Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #15

Conservation Crop Rotation – Corn Silage Corn Silage -- is the planned rotation.

Tillage Practice – In preparation for the 1st corn crop, the field will have manure irrigated on it in the fall of the year and then be worked in with a finish disk, followed by a v-ripper chisel plow. The following spring the field will be field cultivated once and then rolled with a cultipacker. The corn will planted in 30 inch rows, following silage removal the field will have manure applied to it. Following manure application the field will be worked with a finish disk and then followed by a v-ripper chisel plow. The surface residue prediction following fall tillage is 16%. The field will lay idle until the next spring. The following spring the field will be field cultivated once and then rolled with a cultipacker. The corn will planted in 30 inch rows, following silage removal the field will have manure applied to it, lying idle until the next spring. In years of no manure application, anhydrous ammonia will be applied.

Manure Applications – will be planned for this field in accordance with the Waste Utilization Plan – applications will occur via slurry box spreader or an irrigation line and then incorporated into soil.

Manure Application Limitations – There is a residence within ¼ mile of this application field which under LMFA regulations requires soil incorporation within 24 hours of application. Areas of this field are in a 10 year flood plain. Manure may be applied in this area only if it is injected or incorporated at the time of application.

Soil Loss Calculation
Net C Factor RUSLE 2 – 0.45
Soil Conditioning Index – (0.2)
STIR Value – 76.0

Soil Type 7026 Calculated T Loss – 2.9	Acceptable T Loss – 3.00
Soil Type 3070Calculated T Loss – 3.4	Acceptable T Loss – 5.00

Targeted crop nutrient needs will be achieved by means of manure applications in years designated in the Waste Utilization Plan and by means of commercial fertilizer in years of no manure applications. Refer to Nutrient Budget located behind each years Waste Application Tab.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #15

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 7026 WAGNER SILT LOAM, RARELY FLOODED\Wagner silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel -- Silage/Silage	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- Silage/Silage	Corn, silage	tons	25.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 3.0 t/ac/yr
Soil loss for cons. plan: 2.9 t/ac/yr
Net C factor: 0.45
Net K factor: 0.26

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
9/15/0	Manure, liquid irrigation		8.7
9/16/0	Disk, tandem light finishing		3.4
9/19/0	Chisel, 12-16 in. low crown sweep 3 to 4 in. depth		2.5
4/20/1	Cultivator, field w/ spike points		0.67
4/23/1	Cultipacker, roller		0.53
4/25/1	Planter, double disk opnr w/fluted coulter	Corn, silage	0.52
9/20/1	Harvest, silage		20
9/22/1	Manure, liquid irrigation		24
9/23/1	Disk, tandem light finishing		16
9/25/1	Chisel, 12-16 in. low crown sweep 3 to 4 in. depth		13
4/19/2	Cultivator, field w/ spike points		6.9
4/20/2	Cultipacker, roller		5.5
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	5.4
9/25/2	Harvest, silage		21

Soil conditioning index (SCI): -0.2
Avg. annual slope STIR: 76.0

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #15

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 3070 BEAUCOUP SILT LOAM, FREQUENTLY FLOODED\Beaucoup silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel -- Silage/Silage	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- Silage/Silage	Corn, silage	tons	25.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 3.4 t/ac/yr
Net C factor: 0.45
Net K factor: 0.30

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
9/15/0	Manure, liquid irrigation		8.7
9/16/0	Disk, tandem light finishing		3.4
9/19/0	Chisel, 12-16 in. low crown sweep 3 to 4 in. depth		2.5
4/20/1	Cultivator, field w/ spike points		0.67
4/23/1	Cultipacker, roller		0.53
4/25/1	Planter, double disk opnr w/fluted coulter	Corn, silage	0.52
9/20/1	Harvest, silage		20
9/22/1	Manure, liquid irrigation		24
9/23/1	Disk, tandem light finishing		16
9/25/1	Chisel, 12-16 in. low crown sweep 3 to 4 in. depth		13
4/19/2	Cultivator, field w/ spike points		6.9
4/20/2	Cultipacker, roller		5.5
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	5.4
9/25/2	Harvest, silage		21

Soil conditioning index (SCI): -0.2
Avg. annual slope STIR: 76.0

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	15
Field Name	15
Land Owner	Jesse Varel
Tillable Acres	105.80
Application Acres	105.80
County	Clinton
Township	Germantown
Section	36

Proximity Location

- ☑ Residence
- ☐ Non-Farm Business
- ☐ Common Place of Assembly
- ☐ Streams
- ☐ Wells
- ☐ Lake
- ☐ Ponds
- ☐ Rivers
- ☐ Other Water Sources
- ☑ 10 yr Flood Plain
- ☐ Waterways
- ☐ Drainage Ditches
- ☐ Slope Over 5%

Provisions

- ☑ A - Residence within 1/4 mile - incorporation required — *LMFA Section 900.803.o*
- ☐ B - Application site within 200' of surface water or 150' of a potable well — *LMFA Section 900.803.p*
- ☑ C - Located in a 10 year Flood Plain — *LMFA Section 900.803.q*
- ☐ D - Livestock waste may not be applied in waterways or drainage ditches in the field — *LMFA Section 900.803.r*
- ☐ E - Frozen or snow covered ground may not be applied to with a Slope Over 5% — *LMFA Section 900.803.s*
- ☑ F - No application during rainfall or to saturated soils — *LMFA Section 900.803.u*

Planting Intentions

Crop Year	Acres	Crop	Crop 2
2009	105.80	Corn Silage	
2010	105.80	Corn Silage	
2011	105.80	Corn Silage	
2012	105.80	Corn Silage	

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Field Map

Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Germantown 36
Field: 15	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 105.80

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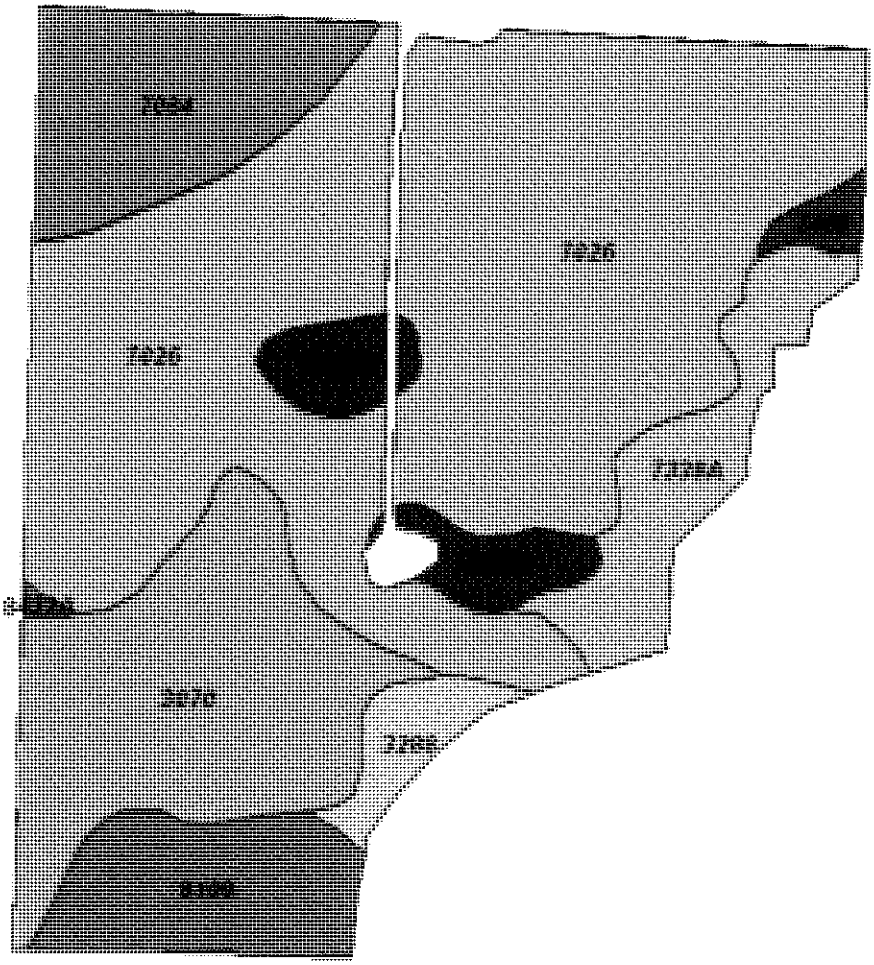
musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Germantown 36
Field:	15	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:**	105.80



Scale = 385 feet/inch

Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 105.80
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
3288	2.37
7468	.94
7026	57.65
7084	9.55
7338A	6.79
7436B	4.35
3070	16.79
8432A	.18
8109	7.18

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Soil Test Results

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Germantown 36
Field:	15	**Directions:**	
Crop Zone:			
Crop Year:	2009 **Acres:** 105.80		

Layer Name: 2009 -- Fertility Sites **Date Sampled:** April 15, 2009

SampleID	LabID	pH	BpH	P1	K	Ca	Mg	OM	CEC
	none	none	none	LbsPerAcre	LbsPerAcre	LbsPerAcre	LbsPerAcre	%	meq/100g
1		7.0		225	463				
2		7.1		183	386				
3		7.6		208	627				
4		7.2		135	500				
5		7.5		86	366				
6		6.9		182	401				
7		6.6		71	307				
8		7.2		99	292				
9		7.3		100	393				
10		7.2		144	410				
11		7.0		122	375				
12		7.3		42	311				
13		7.5		58	366				
14		7.2		59	311				
15		7.3		164	598				
16		7.2		71	336				
17		7.2		184	522				
18		7.4		106	298				
19		7.2		67	249				
20		7.3		48	308				
21		7.3		109	353				
22		7.5		311	1505				
23		7.2		93	316				
24		7.1		166	337				
25		7.2		207	479				
26		7.2		87	350				
27		6.9		72	383				
28		7.5		69	468				
29		7.3		87	316				
Average:		7.2		123	425				

Solution Runoff Class Matrix

Hydrologic Soil Group			
A	B	C	D
Low	Medium	High	High

P Input Matrix

	Application Rate		
Application Method	**<= UI Recommendations**	**>UI - 150% UI**	**>150% UI**
Incorporation or injection > 3" below surface	Low	Low	Low
Shallowly incorporated surface applications <3 inches	Low	Medium	High
Non-incorporated surface applications	Medium	High	High

The table below identifies specific risk factors that may be present in a given field. No attempt should be made to "average" the factors and assign a composite rating for the field. It is recognized that the risk factors do not act independently to influence phosphorus loss from agricultural fields and P loading into water resources. Simple averaging however, assumes that all risk factors have the same amount of influence. Attempts to objectively weigh some factors more or less than others would be desirable but difficult without supporting data. The phosphorus assessment procedure is not a process based or empirical model. The procedure was developed as a conservation planning tool. The tool is designed to provide guidance to select and plan conservation measures that will lower the potential for phosphorus loss from agricultural fields and P loading into water resources.

Phosphorus Risk Potential	
Risk Factor	**Site Value**
Soil Erosion	<T
Proximity to water	Low
Solution Runoff Potential	High
Soil Test Phosphorus	High
Phosphorus Inputs	Medium

References:

* Sharpely, A.N., Determining An Environmentally Sound Soil Phosphorus Value Journal of Soil and Water Conservation, 1996.

* Sharpely, A.N., T. Daniel, T. Sims, J. Lemunyon, R. Stevens, And R. Parry, 1999 Agricultural Phosphorus and Eutrophication. U.S. Department of Agriculture, Agricultural Research Service, ARS-149, 42 pp.

Table 1. Nitrogen Risk Assessment

Nitrate loss potentials based on soil texture, timing, and nitrification inhibitors			
Application Timing[1]	**Soil Texture[2]**		
	Coarse	**Medium**	**Fine**
Fall with an inhibitor > 60° F	High	High	High
Fall with an inhibitor < 60° F	High	Medium	Medium
Fall without an inhibitor > 50° F	High	High	High
Fall without an inhibitor < 50° F	High	Medium	Medium
Spring without an inhibitor	Medium	Medium	Medium-Low
Spring with an inhibitor	Medium-Low	Low	Low
Spring split applied or sidedress	Medium-Low	Low	Low

Foot Notes:

1. Temperatures refer to soil temperature measured at a depth of 4 inches. For this assessment, inhibitors refer to nitrification inhibitors.

2. Soil Texture: Coarse - sand, loamy sand, sandy loam
   Medium - silt, silt loam, loam
   Fine - silty clay loam, silty clay, clay, clay loam, sandy clay, loam, sandy clay

When developing recommendations to be included in a nutrient management plan, the planner needs to use the results of the assessment above with knowledge of locally significant transport processes.

For example, in large areas of northern and central Illinois, nitrates are detected in surface water resources at concentrations above 10 parts per million. Soils in much of the region only have a moderate nitrogen loss potential. The presence of extensive tile drainage, however, increases the risk of nitrate transport to surface water resources.

By contrast, in southern Illinois, there are large areas of level, poorly drained soil. The climate is warmer and there is more rainfall than in northern and central Illinois. The conditions favor the formation of nitrate. The loss of nitrate, however, is primary to the atmosphere due to denitrification.

Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #16

Conservation Crop Rotation – Corn Silage Corn Silage -- is the planned rotation.

Tillage Practice – In preparation for the 1st corn crop, the field will have manure irrigated on it in the fall of the year and then be worked in with a finish disk, followed by a v-ripper chisel plow. The following spring the field will be field cultivated once and then rolled with a cultipacker. The corn will planted in 30 inch rows, following silage removal the field will have manure applied to it. Following manure application the field will be worked with a finish disk and then followed by a v-ripper chisel plow. The surface residue prediction following fall tillage is 16%. The field will lay idle until the next spring. The following spring the field will be field cultivated once and then rolled with a cultipacker. The corn will planted in 30 inch rows, following silage removal the field will have manure applied to it, lying idle until the next spring. In years of no manure application, anhydrous ammonia will be applied.

Manure Applications – will be planned for this field in accordance with the Waste Utilization Plan – applications will occur via slurry box spreader or an irrigation line and then incorporated into soil.

Manure Application Limitations – There is a residence within ¼ mile of this application field which under LMFA regulations requires soil incorporation within 24 hours of application. Areas of this field are in a 10 year flood plain. Manure may be applied in this area only if it is injected or incorporated at the time of application. There is a drainage ditch located within this field and should not have manure applied in it.

Soil Loss Calculation
Net C Factor RUSLE 2 – 0.45
Soil Conditioning Index – (0.2)
STIR Value – 76.0

Soil Type 7468 Calculated T Loss – 3.0 Acceptable T Loss – 3.00

Targeted crop nutrient needs will be achieved by means of manure applications in years designated in the Waste Utilization Plan and by means of commercial fertilizer in years of no manure applications. Refer to Nutrient Budget located behind each years Waste Application Tab.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #16

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 7468 LAKASKIA SILT LOAM, RARELY FLOODED\Lakaskia silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 0.90 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel -- Silage/Silage	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- Silage/Silage	Corn, silage	tons	25.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 3.0 t/ac/yr
Soil loss for cons. plan: 3.0 t/ac/yr
Net C factor: 0.45
Net K factor: 0.30

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
9/15/0	Manure, liquid irrigation		8.7
9/16/0	Disk, tandem light finishing		3.4
9/19/0	Chisel, 12-16 in. low crown sweep 3 to 4 in. depth		2.5
4/20/1	Cultivator, field w/ spike points		0.67
4/23/1	Cultipacker, roller		0.53
4/25/1	Planter, double disk opnr w/fluted coulter	Corn, silage	0.52
9/20/1	Harvest, silage		20
9/22/1	Manure, liquid irrigation		24
9/23/1	Disk, tandem light finishing		16
9/25/1	Chisel, 12-16 in. low crown sweep 3 to 4 in. depth		13
4/19/2	Cultivator, field w/ spike points		6.9
4/20/2	Cultipacker, roller		5.5
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	5.4
9/25/2	Harvest, silage		21

Soil conditioning index (SCI): -0.2
Avg. annual slope STIR: 76.0

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	16
Field Name	16
Land Owner	Reginald Detmer
Tillable Acres	34.40
Application Acres	32.29
County	Clinton
Township	Germantown
Section	23

Proximity Location

- ☑ Residence
- ☐ Non-Farm Business
- ☐ Common Place of Assembly
- ☐ Streams
- ☐ Wells
- ☐ Lake
- ☐ Ponds
- ☐ Rivers
- ☐ Other Water Sources
- ☑ 10 yr Flood Plain
- ☐ Waterways
- ☑ Drainage Ditches
- ☐ Slope Over 5%

Provisions

- ☑ A - Residence within 1/4 mile - incorporation required — *LMFA Section 900.803.o*
- ☐ B - Application site within 200' of surface water or 150' of a potable well — *LMFA Section 900.803.p*
- ☑ C - Located in a 10 year Flood Plain — *LMFA Section 900.803.q*
- ☑ D - Livestock waste may not be applied in waterways or drainage ditches in the field — *LMFA Section 900.803.r*
- ☐ E - Frozen or snow covered ground may not be applied to with a Slope Over 5% — *LMFA Section 900.803.s*
- ☑ F - No application during rainfall or to saturated soils — *LMFA Section 900.803.u*

Planting Intentions

Crop Year	Acres	Crop	Crop 2
2009	34.40	Corn Silage	
2010	34.40	Corn Silage	
2011	34.40	Corn Silage	
2012	34.40	Corn Silage	

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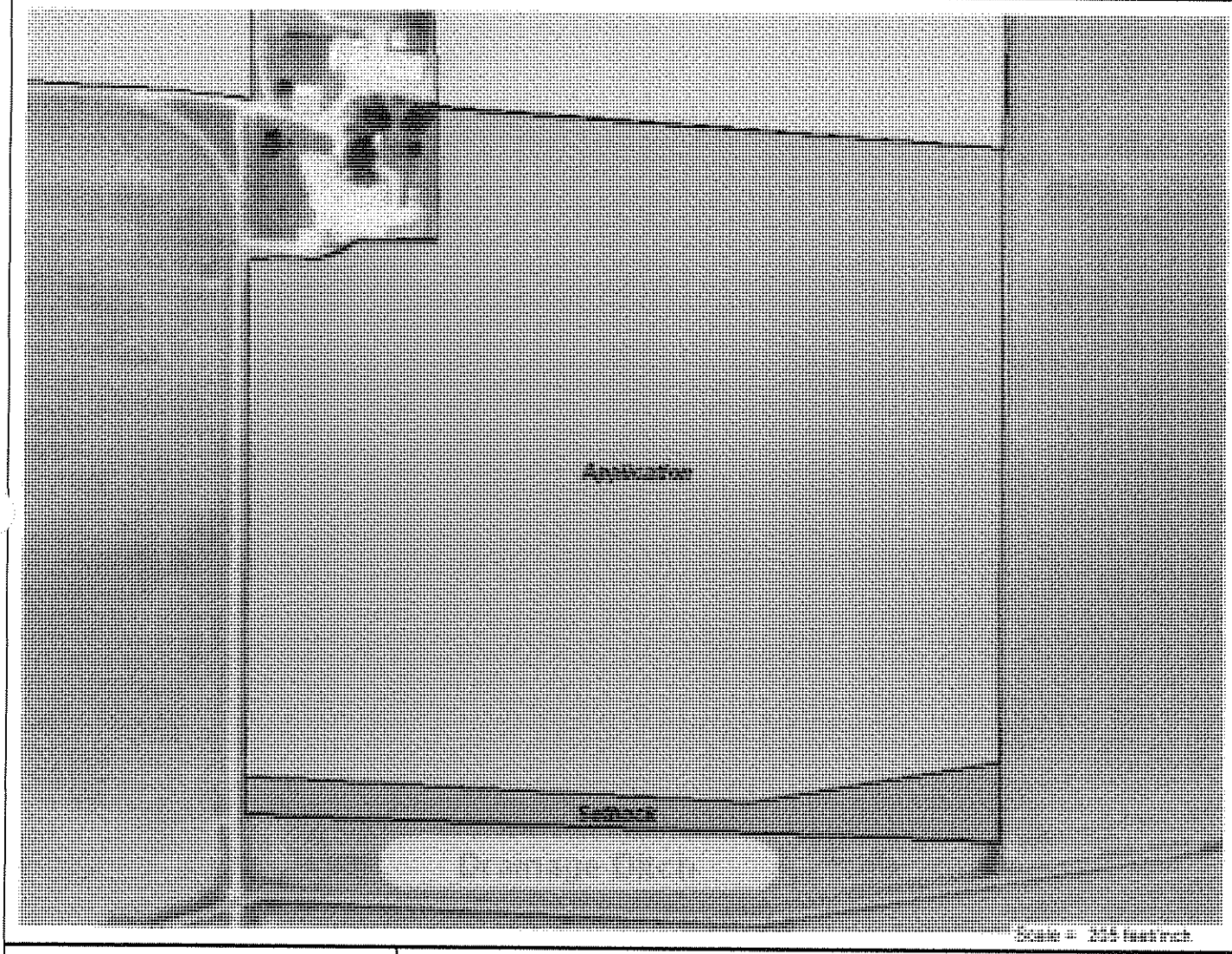
Application Restrictions

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Germantown 23
Field:	16	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 34.40	



Layer Summary

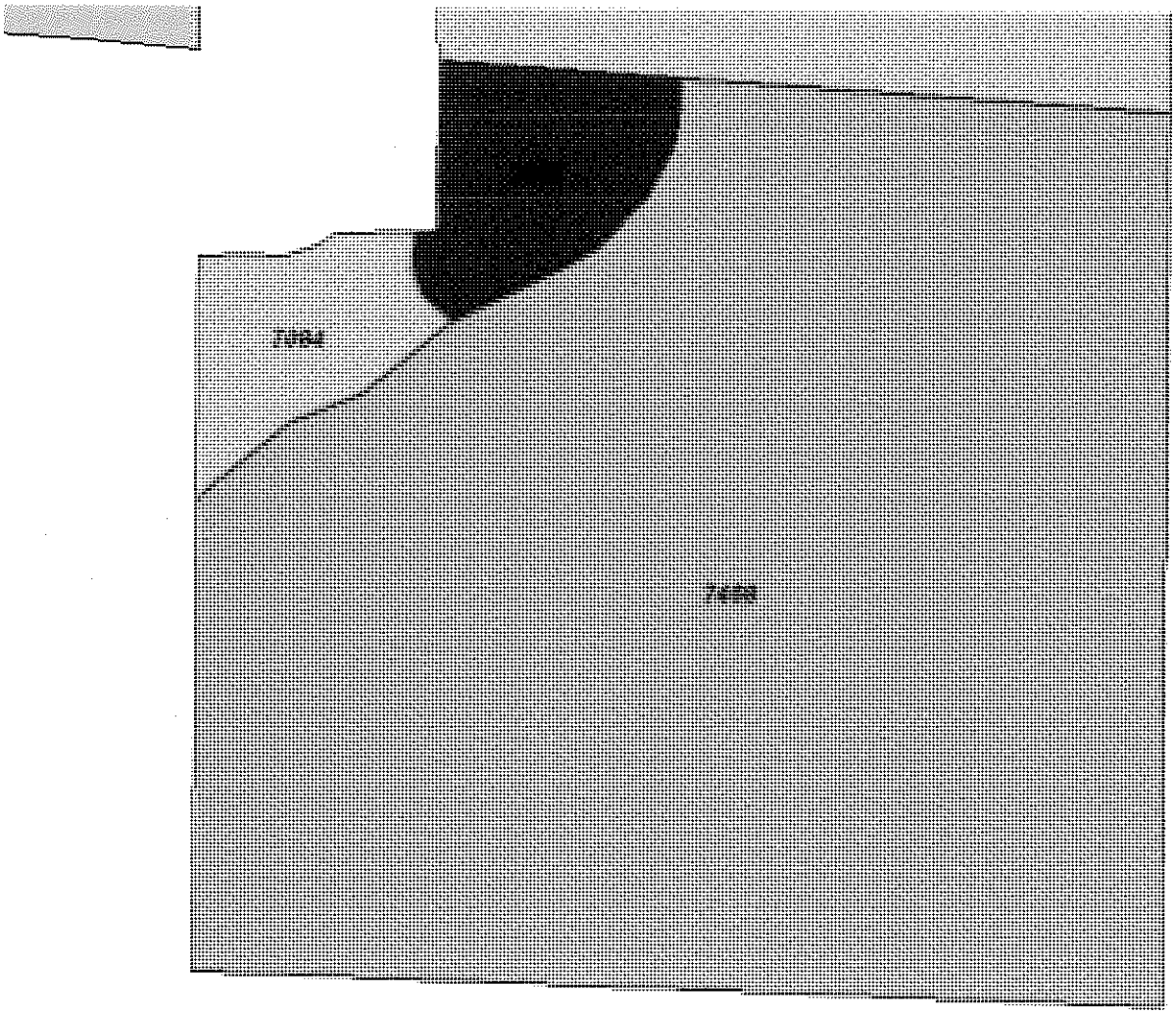
Layer: Setbacks
Attribute: Application Restrictions
Acres: 34.39
Average:
Weighted Average:
Minimum:
Maximum:

Application Restrictions	Acres
Setback	2.10
Application	32.29

EFFINGHAM EQUITY AG SERVICES

musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Germantown 23
Field:	16	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 34.40	



Scale = 180 feet/inch

Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 34.39
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
7084	1.63
3083	1.93
7468	30.83

Solution Runoff Class Matrix

Hydrologic Soil Group			
A	B	C	D
Low	Medium	High	High

P Input Matrix

	Application Rate		
Application Method	<= UI Recommendations	>UI - 150% UI	>150% UI
Incorporation or injection > 3" below surface	Low	Low	Low
Shallowly incorporated surface applications <3 inches	Low	Medium	High
Non-incorporated surface applications	Medium	High	High

The table below identifies specific risk factors that may be present in a given field. No attempt should be made to "average" the factors and assign a composite rating for the field. It is recognized that the risk factors do not act independently to influence phosphorus loss from agricultural fields and P loading into water resources. Simple averaging however, assumes that all risk factors have the same amount of influence. Attempts to objectively weigh some factors more or less than others would be desirable but difficult without supporting data. The phosphorus assessment procedure is not a process based or empirical model. The procedure was developed as a conservation planning tool. The tool is designed to provide guidance to select and plan conservation measures that will lower the potential for phosphorus loss from agricultural fields and P loading into water resources.

Phosphorus Risk Potential	
Risk Factor	**Site Value**
Soil Erosion	<T
Proximity to water	High
Solution Runoff Potential	High
Soil Test Phosphorus	NA
Phosphorus Inputs	Medium

References:

* Sharpely, A.N., Determining An Environmentally Sound Soil Phosphorus Value Journal of Soil and Water Conservation, 1996.

* Sharpely, A.N., T. Daniel, T. Sims, J. Lemunyon, R. Stevens, And R. Parry, 1999 Agricultural Phosphorus and Eutrophication. U.S. Department of Agriculture, Agricultural Research Service, ARS-149, 42 pp.

Table 1. Nitrogen Risk Assessment

Nitrate loss potentials based on soil texture, timing, and nitrification inhibitors			
Application Timing[1]	**Soil Texture[2]**		
	Coarse	**Medium**	**Fine**
Fall with an inhibitor > 60° F	High	High	High
Fall with an inhibitor < 60° F	High	Medium	Medium
Fall without an inhibitor > 50° F	High	High	High
Fall without an inhibitor < 50° F	High	Medium	Medium
Spring without an inhibitor	Medium	Medium	Medium-Low
Spring with an inhibitor	Medium-Low	Low	Low
Spring split applied or sidedress	Medium-Low	Low	Low

Foot Notes:

1. Temperatures refer to soil temperature measured at a depth of 4 inches. For this assessment, inhibitors refer to nitrification inhibitors.

2. Soil Texture: Coarse - sand, loamy sand, sandy loam
   Medium - silt, silt loam, loam
   Fine - silty clay loam, silty clay, clay, clay loam, sandy clay, loam, sandy clay

When developing recommendations to be included in a nutrient management plan, the planner needs to use the results of the assessment above with knowledge of locally significant transport processes.

For example, in large areas of northern and central Illinois, nitrates are detected in surface water resources at concentrations above 10 parts per million. Soils in much of the region only have a moderate nitrogen loss potential. The presence of extensive tile drainage, however, increases the risk of nitrate transport to surface water resources.

By contrast, in southern Illinois, there are large areas of level, poorly drained soil. The climate is warmer and there is more rainfall than in northern and central Illinois. The conditions favor the formation of nitrate. The loss of nitrate, however, is primary to the atmosphere due to denitrification.

Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #17

Conservation Crop Rotation – Corn Grain / Soybeans -- is the planned rotation.

Tillage Practice – In preparation for the corn crop, the field will be planted to corn in 30 inch rows using a no-till planter. The corn will be harvested in the fall for grain and then the field will lay idle until the following spring. The surface residue prediction following harvest is 69%. The following spring the field will be planted to soybeans. The soybeans will be planted in 15 inch rows using a not-till planter. Following the harvest in the fall of the soybeans the field will have manure applied to it, and then work with a finish disk for incorporation of the manure. The surface residue prediction following fall tillage is 46%. The field will then lay idle until the following spring. In years of no manure application, anhydrous ammonia will be applied.

Manure Applications – will be planned for this field in accordance with the Waste Utilization Plan – applications will occur via slurry box spreader or an irrigation line and then incorporated into soil.

Manure Application Limitations – There is a residence within ¼ mile of this application field which under LMFA regulations requires soil incorporation within 24 hours of application. Part of this field has slopes greater than 5% which does not allow manure application to these areas when the ground is frozen or snow covered.A river is located near this field and requires a 200 foot setback of no manure application.

Soil Loss Calculation
Net C Factor RUSLE 2 – 0.12
Soil Conditioning Index – 0.2
STIR Value – 12.4

Soil Type 934C2 Calculated T Loss – 5.0	Acceptable T Loss – 5.00
Soil Type 453B2 Calculated T Loss – 3.4	Acceptable T Loss – 5.00
Soil Type 454 Calculated T Loss – 1.4	Acceptable T Loss – 5.00

Targeted crop nutrient needs will be achieved by means of manure applications in years designated in the Waste Utilization Plan and by means of commercial fertilizer in years of no manure applications. Refer to Nutrient Budget located behind each years Waste Application Tab.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #17

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 934C2 BLAIR-GRANTFORK COMPLEX, 5 TO 10 PERCENT SLOPES, ERODED\Blair silt loam 45%
Slope length (horiz): 100 ft
Avg. slope steepness: 5.3 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	137.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	43.000
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	137.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	43.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 5.0 t/ac/yr
Net C factor: 0.12
Net K factor: 0.35

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/1/0	Harvest, killing crop 60pct standing stubble		69
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	71
10/2/1	Harvest, killing crop 50pct standing stubble		82
10/18/1	Manure spreader, solid and semi-solid		83
10/19/1	Disk, tandem light finishing		43
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/7/2	Harvest, killing crop 60pct standing stubble		69
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	71
10/4/3	Harvest, killing crop 50pct standing stubble		82
10/11/3	Manure spreader, solid and semi-solid		85
10/12/3	Disk, tandem light finishing		46

Soil conditioning index (SCI): 0.2
Avg. annual slope STIR: 12.4

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #17

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 453B2 MUREN SILT LOAM, 2 TO 5 PERCENT SLOPES, ERODED\Muren silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 3.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	137.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	43.000
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	137.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	43.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 3.4 t/ac/yr
Net C factor: 0.12
Net K factor: 0.35

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/1/0	Harvest, killing crop 60pct standing stubble		69
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	71
10/2/1	Harvest, killing crop 50pct standing stubble		82
10/18/1	Manure spreader, solid and semi-solid		83
10/19/1	Disk, tandem light finishing		43
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/7/2	Harvest, killing crop 60pct standing stubble		69
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	71
10/4/3	Harvest, killing crop 50pct standing stubble		82
10/11/3	Manure spreader, solid and semi-solid		85
10/12/3	Disk, tandem light finishing		46

Soil conditioning index (SCI): 0.3
Avg. annual slope STIR: 12.4

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #17

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 454 IVA SILT LOAM\Iva silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	137.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	43.000
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	137.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	43.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Net C factor: 0.13
Net K factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/1/0	Harvest, killing crop 60pct standing stubble		69
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	71
10/2/1	Harvest, killing crop 50pct standing stubble		82
10/18/1	Manure spreader, solid and semi-solid		83
10/19/1	Disk, tandem light finishing		43
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/7/2	Harvest, killing crop 60pct standing stubble		69
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	71
10/4/3	Harvest, killing crop 50pct standing stubble		82
10/11/3	Manure spreader, solid and semi-solid		85
10/12/3	Disk, tandem light finishing		46

Soil conditioning index (SCI): 0.4
Avg. annual slope STIR: 12.4

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	17
Field Name	17
Land Owner	Gregory Varel
Tillable Acres	25.51
Application Acres	22.75
County	Clinton
Township	Sante Fe
Section	17

Proximity Location

- ☑ Residence
- ☐ Non-Farm Business
- ☐ Common Place of Assembly
- ☐ Streams
- ☐ Wells
- ☐ Lake
- ☑ Ponds
- ☐ Rivers
- ☐ Other Water Sources
- ☐ 10 yr Flood Plain
- ☐ Waterways
- ☐ Drainage Ditches
- ☑ Slope Over 5%

Provisions

☑ A - Residence within 1/4 mile - incorporation required	*LMFA Section 900.803.o*
☑ B - Application site within 200' of surface water or 150' of a potable well	*LMFA Section 900.803.p*
☐ C - Located in a 10 year Flood Plain	*LMFA Section 900.803.q*
☐ D - Livestock waste may not be applied in waterways or drainage ditches in the field	*LMFA Section 900.803.r*
☑ E - Frozen or snow covered ground may not be applied to with a Slope Over 5%	*LMFA Section 900.803.s*
☑ F - No application during rainfall or to saturated soils	*LMFA Section 900.803.u*

Planting Intentions

Crop Year	Acres	Crop	Crop 2
2009	25.51	Corn Silage	
2010	25.51	Soybeans	
2011	25.51	Corn Grain	
2012	25.51	Soybeans	

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Application Restrictions

Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 17
Field: 17	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 25.51

Layer Summary

Layer: Setbacks
Attribute: Application Restrictions
Acres: 25.52
Average:
Weighted Average:
Minimum:
Maximum:

Application Restrictions	Acres
Setback	2.76
Application	22.75

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musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 17
Field:	17	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 25.51	

Layer Summary

Layer: Soil Type
Attribute: musym
Acres: 25.51
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
993	.73
454	6.59
916B2	.74
934C2	7.86
453B2	8.24
5C2	1.36

Field # 17

Solution Runoff Class Matrix

Hydrologic Soil Group			
A	B	C	D
Low	Medium	High	High

P Input Matrix

	Application Rate		
Application Method	**<= UI Recommendations**	**>UI - 150% UI**	**>150% UI**
Incorporation or injection > 3" below surface	Low	Low	Low
Shallowly incorporated surface applications <3 inches	Low	Medium	High
Non-incorporated surface applications	Medium	High	High

The table below identifies specific risk factors that may be present in a given field. No attempt should be made to "average" the factors and assign a composite rating for the field. It is recognized that the risk factors do not act independently to influence phosphorus loss from agricultural fields and P loading into water resources. Simple averaging however, assumes that all risk factors have the same amount of influence. Attempts to objectively weigh some factors more or less than others would be desirable but difficult without supporting data. The phosphorus assessment procedure is not a process based or empirical model. The procedure was developed as a conservation planning tool. The tool is designed to provide guidance to select and plan conservation measures that will lower the potential for phosphorus loss from agricultural fields and P loading into water resources.

Phosphorus Risk Potential	
Risk Factor	**Site Value**
Soil Erosion	<T
Proximity to water	High
Solution Runoff Potential	High
Soil Test Phosphorus	NA
Phosphorus Inputs	Medium

References:

* Sharpely, A.N., Determining An Environmentally Sound Soil Phosphorus Value Journal of Soil and Water Conservation, 1996.

* Sharpely, A.N., T. Daniel, T. Sims, J. Lemunyon, R. Stevens, And R. Parry, 1999 Agricultural Phosphorus and Eutrophication. U.S. Department of Agriculture, Agricultural Research Service, ARS-149, 42 pp.

Table 1. Nitrogen Risk Assessment

Nitrate loss potentials based on soil texture, timing, and nitrification inhibitors			
Application Timing[1]	**Soil Texture[2]**		
	Coarse	**Medium**	**Fine**
Fall with an inhibitor > 60° F	High	High	High
Fall with an inhibitor < 60° F	High	Medium	Medium
Fall without an inhibitor > 50° F	High	High	High
Fall without an inhibitor < 50° F	High	Medium	Medium
Spring without an inhibitor	Medium	Medium	Medium-Low
Spring with an inhibitor	Medium-Low	Low	Low
Spring split applied or sidedress	Medium-Low	Low	Low

Foot Notes:

1. Temperatures refer to soil temperature measured at a depth of 4 inches. For this assessment, inhibitors refer to nitrification inhibitors.

2. Soil Texture: Coarse - sand, loamy sand, sandy loam
   Medium - silt, silt loam, loam
   Fine - silty clay loam, silty clay, clay, clay loam, sandy clay, loam, sandy clay

When developing recommendations to be included in a nutrient management plan, the planner needs to use the results of the assessment above with knowledge of locally significant transport processes.

For example, in large areas of northern and central Illinois, nitrates are detected in surface water resources at concentrations above 10 parts per million. Soils in much of the region only have a moderate nitrogen loss potential. The presence of extensive tile drainage, however, increases the risk of nitrate transport to surface water resources.

By contrast, in southern Illinois, there are large areas of level, poorly drained soil. The climate is warmer and there is more rainfall than in northern and central Illinois. The conditions favor the formation of nitrate. The loss of nitrate, however, is primary to the atmosphere due to denitrification.

Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #18

Conservation Crop Rotation – Corn Grain / Soybeans -- is the planned rotation.

Tillage Practice – In preparation for the corn crop, the field will worked with a do all and then be planted to corn in 30 inch rows using a no-till planter. The corn will be harvested in the fall for grain and then the field will lay idle until the following spring. The surface residue prediction following harvest is 71%. The following spring the field will be planted to soybeans. The field will be worked with a do all and then the soybeans will be planted in 15 inch rows using a no-till planter. Following the harvest in the fall of the soybeans the field will have manure applied to it, and then work with a finish disk for incorporation of the manure. The surface residue prediction following fall tillage is 41%. The field will then lay idle until the following spring. In years of no manure application, anhydrous ammonia will be applied.

Manure Applications – will be planned for this field in accordance with the Waste Utilization Plan – applications will occur via slurry box spreader or an irrigation line and then incorporated into soil.

Manure Application Limitations – There is a residence within ¼ mile of this application field which under LMFA regulations requires soil incorporation within 24 hours of application. Part of this field has slopes greater than 5% which does not allow manure application to these areas when the ground is frozen or snow covered.

Soil Loss Calculation
Net C Factor RUSLE 2 – 0.15
Soil Conditioning Index – 0.2
STIR Value – 66.1

Soil Type 454 Calculated T Loss – 1.7 Acceptable T Loss – 5.00

Targeted crop nutrient needs will be achieved by means of manure applications in years designated in the Waste Utilization Plan and by means of commercial fertilizer in years of no manure applications. Refer to Nutrient Budget located behind each years Waste Application Tab.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #18

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 454 IVA SILT LOAM\Iva silt loam 100%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel cg-sb-cg-sb	Corn, grain	bushels	149.00
CMZ 16\c.Other Local Mgt Records\Varel cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	46.000
CMZ 16\c.Other Local Mgt Records\Varel cg-sb-cg-sb	Corn, grain	bushels	149.00
CMZ 16\c.Other Local Mgt Records\Varel cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	46.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 1.7 t/ac/yr
Net C factor: 0.15
Net K factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/9/0	Do all		9.1
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	9.2
10/1/0	Harvest, killing crop 60pct standing stubble		71
5/8/1	Do all		43
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	42
10/2/1	Harvest, killing crop 50pct standing stubble		80
10/18/1	Manure spreader, solid and semi-solid		81
10/19/1	Disk, tandem light finishing		41
4/9/2	Do all		8.9
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	9.0
10/7/2	Harvest, killing crop 60pct standing stubble		71
5/10/3	Do all		44
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	43
10/4/3	Harvest, killing crop 50pct standing stubble		80
10/11/3	Manure spreader, solid and semi-solid		84
10/12/3	Disk, tandem light finishing		43

Soil conditioning index (SCI): 0.2
Avg. annual slope STIR: 66.1

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	18
Field Name	18
Land Owner	Gregory Varel
Tillable Acres	18.93
Application Acres	18.93
County	Clinton
Township	Sante Fe
Section	17

Proximity Location

- ☑ Residence
- ☐ Non-Farm Business
- ☐ Common Place of Assembly
- ☐ Streams
- ☐ Wells
- ☐ Lake
- ☐ Ponds
- ☐ Rivers
- ☐ Other Water Sources
- ☐ 10 yr Flood Plain
- ☐ Waterways
- ☐ Drainage Ditches
- ☑ Slope Over 5%

Provisions

- ☑ A - Residence within 1/4 mile - incorporation required — *LMFA Section 900.803.o*
- ☐ B - Application site within 200' of surface water or 150' of a potable well — *LMFA Section 900.803.p*
- ☐ C - Located in a 10 year Flood Plain — *LMFA Section 900.803.q*
- ☐ D - Livestock waste may not be applied in waterways or drainage ditches in the field — *LMFA Section 900.803.r*
- ☑ E - Frozen or snow covered ground may not be applied to with a Slope Over 5% — *LMFA Section 900.803.s*
- ☑ F - No application during rainfall or to saturated soils — *LMFA Section 900.803.u*

Planting Intentions

Crop Year	Acres	Crop	Crop 2
2009	18.93	Soybeans	
2010	18.93	Corn Grain	
2011	18.93	Soybeans	
2012	18.93	Corn Grain	

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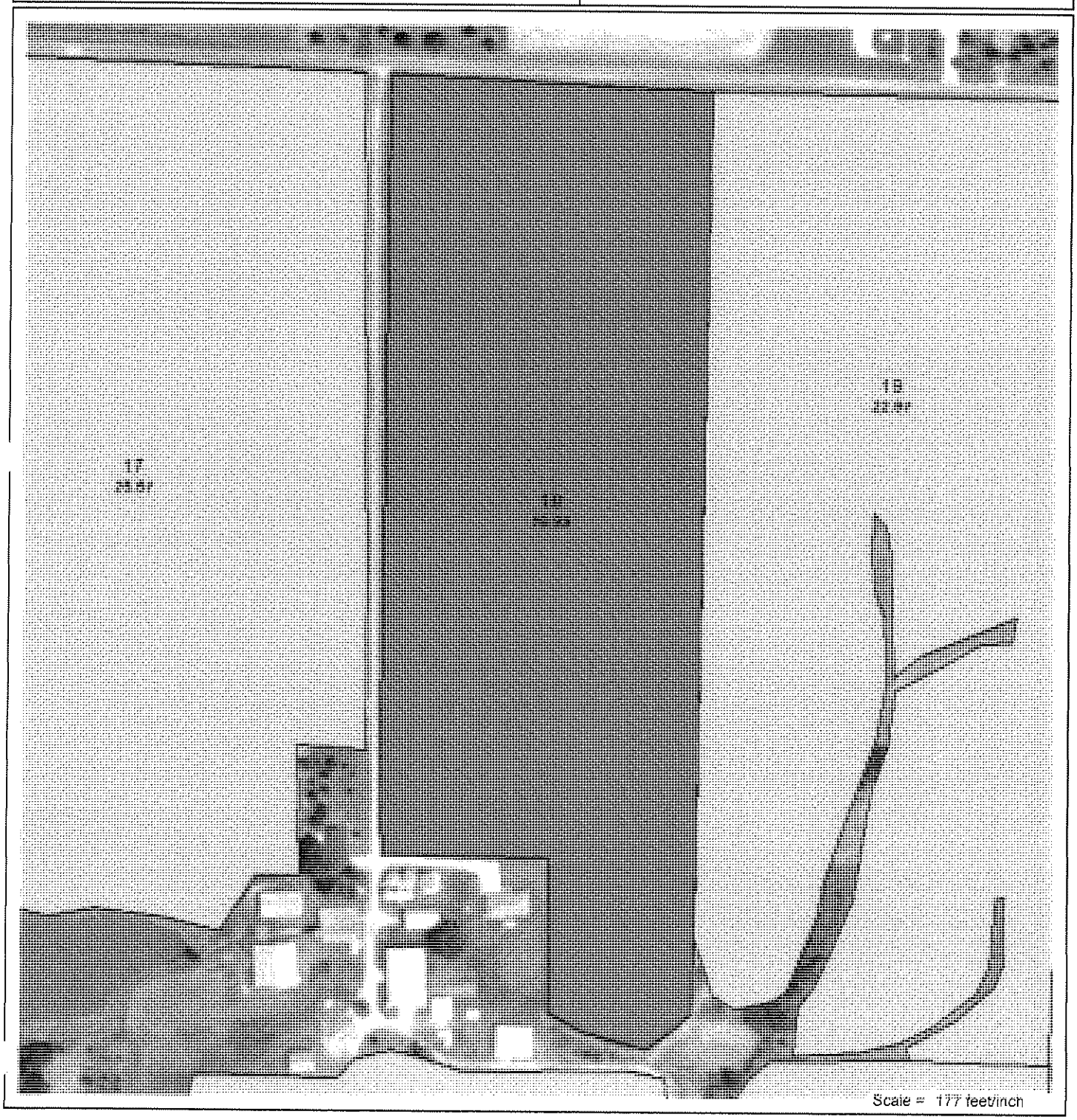
Field Map

Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 17
Field: 18	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 18.93



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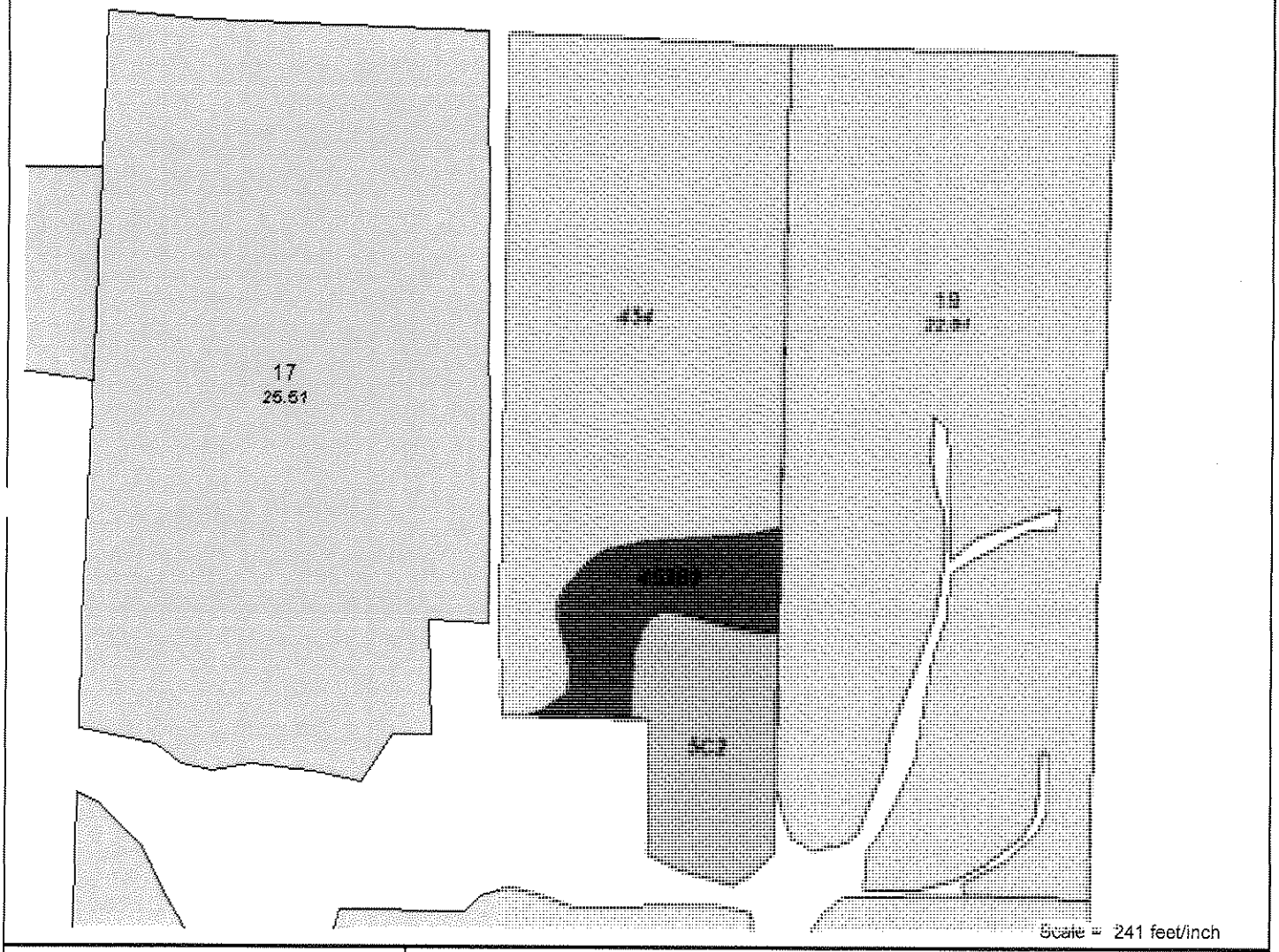
musym

Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 17
Field: 18	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 18.93



Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 18.94
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
454	13.75
453B2	2.17
5C2	3.01

Solution Runoff Class Matrix

Hydrologic Soil Group			
A	B	C	D
Low	Medium	High	High

P Input Matrix

	Application Rate		
Application Method	**<= UI Recommendations**	**>UI - 150% UI**	**>150% UI**
Incorporation or injection > 3" below surface	Low	Low	Low
Shallowly incorporated surface applications <3 inches	Low	Medium	High
Non-incorporated surface applications	Medium	High	High

The table below identifies specific risk factors that may be present in a given field. No attempt should be made to "average" the factors and assign a composite rating for the field. It is recognized that the risk factors do not act independently to influence phosphorus loss from agricultural fields and P loading into water resources. Simple averaging however, assumes that all risk factors have the same amount of influence. Attempts to objectively weigh some factors more or less than others would be desirable but difficult without supporting data. The phosphorus assessment procedure is not a process based or empirical model. The procedure was developed as a conservation planning tool. The tool is designed to provide guidance to select and plan conservation measures that will lower the potential for phosphorus loss from agricultural fields and P loading into water resources.

Phosphorus Risk Potential	
Risk Factor	**Site Value**
Soil Erosion	<T
Proximity to water	Medium
Solution Runoff Potential	High
Soil Test Phosphorus	NA
Phosphorus Inputs	Medium

References:

* Sharpely, A.N., Determining An Environmentally Sound Soil Phosphorus Value Journal of Soil and Water Conservation, 1996.

* Sharpely, A.N., T. Daniel, T. Sims, J. Lemunyon, R. Stevens, And R. Parry, 1999 Agricultural Phosphorus and Eutrophication. U.S. Department of Agriculture, Agricultural Research Service, ARS-149, 42 pp.

Table 1. Nitrogen Risk Assessment

Nitrate loss potentials based on soil texture, timing, and nitrification inhibitors			
Application Timing[1]	Soil Texture[2]		
	Coarse	Medium	Fine
Fall with an inhibitor > 60° F	High	High	High
Fall with an inhibitor < 60° F	High	Medium	Medium
Fall without an inhibitor > 50° F	High	High	High
Fall without an inhibitor < 50° F	High	Medium	Medium
Spring without an inhibitor	Medium	Medium	Medium-Low
Spring with an inhibitor	Medium-Low	Low	Low
Spring split applied or sidedress	Medium-Low	Low	Low

Foot Notes:

1. Temperatures refer to soil temperature measured at a depth of 4 inches. For this assessment, inhibitors refer to nitrification inhibitors.

2. Soil Texture: Coarse - sand, loamy sand, sandy loam
   Medium - silt, silt loam, loam
   Fine - silty clay loam, silty clay, clay, clay loam, sandy clay, loam, sandy clay

When developing recommendations to be included in a nutrient management plan, the planner needs to use the results of the assessment above with knowledge of locally significant transport processes.

For example, in large areas of northern and central Illinois, nitrates are detected in surface water resources at concentrations above 10 parts per million. Soils in much of the region only have a moderate nitrogen loss potential. The presence of extensive tile drainage, however, increases the risk of nitrate transport to surface water resources.

By contrast, in southern Illinois, there are large areas of level, poorly drained soil. The climate is warmer and there is more rainfall than in northern and central Illinois. The conditions favor the formation of nitrate. The loss of nitrate, however, is primary to the atmosphere due to denitrification.

Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #19

Conservation Crop Rotation – Corn Grain / Soybeans -- is the planned rotation.

Tillage Practice – In preparation for the corn crop, the field will be planted to corn in 30 inch rows using a no-till planter. The corn will be harvested in the fall for grain and then the field will lay idle until the following spring. The surface residue prediction following harvest is 71%. The following spring the field will be planted to soybeans. The soybeans will be planted in 15 inch rows using a not-till planter. Following the harvest in the fall of the soybeans the field will have manure applied to it, and then work with a finish disk for incorporation of the manure. The surface residue prediction following fall tillage is 44%. The field will then lay idle until the following spring. In years of no manure application, anhydrous ammonia will be applied.

Manure Applications – will be planned for this field in accordance with the Waste Utilization Plan – applications will occur via slurry box spreader or an irrigation line and then incorporated into soil.

Manure Application Limitations – There is a residence within ¼ mile of this application field which under LMFA regulations requires soil incorporation within 24 hours of application. Part of this field has slopes greater than 5% which does not allow manure application to these areas when the ground is frozen or snow covered. There is a waterway located within this field and should not have manure applied in it.

Soil Loss Calculation
Net C Factor RUSLE 2 – 0.11, 0.13
Soil Conditioning Index – 0.2, 0.5
STIR Value – 12.4

Soil Type 5C2 Calculated T Loss – 5.0	Acceptable T Loss – 5.00
Soil Type 454 Calculated T Loss – 1.3	Acceptable T Loss – 5.00

Targeted crop nutrient needs will be achieved by means of manure applications in years designated in the Waste Utilization Plan and by means of commercial fertilizer in years of no manure applications. Refer to Nutrient Budget located behind each years Waste Application Tab.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #19

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 5C2 BLAIR SILT LOAM, 5 TO 10 PERCENT SLOPES, ERODED\Blair silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 5.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	144.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	44.000
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	144.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	44.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 5.0 t/ac/yr
Net C factor: 0.11
Net K factor: 0.35

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	24
10/1/0	Harvest, killing crop 60pct standing stubble		71
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	72
10/2/1	Harvest, killing crop 50pct standing stubble		83
10/18/1	Manure spreader, solid and semi-solid		84
10/19/1	Disk, tandem light finishing		44
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/7/2	Harvest, killing crop 60pct standing stubble		70
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	73
10/4/3	Harvest, killing crop 50pct standing stubble		83
10/11/3	Manure spreader, solid and semi-solid		86
10/12/3	Disk, tandem light finishing		47

Soil conditioning index (SCI): 0.2
Avg. annual slope STIR: 12.4

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #19

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 454 IVA SILT LOAM\Iva silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	144.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	44.000
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Corn, grain	bushels	144.00
CMZ 16\c.Other Local Mgt Records\Varel min-till cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	44.000

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 1.3 t/ac/yr
Net C factor: 0.13
Net K factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	24
10/1/0	Harvest, killing crop 60pct standing stubble		71
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	72
10/2/1	Harvest, killing crop 50pct standing stubble		83
10/18/1	Manure spreader, solid and semi-solid		84
10/19/1	Disk, tandem light finishing		44
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	23
10/7/2	Harvest, killing crop 60pct standing stubble		70
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	73
10/4/3	Harvest, killing crop 50pct standing stubble		83
10/11/3	Manure spreader, solid and semi-solid		86
10/12/3	Disk, tandem light finishing		47

Soil conditioning index (SCI): 0.5
Avg. annual slope STIR: 12.4

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	19
Field Name	19
Land Owner	Gregory Varel
Tillable Acres	22.91
Application Acres	22.91
County	Clinton
Township	Sante Fe
Section	17

Proximity Location

- ☑ Residence
- ☐ Non-Farm Business
- ☐ Common Place of Assembly
- ☐ Streams
- ☐ Wells
- ☐ Lake
- ☐ Ponds
- ☐ Rivers
- ☐ Other Water Sources
- ☐ 10 yr Flood Plain
- ☑ Waterways
- ☐ Drainage Ditches
- ☑ Slope Over 5%

Provisions

☑ A - Residence within 1/4 mile - incorporation required	*LMFA Section 900.803.o*
☐ B - Application site within 200' of surface water or 150' of a potable well	*LMFA Section 900.803.p*
☐ C - Located in a 10 year Flood Plain	*LMFA Section 900.803.q*
☑ D - Livestock waste may not be applied in waterways or drainage ditches in the field	*LMFA Section 900.803.r*
☑ E - Frozen or snow covered ground may not be applied to with a Slope Over 5%	*LMFA Section 900.803.s*
☑ F - No application during rainfall or to saturated soils	*LMFA Section 900.803.u*

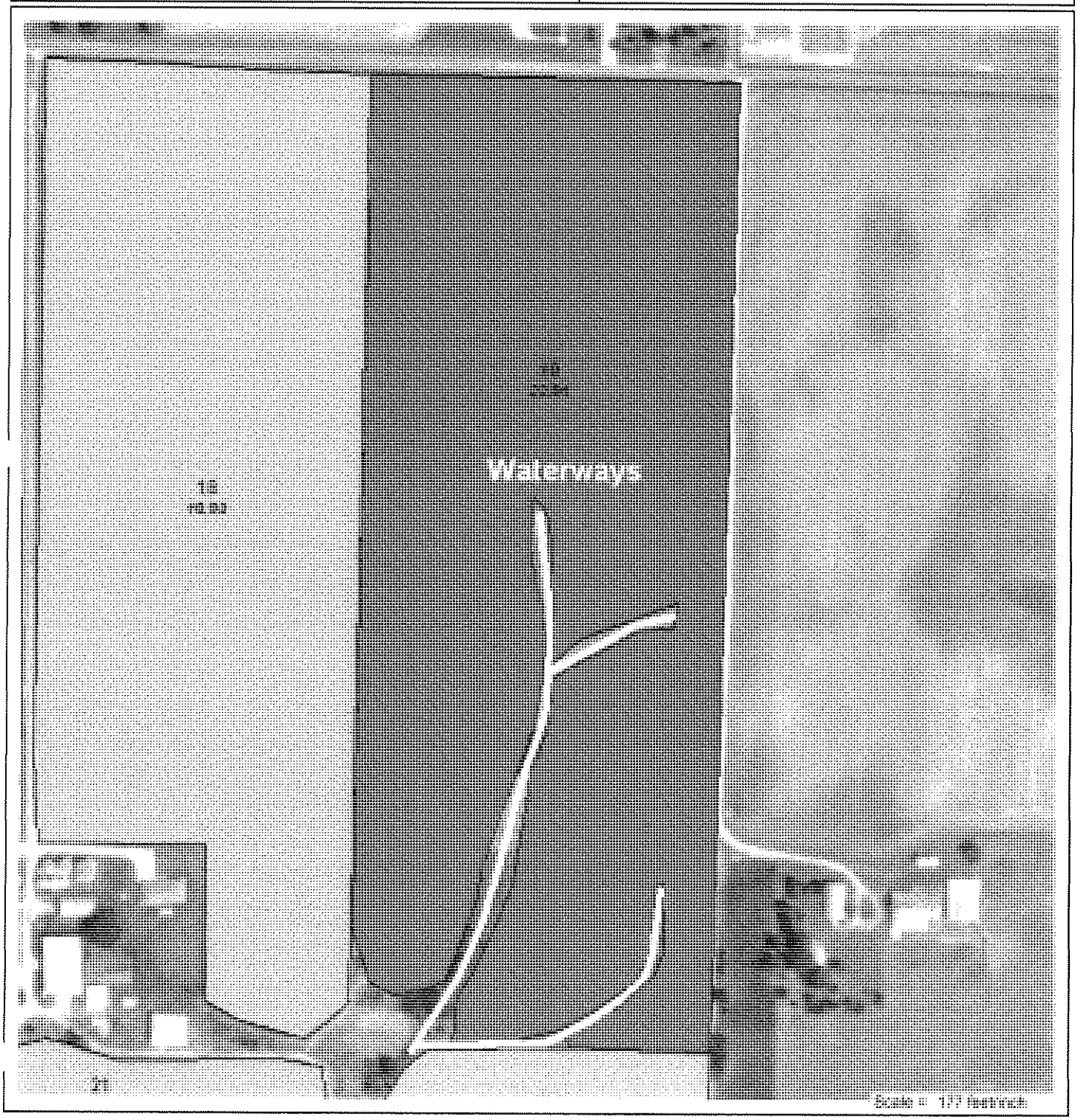
Planting Intentions

Crop Year	Acres	Crop	Crop 2
2009	22.91	Soybeans	
2010	22.91	Corn Grain	
2011	22.91	Soybeans	
2012	22.91	Corn Grain	

EFFINGHAM EQUITY AG SERVICES

Field Map

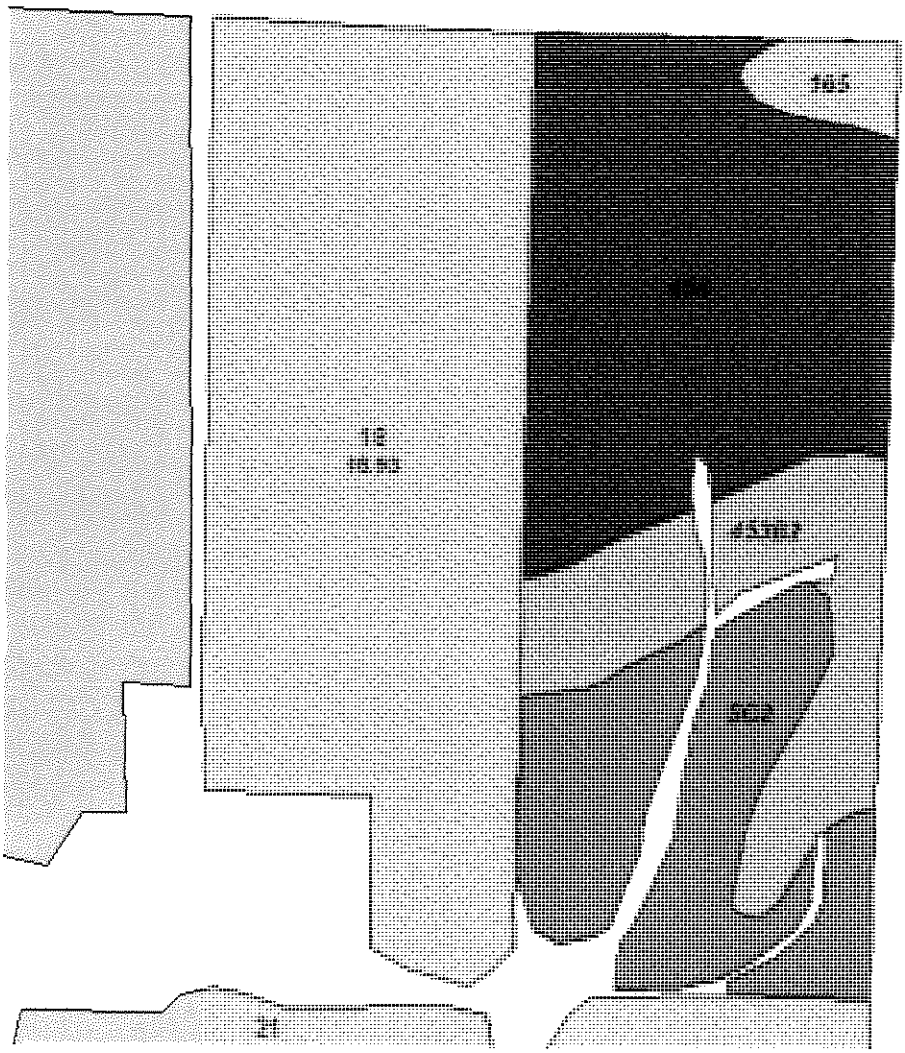
Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 17
Field: 19	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 22.91



EFFINGHAM EQUITY AG SERVICES

musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 17
Field:	19	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 22.91	



Scale = 241 feet/inch

Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 22.91
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
165	.83
454	11.10
453B2	4.70
5C2	6.29

Field # 19

Solution Runoff Class Matrix

Hydrologic Soil Group			
A	B	C	D
Low	Medium	High	High

P Input Matrix

	Application Rate		
Application Method	**<= UI Recommendations**	**>UI - 150% UI**	**>150% UI**
Incorporation or injection > 3" below surface	Low	Low	Low
Shallowly incorporated surface applications <3 inches	Low	Medium	High
Non-incorporated surface applications	Medium	High	High

The table below identifies specific risk factors that may be present in a given field. No attempt should be made to "average" the factors and assign a composite rating for the field. It is recognized that the risk factors do not act independently to influence phosphorus loss from agricultural fields and P loading into water resources. Simple averaging however, assumes that all risk factors have the same amount of influence. Attempts to objectively weigh some factors more or less than others would be desirable but difficult without supporting data. The phosphorus assessment procedure is not a process based or empirical model. The procedure was developed as a conservation planning tool. The tool is designed to provide guidance to select and plan conservation measures that will lower the potential for phosphorus loss from agricultural fields and P loading into water resources.

Phosphorus Risk Potential	
Risk Factor	**Site Value**
Soil Erosion	<T
Proximity to water	Medium
Solution Runoff Potential	High
Soil Test Phosphorus	NA
Phosphorus Inputs	Medium

References:

* Sharpely, A.N., Determining An Environmentally Sound Soil Phosphorus Value Journal of Soil and Water Conservation, 1996.

* Sharpely, A.N., T. Daniel, T. Sims, J. Lemunyon, R. Stevens, And R. Parry, 1999 Agricultural Phosphorus and Eutrophication. U.S. Department of Agriculture, Agricultural Research Service, ARS-149, 42 pp.

Table 1. Nitrogen Risk Assessment

Nitrate loss potentials based on soil texture, timing, and nitrification inhibitors			
Application Timing[1]	Soil Texture[2]		
	Coarse	Medium	Fine
Fall with an inhibitor > 60° F	High	High	High
Fall with an inhibitor < 60° F	High	Medium	Medium
Fall without an inhibitor > 50° F	High	High	High
Fall without an inhibitor < 50° F	High	Medium	Medium
Spring without an inhibitor	Medium	Medium	Medium-Low
Spring with an inhibitor	Medium-Low	Low	Low
Spring split applied or sidedress	Medium-Low	Low	Low

Foot Notes:

1. Temperatures refer to soil temperature measured at a depth of 4 inches. For this assessment, inhibitors refer to nitrification inhibitors.

2. Soil Texture:
   Coarse - sand, loamy sand, sandy loam
   Medium - silt, silt loam, loam
   Fine - silty clay loam, silty clay, clay, clay loam, sandy clay, loam, sandy clay

When developing recommendations to be included in a nutrient management plan, the planner needs to use the results of the assessment above with knowledge of locally significant transport processes.

For example, in large areas of northern and central Illinois, nitrates are detected in surface water resources at concentrations above 10 parts per million. Soils in much of the region only have a moderate nitrogen loss potential. The presence of extensive tile drainage, however, increases the risk of nitrate transport to surface water resources.

By contrast, in southern Illinois, there are large areas of level, poorly drained soil. The climate is warmer and there is more rainfall than in northern and central Illinois. The conditions favor the formation of nitrate. The loss of nitrate, however, is primary to the atmosphere due to denitrification.

Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #20

Conservation Crop Rotation – Corn Grain / Soybeans -- is the planned rotation.

Tillage Practice – In preparation for the corn crop, the field will be planted to corn in 30 inch rows using a no-till planter. The corn will be harvested in the fall for grain and then the field will lay idle until the following spring. The surface residue prediction following harvest is 77%. The following spring the field will be planted to soybeans. The soybeans will be planted in 15 inch rows using a no-till planter. Following the harvest in the fall of the soybeans, the field will have manure applied to it, and then planted to wheat using a no-till drill to provide cover for the winter. The surface residue prediction following manure application is 84%. The field will then lay idle until the following spring. In years of no manure application, anhydrous ammonia will be applied.

Manure Applications – will be planned for this field in accordance with the Waste Utilization Plan – applications will occur via slurry box spreader or an irrigation line and then incorporated into soil.

Manure Application Limitations – There is a residence within ¼ mile of this application field which under LMFA regulations requires soil incorporation within 24 hours of application. Part of this field has slopes greater than 5% which does not allow manure application to these areas when the ground is frozen or snow covered.

Soil Loss Calculation
Net C Factor RUSLE 2 – 0.041, 0.055
Soil Conditioning Index – 0.6, 0.5
STIR Value – 6.26

Soil Type 5C2 Calculated T Loss – 2.3	Acceptable T Loss – 5.00
Soil Type 454 Calculated T Loss – 0.36	Acceptable T Loss – 5.00

Targeted crop nutrient needs will be achieved by means of manure applications in years designated in the Waste Utilization Plan and by means of commercial fertilizer in years of no manure applications. Refer to Nutrient Budget located behind each years Waste Application Tab.

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #20

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 5C2 BLAIR SILT LOAM, 5 TO 10 PERCENT SLOPES, ERODED\Blair silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 7.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Corn, grain	bushels	138.00
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	45.000
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Wheat, winter cover	pounds	4000.0
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Corn, grain	bushels	138.00
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	45.000
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Wheat, winter cover	pounds	4000.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 2.3 t/ac/yr
Net C factor: 0.041
Net K factor: 0.35

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	66
10/1/0	Harvest, killing crop 60pct standing stubble		77
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	74
10/2/1	Harvest, killing crop 50pct standing stubble		83
10/18/1	Manure spreader, solid and semi-solid		84
10/19/1	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter cover	80
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	64
10/7/2	Harvest, killing crop 60pct standing stubble		76
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	74
10/4/3	Harvest, killing crop 50pct standing stubble		84
10/11/3	Manure spreader, solid and semi-solid		86
10/12/3	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter cover	82

Soil conditioning index (SCI): 0.5
Avg. annual slope STIR: 6.26

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #20

File: Plan: Profile (Temp. scenario[1]) of Varel Dairy*

Inputs:
Location: Illinois\Clinton County
Soil: 3603 BLACKOAR SILT LOAM, FREQUENTLY FLOODED\Blackoar silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Corn, grain	bushels	138.00
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	45.000
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Wheat, winter cover	pounds	4000.0
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Corn, grain	bushels	138.00
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Soybean, mw 15 - 20 in rows	bu	45.000
CMZ 16\c.Other Local Mgt Records\Varel min-till w/cover cg-sb-cg-sb	Wheat, winter cover	pounds	4000.0

Contouring: default
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial
General yield level: Set by user
Rock cover: 0 %

Outputs:
T value: 5.0 t/ac/yr
Soil loss for cons. plan: 0.36 t/ac/yr
Net C factor: 0.055
Net K factor: 0.26

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/10/0	Planter, double disk opnr w/fluted coulter	Corn, grain	66
10/1/0	Harvest, killing crop 60pct standing stubble		77
5/10/1	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	74
10/2/1	Harvest, killing crop 50pct standing stubble		83
10/18/1	Manure spreader, solid and semi-solid		84
10/19/1	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter cover	80
4/10/2	Planter, double disk opnr w/fluted coulter	Corn, grain	64
10/7/2	Harvest, killing crop 60pct standing stubble		76
5/11/3	Planter, double disk opnr w/fluted coulter	Soybean, mw 15 - 20 in rows	74
10/4/3	Harvest, killing crop 50pct standing stubble		84
10/11/3	Manure spreader, solid and semi-solid		86
10/12/3	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter cover	82

Soil conditioning index (SCI): 0.6
Avg. annual slope STIR: 6.26