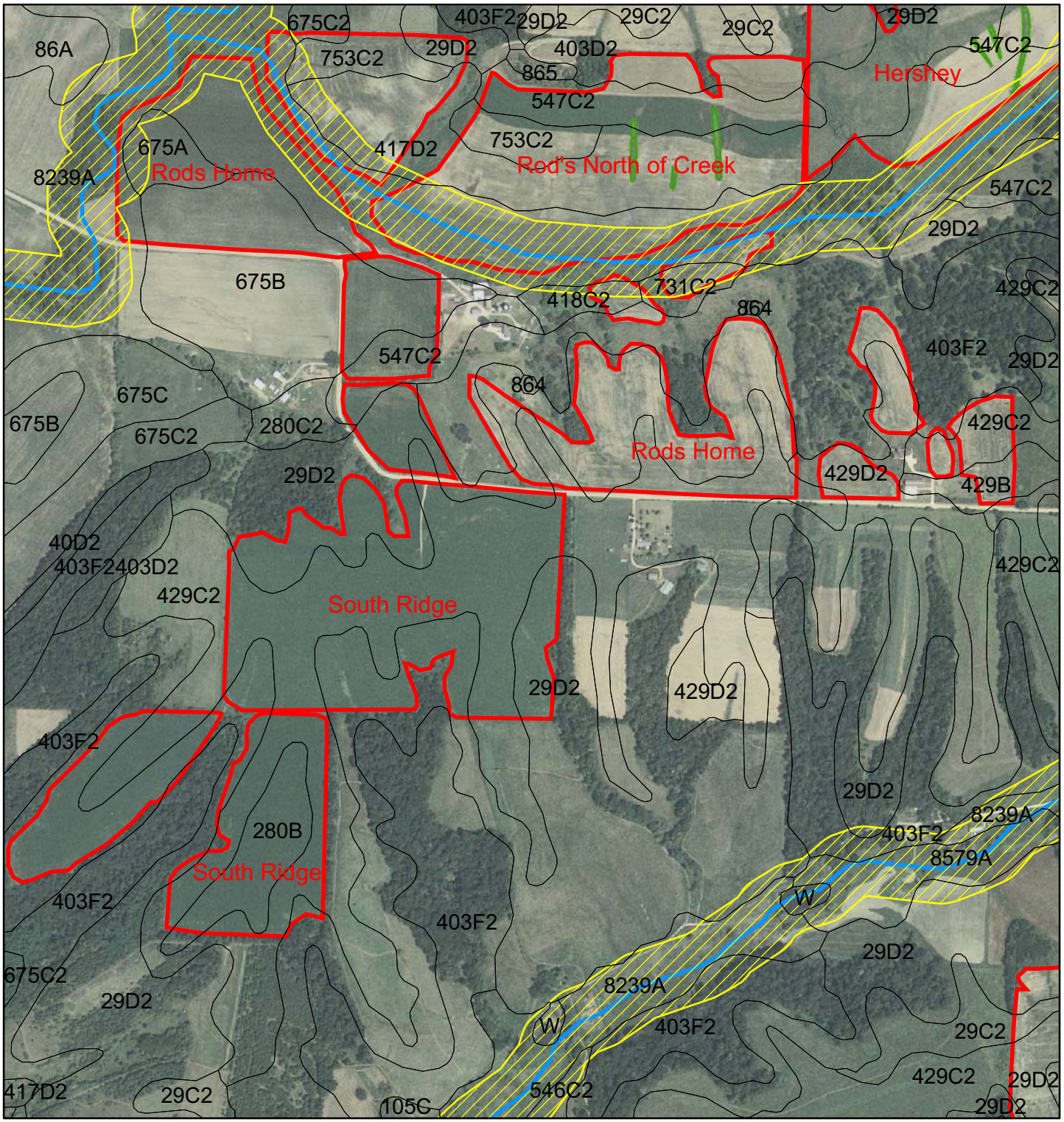


Birchen Farms

Individual Fields Soil Map

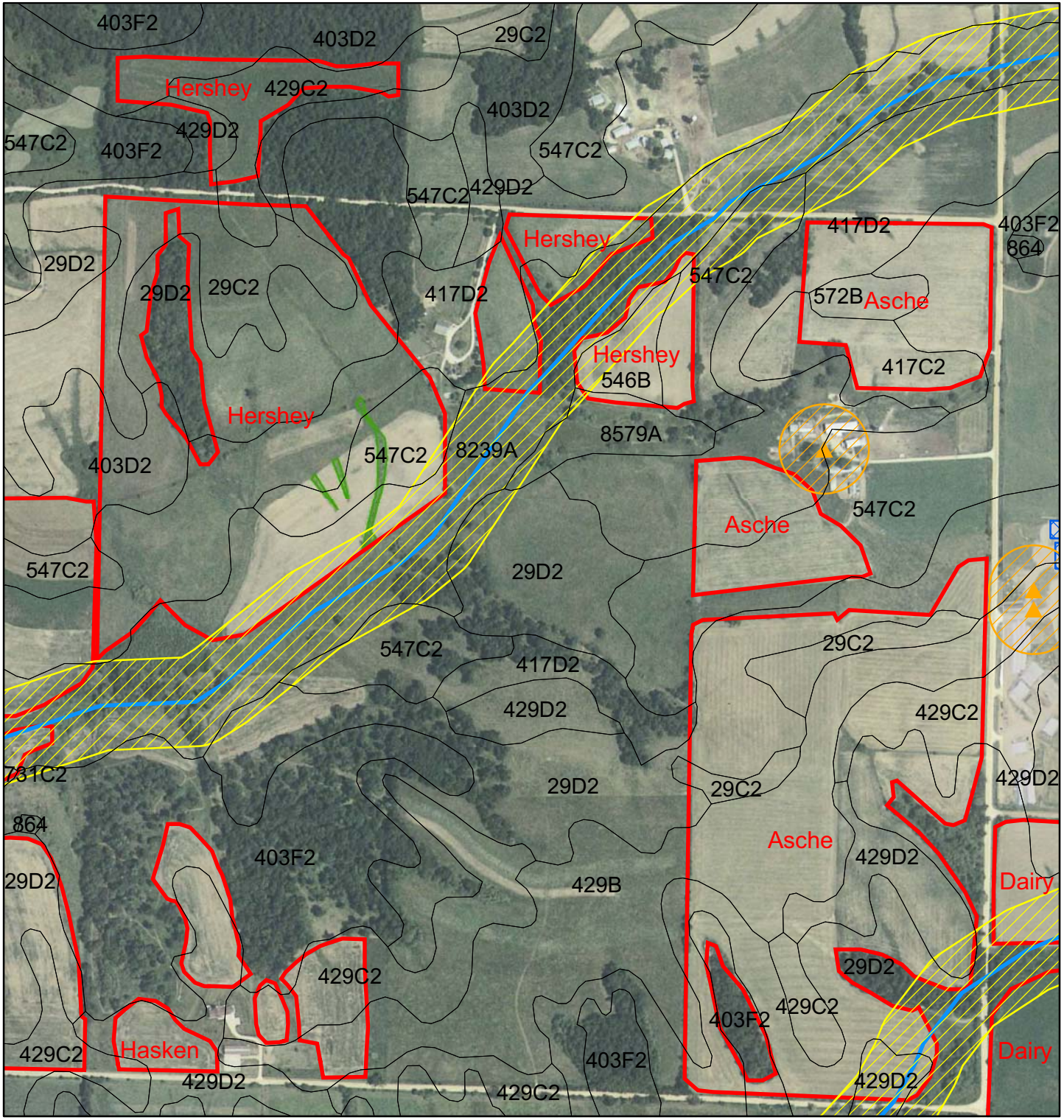
N
W E
S

Legend

- Fields
- Water
- Water Buffer
- Wells
- Well Buffer
- Water Way
- Livestock Facilites
- Livestock Waste Storage

1,600 Feet

Frank & West
Environmental Engineers, Inc.
7226 N. State Route 29
Springfield, IL 62707
Phone: 217/487-7686
Fax: 217/487-7687



Birchen Farms

Individual Fields Soil Map

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- Fields
- Water
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1,250 Feet

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Individual Field Information
Birchen Farms INC.

Field Name:	Hershey	**Total Acres**	73.9
		Non-Spreadable Acres	7.0
Township	Jefferson	**Total Spreadable Acres**	66.9
Section	23		
FSA Farm #	7080	**Predominant Soil Type:**	29D2 Debuque silt loam, 10-18% slopes, eroded
FSA Tract #	4572	**P test**	26
FSA Field #'s	1-9	**K test**	306

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa	Alfalfa
Yield	(bu/acre OR ton/acre)		180	60	7	7	7
N needed (lbs/ac)	lbs/ac		216	60	0	0	0
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		10.5	23.4	18.5	9.3	4.0
Total N Credits	(lb/acre)		10.5	23.4	18.5	9.3	4.0
Crop N Need Minus Credits	(lb/acre)		205.5	36.6	-18.5	-9.3	-4.0
Maintenance P needed *	(lb/acre)		77.4	23.0	84.0	84.0	84.0
Maintenance K needed *	(lb/acre)		50.4	12.0	350.0	350.0	350.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
Hershey		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa	Alfalfa
Storage		Liquid	Liquid	Solid			Liquid
Application Method		Inject	Inject	Broadcast			Broadcast
Storage/Application Method			LINE1	LINE2			LINE1
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		11.90	5.67			11.90
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		17.3	6.5			-0.3
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		9.80	7.67			10.63
Apply at Prate or Nrate?			Nrate	Nrate			Prate
Application Rate to Use	**(1000 gal)**	**10.0**	**17.3**	**6.5**	**0.0**	**0.0**	**10.6**
Total application *(App Rate * Spreadable Acres)*	(gallons)		1,154,772	400			711,023
N applied *(1st Year AvN * App rate)*	(lb/acre)		206	37			127
P applied *(P in manure * App rate)*	(lb/acre)		206	20			84
K applied *(K in manure * App rate)*	(lb/acre)		136	39			191
Additional N Needed	**(lb/acre)**		**0**	**0**	**-19**	**-9**	**-131**
Acres Covered	(acres)		66.9	61.5	0.0	0.0	66.9

Individual Field Information
Birchen Farms INC.

Field Name:	Hasken	**Total Acres**	11.1
		Non-Spreadable Acres	0.0
Township	Jefferson	**Total Spreadable Acres**	11.1
Section	26		
FSA Farm #	5149	**Predominant Soil Type:**	429D2 Palsgrove silt loam, 10-18% slopes, eroded
FSA Tract #	4459	**P test**	0
FSA Field #'s	1, 7, & 12	**K test**	0

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Silage	Oat/ Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa
Yield	(bu/acre OR ton/acre)		60	7	7	7	7
N needed (lbs/ac)	lbs/ac		60	0	0	0	0
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		10.5	5.3	2.6	1.3	0.0
Total N Credits	(lb/acre)		10.5	5.3	2.6	1.3	0.0
Crop N Need Minus Credits	(lb/acre)		49.5	-5.3	-2.6	-1.3	0.0
Maintenance P needed *	(lb/acre)		23.0	84.0	84.0	84.0	84.0
Maintenance K needed *	(lb/acre)		12.0	350.0	350.0	350.0	350.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
Hasken		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Silage	Oat/ Alfalfa	Alfalfa	Alfalfa	Alfalfa	Alfalfa
Storage							Liquid
Application Method							Broadcast
Storage/Application Method							LINE1
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)						11.90
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)						0.0
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)						10.63
Apply at Prate or Nrate?							Prate
Application Rate to Use	**(1000 gal)**	**10.0**	**0.0**	**0.0**	**0.0**	**0.0**	**10.6**
Total application *(App Rate * Spreadable Acres)*	(gallons)						117,706
N applied *(1st Year AvN * App rate)*	(lb/acre)						127
P applied *(P in manure * App rate)*	(lb/acre)						84
K applied *(K in manure * App rate)*	(lb/acre)						191
Additional N Needed	**(lb/acre)**		**50**	**-5**	**-3**	**-1**	**-127**
Acres Covered	(acres)		0.0	0.0	0.0	0.0	11.1

Individual Field Information
Birchen Farms INC.

Field Name:	Asche	**Total Acres**	80.0
		Non-Spreadable Acres	3.4
Township	Jefferson	**Total Spreadable Acres**	76.6
Section	23		
FSA Farm #	5345	**Predominant Soil Type:**	429B Palsgrove silt loam, 2-5% slopes
FSA Tract #	1700	**P test**	59
FSA Field #'s	1-11	**K test**	229

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Alfalfa	Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa
Yield	(bu/acre OR ton/acre)		30	180	60	7	7
N needed (lbs/ac)	lbs/ac		180	216	60	0	0
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	15.9	25.6	12.8	17.6
Total N Credits	(lb/acre)		0.0	15.9	25.6	12.8	17.6
Crop N Need Minus Credits	(lb/acre)		180.0	200.1	34.4	-12.8	-17.6
Maintenance P needed *	(lb/acre)		78.0	77.4	23.0	84.0	84.0
Maintenance K needed *	(lb/acre)		210.0	50.4	12.0	350.0	350.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
Asche		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Alfalfa	Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa
Storage			Liquid	Liquid		Liquid	
Application Method			Inject	Inject		Broadcast	
Storage/Application Method			LINE1	LINE1		LINE1	
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		11.90	11.90		11.90	
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		15.1	16.8		-1.1	
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		9.87	9.80		10.63	
Apply at Prate or Nrate?			Nrate	Nrate		Prate	
Application Rate to Use	**(1000 gal)**	**0.0**	**15.1**	**16.8**	**0.0**	**10.6**	**0.0**
Total application *(App Rate * Spreadable Acres)*	(gallons)		1,158,958	1,288,489		814,471	
N applied *(1st Year AvN * App rate)*	(lb/acre)		180	200		126	
P applied *(P in manure * App rate)*	(lb/acre)		180	133		84	
K applied *(K in manure * App rate)*	(lb/acre)		119	303		191	
Additional N Needed	**(lb/acre)**		**0**	**0**	**34**	**-139**	**-18**
Acres Covered	(acres)		76.6	76.6	0.0	76.6	0.0

Individual Field Information
Birchen Farms INC.

Field Name:	South Ridge	**Total Acres**	83.7
		Non-Spreadable Acres	0.0
Township	Jefferson	**Total Spreadable Acres**	83.7
Section	27		
FSA Farm #	7315 3578 3951	**Predominant Soil Type:**	429C2 Palsgrove silt loam, 5-10% slopes, eroded
FSA Tract #	1713 1 & 2 4	**P test**	58
FSA Field #'s	11	**K test**	237

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Alfalfa	Alfalfa	Silage	Corn	Oat/ Alfalfa	Alfalfa
Yield	(bu/acre OR ton/acre)		7	30	180	60	7
N needed (lbs/ac)	lbs/ac		0	180	216	60	0
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	0.0	15.9	25.6	12.8
Total N Credits	(lb/acre)		0.0	0.0	15.9	25.6	12.8
Crop N Need Minus Credits	(lb/acre)		0.0	180.0	200.1	34.4	-12.8
Maintenance P needed *	(lb/acre)		84.0	78.0	77.4	23.0	84.0
Maintenance K needed *	(lb/acre)		350.0	210.0	50.4	12.0	350.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
South Ridge		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Alfalfa	Alfalfa	Silage	Corn	Oat/ Alfalfa	Alfalfa
Storage				Liquid	Liquid		
Application Method				Inject	Inject		
Storage/Application Method				LINE1	LINE1		
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)			11.90	11.90		
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)			15.1	16.8		
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)			9.87	9.80		
Apply at Prate or Nrate?				Nrate	Nrate		
Application Rate to Use	**(1000 gal)**	**0.0**	**0.0**	**15.1**	**16.8**	**0.0**	**0.0**
Total application *(App Rate * Spreadable Acres)*	(gallons)			1,266,353	1,407,887		
N applied *(1st Year AvN * App rate)*	(lb/acre)			180	200		
P applied *(P in manure * App rate)*	(lb/acre)			119	133		
K applied *(K in manure * App rate)*	(lb/acre)			272	303		
Additional N Needed	**(lb/acre)**		**0**	**0**	**0**	**34**	**-13**
Acres Covered	(acres)		0.0	83.7	83.7	0.0	0.0

Individual Field Information
Birchen Farms INC.

Field Name:	Rod's Home East	**Total Acres**	45.0
		Non-Spreadable Acres	9.0
Township	Jefferson	**Total Spreadable Acres**	36.0
Section	22 & 27		
FSA Farm #	7315	**Predominant Soil Type:**	429C2 Palsgrove silt loam, 5-10% slopes, eroded
FSA Tract #	1713	**P test**	142
FSA Field #'s	1, 4-9	**K test**	468

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Alfalfa	Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa
Yield	(bu/acre OR ton/acre)		30	180	60	7	7
N needed (lbs/ac)	lbs/ac		180	216	60	0	0
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	15.9	25.6	12.8	6.4
Total N Credits	(lb/acre)		0.0	15.9	25.6	12.8	6.4
Crop N Need Minus Credits	(lb/acre)		180.0	200.1	34.4	-12.8	-6.4
Maintenance P needed *	(lb/acre)		78.0	77.4	23.0	84.0	84.0
Maintenance K needed *	(lb/acre)		210.0	50.4	12.0	350.0	350.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
Rod's Home East		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Alfalfa	Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa
Storage			Liquid	Liquid			Liquid
Application Method			Inject	Inject			Broadcast
Storage/Application Method			LINE1	LINE1			LINE1
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		11.90	11.90			11.90
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		15.1	16.8			-0.5
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		9.87	9.80			10.63
Apply at Prate or Nrate?			Nrate	Nrate			Prate
Application Rate to Use	**(1000 gal)**	**0.0**	**15.1**	**16.8**	**0.0**	**0.0**	**10.6**
Total application *(App Rate * Spreadable Acres)*	(gallons)		544,538	605,398			382,680
N applied *(1st Year AvN * App rate)*	(lb/acre)		180	200			126
P applied *(P in manure * App rate)*	(lb/acre)		180	133			84
K applied *(K in manure * App rate)*	(lb/acre)		119	303			191
Additional N Needed	**(lb/acre)**		**0**	**0**	**34**	**-13**	**-133**
Acres Covered	(acres)		36.0	36.0	0.0	0.0	36.0

Individual Field Information
Birchen Farms INC.

Field Name:	Rod's Home West	**Total Acres**	25.0
		Non-Spreadable Acres	9.0
Township	Jefferson	**Total Spreadable Acres**	16.0
Section	22 & 27		
FSA Farm #	7315	**Predominant Soil Type:**	675B Greenbush silt loam, 2-5% slopes
FSA Tract #	1713	**P test**	142
FSA Field #'s	1, 4-9	**K test**	468

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Silage	Silage	Silage	Silage	Silage	Silage
Yield	(bu/acre OR ton/acre)		30	30	30	30	30
N needed (lbs/ac)	lbs/ac		180	180	180	180	180
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	15.9	22.4	25.1	26.2
Total N Credits	(lb/acre)		0.0	15.9	22.4	25.1	26.2
Crop N Need Minus Credits	(lb/acre)		180.0	164.1	157.6	154.9	153.8
Maintenance P needed *	(lb/acre)		78.0	78.0	78.0	78.0	78.0
Maintenance K needed *	(lb/acre)		210.0	210.0	210.0	210.0	210.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
Rod's Home West		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Silage	Silage	Silage	Silage	Silage	Silage
Storage			Liquid	Liquid	Liquid	Liquid	Liquid
Application Method			Inject	Inject	Inject	Inject	Inject
Storage/Application Method			LINE1	LINE1	LINE1	LINE1	LINE1
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		11.90	11.90	11.90	11.90	11.90
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		15.1	13.8	13.2	13.0	12.9
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		9.87	9.87	9.87	9.87	9.87
Apply at Prate or Nrate?		**0.0**	Nrate	Nrate	Nrate	Nrate	Nrate
Application Rate to Use	**(1000 gal)**		**15.1**	**13.8**	**13.2**	**13.0**	**12.9**
Total application *(App Rate * Spreadable Acres)*	(gallons)		242,017	220,662	211,869	208,249	206,758
N applied *(1st Year AvN * App rate)*	(lb/acre)		180	164	158	155	154
P applied *(P in manure * App rate)*	(lb/acre)		180	109	105	103	102
K applied *(K in manure * App rate)*	(lb/acre)		119	248	238	234	233
Additional N Needed	**(lb/acre)**		**0**	**0**	**0**	**0**	**0**
Acres Covered	(acres)		16.0	16.0	16.0	16.0	16.0

Individual Field Information
Birchen Farms INC.

Field Name:	Rod's North of Creek	**Total Acres**	66.4
		Non-Spreadable Acres	18.0
Township	Jefferson	**Total Spreadable Acres**	48.4
Section	22 & 27		
FSA Farm #	7315	**Predominant Soil Type:**	417D2 Derinda silt loam, 10-18% slopes, eroded
FSA Tract #	1713	**P test**	142
FSA Field #'s	2 & 3	**K test**	468

Individual Field Application & Nutrients

Crop needs	**Year**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Crop		Silage	Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa
Yield	(bu/acre OR ton/acre)		30	180	60	7	7
N needed (lbs/ac)	lbs/ac		180	216	60	0	0
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		10.5	20.2	27.4	13.7	6.2
Total N Credits	(lb/acre)		10.5	20.2	27.4	13.7	6.2
Crop N Need Minus Credits	(lb/acre)		169.5	195.8	32.6	-13.7	-6.2
Maintenance P needed *	(lb/acre)		78.0	77.4	23.0	84.0	84.0
Maintenance K needed *	(lb/acre)		210.0	50.4	12.0	350.0	350.0

** Maintenance P & K needed are listed for calculation & uptake purposes only*

*** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor*

Birchen Farms INC.							
Rod's North of Creek		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Manure Application		Silage	Silage	Corn	Oat/ Alfalfa	Alfalfa	Alfalfa
Storage			Liquid	Liquid			Liquid
Application Method			Inject	Inject			Broadcast
Storage/Application Method			LINE1	LINE1			LINE1
1st Year Available N *(Am-N * N retention due to app method) + (OrgN * .35)*	(lb/1000 gal)		11.90	11.90			11.90
N App Rate *(Crop N Need / 1st Yr Av N)*	(1000 gal/acre)		14.2	16.5			-0.5
P App Rate *(Maintenance P / P in analysis)*	(1000 gal/acre)		9.87	9.80			10.63
Apply at Prate or Nrate?			Nrate	Nrate			Prate
Application Rate to Use	**(1000 gal)**	**10.0**	**14.2**	**16.5**	**0.0**	**0.0**	**10.6**
Total application *(App Rate * Spreadable Acres)*	(gallons)		689,253	796,175			514,527
N applied *(1st Year AvN * App rate)*	(lb/acre)		170	196			127
P applied *(P in manure * App rate)*	(lb/acre)		170	130			84
K applied *(K in manure * App rate)*	(lb/acre)		113	296			191
Additional N Needed	**(lb/acre)**		**0**	**0**	**33**	**-14**	**-133**
Acres Covered	(acres)		48.4	48.4	0.0	0.0	48.4