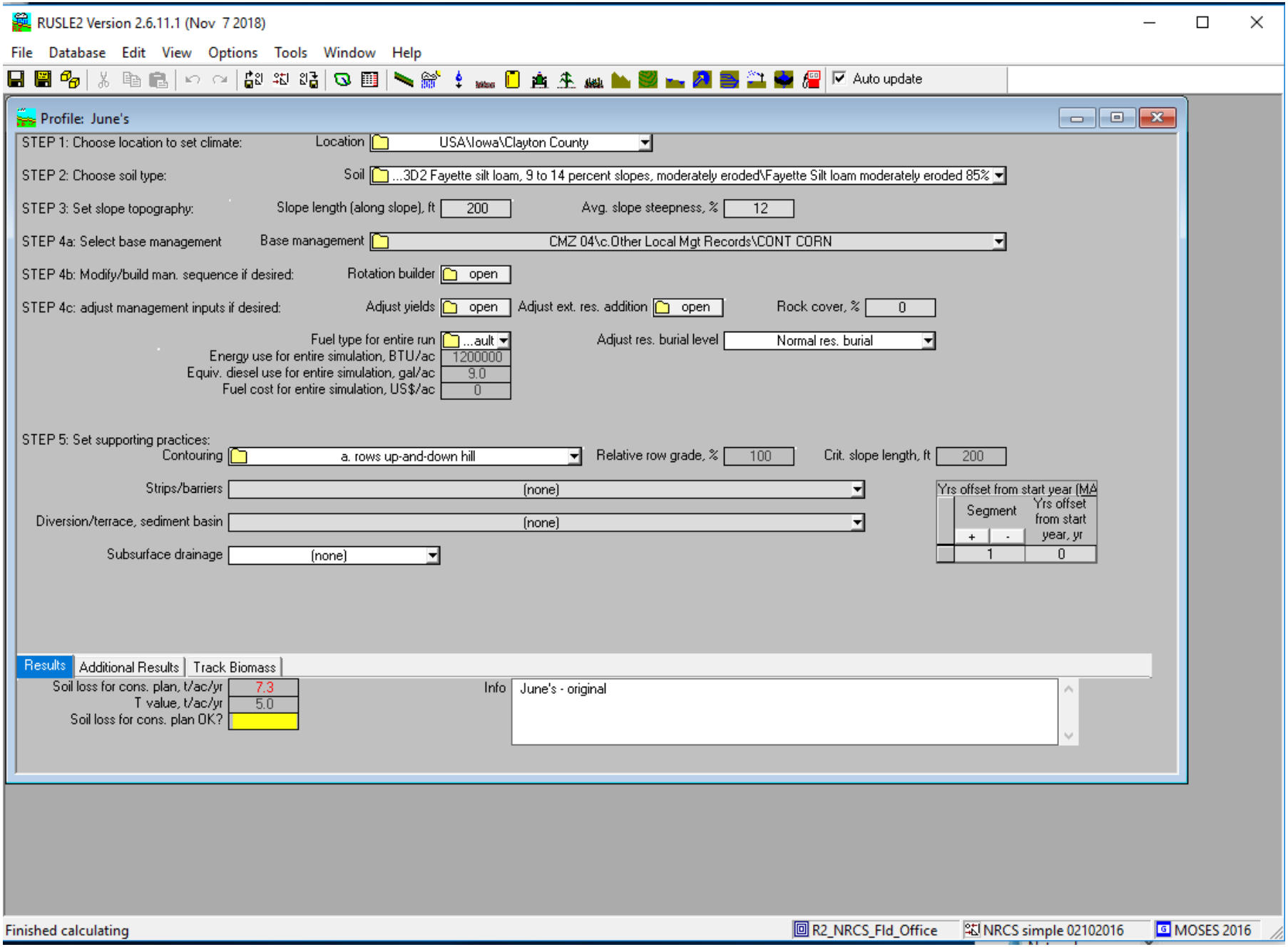
65.17(1)"a" no internal links; references some non-legislative documents
65.17(3)"i" [there is no (1) and (2)] links internally to 65.17(17)"a" regarding definition of phosphorus index
65.17(4)"a" links internally to 65.17(17) related to calculating required acres
65.17(4)"b" links externally to **65.10(3)** related to master matrix points
65.17(17) links externally to **NRCS ITN 25** Phosphorous Index /calculations
65.17(17)"b" links externally to **NRCS ITN 29** Soils Erosion
65.17(17)"d" links internally to **65.17.(16)** related to soil sampling
65.17(17)"e" links internally to 65.17.(16) related to soil sampling
65.17(17)"f" links externally to NRCS ITN 25 and **NRCS 590 Standards** Doc
65.17(17)"f" (1)"1" links to **65.17(18)** related to N-based application rates
65.17(17)"f" (1)"2" links to **65.17(19)** related to P-based application rates
65.17(17)"f" (2) links to 65.17(19)
65.17(17)"f" (3)"1" links to 65.17(18) and 65.17(17)'h"(3)
65.17(17)"f" (3)"3" links to 65.17(19)
65.17(17)"g"(1) links externally to ISU Extension **PM 1688** using additional phosphorus fertilizer
65.17(17)"h"(3) links to 65.17(16)

Second Tier Linkages:

65.10(3) Master matrix... of no consequence re this review
65.17(16) Soil sampling requirements... no internal links; externally links ISU Extension **PM 287** "Taking Good Soil Samples..."
65.17(18)"c" links to **65.17(6)** related to optimum crop yields
65.17(18)"c" links to **65.17(20)** related to prohibiting liquid manure on soybeans
65.17(19)"a" links to 65.17(6) related to optimum crop yields
65.17(19)"b" links back to 65.17(19)"a"
65.17(19)"c" links back to 65.17(19)"b" and to external doc ISU Ex PM1688 "General Guide for Crop Nutrients..."
65.17(19)"f" links externally to ISU Ex **PMR 1003** "Using Manure Nutrients for Crop Production"

Third Tier Linkages:
65.17.(6)"a"(3) links narrowly to **65.17(13)** related to records to be kept; not relevant in this context
65.17(20) goes nowhere; possibly never implemented by the commission.

NOTE: Nothing links directly or indirectly from IAC 567.65.112 (NMP) to IAC 567.65.17 (14) (MMP) the prohibition on the public inspecting records. Nothing links directly or indirectly to 65.17(5) Nitrogen and Phosphorous content of manure.


RUSLE2 Version 2.6.11.1 (Nov 7 2018)
File Database Edit View Options Tools Window Help
Auto update
Profile: June's
STEP 1: Choose location to set climate:
Location
USA\Iowa\Clayton County
STEP 2: Choose soil type:
Soil
...3D2 Fayette silt loam, 9 to 14 percent slopes, moderately eroded\Fayette Silt loam moderately eroded 85%
STEP 3: Set slope topography:
Slope length (along slope), ft
200
Avg. slope steepness, %
12
STEP 4a: Select base management
Base management
CMZ 04\c.Other Local Mgt Records\CONT CORN
STEP 4b: Modify/build man. sequence if desired:
Rotation builder
open
STEP 4c: adjust management inputs if desired:
Adjust yields
open
Adjust ext. res. addition
open
Rock cover, %
0
Fuel type for entire run
...ault
Adjust res. burial level
Normal res. burial
Energy use for entire simulation, BTU/ac
1200000
Equiv. diesel use for entire simulation, gal/ac
9.0
Fuel cost for entire simulation, US$/ac
0
STEP 5: Set supporting practices:
Contouring
a. rows up-and-down hill
Relative row grade, %
100
Crit. slope length, ft
200
Strips/barriers
(none)
Diversion/terrace, sediment basin
(none)
Subsurface drainage
(none)
Yrs offset from start year (MA
Segment
Yrs offset from start year, yr
1
0
Results
Additional Results
Track Biomass
Soil loss for cons. plan, t/ac/yr
7.3
T value, t/ac/yr
5.0
Soil loss for cons. plan OK?
Info
June's - original
Finished calculating
R2_NRCS_Fld_Office
NRCS simple 02102016
MOSES 2016

Appendix C RUSLE2 Calculations – Original and Correct DCA's P1

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

This RUSLE2 run represents: (check one) ___Benchmark rotation ___Planned rotation

Certification run Info: Koether - Giard 35 - with original DCA soil

File: profiles\Koether-Giard 35
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Iowa\Clayton County	SSURGO\Clayton County, Iowa\163E2 Fayette silt loam, 14 to 18 percent slopes, moderately eroded\Fayette Silt loam moderately eroded 85%	150	16

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	136.00
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	136.00

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
a. rows up-and-down hill	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	11	11	11	11	0.058	0.42	150	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure injector, liquid low disturb.30 inch		88
5/1/1	Cultivator, field 6-12 in sweeps		73
5/3/1	Planter, double disk opnr w/fluted coulter	Corn, grain	73
5/8/1	Sprayer, pre-emergence		72
10/15/1	Harvest, killing crop 50pct standing stubble		89
10/15/1	Manure injector, liquid low disturb.30 inch		89
5/1/2	Cultivator, field 6-12 in sweeps		73
5/3/2	Planter, double disk opnr w/fluted coulter	Corn, grain	73
5/8/2	Sprayer, pre-emergence		72
10/15/2	Harvest, killing crop 50pct standing stubble		82

Appendix C RUSLE2 Calculations – Original and Correct DCA's P2

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

This RUSLE2 run represents: (check one) ___Benchmark rotation ___Planned rotation

_Certification run Info: Koether - Giard 35 - with correct DCA soil

File: profiles\Koether-Giard 35
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Iowa\Clayton County	SSURGO\Clayton County, Iowa\703E2 Dubuque silt loam, 14 to 18 percent slopes, moderately eroded\Dubuque Silt loam 75%	97	16

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	93.000
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	93.000

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
a. rows up-and-down hill	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
2.0	17	17	17	17	0.096	0.48	97	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure injector, liquid low disturb.30 inch		78
5/1/1	Cultivator, field 6-12 in sweeps		60
5/3/1	Planter, double disk opnr w/fluted coulter	Corn, grain	60
5/8/1	Sprayer, pre-emergence		60
10/15/1	Harvest, killing crop 50pct standing stubble		79
10/15/1	Manure injector, liquid low disturb.30 inch		79
5/1/2	Cultivator, field 6-12 in sweeps		60
5/3/2	Planter, double disk opnr w/fluted coulter	Corn, grain	60
5/8/2	Sprayer, pre-emergence		59
10/15/2	Harvest, killing crop 50pct standing stubble		70

Appendix C RUSLE2 Calculations – Original and Correct DCA's P3

RUSLE2 Profile Erosion Calculation Record

This RUSLE2 run represents: (check one) ___Benchmark rotation ___Planned rotation

_Certification run Info: June's - with original DCA soil

File: profiles\June's
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Iowa\Clayton County	SSURGO\Clayton County, Iowa\163D2 Fayette silt loam, 9 to 14 percent slopes, moderately eroded\Fayette Silt loam moderately eroded 85%	200	12

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	154.00
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	154.00

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
a. rows up-and-down hill	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	7.3	7.3	7.3	7.3	0.051	0.42	200	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure injector, liquid low disturb.30 inch		91
5/1/1	Cultivator, field 6-12 in sweeps		77
5/3/1	Planter, double disk opnr w/fluted coulter	Corn, grain	77
5/8/1	Sprayer, pre-emergence		76
10/15/1	Harvest, killing crop 50pct standing stubble		92
10/15/1	Manure injector, liquid low disturb.30 inch		92
5/1/2	Cultivator, field 6-12 in sweeps		77
5/3/2	Planter, double disk opnr w/fluted coulter	Corn, grain	77
5/8/2	Sprayer, pre-emergence		76
10/15/2	Harvest, killing crop 50pct standing stubble		85

Appendix C RUSLE2 Calculations – Original and Correct DCA's P4

RUSLE2 Profile Erosion Calculation Record

This RUSLE2 run represents: (check one) ___Benchmark rotation ___Planned rotation

_Certification run Info: June's - with correct DCA soil

File: profiles\June's
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Iowa\Clayton County	SSURGO\Clayton County, Iowa\703E2 Dubuque silt loam, 14 to 18 percent slopes, moderately eroded\Dubuque Silt loam 75%	97	16

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	93.000
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	93.000

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
a. rows up-and-down hill	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
2.0	17	17	17	17	0.096	0.48	97	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure injector, liquid low disturb.30 inch		78
5/1/1	Cultivator, field 6-12 in sweeps		60
5/3/1	Planter, double disk opnr w/fluted coulter	Corn, grain	60
5/8/1	Sprayer, pre-emergence		60
10/15/1	Harvest, killing crop 50pct standing stubble		79
10/15/1	Manure injector, liquid low disturb.30 inch		79
5/1/2	Cultivator, field 6-12 in sweeps		60
5/3/2	Planter, double disk opnr w/fluted coulter	Corn, grain	60
5/8/2	Sprayer, pre-emergence		59
10/15/2	Harvest, killing crop 50pct standing stubble		70

Appendix C RUSLE2 Calculations – Original and Correct DCA's P5

RUSLE2 Profile Erosion Calculation Record

This RUSLE2 run represents: (check one) ___Benchmark rotation ___Planned rotation

_Certification run Info: Costigan E Lane - with original DCA soil

File: profiles\Costigan_East_Lane
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Iowa\Clayton County	SSURGO\Clayton County, Iowa\163D2 Fayette silt loam, 9 to 14 percent slopes, moderately eroded\Fayette Silt loam moderately eroded 85%	200	12

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	154.00
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	154.00

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
a. rows up-and-down hill	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
5.0	7.3	7.3	7.3	7.3	0.051	0.42	200	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure injector, liquid low disturb.30 inch		91
5/1/1	Cultivator, field 6-12 in sweeps		77
5/3/1	Planter, double disk opnr w/fluted coulter	Corn, grain	77
5/8/1	Sprayer, pre-emergence		76
10/15/1	Harvest, killing crop 50pct standing stubble		92
10/15/1	Manure injector, liquid low disturb.30 inch		92
5/1/2	Cultivator, field 6-12 in sweeps		77
5/3/2	Planter, double disk opnr w/fluted coulter	Corn, grain	77
5/8/2	Sprayer, pre-emergence		76
10/15/2	Harvest, killing crop 50pct standing stubble		85

Appendix C RUSLE2 Calculations – Original and Correct DCA's P6

RUSLE2 Profile Erosion Calculation Record

This RUSLE2 run represents: (check one) ___Benchmark rotation ___Planned rotation

_Certification run Info: Costigan E Lane - with correct DCA soil

File: profiles\Costigan_East_Lane
Access Group: R2_NRCS_Fld_Office

Inputs:

Location	*Soil*	*Slope length (horiz)*	*Avg. slope steepness, %*
USA\Iowa\Clayton County	SSURGO\Clayton County, Iowa\703D2 Dubuque silt loam, 9 to 14 percent slopes, moderately eroded\Dubuque Silt loam 75%	97	12

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	101.00
managements\CMZ 04\c.Other Local Mgt Records\CONT CORN	vegetations\Corn, grain	bushels	101.00

Contouring	*Strips/barriers*	*Diversion/terrace, sediment basin*	*Subsurface drainage*	*Adjust res. burial level*	*General yield level*	*Rock cover, %*
a. rows up-and-down hill	(none)	(none)	(none)	Normal res. burial	Base yield	0

Outputs:

T value	*Soil loss erod. portion*	*Detachment on slope*	*Soil loss for cons. plan*	*Sediment delivery*	*Net C factor*	*Net K factor*	*Crit. slope length*	*Surf. cover after planting, %*
2.0	11	11	11	11	0.088	0.48	97	

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/25/0	Manure injector, liquid low disturb.30 inch		80
5/1/1	Cultivator, field 6-12 in sweeps		63
5/3/1	Planter, double disk opnr w/fluted coulter	Corn, grain	63
5/8/1	Sprayer, pre-emergence		62
10/15/1	Harvest, killing crop 50pct standing stubble		81
10/15/1	Manure injector, liquid low disturb.30 inch		81
5/1/2	Cultivator, field 6-12 in sweeps		63
5/3/2	Planter, double disk opnr w/fluted coulter	Corn, grain	63
5/8/2	Sprayer, pre-emergence		62
10/15/2	Harvest, killing crop 50pct standing stubble		72

INSTRUCTIONS: Enter data in yellow cells. Enter all Erosion Data first, all Runoff Data next, and all Drainage Data last. v. 8/21/2007

Clear Inputs | Highlight Land Management Inputs Only | Highlight All Inputs

Erosion Component

Value 0.00

Gross Erosion (tons/acre)

		Area (ac)	Tons
Sheet & Rill (RUSLE2)			
Ephemeral	0.0		
Gully	0.0		

Factor 0.0

Sediment Trap Factor *(Conservation Practices)*

Note: Area to be credited with reduction is the area affected by the practice and should be broken out into separate Conservation Planning Units for P-Index calculation purposes.

None

Factor 1.00

Sediment Delivery Ratio

View Map and Choose

Select Landform Region

Enter the distance from the center of the field to the perennial or intermittant stream (ft)

Factor 1.00

Filter Factor Click here for information… 393 Standard

Select the width of filter 1.0

Factor 1.0

Enrichment Factor *(Residue Management Effect)*

Select the enrichment factor 1.0

Factor 1.0

P Test Factor

Select the type of P Test 1.0

Enter the test result (ppm)

Factor 1.00

Next >

Runoff Component

Value 0.00

RCN Factor Click here for infomation...

Select the County: Landform region not selected

Precipitation Factor 0.0

Select the land use: Empty

Select the dominant soil type

Runoff Curve Number

RCN Fraction

Factor 0.00

P Test Factor

Select the type of P Test 1.0

Test result (ppm) 0.0

Factor 0.00

Rate Factor Click here for information…

Enter the Rate of P Application From All Sources (lb P_2O_5/acre)

Elemental P (lbs) Convert

Select the application method 1.0

Factor 0.00

Next >

Subsurface Drainage Component

Value 0.00

Flow Factor

Tile

Is Tile Present?

Is the field Row-Cropped?

Choose the soil if available or "NOT ON THE LIST" at the bottom to continue

Does the field have good drainage?

Choose the soil if available or "NOT ON THE LIST" at the bottom to continue

Factor 0.0

STP Factor

Assumes 10% of annual rainfall flows through tile or leaches through coarse textured subsoil/substratum.

Factor 0.000

P-INDEX 0.00

Two reports are available for storing P-Index data.

1. Summary report stores data for 3 fields, and up to 10 runs per field. — Summary Report
2. Detailed report does not separate runs and fields, but keeps track of all variables in the P-Index. — Detailed Report

Choose output location for summary report: Top
Enter field name:
Enter run name:

Use the Copy button to copy data from this worksheet to the reports. — Copy to Reports

Appendix D - P-Index Calculator

USDA NRCS
Natural Resources Conservation Service

Iowa Phosphorus Index

v. 1/22/2007

Credits: Iowa State University
USDA National Soil Tilth Laboratory
USDA Natural Resource Conservation Service

Field Number	Erosion							+	Runoff				+	Tile / Subsurface Recharge			=	Overall
	Gross Erosion	x Sediment Trap Factor	x SDR	x Buffer Factor	x Enrichment Factor	x STP Factor	= Erosion PI		RCN Factor	x (STP Factor	+ P App Factor	) = Runoff PI		Flow Factor	x STP Factor	= Tile/Sub Factor		P Index
Costi. E. Lane -- ORG	7.30	1.00	0.57	1.00	1.10	0.86	3.94		1.32	0.24	0.05	0.39		1.00	0.07	0.07		4.4
Cost. E. Lane -- CORR	11.00	1.00	0.57	1.00	1.10	0.86	5.93		1.32	0.24	0.05	0.39		1.00	0.07	0.07		6.4
Junes --ORG	7.30	1.00	0.45	1.00	1.10	0.76	2.76		1.32	0.13	0.05	0.24		1.00	0.07	0.07		3.1
Junes -- CORR	17.00	1.00	0.53	1.00	1.10	0.76	7.56		1.32	0.13	0.05	0.24		1.00	0.07	0.07		7.9
Koehter-G-35 --ORG	11.10	1.00	0.40	1.00	1.10	0.81	3.95		1.32	0.19	0.05	0.32		1.00	0.07	0.07		4.3
Koehter-G-35 -- CORR	17.00	1.00	0.40	1.00	1.10	0.81	6.06		1.32	0.19	0.05	0.32		1.00	0.07	0.07		6.4
East 120 -- ORG	11.10	1.00	0.40	1.00	1.10	0.83	4.11		1.32	0.21	0.05	0.35		1.00	0.07	0.07		4.5
East 120 -- CORR	11.10	1.00	0.48	1.00	1.10	0.83	4.91		1.32	0.21	0.05	0.35		1.00	0.07	0.07		5.3
Home Farm 1 -- ORG	5.70	1.00	0.72	1.00	1.10	0.90	4.05		1.32	0.29	0.05	0.46		1.00	0.07	0.07		4.6
Home Farm 1 -- CORR	5.70	1.00	0.73	1.00	1.10	0.90	4.15		1.32	0.29	0.05	0.46		1.00	0.07	0.07		4.7
Home Farm 4 -- ORG	5.70	1.00	0.51	1.00	1.10	1.12	3.55		1.32	0.55	0.05	0.79		1.00	0.07	0.07		4.4
Home Farm 4 -- CORR	5.70	1.00	0.55	1.00	1.10	1.12	3.84		1.32	0.55	0.05	0.79		1.00	0.07	0.07		4.7
Kathy's Hay -- ORG	7.30	1.00	0.42	1.00	1.10	0.86	2.87		1.32	0.24	0.05	0.38		1.00	0.07	0.07		3.3
Kathy's Hay -- CORR	7.30	1.00	0.56	1.00	1.10	0.86	3.83		1.32	0.24	0.05	0.38		1.00	0.07	0.07		4.3
Koether - F 26/35 -- ORG	10.40	1.00	0.47	1.00	1.10	0.78	4.22		1.24	0.15	0.05	0.25		1.00	0.07	0.07		4.5
Koether - F 26/35 -- CORR	10.40	1.00	0.52	1.00	1.10	0.78	4.66		1.24	0.15	0.05	0.25		1.00	0.07	0.07		5.0

Appendix E Eight Challenge Fields

NOTE: For ORG calculations, the factors used in each term are the same as in the NMP calculations. For CORR calculations, the factors highlighted in light blue are different. Different Gross Erosion values result from using the correct DCA soil type and associated slope length, slope grade, and soil crop yield as contained in the eFOTG tables for Clayton County, in the RUSLE2 calculations. Note that Ephemeral Gully and Classical Gully estimates have not been done by the producer for any of the 45 fields. There is established protocol for doing this, but it requires more direct knowledge of the fields. ITN 25 is clear. The Total Erosion factor in the Erosive PI term must include the sum of RUSLE2 rill and interrill, AND ephemeral gully AND classical gully erosion. The Total P-Index will be higher in every case when this is done properly. Different SDR values result from using the correct distance-to-stream values.

MASTER SHEET SB NMP *sveysey 02/25/2001*

Definitions	units	Abbrev.	Source	Curr NMP	Table Values	Table values; 180 yield	70% Table values; 224 yield	70% Table values; 180 yield	reserved	reserved	reserved
Loss Factor		LF	table	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Manure P Conc.	lbs/1000gal	TPC	table or producer	4.2	25	25	17.5	17.5	0	0	0
Manure N Conc.	lbs/1000gal	TNC	table or producer	10.55	40	40	28	28	0	0	0
Manure volume	gal/head/day	MV	table or producer	6.5	6.5	6.5	6.5	6.5	0	0	0
Number of head of cows		HC	producer	11600	11600	11600	11600	11600	0	0	0
% Total N yr 1	%	PTN1	table	50	50	50	50	50	50	50	50
% Total N yr 2	%	PTN2	table	10	10	10	10	10	10	10	10
% Total N yr 3	%	PTN3	table	5	5	5	5	5	5	5	5
% Total P yr1	%	PTP1	table	100	100	100	100	100	100	100	100
Corn usage N	lbs/bu	CUN	table	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Corn Usage P	lbs/bu	CUP	table	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Optimum corn yield	bu/ac	OCY	producer	224	224	180	224	180	0	0	0
Rain water volume*	gal	RWV	producer	6954273	0	0	0	0	0	0	0
Available N yr 1	lbs/1000gal	AN1	AN1= LF x TNC x PTN1/100	5.17	19.6	19.6	13.72	13.72	0	0	0
Available N yr 2	lbs/1000gal	AN2	AN2= LF x TNC x PTN2/100	1.03	3.92	3.92	2.744	2.744	0	0	0
Available N yr 3	lbs/1000gal	AN3	AN3= LF x TNC x PTN3/100	0.52	1.96	1.96	1.372	1.372	0	0	0
Availalble P yr 1	lbs/1000gal	AP1	AP1= 1.0 x TPC	4.2	25	25	17.5	17.5	0	0	0
Annual manure production	gal	AMP	AMP= MV x HC x 365	27521000	27521000	27521000	27521000	27521000	0	0	0
Total effluent volume	gal	TEV	TEV= AMP + RWV	34475273	27521000	27521000	27521000	27521000	0	0	0
Corn N removal	lbs/ac	CNR	CNR= CUN x OCY	268.80	268.80	216.00	268.80	216.00	0.00	0.00	0.00
Corn P removal	lbs/ac	CPR	CPR= CUP x OCY	71.68	71.68	57.60	71.68	57.60	0.00	0.00	0.00
Manure carryover credit	lbs/ac	MCC	MCC= (AN2 + AN3) x SVP/1000	26.47	16.86	13.55	16.86	13.55	#DIV/0!	#DIV/0!	#DIV/0!
Manure N added	lbs/ac	MNA	MNA= SVP x AN1/1000	88.23	56.20	45.16	56.20	45.16	#DIV/0!	#DIV/0!	#DIV/0!
Commercial N added	lbs/ac	CNA	CNA= CNR - MNA - MCC	154.11	195.74	157.29	195.74	157.29	#DIV/0!	#DIV/0!	#DIV/0!
Total N added	lbs/ac	TNA	TNA= CNR= MNA + MCC + CNA	268.80	268.80	216.00	268.80	216.00	#DIV/0!	#DIV/0!	#DIV/0!
Spreading volume (P)	gal/ac	SVP	SVP= CPR x 1000/AP1	17067	2867	2304	4096	3291	#DIV/0!	#DIV/0!	#DIV/0!
Required acres			**=**	**2020**	**9599**	**11945**	**6719**	**8361**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

NOTE: Calculating the spreading rate to conserve mass balance for N&P inputs and outputs requires a starting assumption about allowable P. In this NMP the rproducer has based the application rate of manure on P crop uptake equals P spread. This is required since the fields are HEL with P-tests in the H and VH ranges. Additional commercial N is calculated to meet the N mass balance.

NOTE: Because the source of the applicants N&P concentrations are unknown, and in an effort to exactly duplicate his calculations, rain water volume is included in the Curr NMP calculation column. Rain water does not contain N&P. All other calculation columns are based essentially upon "as-excreted" Table values, so rain water volume will not affect the mass balance for acres calcuulation, only the spreading rate TBD at time of application.

Appendix K Lookup tables

Info for Yield and HEL Calculations

soil type	HEL	bu/ac
162C2	1	208
162D2	1	166
162E2	1	147
163C	1	200
163C2	1	195
163D	1	158
163D2	1	154
163E	1	141
163E2	1	136
163F	1	114
196C	1	155
478G	1	88
483C	1	149
483E2	1	88
499F	1	88
612D2	1	122
612E2	1	102
65D2	1	146
65F2	1	106
703D2	1	101
703E	1	93
703E2	1	93
763F2	1	125
902D2	1	157
120B	3	232
1212	3	227
129B	3	197
133	3	198
162B	3	224
163B	3	213
320	3	200
40	3	88
487B	3	206
5040	3	88
589	3	205
589+	3	205
826	3	206
930	3	210
930B	3	202
98	3	222
981B	3	230

Info for P-Index Back Calculations

Distance (ft)	SDR
200	0.73
250	0.69
300	0.66
350	0.64
400	0.62
450	0.60
500	0.58
550	0.57
600	0.56
650	0.55
700	0.54
750	0.53
800	0.52
850	0.51
900	0.50
1000	0.49
1100	0.48
1200	0.47
1300	0.46
1400	0.46
1500	0.45
1600	0.44
1700	0.44
1800	0.43
1900	0.43
2000	0.42
2200	0.41
2400	0.41
2600	0.40
2800	0.39
3000	0.39
3200	0.38
3400	0.38
3600	0.37
3800	0.37
4000	0.36
4200	0.36
4400	0.35
4600	0.35
4800	0.35
5000	0.34

P-test	Bray1 Mehlich 3 STP Faactor
20	0.78
25	0.81
30	0.83
35	0.85
40	0.87
45	0.89
50	0.91
55	0.93
60	0.95
65	0.97
70	0.99
75	1.02
80	1.04
85	1.06
90	1.08
95	1.10
100	1.12
105	1.14
110	1.16
115	1.18
120	1.20
125	1.23
130	1.25
135	1.27
140	1.29
145	1.31
150	1.33

Appendix H Fields Master

Designation	TRS	QQQ	Township	Manure_Acres_NMP	Rusle2_correct_DCA	Rusle2_soil_loss_tay	PI_Gross_Erosion_tay	PI_SDR	Dist_NMP_back_calc_ft	Dist _GIS_meas_ft	Dist_diff_percent	PI_Buffer_factor	PI_Enrich_factor	PI_STP_soil_erosion	P_test_back_calc	P_value_grid_or_point	P_test_soil_rating	PI_Erosion_PI	PI_RCN_factor	PI_STP_runoff	PI_P_app_factor	PI_Runoff_PI	PI_Tile_Sub_PI	PI_Total_PI	PI_Total_Calc	utm_x	utm_y	LatDD	LongDD	Correct_soil_P_test	Distance_to_SB_miles	Own_Rent_Easement	Field_image _NMP_pdf_page	RUSLE2_NMP_pdf_page	Field_Soils_NMP_pdf_page
Airport Monona	T95NR04W08	W part SW 1/4	Giard	68.6		5.70	5.70	0.53	750	900	-17	1.00	1.10	0.80	23	23	H	2.63	1.32	0.16	0.05	0.29	0.07	3.00	2.99	634600	4768300	43.05547	-91.34716	y	3.8	E	I - 23	I - 69	I - 142
Carlson - Farmersburg 1	T94NR04W22		Farmersburg	218.0		5.70	5.70	0.45	1500	1730	-13	1.00	1.10	0.86	38	38	VH	2.90	1.32	0.24	0.05	0.39	0.07	2.90	3.36	638500	4755900	42.94315	-91.30237	y	7.8	E	I - 24	I - 71	I - 148
Carlson - Farmersburg 2	T94NR04W22, 23		Farmersburg	57.5		2.29	2.29	0.55	650	600	8	1.00	1.10	0.82	28	28	H	1.54	1.32	0.19	0.05	0.33	0.07	1.54	1.94	639450	4756100	42.94478	-91.29068	y	7.8	E	I - 25	I - 72	II - 4
Carlson - Farmersburg 3	T94NR04W22, 23		Farmersburg	77.0		7.09	7.09	0.56	600	660	-9	1.00	1.10	0.92	54	54	VH	4.01	1.32	0.32	0.05	0.49	0.07	4.57	4.57	639500	4755750	42.94162	-91.29016	y	7.8	E	I - 26	I - 73	II - 8
Carlson - Farmersburg 5	T94NR04W23		Farmersburg	59.0		2.29	2.29	0.42	2000	1000	100	1.00	1.10	0.91	50	51	VH	1.52	1.32	0.30	0.05	0.48	0.07	1.52	2.07	639850	4755350	42.93796	-91.28597	y	7.9	E	I - 27	I - 74	II - 13
Costigan - School House Bottom	T94NR05W25, 36	W part SW 1/4 25 & N part NW 1/4 36	Wagner	39.6		2.00	2.00	0.62	350	490	-29	1.00	1.10	0.93	55	55	VH	1.26	1.32	0.33	0.05	0.50	0.07	1.84	1.83	631800	4753600	42.91770	-91.37903	n	8.4	O	I - 30	I - 78	II - 26
Costigan East lane	T94NR05W25	NE part SW 1/4	Wagner	31.7	N	7.30	7.30	0.57	400	490	-18	1.00	1.10	0.86	38	38	VH	3.92	1.32	0.24	0.05	0.39	0.07	4.38	4.38	632050	4753880	42.92611	-91.38187	n	7.9	O	I - 28	I -76	II - 18
Costigan House Bottom	T94NR05W36	NE part NW 1/4 &W part NE 1/4	Wagner	53.0		0.95	0.95	0.64	550	670	-18	1.00	1.10	1.27	135	135	VH	0.85	1.32	0.73	0.05	1.03	0.15	2.03	2.03	632300	4752950	42.91770	-91.37903	n	7.8	O	I - 29	I - 77	II - 21
Derks Home	T95NR06W24, 25		Grand Meadow	195.2		5.70	5.70	0.42	2000	1400	43	1.00	1.10	0.87	40	40	VH	2.30	1.32	0.25	0.05	0.40	0.07	2.78	2.77	622450	4764450	43.02287	-91.49716	n	7.9	E	I - 31	I - 80	II - 29
East 120	T91NR05W16	N part SE 1/4 & SE part NE 1/4	Lodomillo	103.3		11.10	11.10	0.40	2600	1100	136	1.00	1.10	0.83	30	32	VH	4.11	1.32	0.21	0.05	0.35	0.07	4.53	4.53	628500	4728100	42.69465	-91.43124	n	30.8	R	I - 32	I - 82	II - 36
Fred Berns Norrh	T94NR04W34		Farmersburg	214.0		5.70	5.70	0.52	800	2200	-64	1.00	1.10	0.88	43	43	VH	2.86	1.32	0.26	0.05	0.42	0.07	3.36	3.35	638900	4753000	42.69465	-91.43124	y	11.0	R	I - 33	I - 84	II - 39
Fred Berns South	T94NR04W34		Farmersburg	170.5		5.70	5.70	0.45	1500	1450	3	1.00	1.10	0.85	35	36	VH	2.40	1.32	0.23	0.05	0.38	0.07	2.85	2.85	639200	4752250	42.91017	-91.29470	y	11.0	R	I - 34	I - 85	II - 46
Freddy's Hay	T95NR04W32 (+)		Giard	87.5		2.21	2.21	0.46	1400	1700	-18	1.00	1.10	0.94	56	54	VH	1.07	1.32	0.34	0.05	0.52	0.07	1.66	1.66	635300	4761500	42.99413	-91.34022	n	3.4	O	I - 35	I - 87	II - 53
Goedken East	T94NR04W05	NE part SW 1/4	Farmersburg	30.1		5.70	5.70	0.44	1600	1500	7	1.00	1.10	0.93	55	55	VH	2.59	1.32	0.33	0.05	0.50	0.07	3.16	3.16	635270	4760450	42.98469	-91.34084	n	2.6	E	I - 36	I - 89	II - 61
Goedken West	T94NR04W05	NW part SW 1/4	Farmersburg	41.7		5.70	5.70	0.40	2600	2400	8	1.00	1.10	0.86	37	39	VH	2.19	1.32	0.25	0.05	0.40	0.07	2.66	2.66	634880	4760450	42.98476	-91.34563	n	2.6	E	I - 37	I - 90	II - 65
Heuers	T94NR04W32	NE 1/4	Farmersburg	157.6		5.70	5.70	0.43	1800	1700	6	1.00	1.10	0.88	43	42	VH	2.34	1.32	0.26	0.05	0.42	0.07	2.83	2.83	635950	4753000	42.91751	-91.33432	y	10.3	R	I - 38	I - 92	II - 69
Home Farm 1	T95NR04W31	NW part SE1/4	Giard	16.4		5.70	5.70	0.72	220	200	10	1.00	1.10	0.90	47	48	VH	4.05	1.32	0.29	0.05	0.45	0.07	4.58	4.57	633820	4762160	43.00034	-91.35821	n	2.5	O	I - 39	I - 94	II -75
Home Farm 2	T95NR04W31	N part SE1/4	Giard	84.7		5.70	5.70	0.52	800	670	19	1.00	1.10	0.98	68	67	VH	3.22	1.32	0.39	0.05	0.58	0.07	3.88	3.87	634150	4762000	42.99884	-91.35420	n	2.5	O	I - 40	I - 95	II - 80
Home Farm 3	T95NR04W31	SW part SE 1/4	Giard	17.2		0.45	0.45	0.66	300	250	20	1.00	1.10	1.31	145	146	VH	0.43	1.32	0.78	0.05	1.40	0.07	1.98	1.90	634000	4761600	42.99527	-91.35614	n	2.5	O	I - 41	I - 96	II - 85
Home Farm 4	T95NR04W31 &T94NR04W06		Farmersburg & Giard	79.5		5.70	5.70	0.51	850	640	33	1.00	1.10	1.11	97	99	VH	3.55	1.32	0.54	0.05	0.79	0.07	4.42	4.41	634150	4761300	42.99254	-91.35437	n	2.3	O	I - 42	I - 97	II - 89
Home Farm Hay	T94NR04W06	NE part NE 1/4	Farmersburg	9.0	N	2.21	2.21	0.79	150	900	-83	1.00	1.10	1.11	97	?	VH	2.14	1.32	0.54	0.05	0.79	0.07	3.00	3.00	634410	4761220	42.99177	-91.35120	n	2.3	O	I - 43	I - 98	II - 91
Home Grain Farm	T92NR04W03 & TT94NR04W33,34		Farmersburg & Read	379.5		5.70	5.70	0.41	2200	1920	15	1.00	1.10	0.96	63	61	VH	2.46	1.32	0.36	0.05	0.54	0.07	3.08	3.07	638000	4751600	42.90454	-91.30956	y	12.1	R	I - 44	I - 100	II - 97
Home North	T92NR04W03 & T94NR04W33		Farmersburg & Read	67.8		5.70	5.70	0.57	550	640	-14	1.00	1.10	0.96	63	63	VH	3.41	1.32	0.36	0.05	0.55	0.07	4.04	4.03	637350	4752200	42.91006	-91.31737	y	11.3	R	I - 45	I - 102	III - 6
Home x Scneiders	T94NR04W33, 34		Farmersburg	120.5		5.70	5.70	0.44	1600	1020	57	1.00	1.10	0.86	37	39	VH	2.36	1.32	0.25	0.05	0.40	0.07	2.83	2.83	638200	4752550	42.91305	-91.30687	y	11.3	R	I - 46	I - 104	III - 11
June's	T94NR04W01, 12	S part SE 1/4 1 & N part NE 1/4 12	Farmersburg	38.3	N	7.30	7.30	0.45	1500	750	100	1.00	1.10	0.76	15	15	L	2.74	1.32	0.13	0.05	0.24	0.07	3.05	3.05	642230	4760130	42.98054	-91.25560	n	7.7	E	I - 47	I - 106	III - 17
Kathy's	T95NR04W19	E part SW 1/4 & SE 1/4 NW1/4	Giard	71.7		2.43	2.43	0.42	2000	600	233	1.00	1.10	0.86	37	37	VH	0.95	1.32	0.24	0.05	0.38	0.07	1.41	1.40	633500	4765250	43.02821	-91.36140	y	2.1	O	I - 49	I - 108	III - 21
Kathy's Hay	T95NR04W19		Giard	30.0		7.30	7.30	0.42	2000	600	233	1.00	1.10	0.86	37	37	VH	2.87	1.32	0.24	0.05	0.38	0.07	3.33	3.32	633500	4765250	43.02821	-91.36140	y	2.1	O	I - 48	I - 109	III - 21
Kevin's Farm	T95NR04W29, 32		Giard	252.3		5.70	5.70	0.44	1650	2200	-25	1.00	1.10	1.00	72	72	VH	2.79	1.32	0.41	0.05	0.62	0.07	3.48	3.48	635000	4763200	43.00949	-91.34349	y	1.0	E	I - 50	I - 111	III - 29
Koether - Franklin 26/35	T96NR05W35	E part SE 1/4 26, N part NE 1/4 35	Franklin	135.0		10.40	10.40	0.47	3000	800	275	1.00	1.10	0.78	20	20	Opt	4.22	1.24	0.15	0.05	0.25	0.07	4.55	4.54	630700	4772900	43.09756	-91.39395	n	6.3	E	I - 51	I - 141	III - 122
Koether - Giard 34	T95NR04W34		Giard	100.0		5.70	5.70	0.38	1200	1750	-31	1.00	1.10	0.75	11	11	L	1.79	1.32	0.11	0.05	0.21	0.07	2.07	2.07	639000	4762500	43.00247	-91.29460	n	3.8	E	I - 52	I - 113	III - 45
Koether - Giard 35	T95NR04W35		Giard	172.0	N	11.10	11.10	0.40	3200	3500	-9	1.00	1.10	0.81	25	27	H	4.00	1.32	0.19	0.05	0.32	0.07	4.39	4.39	639700	4762300	43.00054	-91.28607	n	3.6	E	I - 53	I - 114	III - 48
Leroy's	T95NR05W26	Tract in NW 1/4	Monona	121.7		5.70	5.70	0.46	2600	1000	160	1.00	1.10	0.87	40	41	VH	2.49	1.32	0.25	0.05	0.41	0.07	2.97	2.97	630100	4764300	43.02025	-91.40334	y	4.0	O	I - 54	I - 116	III - 51
Marting Hay	T94NR04W31	N part NW 1/4	Farmersburg	7.0		2.43	2.43	0.46	1400	1100	27	1.00	1.10	0.76	14	14	VL	0.93	1.32	0.12	0.05	0.23	0.07	1.24	1.23	633520	4753130	42.91911	-91.36405	n	2.6	O	I - 55	I - 118	III - 57
Meiers	T94NR04W04,05	NW part NW 1/4 4 & NE part NE1/4 5	Farmersburg	60.8		2.29	2.29	0.53	1400	1000	40	1.00	1.10	0.77	19	1	Opt	1.03	1.32	0.13	0.05	0.25	0.07	1.36	1.35	636300	4761300	42.99216	-91.32801	n	10.5	O	I - 56	I - 120	III - 60
Monroe A	T95NR05W30		Monona	6.3		5.70	5.70	0.55	750	2200	-66	1.00	1.10	0.80	24	11	L	2.76	1.32	0.17	0.05	0.29	0.07	3.13	3.12	623180	4764110	43.01969	-91.48827	n	2.7	R	I - 57	I- 122	III - 63
Monroe B	T95NR05W19, 30		Monona	22.5		2.29	2.29	0.63	650	500	30	1.00	1.10	0.87	40	40	VH	1.37	1.32	0.25	0.05	0.40	0.07	1.85	1.84	623500	4764600	43.02405	-91.48424	n	8.2	R	I - 58	I - 124	III - 66
Monroe C	T95NR05W19, 30		Monona	174.0		5.70	5.70	0.45	375	550	-32	1.00	1.10	0.85	35	??	VH	2.43	1.32	0.23	0.05	0.38	0.07	2.88	2.88	624000	4764200	43.02037	-91.47819	n	8.5	R	I - 59	I - 125	III - 69
North Harness	T94NR04W05	S part NW 1/4 & SW part NE 1/4	Farmersburg	95.4		5.70	5.70	0.39	1500	1400	7	1.00	1.10	0.86	37	38	VH	2.11	1.32	0.24	0.05	0.39	0.07	2.58	2.57	635050	4760900	42.98878	-91.34343	n	7.8	E	I - 60	I - 127	III - 71
Palas Hay East	T94NR04W29, 30		Farmersburg	7.5		2.21	2.21	0.62	2900	2100	38	1.00	1.10	0.86	37	48	VH	1.29	1.32	0.24	0.05	0.39	0.07	1.75	1.75	634800	4753850	42.92536	-91.34820	y	3.0	O	I - 61	I - 129	III - 75
Palas Hay West	T94NR04W30		Farmersburg	10.5		2.21	2.21	0.62	400	1200	-67	1.00	1.10	0.94	58	48	VH	1.42	1.32	0.34	0.05	0.52	0.07	2.02	2.01	634200	4753850	42.92547	-91.35555	y	8.7	O	I - 62	I - 130	III - 77
Radloff North	T94NR05W12	E part NW 1/4 & NE part SW 1/4	Wagner	124.1		5.70	5.70	0.48	400	600	-33	1.00	1.10	0.86	37	38	VH	2.59	1.32	0.24	0.05	0.39	0.07	3.05	3.05	632000	4759200	42.97401	-91.38123	y	8.7	O	I - 63	I - 132	III - 83
Radloff South	T94NR05W12,13	SW part SE 1/4 & SE part SW 1/4 12 & N part NE 1/4 13	Wagner	109.0		5.70	5.70	0.62	1100	1450	-24	1.00	1.10	0.84	33	33	VH	3.27	1.32	0.22	0.05	0.36	0.07	3.71	3.70	632350	4758400	42.96675	-91.37713	y	5.3	O	I - 64	I - 133	III - 88
Schutte South	T95NR04W32	S part NW1/4	Giard	58.4		5.70	5.70	0.40	400	200	100	1.00	1.10	1.03	78	78	VH	2.59	1.32	0.44	0.05	0.65	0.07	3.32	3.31	635050	4762500	43.00318	-91.34305	y	2.0	E	I - 65	I - 135	III - 93
Smith	T95NR04W30,31	SE 1/4 and S part NE 1/4 30; N part NE 1/4 31	Giard	207.6		5.70	5.70	0.47	2600	2500	4	1.00	1.10	0.86	37	38	VH	2.52	1.32	0.24	0.05	0.39	0.07	2.98	2.98	634100	4763500	43.01235	-91.35446	y	1.5	R	I - 66	I - 137	III - 100
Walt and Elmer's	T95NR05W24 & T95NR04W19	S part NE 1/4 24, SW1/4NW 1/4 & NW1/4 SW 1/4 19	Monona&Giard	172.1		7.30	7.30	0.39	1200	2300	-48	1.00	1.10	0.89	45	45	VH	2.78	1.32	0.26	0.05	0.44	0.07	3.29	3.29	632950	4765600	43.03145	-91.36806	y	0.5	O	I - 67	I - 139	III - 116

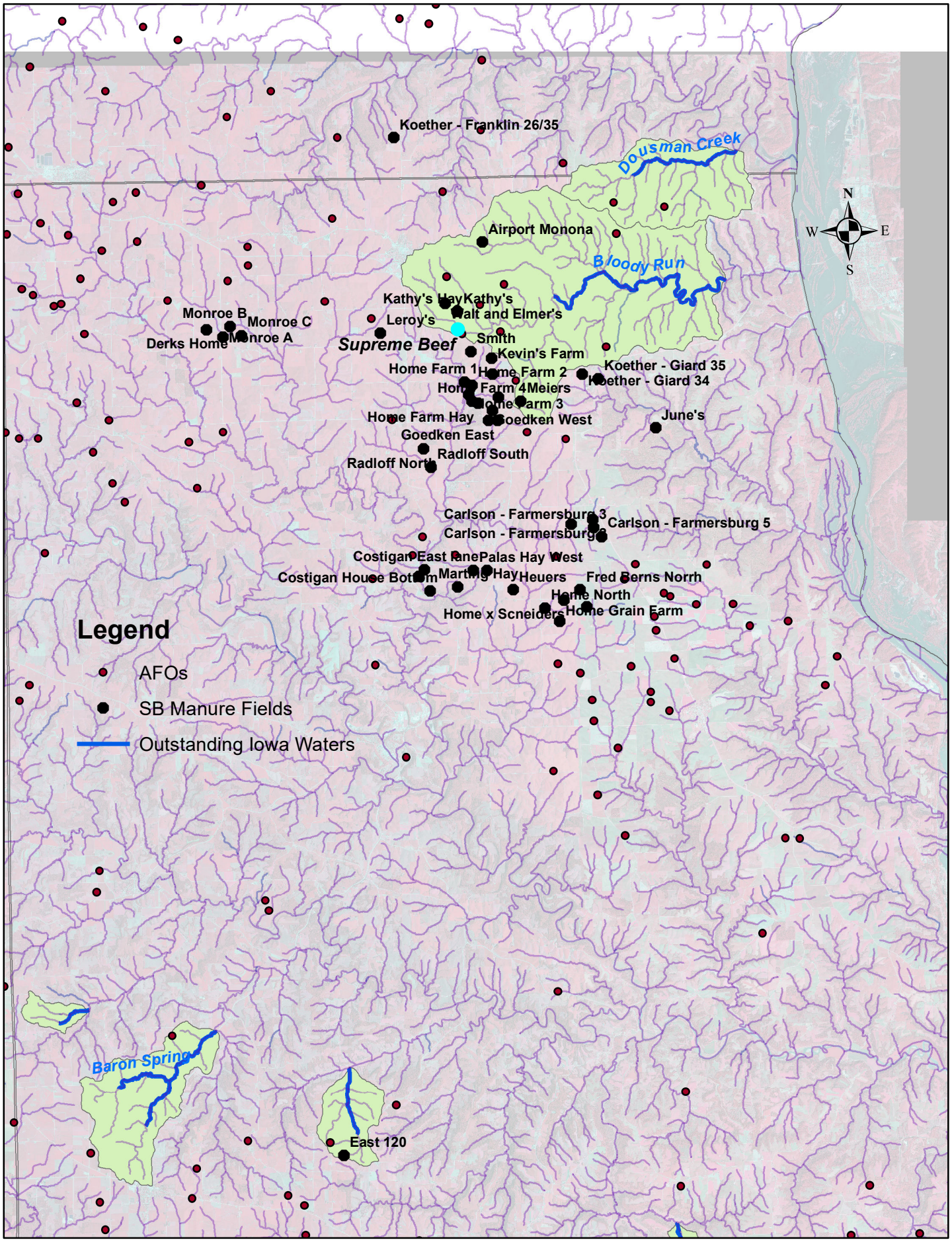
total acres=

acres PI >2 4355.1

%acres > PI=2

Appendix I GIS Map of Manure Fields

Supreme Beef Manure Application Fields and OIW's



Appendix J Director's Discretion Rule and AARC Objection

567—65.103(455B,459A) Departmental evaluation; CAFO designation; remedial actions.

65.103(1) The department may evaluate any animal feeding operation that is not defined as a large or medium CAFO, and designate it as a CAFO if, after an on-site inspection, it is determined to be a significant contributor of manure or process wastewater to waters of the United States. In making this determination, the department shall consider the following factors:
a. The size of the operation and the amount of manure or process wastewater reaching waters of the United States;
b. The location of the operation relative to waters of the United States;
c. The means of conveyance of manure or process wastewater to waters of the United States;
d. The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of manure or process wastewater into waters of the United States; and
e. Other relevant factors.

65.103(2) No animal feeding operation with an animal capacity less than that specified for a medium CAFO shall be designated as a CAFO unless manure or process wastewater from the operation is discharged into a water of the United States:
a. Through a man-made ditch, flushing system, or other similar man-made device; or
b. Which originates outside of and passes over, across or through the facility or otherwise comes into direct contact with animals confined in the operation.

65.103(3) The owner or operator of a designated CAFO shall apply for an NPDES permit no later than 90 days after receiving written notice of the designation.

65.103(4) If departmental evaluation determines that any of the conditions listed in paragraph 65.103(4)*"a," "b,"* or *"c"* exist, the open feedlot operation shall institute necessary remedial actions within a time specified by the department to eliminate the conditions warranting the determination, if the operation receives a written notification from the department of the need to correct the conditions.
a. Settled open feedlot effluent, settleable solids from the open feedlot operation, or open feedlot effluent is being discharged into a water of the state and the operation is not providing the applicable minimum level of manure control as specified in rule 567—65.101(459A);
b. Settled open feedlot effluent, settleable solids from the open feedlot operation, or open feedlot effluent is causing or may reasonably be expected to cause pollution of a water of the state; or effluent is causing or may reasonably be expected to cause a violation of state water quality standards.

1**65.103(5)** The department may evaluate any proposed open feedlot operation or proposed expansion of an open feedlot operation that requires a construction permit with respect to its potential adverse impacts on natural resources or the environment. For the purpose of this subrule, open feedlot effluent includes manure, process wastewater, settled open feedlot effluent and settleable solids.
a. In conducting the evaluation, the department shall consider the following factors:
(1) The likelihood open feedlot effluent will be applied to frozen or snow-covered cropland.
(2) The proximity of the open feedlot operation structures or open feedlot effluent application areas to sensitive areas, including but not limited to publicly owned land, designated areas, trout streams and karst terrain.
(3) Topography, slope, vegetation, potential means or routes of conveyance of open feedlot effluent spilled or land-applied. This factor includes but is not limited to whether the open feedlot effluent application areas involve cropland with predominant slopes greater than 9 percent without a conservation plan approved by the local soil and water conservation district or its equivalent and whether open feedlot effluent for land application is hauled or otherwise transported more than five miles.
(4) Whether the operation or open feedlot effluent application area is or will be located in a two-year capture zone for a public water supply.
b. In addition to the requirements in rules 567—65.105(459A), 567—65.109(459A) and 567—65.112(459A), the department may deny a construction permit, disapprove a nutrient management plan or prohibit construction of the proposed operation at the proposed location if the director determines from the evaluation conducted pursuant to this subrule that the operation would reasonably be expected to result in any of the following impacts:
(1) Open feedlot effluent from the operation will cause pollution of a water of the state.
(2) Open feedlot effluent from the operation will cause a violation of state water quality standards.
(3) An adverse effect on natural resources or the environment will occur in a specific area due to the current concentration of animal feeding operations or the associated open feedlot effluent application areas.
c. The department also may establish permit conditions or require amendments to the nutrient management plan in addition to the minimum requirements established for such operations, on the location of structures or open feedlot effluent application, or other operational conditions necessary to avoid or minimize the adverse impacts.
d. A construction permit denial or condition, a nutrient management plan disapproval or required amendment, or a prohibition of construction pursuant to this subrule may be appealed according to the contested case procedures set forth in 561—Chapter 7.

OBJECTION

At its August 8, 2006, meeting, the Administrative Rules Review Committee voted to object to the provisions of **ARC 5243B***, rules 567 IAC 65.5(3) and 65.103(5), on the grounds they are beyond the authority delegated to the Department of Natural Resources (Department). This filing was adopted by the Environmental Protection Commission (EPC) and published in IAB Vol. XXIX, No. 2 (7-19-2006). The Committee takes this action pursuant to the authority of Code section 17A.4, subsection 5.

This filing allows the Department to evaluate proposed animal feeding operation sites based on a number of factors that are specifically set out in the rules. After completing its evaluation, the adopted rules authorize the director of the Department to take a variety of actions to condition or deny a construction permit, to modify or disapprove a manure management plan, or to prohibit construction of a proposed confinement feeding operation that is otherwise in compliance with the provisions of Chapter 65 of the EPC rules.

It is the opinion of the Committee that Code chapters 459 and 459A establish the procedures and standards relating to the issuance of construction permits and the approval of manure management plans, and that the Department does not have authority to create additional procedures and standards by rule. The master matrix was created by Code section 459.305 in order "...to provide a *comprehensive* [emphasis added] assessment mechanism in order to produce a statistically verifiable basis for determining whether to approve or disapprove an application for the construction, including expansion, of a confinement feeding operation structure..." Section 459.305, subsection 1, paragraph "a", further states:

> "The master matrix shall be used to establish conditions for the construction of a confinement feeding operation structure and for the implementation of manure management practices, which conditions shall be included in the approval of the construction permit or the original manure management plan as applicable."

The Committee believes this statutory language demonstrates a clear legislative intent that the matrix is the exclusive mechanism for the evaluation and approval of an application for the construction or expansion of a confinement feeding operation structure and for the implementation of manure management practices.

Appendix K Fields - Soils - Yields - HEL Status

	HEL																							
	162C2	162D2	162E2	163C	163C2	163D	163D2	163E	163E2	163F	196C	478G	483C	483E2	499F	612D2	612E2	65D2	65F2	703D2	703E	703E2	763F2	902D2
Corn yield (bu/ac)	208	166	147	200	195	158	154	141	136	114	155	88	149	88	88	122	102	146	106	101	93	93	125	157
Airport Monona	29.9	19.9					3.8																	0.9
Carlson - Farmersburg 1	78.6	52.4	6.7											7.7			0.2							3.0
Carlson - Farmersburg 2	30.7	4.5																						
Carlson - Farmersburg 3	30.0	9.0																						12.3
Carlson - Farmersburg 5	31.5												2.0											
Costigan - School House Bottom											1.6	0.4												
Costigan East lane	4.6	5.0		9.9			8.2								0.1					1.7		1.3		
Costigan House Bottom								0.3	0.2		1.8													
Derks Home	60.7	83.4	0.1				7.4											2.0						
East 120	1.0			10.1	14.3	21.5	33.7		31.5	0.2					1.8							0.5	4.1	
Fred Berns Norrh	97.8	40.7														1.1								
Fred Berns South	64.7	40.2																4.1						
Freddy's Hay	66.1	111.4																2.6						
Goedken East	9.1	13.7																						
Goedken West	12.5	24.7																						
Heuers	58.9	73.7																						0.6
Home Farm 1	1.3	8.4							0.0					1.0										
Home Farm 2	28.8	23.2																						
Home Farm 3																								
Home Farm 4	16.9	15.6		2.8		7.2																1.3		11.2
Home Farm Hay	0.4	1.8		3.8		3.0																		
Home Grain Farm	120.0	160.0	4.0													0.1	4.5							2.2
Home North	12.1	33.3																						
Home x Scneiders	23.6	49.6																						4.9
June's				9.6		0.2	12.5		4.0						1.8						0.4	9.8		
Kathy's	18.7	10.0		22.8	0.3		28.6																	
Kathy's Hay	10.7	6.7		18.0	0.3		21.1																	
Kevin's Farm	83.8	74.1		2.5			4.9											15.2	8.5					
Koether - Franklin 26/35	6.2	0.1			38.1		55.2	0.4	24.1						6.9							3.1		
Koether - Giard 34	24.9	32.2		2.5			15.0							2.0								5.6		
Koether - Giard 35	9.0	26.3		34.5		0.5	51.9		44.8						0.2							28.0		
Leroy's	47.0	45.1															4.2							6.1
Marting Hay	0.5	1.6		1.6			3.5														0.0	0.3		
Meiers	27.5	1.5																						
Monroe A	3.8	1.8																						
Monroe B	18.8	4.0													2.9									2.2
Monroe C	62.1	42.2				0.5	14.8		2.0								1.0		4.2					
North Harness	42.2	14.4		10.1		7.2												0.1						
Palas Hay East	4.5	5.4																						
Palas Hay West	6.2	3.5																				0.7		
Radloff North	5.6	22.6		30.6		13.1	22.5		1.3													10.6		
Radloff South	17.8	25.5		10.0			21.3		6.8					2.7				7.3				1.0		
Schutte South	16.5	7.5																0.6	0.0					
Smith	75.2	85.9												9.1	1.3			4.1	3.5					
Walt and Elmer's	15.4	14.6		21.5	23.2		76.5																	
Total acres by soil type	1276	1196	11	190	76	53	381	1	115	0	3	0	2	23	15	1	10	36	16	2	0	62	4	43
Total yield by soil type	265325	198453	1588	38060	14859	8406	58659	99	15599	23	527	35	298	1980	1320	146	1010	5256	1717	172	37	5785	513	6814

	non-HEL																				
	120B	1212	129B	133	162B	163B	320	40	487B	5040	589	589+	826	930	930B	98	981B	water			
Corn yield (bu/ac)	232	227	197	198	224	213	200	88	206	88	205	205	206	210	202	222	230	0	Total acres	%HEL acres	HEL
Airport Monona			7.3		6.5				1.4										69.7	78.2	Y
Carlson - Farmersburg 1	7.8				37.5				24.9										218.8	67.9	Y
Carlson - Farmersburg 2					11.6				9.4										56.2	62.6	Y
Carlson - Farmersburg 3					16.0				11.7										79.0	64.9	Y
Carlson - Farmersburg 5	2.5				20.9				5.6										62.5	53.6	Y
Costigan - School House Bottom		2.2					28.2							3.9		2.9			39.2	5.1	N
Costigan East lane															2.2				33.0	93.3	Y
Costigan House Bottom							29.1									1.4			32.8	7.0	N
Derks Home			0.5		13.0				15.3			3.7					12.9		199.0	77.2	Y
East 120			2.4																121.1	98.0	Y
Fred Berns Norrh	14.0				41.2				28.0										222.8	62.7	Y
Fred Berns South					21.5				38.0										168.5	64.7	Y
Freddy's Hay	0.3				19.9									4.5			30.6		235.4	76.5	Y
Goedken East					3.2				4.8										30.8	74.0	Y
Goedken West					2.8				4.6										44.6	83.4	Y
Heuers									24.7										157.9	84.4	Y
Home Farm 1									5.7		0.0								16.4	65.2	Y
Home Farm 2	2.1				2.5				24.8		2.9			0.3					84.6	61.5	Y
Home Farm 3	0.3	3.8							3.8		6.2			1.9		1.2			17.2	0.0	N
Home Farm 4		2.6							4.3					4.6		7.1	5.9		79.5	69.2	Y
Home Farm Hay																			9.0	100.0	Y
Home Grain Farm	8.4			5.3	12.6				59.3		3.7						7.4		387.5	75.0	Y
Home North				4.7	0.5				19.3										69.9	64.9	Y
Home x Scneiders					2.2				39.1				2.9						122.3	63.9	Y
June's																			38.3	100.0	Y
Kathy's	0.8		4.4		5.7			0.3									11.8		103.4	77.8	Y
Kathy's Hay	0.7		4.1		5.3			0.1									12.5		79.5	71.4	Y
Kevin's Farm	8.4				31.0				20.8								8.5		257.7	73.3	Y
Koether - Franklin 26/35																			134.1	100.0	Y
Koether - Giard 34					3.9					0.0					0.5				86.6	94.9	Y
Koether - Giard 35																		0.6	195.8	99.7	Y
Leroy's					18.3				6.7										127.4	80.4	Y
Marting Hay																			7.5	100.0	Y
Meiers					17.4												15.3		61.7	47.0	Y
Monroe A									0.3										5.9	94.9	Y
Monroe B	7.3	12.8			12.7				0.2	1.3	5.8	10.2							78.2	35.7	Y
Monroe C					16.9				15.9			10.5					4.4		174.5	72.7	Y
North Harness					15.7				0.4								5.3		95.4	77.6	Y
Palas Hay East																	0.2		10.1	98.0	Y
Palas Hay West					0.8													0.1	11.3	92.0	Y
Radloff North			21.5															1.1	128.9	82.5	Y
Radloff South			9.3		3.8											5.6			111.1	83.2	Y
Schutte South	1.2				7.7				29.1										62.6	39.3	Y
Smith					29.1				3.2										211.4	84.7	Y
Walt and Elmer's			12.1		1.7			0.8									10.9		176.7	85.6	Y
Total acres by soil type	54	21	62	10	382	0	57	1	401	1	19	24	3	15	3	18	126	2	4716	= total acres	
Total yield by soil type	12482	4858	12135	1980	85546	0	11460	106	82668	114	3813	5002	597	3192	545	4040	28911	0	884128	= total yield (bu)	

Note: soil yields are from NRCS Yield Data for Clayton County avaialble at NRCS eFOTG site.

HEL Fields =	42
non-HEL Fields =	3

HEL Field acres =	4627	98 %
non-HEL Field acres =	89	2 %

Actual HEL soil acres =	3517	75 %
Actual non-HEL soil acres =	1199	25 %

Average yield =	187 bu/ac
Average yield + 10% =	206 bu/ac

APPENDIX L HEL and the 1985 Food Security Act

From NRCS:

Highly Erodible Land

The Food Security Act's highly erodible land (HEL) provisions are designed to protect the Nation's long-term capability to produce food and fiber. HEL is land that can erode at an excessive rate because of soil properties, leading to long-term decreased productivity. Highly erodible land is designated on a field basis and based on the proportion of the total field acreage that contains highly erodible soils. Producers of agricultural commodities must manage HEL fields according to an NRCS approved conservation plan or conservation system. To learn more about the highly erodible land conservation provisions, click here.

Conservation Compliance for Highly Erodible Land

The Food Security Act's highly erodible land (HEL) provisions were enacted to protect the Nation's long-term capability to produce food and fiber. To participate in most United States Department of Agriculture (USDA) programs, agricultural producers with HEL must manage HEL fields according to an approved conservation plan or conservation system which protects the land from water, wind, and ephemeral gully erosion.

Farming HEL Fields

Program participants who plant or produce agricultural commodities on HEL are required to farm according to a NRCS approved conservation plan, or maintain an approved conservation system.

NRCS, upon request, will provide technical assistance for conservation plan development. The plan is designed to provide certainty that the approved conservation measures will meet HEL conservation requirements. The participant's decisions on wind, water, and ephemeral gully erosion control measures are scheduled and documented in the plan to ensure:

1. a 75 percent reduction of the potential erosion; OR
2. less than two times the tolerable soil loss (T) for the predominant HEL soil.
3. And that ephemeral gully erosion is controlled.

How to Remain Compliant with HEL Provisions

Program participants are required to continue to follow an approved conservation plan or conservation system to control wind, water, and ephemeral gully erosion. If the participant wishes to change management that could result in increased erosion rates, they are encouraged to contact NRCS for technical assistance.

How Does USDA Determine Conservation Compliance?

Program participants self-certify compliance by filing Form AD-1026 when enrolling in USDA programs. If unsure if an AD-1026 is filed for your land, contact an FSA representative at the local USDA Service Center.

Program participants are subject to a review of their self-certification because of a whistleblower complaint, a Farm Service Agency compliance review for USDA payments, or through an annual random status review process conducted by NRCS. Crop rotations, crop residue management, and gully erosion control measures are reviewed to confirm compliance with the HEL conservation provisions. If applicable, participants will be properly notified when selected and invited to participate in the review.