Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #1

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 13%. 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 3603 Calculated T Loss – 2.9 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 #1

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 -- 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: 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

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	1
Field Name	1
Land Owner	Varel Dairy, Inc.
Tillable Acres	5.52
Application Acres	1.41
County	Clinton
Township	Sante Fe
Section	18

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	5.52	Corn Silage	
2010	5.52	Corn Silage	
2011	5.52	Corn Silage	
2012	5.52	Corn Silage	

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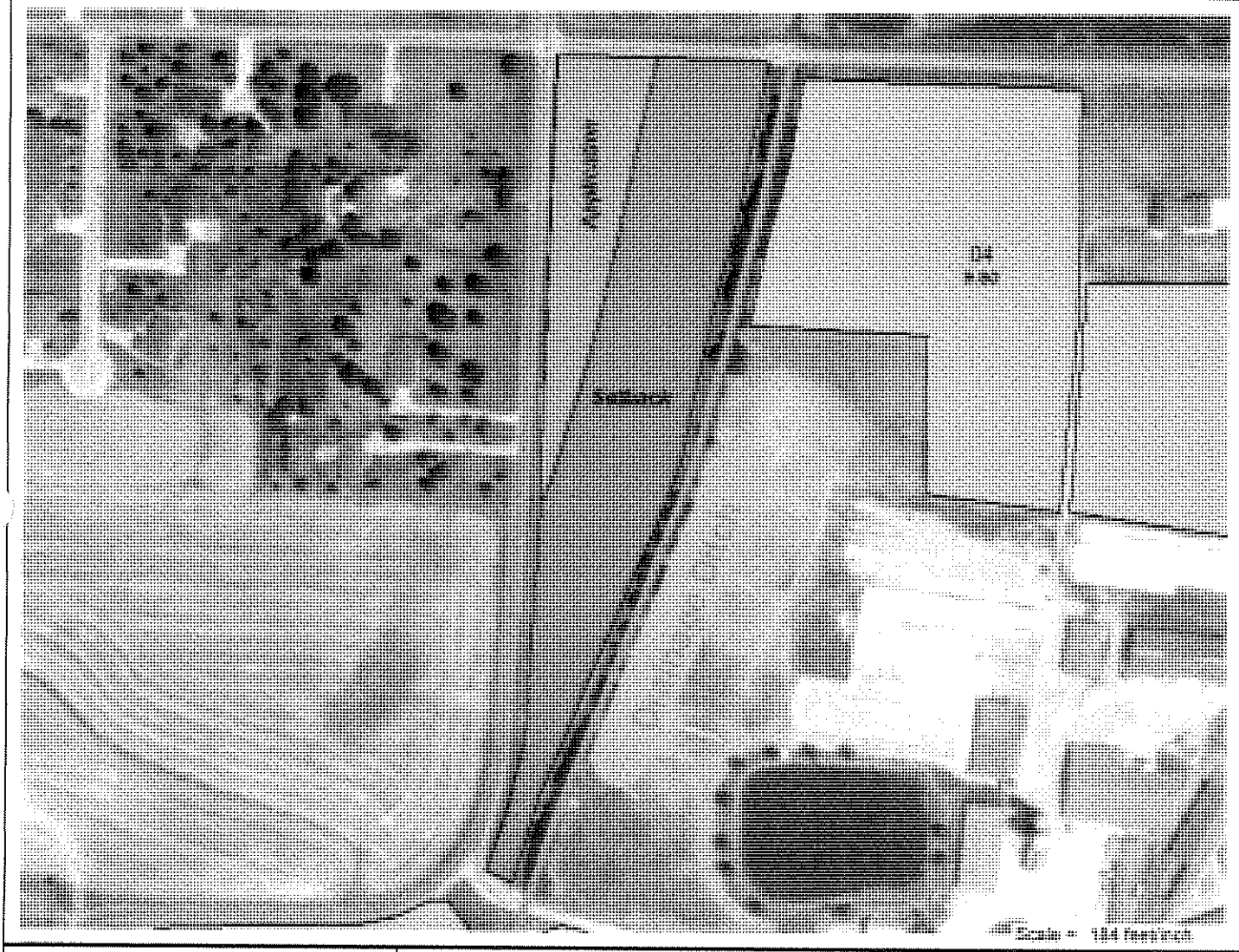
Application Restrictions

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 18
Field:	01	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 5.52	



Layer Summary

Layer: Setbacks
Attribute: Application Restrictions

Acres: 5.52
Average:
Weighted Average:
Minimum:
Maximum:

Application Restrictions	Acres
Setback	4.11
Application	1.41

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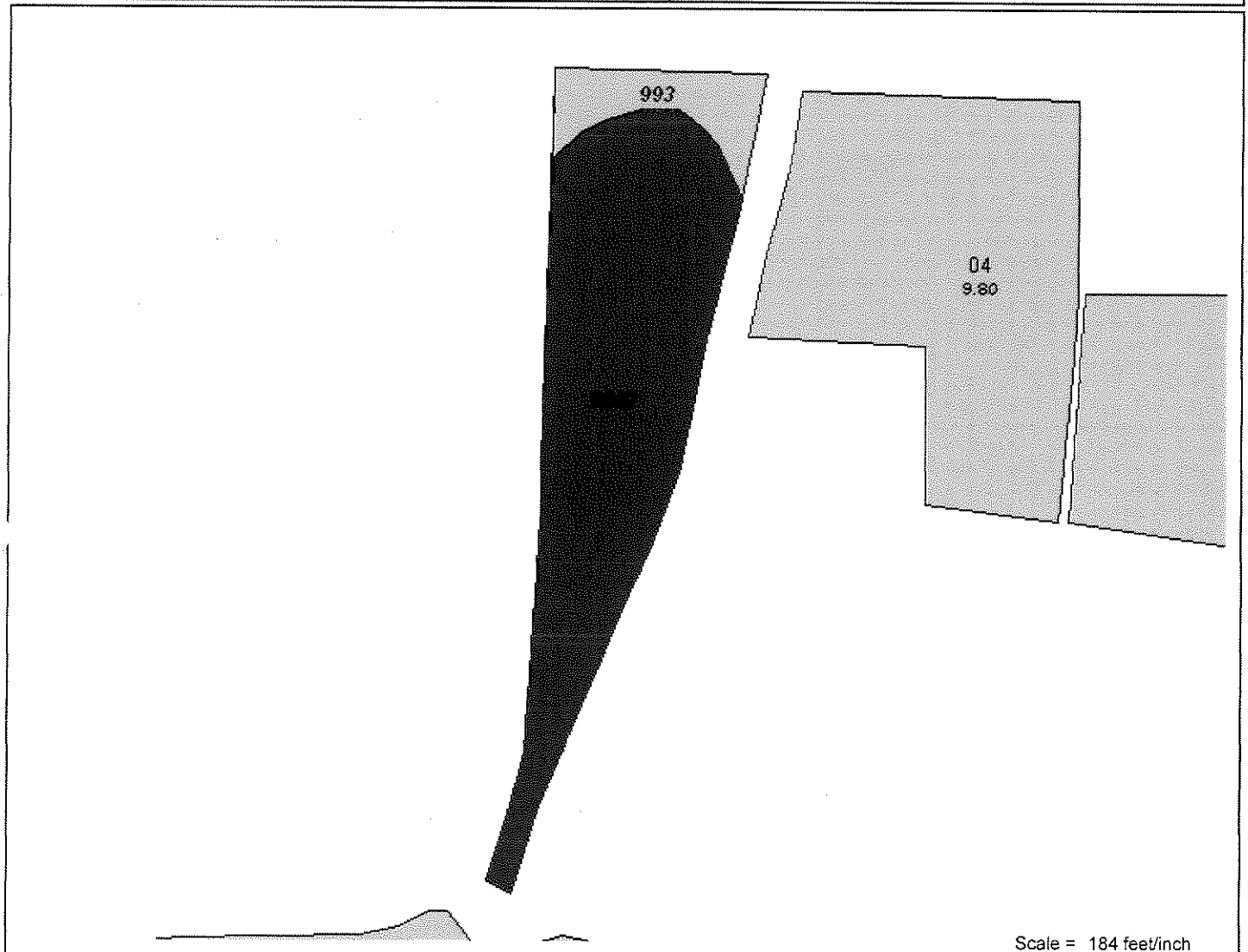
musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 18
Field:	01	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 5.52	



Scale = 184 feet/inch

Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 5.52
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
993	.70
3603	4.82

Field # 1

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 #2

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 13%. 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. A well is located near this field and requires a 150 foot setback of no manure application. 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 3603 Calculated T Loss – 2.9	Acceptable T Loss – 5.00
Soil Type 8109 Calculated T Loss – 2.9	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 #2

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 -- 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: 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 #2

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

Inputs:
Location: Illinois\Clinton County
Soil: 8109 RACOON SILT LOAM, OCCASIONALLY FLOODED\Racoon silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 0.75 %

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: 0.35

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 #	2
Field Name	2
Land Owner	Varel Dairy, Inc.
Tillable Acres	30.25
Application Acres	20.00
County	Clinton
Township	Sante Fe
Section	18

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	30.25	Corn Silage	
2010	30.25	Corn Silage	
2011	30.25	Corn Silage	
2012	30.25	Corn Silage	

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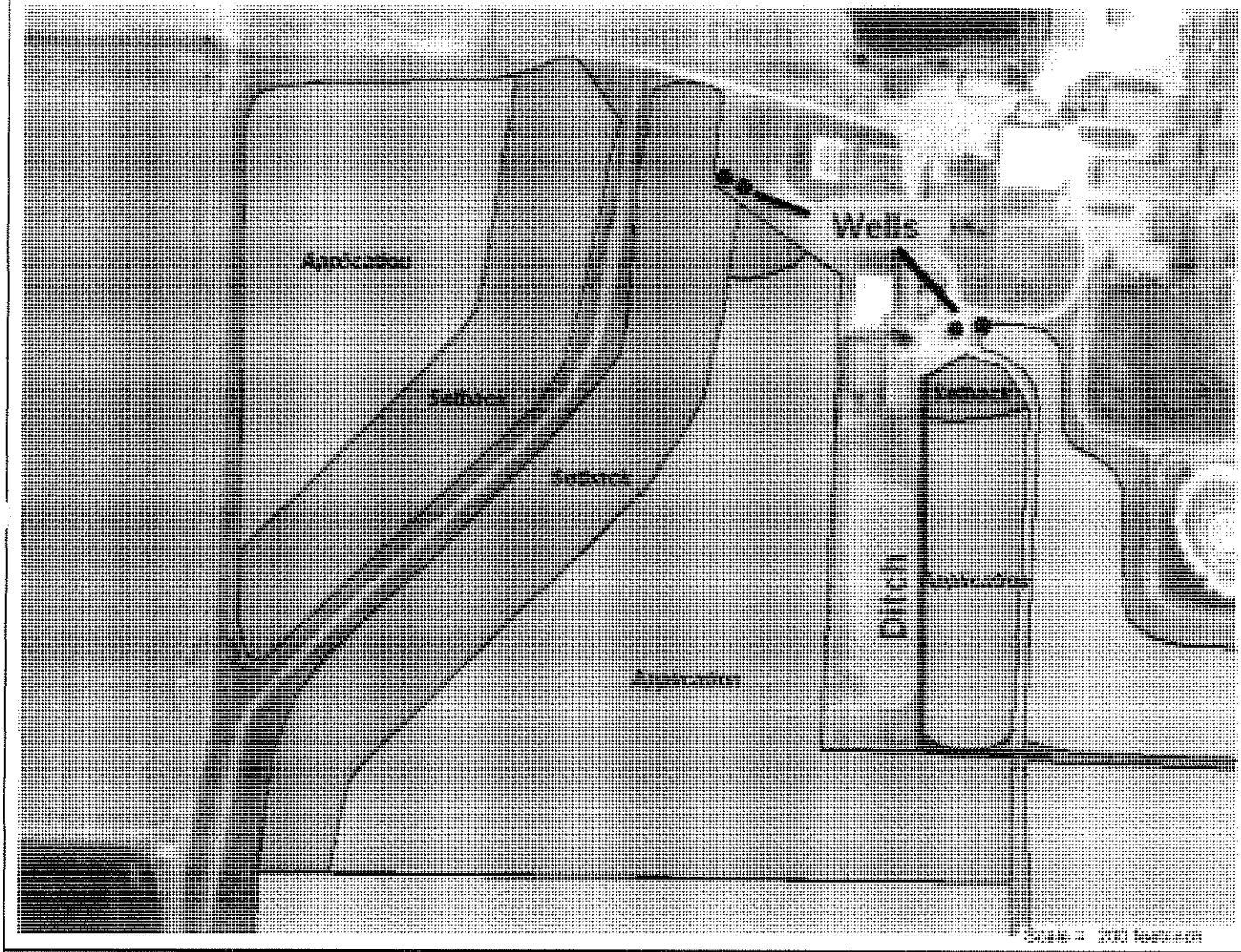
Application Restrictions

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 18
Field:	02	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 30.25	



Layer Summary

Layer: Setbacks
Attribute: Application Restrictions
Acres: 30.25
Average:
Weighted Average:
Minimum:
Maximum:

Application Restrictions	Acres
Setback	10.25
Application	20.00

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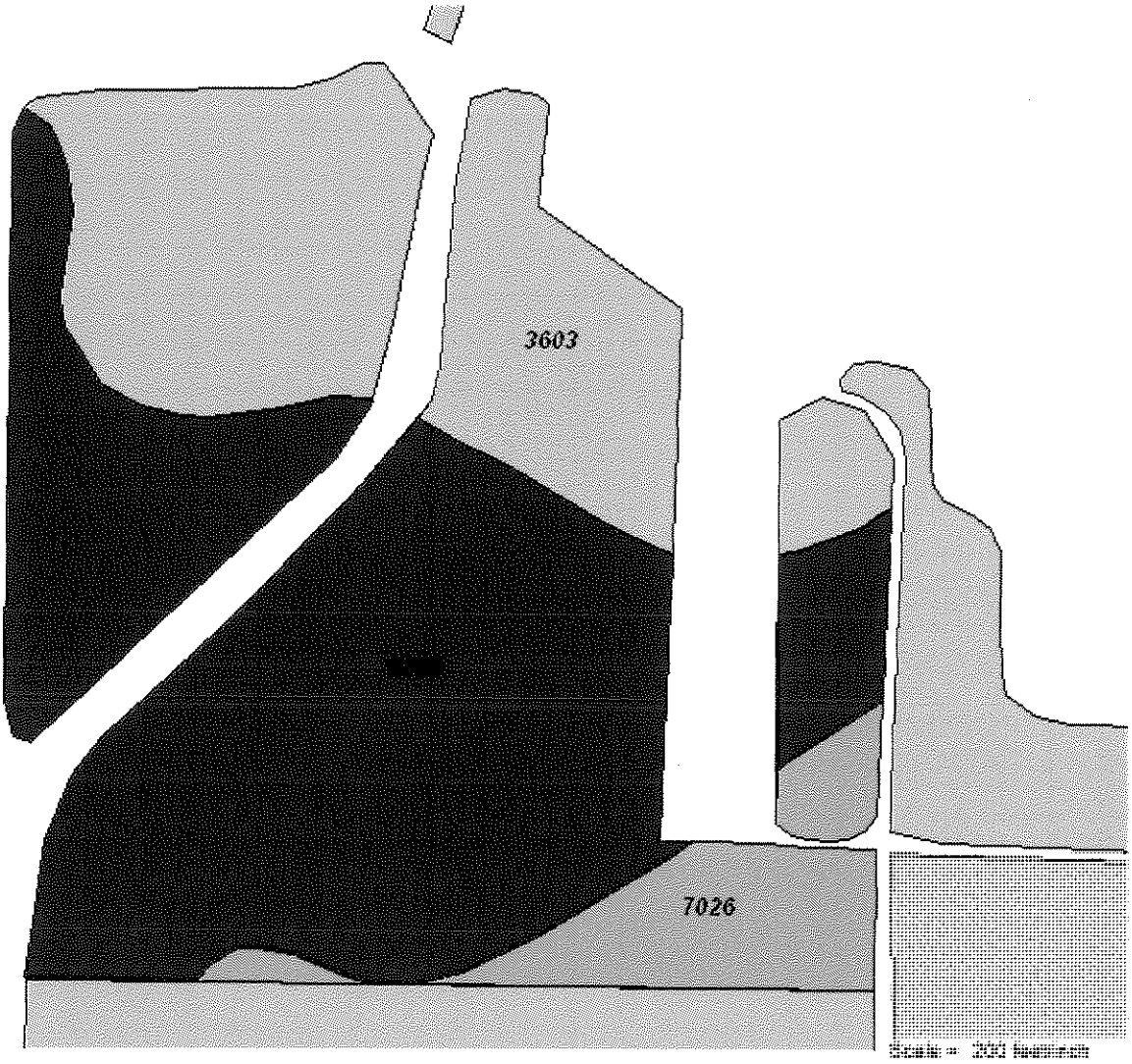
musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 18
Field:	02	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 30.25	



Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 30.26
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
3603	9.67
8109	17.67
7026	2.91

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Soil Test Results

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 18
Field:	02	**Directions:**	
Crop Zone:			
Crop Year:	2009 **Acres:** 30.25		

Layer Name: 2009 -- Fertility Sites **Date Sampled:** April 21, 2009

SampleID	LabID	pH	BpH	P1	K	Ca	Mg	OM	CEC
	none	none	none	LbsPerAcre	LbsPerAcre	LbsPerAcre	LbsPerAcre	%	meq/100g
1		7.0		323	812				
2		7.0		320	846				
3		7.2		315	1000				
4		7.0		333	1202				
5		7.1		333	1052				
6		7.4		330	1086				
7		7.3		263	1106				
8		7.0		378	1070				
Average:		7.1		324	1022				

Field # 2

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	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 #4

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 applied on it in the fall of the year and then the field will be planted to wheat to provide a cover crop through the winter. The corn will planted in 30 inch rows, using a no-till planter, following silage removal the field will have manure applied to it. The surface residue prediction following manure application is 67%. The field will be planted to wheat to provide a cover crop through the winter. The corn will planted in 30 inch rows, using a no-till planter, following silage removal the field will have manure applied to it. The surface residue prediction following manure application is 67%. The field will be planted to wheat to provide a cover crop through the winter. 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, 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. 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 – 0.075
Soil Conditioning Index – 0.2
STIR Value – 12.8

Soil Type 934C2 Calculated T Loss – 4.6	Acceptable T Loss – 5.00
Soil Type 993 Calculated T Loss – 0.79	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 #4

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\Grantfork silt loam 40%
Slope length (horiz): 120 ft
Avg. slope steepness: 7.5 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Wheat, winter cover	pounds	4000.0
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Wheat, winter cover	pounds	4000.0
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	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: 4.6 t/ac/yr
Net C factor: 0.075
Net K factor: 0.35

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
9/30/0	Manure spreader, solid and semi-solid		69
10/1/0	Drill or airseeder, double disk	Wheat, winter cover	61
4/17/1	Planter, double disk opnr w/fluted coulter	Corn, silage	64
9/20/1	Harvest, silage		58
9/22/1	Manure spreader, solid and semi-solid		67
9/23/1	Drill or airseeder, double disk	Wheat, winter cover	60
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	64
9/25/2	Harvest, silage		58
9/26/2	Manure spreader, solid and semi-solid		67
9/27/2	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter cover	62

Soil conditioning index (SCI): 0.2
Avg. annual slope STIR: 12.8

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field #4

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

Inputs:
Location: Illinois\Clinton County
Soil: 993 COWDEN-PIASA COMPLEX\Cowden silt loam 45%
Slope length (horiz): 120 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Wheat, winter cover	pounds	4000.0
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Wheat, winter cover	pounds	4000.0
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	Corn, silage	tons	25.000
CMZ 16\c.Other Local Mgt Records\Varel -- min-till wc/cs/wc/cs	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: 3.0 t/ac/yr
Soil loss for cons. plan: 0.79 t/ac/yr
Net C factor: 0.091
Net K factor: 0.35

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
9/30/0	Manure spreader, solid and semi-solid		69
10/1/0	Drill or airseeder, double disk	Wheat, winter cover	61
4/17/1	Planter, double disk opnr w/fluted coulter	Corn, silage	64
9/20/1	Harvest, silage		58
9/22/1	Manure spreader, solid and semi-solid		67
9/23/1	Drill or airseeder, double disk	Wheat, winter cover	60
4/22/2	Planter, double disk opnr w/fluted coulter	Corn, silage	64
9/25/2	Harvest, silage		58
9/26/2	Manure spreader, solid and semi-solid		67
9/27/2	Drill or airseeder, double disk, w/ fluted coulters	Wheat, winter cover	62

Soil conditioning index (SCI): 0.5
Avg. annual slope STIR: 12.8

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	4
Field Name	4
Land Owner	Varel Dairy, Inc.
Tillable Acres	9.80
Application Acres	8.21
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	9.80	Corn Silage	
2010	9.80	Corn Silage	
2011	9.80	Corn Silage	
2012	9.80	Corn Silage	

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Application Restrictions

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 17
Field:	04	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:**	9.80

Layer Summary

Layer: Setbacks
Attribute: Application Restrictions

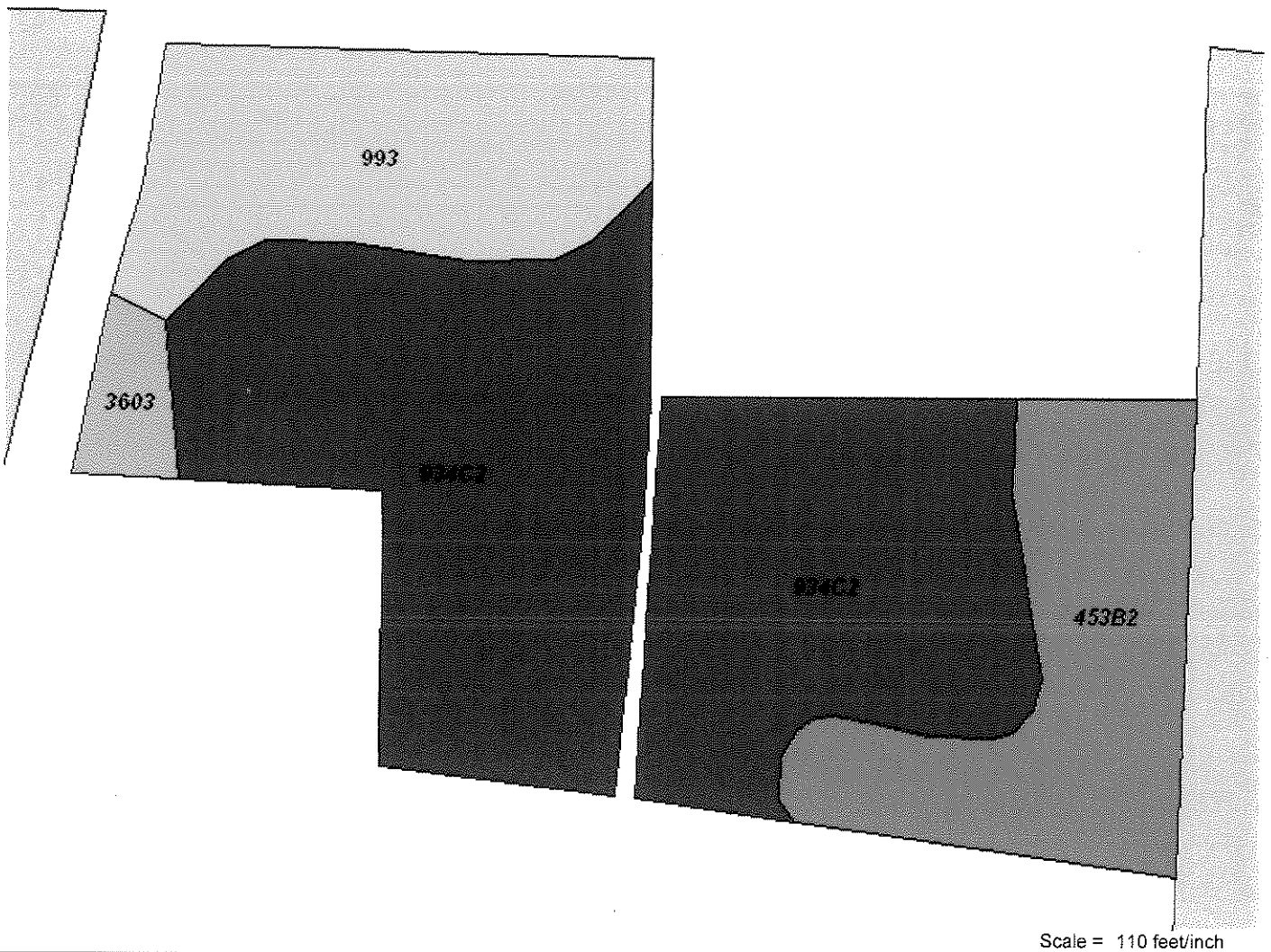
Acres: 9.80
Average:
Weighted Average:
Minimum:
Maximum:

Application Restrictions	Acres
Setback	1.59
Application	8.21

EFFINGHAM EQUITY AG SERVICES

musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 17
Field:	04	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 9.80	



Scale = 110 feet/inch

Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 9.80
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
993	1.87
934C2	5.83
3603	.25
453B2	1.85

Field # 4

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 #4

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 applied on it in the fall of the year and then the field will be planted to wheat to provide a cover crop through the winter. The corn will planted in 30 inch rows, using a no-till planter, following silage removal the field will have manure applied to it. The surface residue prediction following manure application is 67%. The field will be planted to wheat to provide a cover crop through the winter. The corn will planted in 30 inch rows, using a no-till planter, following silage removal the field will have manure applied to it. The surface residue prediction following manure application is 67%. The field will be planted to wheat to provide a cover crop through the winter. 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, 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. 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 – 0.075
Soil Conditioning Index – 0.2
STIR Value – 12.8

Soil Type 934C2 Calculated T Loss – 4.6	Acceptable T Loss – 5.00
Soil Type 993 Calculated T Loss – 0.79	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.

Conservation Plan

Varel Dairy
7300 Twin Levee Rd.
Bartelso, Il 62218

Field #5

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 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 7026 Calculated T Loss – 2.9	Acceptable T Loss – 3.00
Soil Type 8109 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 #5

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

Inputs:
Location: Illinois\Clinton County
Soil: 8109 RACOON SILT LOAM, OCCASIONALLY FLOODED\Racoon silt loam 100%
Slope length (horiz): 100 ft
Avg. slope steepness: 0.77 %

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: 0.35

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 #5

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

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	5
Field Name	5
Land Owner	Varel Dairy, Inc.
Tillable Acres	66.36
Application Acres	66.36
County	Clinton
Township	Sante Fe
Section	17,20

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	66.36	Corn Silage	
2010	66.36	Corn Silage	
2011	66.36	Corn Silage	
2012	66.36	Corn Silage	

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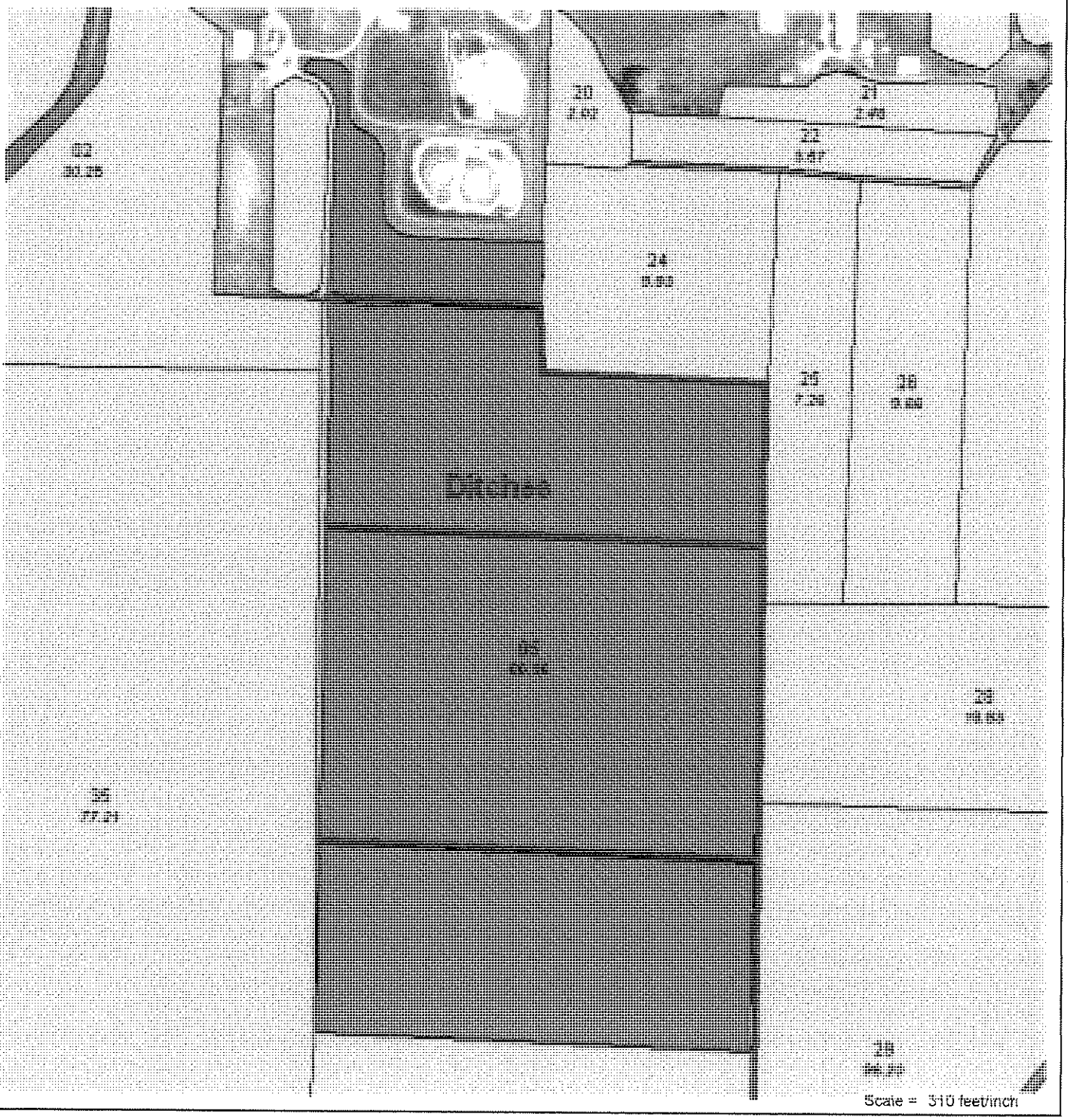
Field Map

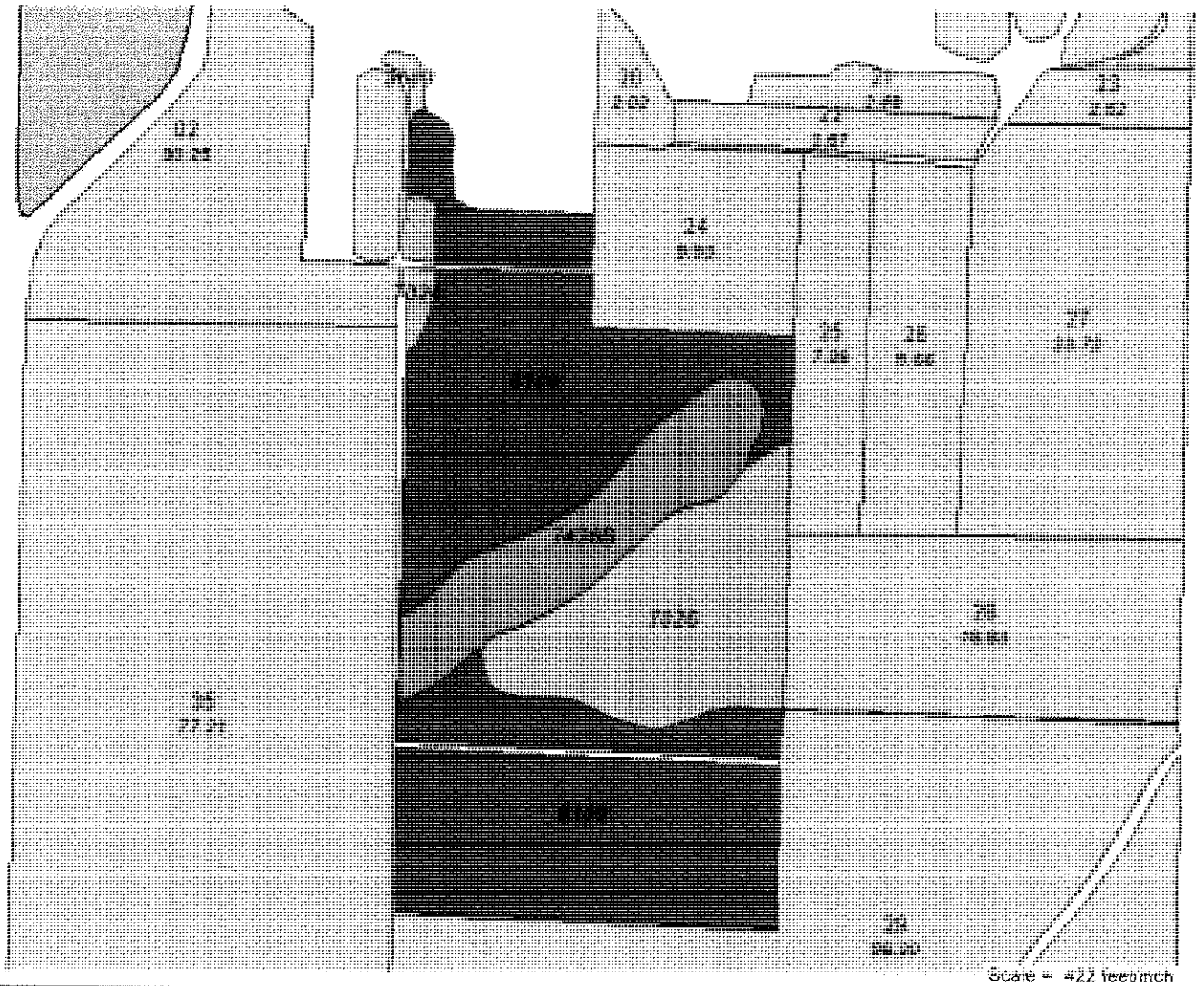
Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 17,20
Field: 05	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 66.36



EFFINGHAM EQUITY AG SERVICES

musym

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 17,20
Field:	05	**Directions:**	
Crop Zone:			
Crop Year:		**Acres:** 66.36	



Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 66.35
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
3603	.30
8109	43.28
7026	13.87
7436B	8.90

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Soil Test Results

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 17,20
Field:	05	**Directions:**	
Crop Zone:			
Crop Year:	2009 **Acres:** 66.36		

Layer Name: 2009 -- Fertility Sites **Date Sampled:** April 21, 2009

SampleID	LabID	pH	BpH	P1	K	Ca	Mg	OM	CEC
	none	none	none	LbsPerAcre	LbsPerAcre	LbsPerAcre	LbsPerAcre	%	meq/100g
1		7.3		302	1052				
2		7.0		378	1070				
3		8.3		340	2090				
4		7.8		336	1181				
5		8.3		341	1682				
6		8.2		342	1904				
7		8.5		344	3126				
8		7.4		341	1177				
9		8.0		348	1191				
10		8.6		344	2650				
11		7.8		341	1242				
12		8.5		344	2923				
13		8.6		344	1580				
14		8.2		344	2312				
15		8.4		338	1792				
16		8.5		344	2066				
17		8.2		338	1402				
18		7.9		334	1387				
19		7.4		338	1634				
20		8.2		334	1670				
Average:		8.1		341	1757				

Field # 5

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	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 #7

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 – 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 3288 Calculated T Loss – 3.6 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 #7

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

Inputs:
Location: Illinois\Clinton County
Soil: 3288 PETROLIA SILTY CLAY LOAM, FREQUENTLY FLOODED\Petrolia silty clay 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 -- 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: 3.6 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 #	7
Field Name	7
Land Owner	Varel Dairy, Inc.
Tillable Acres	19.28
Application Acres	19.28
County	Clinton
Township	Sante Fe
Section	29

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*

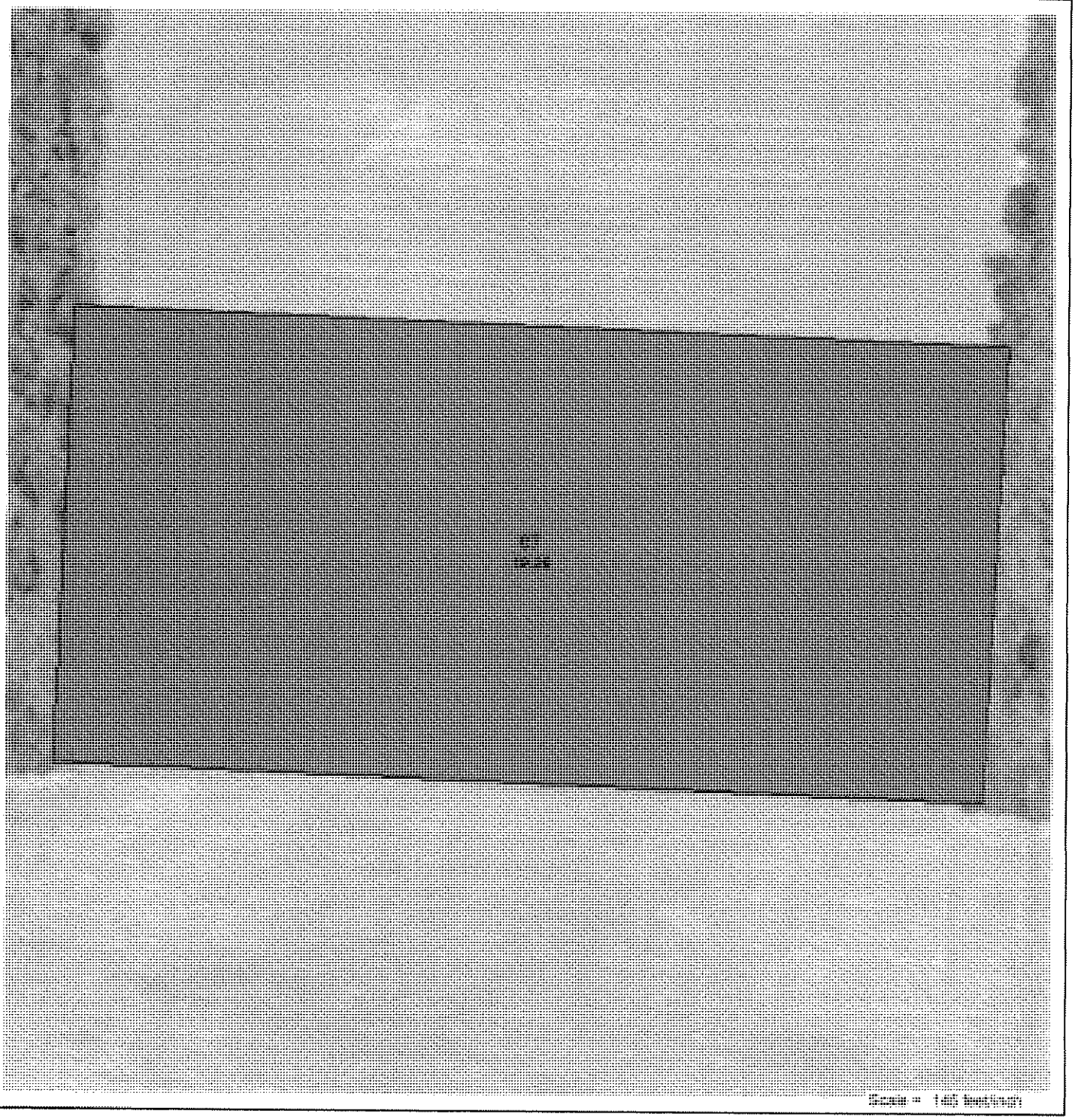
Planting Intentions

Crop Year	Acres	Crop	Crop 2
2009	19.28	Corn Silage	
2010	19.28	Corn Silage	
2011	19.28	Corn Silage	
2012	19.28	Corn Silage	

EFFINGHAM EQUITY AG SERVICES

Field Map

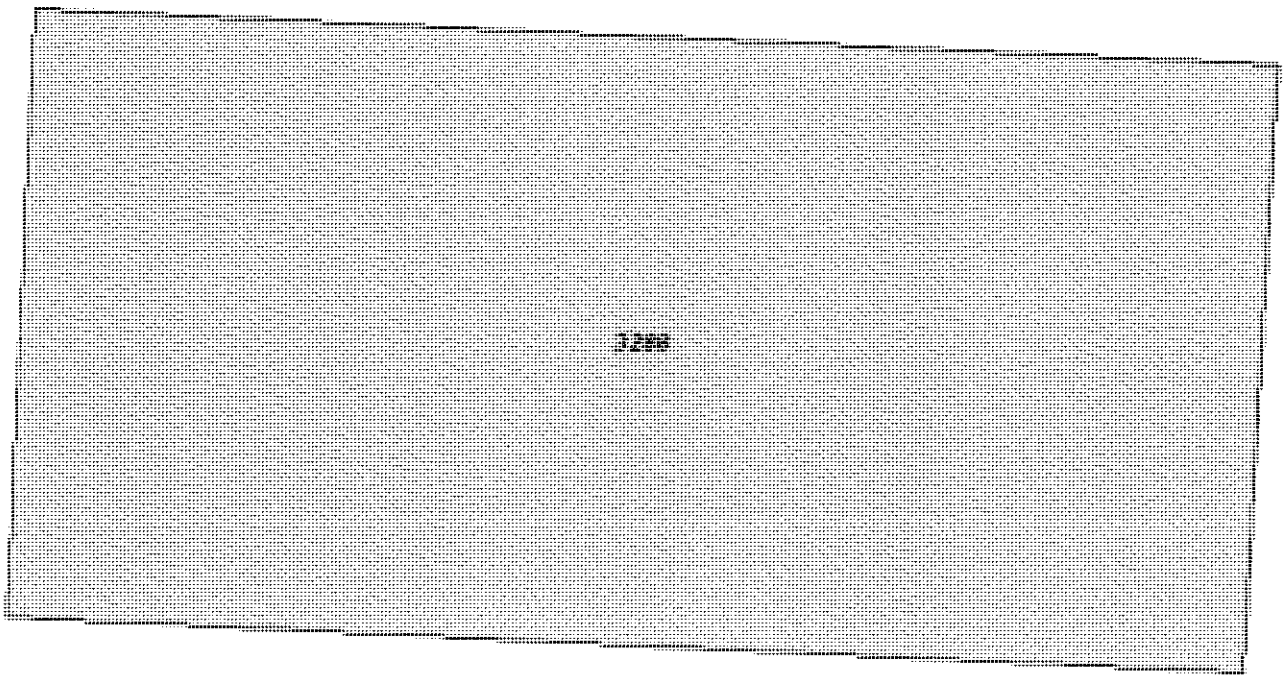
Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 29
Field: 07	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 19.28



EFFINGHAM EQUITY AG SERVICES

musym

Prepared For: Varel Dairy	**County:** Clinton, IL
Farm:	**Twp Rng Sec:** Sante Fe 29
Field: 07	**Directions:**
Crop Zone:	
Crop Year:	**Acres:** 19.28



Scale = 145 feet/inch

Layer Summary

Layer: Soil Type
Attribute: musym

Acres: 19.28
Average:
Weighted Average:
Minimum:
Maximum:

musym	Acres
3288	19.28

EFFINGHAM EQUITY AG SERVICES

Soil Test Results

Prepared For:	Varel Dairy	**County:**	Clinton, IL
Farm:		**Twp Rng Sec:**	Sante Fe 29
Field:	07	**Directions:**	
Crop Zone:			
Crop Year:	2009 **Acres:** 19.28		

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		6.8		148	278				
2		6.7		126	374				
3		7.5		200	540				
4		6.7		160	454				
5		7.0		154	460				
Average:		6.9		158	421				

Field # 7

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 #8

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 waterway in or near this field and should not have manure applied in it. 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 – (0.4)
STIR Value – 76.0

Soil Type 3334 Calculated T Loss – 4.9 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 #8

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

Inputs:
Location: Illinois\Clinton County
Soil: 3334 BIRDS SILT LOAM, FREQUENTLY FLOODED\Birds 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 -- 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: 4.9 t/ac/yr
Net C factor: 0.45
Net K factor: 0.41

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): -0.4
Avg. annual slope STIR: 76.0

Application Field Detail Sheet

Varel Dairy, Inc.

Field #	8
Field Name	8
Land Owner	Robert Meyer
Tillable Acres	40.26
Application Acres	40.26
County	Clinton
Township	Sante Fe
Section	32

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	40.26	Corn Silage	
2010	40.26	Corn Silage	
2011	40.26	Corn Silage	
2012	40.26	Corn Silage	