Agri Analysis, Inc.

PO Box 483 Leola, PA 17540 (Phone) 717-656-9326

INVOICE # 96574
RECEIVED Apr 18, 2005
REPORTED Apr 20, 2005

CUSTOMER:
Company Name
Company Address

GROWER:
Grower Name/Address

Soil Analysis Report

FIELD DATA						NUTRIENT REMOVAL			LIME AND FERTILIZER RECOMMENDATIONS				
Your Field I.D.	Acres	Lab Number	Last Crop Grown	Next Crop	Yield Goal	Nutrient Removal of Next Crop Nitrogen	P205	K20	LIMESTONE lbs/acre	NITROGEN lbs/acre	P2O5 lbs/Acre	K2O lbs/Acre	MgO lbs/Acre
#1	5	4867	CORN GRAIN	CORN GRAIN	150 BU	160	60	50	2000	160	0	0	0
#2	6	4868	SOYBEANS GRAIN	CORN GRAIN	150 BU	160	60	50	None	160	0	0	0
3	4	4869	CORN GRAIN	SOYBEANS GRAIN	50 BU	190	60	70	None	20	0	0	0
4	8	4870	CORN GRAIN	ALFA SEEDING	4 TON	200	60	200	2000	20	0	30	0
5	5	4871	ALFA MAINT	CORN SILAGE	25 TON	180	100	180	None	180	0	90	0

LABORATORY DATA

Your Field I.D.	CEC	Acidity	SOIL pH	SMP Buffer	% O.M.	Lbs/A - - % Saturation (K, Mg, Ca) POTASSIUM (K)	MAGNESIUM (Mg)	CALCIUM (Ca)	Phos. lbs/A	K ppm	Mg ppm	Ca ppm	P ppm	P2O5 lbs/A	K2O lbs/A	MgO lbs/A
#1	8.9		6.3			436 (6.3%)	454 (21.3%)	2572 (72.2%)	236	218	227	1286	118	543	524	727
#2	8.3		6.7	6.98		[illegible]	[illegible]	[illegible]	182	177	182	1257	91	420	425	581
3	10.7		6.6						328	324	284	1509	164	754	777	908
4	9.3		6.7	6.98					229	192	226	1382	114	526	461	722
5	8.8		6.6						140	148	254	1264	70	322	354	813

TRACE MINE

Your Field I.D.	(Cu) ppm	(Fe) ppm	(Mn) ppm
#1	1.9	200.6	136.4
#2	1.8	182.9	134.9
3	3.2	207.7	173.6
4	2.4	196.6	178.8
5	1.8	207.4	156.8

P ppm
118
91
164
114
70

* Mineral extraction method is Mehlich 3 (ICP)

* Limestone rec. is based on 100% calcium carbonate equivalent.

Your Field I.D.	Soil PH (2–8)	K20 (Potash) (0–1000 lbs/A)	MgO (Magnesium oxide) (0–1200 lbs/A)
#1		524	727
#2		425	581
3		777	908
4		461	722
5		354	813

Graph Legend:
- Desired Level
- Actual Level

soils. Use as guideline only.

lb/A

BROOKSIDE LABORATORIES, INC.

8 033-50

SOIL AUDIT AND INVENTORY REPORT

Name Brookside Laboratories, Inc. City New Knoxville State OH

Independent Consultant Home Office Date 05/03/2000

Sample Location		Farm	A				
Sample Identification							
Lab No.			0002-2				
Total Exchange Capacity (M.E./100 g)			14.90				
pH (H_2O 1:1)		SMP Buffer	6.8 6.5				
Organic Matter (humus) %			3.18				
Estimated Nitrogen Release		lb/A	82				
ANIONS	SOLUBLE SULFUR	p.p.m.	16				
PHOSPHORUS	EASILY EXTRACTABLE	lb/A P as P_2O_5 p.p.m. of P	238 52				
	BRAY II	lb/A P as P_2O_5 p.p.m. of P					
	OLSEN	lb/A P as P_2O_5 p.p.m. of P					
EXCHANGEABLE CATIONS	CALCIUM:	lb/A p.p.m.	4364 2182				
	MAGNESIUM:	lb/A p.p.m.	468 234				
	POTASSIUM:	lb/A p.p.m.	228 114				
	SODIUM:	lb/A p.p.m.	34 17				
BASE SATURATION PERCENT							
	Calcium	%	73.22				
	Magnesium	%	13.09				

OTHER TESTS

ANIONS

PHOSPHORUS

EASILY EXTRACTABLE lb/A P as P_2O_5 238

p.p.m. of P 52

BRAY II lb/A P as P_2O_5

p.p.m. of P

OLSEN lb/A P as P_2O_5

p.p.m. of P

CALCIUM lb/A 4364

Soil Analysis Report

Spectrum Analytic Inc.
P.O. Box 639 - 1087 Jamison Road
Washington C.H., OH 43160
www.spectrumanalytic.com

Report To	Prepared For	
SPECTRUM ANALYTIC INC PO BOX 639 WASHINGTON CH, OH 43160	BICKFORD FARMS 642 LEICESTER RD CALEDONIA, NY 14423	Sampled 01-04-2006 Tested 01-06-2006

Sample Number	Lab Number	pH		Organic	Analysis Result* and Rating**				CEC	Base Saturation			Mehlich-3 PPM and Rating**					
		Soil pH	Buffer pH	Matter %	Phosphorus P	Potassium K	Magnesium Mg	Calcium Ca		K %	Mg %	Ca %	Sulfur S	Boron B	Zinc Zn	Iron Fe	Copper Cu	Manganese Mn
H-3 WEST	B00338	6.9	7.0	1.8	55 G	85 M	156 G	1303 G	7.3	2.5	15.7	67.2	32 G		2 M			103 G
H-3 EAST	B00339	6.8	6.9	1.2	85 H	86 M	103 G	1442 G	8.1	2.3	14.7	66.4	35 G		3 M			127 G
112 SOUTH	B00340	5.5	6.6	2.0	94 H	119 M	111 M	812 M	8.9	2					3 M			62 G
112 NORTH	B00341	6.6	7.1	1.1	78 G	59 L	151 G	1254 G	7.4	1					3 M			87 G
111-B	B00342	6.4	7.0	2.1	90 H	90 M	219 G	1077 G	5.8	3					3 M			95 G
114	B00343	6.9	7.0	2.2	22 L	72 L	281 G	1869 G	10.8	1					3 M			101 G
115	B00344	7.0		3.5	26 M	144 M	312 G	2630 H	14.3	2					4 G			119 G
14	B00345	7.2		1.2	58 G	43 L	289 H	1330 G	7.6	1					4 G			194 H
16	B00346	6.9	7.0	1.9	157 V	168 G	207 G	1169 G	7.3	4					4 G			118 G
15 AB	B00347	6.9	7.0	1.6	127 H	118 M	216 G	1464 G	8.6	3					5 G			123 G
15 CD	B00348	6.6	7.0	2.0	147 V	161 G	240 G	1569 G	10.0	3					5 G			83 G
15 EF	B00349	6.6	7.1	1.1	105 H	108 M	139 G	857 G	5.6	4					2 M			81 G
19	B00350	6.6	7.1	3.2	180 V	394 V	270 G	1744 G	11.7	7					6 G			23 G
20	B00351	6.6	7.1	2.0	299 V	335 H	166 M	2244 G	12.9	5					6 G			28 G

Phosphorus P
55 G
85 H
94 H
78 G
90 H
22 L
26 M
58 G
157 V
127 H
147 V
105 H
180 V
299 V

* Results: P, K, Mg and Ca are extracted by Mehlich-3 (ICP) and are reported in ppm
Ratings: L=Low M=Medium G=Good H=High V=Very High

Analyzed by Spectrum Analytic Inc.
www.spectrumanalytic.com

HID:0701-0143-7840-0008

Using the MMM Manure Application Rate Tables

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A	No Incorporation		
Corn Silage After Alfalfa (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		
Grass Hay (4 T/A)	Liquid Dairy	Summer	4000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Spring	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Liquid Dairy	Fall	9000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Fall	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Winter	25 ton/A	Cover Crop		
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		

Step 1: Find the table in the back of the MMM (Appendix 1) for:

1. Rate basis N or P
2. Type of manure

Step 2: Find the crop in the table

Appendix 1 (p.7)

Liquid Dairy
Nitrogen Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	8000	0	10000	0	12000	0	14000	0	14
Spring Incorporation within 1 week	11000	0	14000	0	16000	15	16000	45	10
Spring No Incorporation	16000	20	16000	50	16000	80	16000	110	6
Fall	16000	20	16000	50	16000	80	16000	110	6
Winter with cover crop	5000	55	5000	85	5000	115	5000	145	11
Winter No cover crop	5000	80	5000	110	5000	140	5000	170	6

Corn Grain after Alfalfa	Yield Groups (bu/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	100-130		131-160		161-190		191-220		
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	4000	0	5000	0	6000	0	8000	0	14
Spring Incorporation within 1 week	5000	0	7000	0	9000	0	11000	0	10
Spring No Incorporation	9000	0	13000	0	16000	0	16000	20	6
Fall	9000	0	13000	0	16000	0	16000	20	6
Winter with cover crop	4000	0	5000	15	5000	35	5000	55	11
Winter No cover crop	5000	20	5000	40	5000	60	5000	80	6

Corn Grain after Soybeans	Yield Groups (bu/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	100-130		131-160		161-190		191-220		
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	5000	0	6000	0	8000	0	9000	0	14
Spring Incorporation within 1 week	7000	0	9000	0	11000	0	13000	0	10
Spring No Incorporation	13000	0	16000	0	16000	20	16000	40	6
Fall	13000	0	16000	0	16000	20	16000	40	6
Winter with cover crop	5000	15	5000	35	5000	55	5000	75	11
Winter No cover crop	5000	40	5000	60	5000	80	5000	100	6

Corn Silage	Yield Groups (ton/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	9000	0	11000	0	14000	0	16000	0	14
Spring Incorporation within 1 week	13000	0	16000	0	16000	35	16000	65	10
Spring No Incorporation	16000	40	16000	70	16000	100	16000	130	6
Fall	16000	40	16000	70	16000	100	16000	130	6
Winter with cover crop	5000	75	5000	105	5000	135	5000	165	11
Winter No cover crop	5000	100	5000	130	5000	160	5000	190	6

Corn Silage after Alfalfa	Yield Groups (ton/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	5000	0	6000	0	8000	0	9000	0	14
Spring Incorporation within 1 week	7000	0	9000	0	11000	0	13000	0	10
Spring No Incorporation	13000	0	16000	0	16000	20	16000	40	6
Fall	13000	0	16000	0	16000	20	16000	40	6
Winter with cover crop	5000	15	5000	35	5000	55	5000	75	11
Winter No cover crop	5000	40	5000	60	5000	80	5000	100	6

1. Find the yield at the top
2. Find the application method in the left column
3. Read the rate from the table

Corn Silage	Yield Groups (ton/A)								Manure Application Rate Adjustment
	17-21		22-25		26-29		30-33		For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	9000	0	11000	0	14000	0	16000	0	14
Spring Incorporation within 1 week	13000	0	16000	0	16000	35	16000	65	10
Spring No Incorporation	16000	40	16000	70	16000	100	16000	130	6
Fall	16000	40	16000	70	16000	100	16000	130	6
Winter with cover crop	5000	75	5000	105	5000	135	5000	165	11
Winter No cover crop	5000	100	5000	130	5000	160	5		

No more than 9000 gal/A of liquid manure can be applied in a single application.

Spilt higher rates into multiple applications.

Using the MMM Manure Application Rate Tables

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A C	No Incorporation		
Corn Silage After Alfalfa (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		
Grass Hay (4 T/A)	Liquid Dairy	Summer	4000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Spring	25 ton/A			
Corn Silage (23 T/A)	Liquid Dairy	Fall	9000 gal/A			
Corn Silage (23 T/A)	Solid Dairy	Fall	25 ton/A			
Corn Silage (23 T/A)	Solid Dairy	Winter	25 ton/A			
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		

Farmer's normal rate = 9000 gal/A.

This is less than the table rate of 16,000 gal/A.

Therefore the normal rate is OK.

Corn Silage	Yield Groups (ton/A								Manure Application Rate Adjustment For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	9000	0	11000	0	14000	0	16000	0	14
Spring Incorporation within 1 week	13000	0	16000	0	16000	35	16000	65	10
Spring No Incorporation	16000	40	16000	70	16000	100	16000	130	6
Fall	16000	40	16000	70	16000	100	16000	130	6
Winter with cover crop	5000	75	5000	105	5000	135	5000	165	11
Winter No cover crop	5000	100	5000	130	5000	160	5000	190	6

- Allowable Rate = 16,000 gal/A + 70 lb N/A
- **Planned Rate = 9000 gal/A**

- Difference = 7000 gal/A x 6 lb N/1000 gal = 42 lb additional fertilizer N required per acre
- **Total Fertilizer Required = 70 + 42 = 112 lb N/A**

Using the MMM Manure Application Rate Tables

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A C	No Incorporation	112 lb N/A	All Fields
Corn Silage After Alfalfa (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		
Grass Hay (4 T/A)	Liquid Dairy	Summer	4000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Spring	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Liquid Dairy	Fall	9000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Fall	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Winter	25 ton/A	Cover Crop		
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		

Using the MMM Manure Application Rate Tables

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A C	No Incorporation	112 lb N/A	All Fields
Corn Silage After Alfalfa (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		
Grass Hay (4 T/A)	Liquid Dairy	Summer	4000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Spring	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Liquid Dairy	Fall	9000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Fall	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Winter	25 ton/A	Cover Crop		
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		

Winter Application Rates

- All winter application rates are capped at the MMM allowances
  - Liquid Manure - 5000 gallons per acre
  - Non-Poultry Dry Manure – 20 tons per acre
  - Poultry Dry Manure – 3 tons per acre
- No need for fertilizer adjustment

Solid Dairy

Nitrogen Based Manure Application Rates

Appendix 1 (p.5)

Corn Silage	**Yield Groups (ton/A)**								For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	25	0	30	10	40	0	45	0	5
Spring Incorporation within 1 week	35	0	45	0	50	15	50	45	4
Spring No Incorporation	50	30	50	60	50	90	50	120	2
Fall	50	30	50	60	50	90	50	120	2
Winter with cover crop	20	50	20	80	20	110	20	140	4
Winter No cover crop	20	90	20	120	20	150	20	180	2

Using the MMM Manure Application Rate Tables

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A C	No Incorporation	112 lb N/A	All Fields
Corn Silage After Alfalfa (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		
Grass Hay (4 T/A)	Liquid Dairy	Summer	4000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Spring	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Liquid Dairy	Fall	9000 gal/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Fall	25 ton/A	No Incorporation		
Corn Silage (23 T/A)	Solid Dairy	Winter	20 ton/A C	Cover Crop	80 lb N/A	Fields 3-8, 13-15
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 gal/A	Inc. < 1 Week		

The farmer's normal rate would not be acceptable for this crop group because of the winter application rate limit.

Winter Application Worksheet (p.5)

Field Identification	Type of Manure (from the manure application charts)	Winter Season Application Rate	Percentage of Crop Residue	Type of Cover Crop (if applicable)	Field Slope Percentage
22	*Solid dairy*	*20 ton/acre*	*NA*	*Grass Hay*	*3-8%*

Example

MMP Instructions Example (p.9)

Complete these two columns left blank earlier.

Using the MMM Manure Application Rate Tables

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 Gal/A C	No Incorporation	112 lb N/A	All Fields
Corn Silage (23 T/A)	Liquid Dairy	Spring	9000 Gal/A C	Inc. < 1 Week	42 lb N/A	All Fields
Corn Silage (23 T/A)	Liquid Dairy	Fall	9000 Gal/A C	No Incorporation	112 lb N/A	All Fields
Corn Silage (23 T/A)	Solid Dairy	Spring	25 ton/A C	No Incorporation	112 lb N/A	All Fields
Corn Silage (23 T/A)	Solid Dairy	Fall	25 ton/A C	No Incorporation	110 lb N/A	All Fields
Corn Silage (23 T/A)	Solid Dairy	Winter	20 ton/A C	Cover Crop	80 lb N/A	Fields 3-8, 13-15
Corn Silage After Alfalfa (23 T/A)	Liquid Dairy	Spring	9000 Gal/A C	Inc. < 1 Week	0 lb N/A	All Fields
Grass Hay (4 T/A)	Liquid Dairy	Summer	4000Gal/A C	No Incorporation	212 lb N/A	All Fields

Manure Management Plan Exercise

COMPLETE PLANNED APPLICATION RATES, FERTILIZER & FIELDS

MANURE MANAGEMENT PLAN SUMMARY

Use Additional Sheets as Necessary

(See Pages 10-12 of Manure Management Guidance Instructions)

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)

Manure Management Plan Summary (p.6)

MANURE MANAGEMENT PLAN SUMMARY

Use Additional Sheets as Necessary
(See Instructions on Pages 10-12)

MMP Instructions Example (p.12)

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI * (d)	Incorporation Timing (e)	Commercial Fertilizer Application Rate (f)	Fields where this crop group can be used (g)
Corn Silage 23 tons	*Liquid dairy*	*Spring*	*9,000 gallons C*	*Unincorporated*	*110 lbs. N*	*1-25*
Corn Silage after alfalfa 23 tons	*Liquid dairy*	*Spring*	*9,000 gallons C*	*Unincorporated*	*42 lbs. N*	*1-25*
Corn Silage 23 tons	*Liquid dairy*	*Fall*	*9,000 gallons C*	*Unincorporated*	*110 lbs. N*	*1-25*
Corn Silage 23 tons	*Solid dairy*	*Fall*	*25 tons C*	*Unincorporated*	*110 lbs. N*	*1-25*
Grass Hay 5 tons	*Liquid Dairy*	*Spring*	*7,000 gallons C*	*Unincorporated*	*190 lbs. N*	*1-25*
Grass Hay 5 tons	*Liquid Dairy*	*Fall*	*7,000 gallons C*	*Unincorporated*	*190 lbs. N*	*1-25*
Grass Hay 5 tons	*Solid Dairy*	*Winter*	*20 tons C*	*Unincorporated*	*150 lbs. N*	*22*

Example

Nutrient Balance Sheets (NBS)

- Nutrient Balance Sheets may be used instead of the Manure Application Rate Tables
- Farm and crop specific
  - Better utilize manure to meet crop nutrient needs
  - Reduces need to purchase fertilizer
- Nutrient Balance Sheets
  - Act 38 Nutrient Balance Sheets
    - Paper or Excel spreadsheet versions
    - Nutrient Balance Worksheet User Guide
  - **MMP Nutrient Balance Sheets**
    - **MMP Balance Sheet User Guide**

Manure Management Plan
Nutrient Balance Worksheet

Crop Group	Yield	Fields where this crop group and manure group can be used.

Manure Rate Planning Basis (check planning option)	OPTION 1 P Removal	OPTION 2 N Based	OPTION 3 P Index
	• Crop Phosphorus Removal Rates • No soil tests required or • Fields with soil tests > 200 ppm P	• Nitrogen Based Rates • Soil tests required • Fields with soil test < 200 ppm P	• P Removal or N Based Rates • Soil tests required • Determined by required P index evaluation of each field
	(Use the P_2O_5 column to determine acceptable rate)	(Use the N column to determine acceptable rate)	(Use appropriate column based on the P index to determine acceptable rate)

Manure Group	Application Season	Incorporation Timing

Completion of N column required for all options; P_2O_5 column is optional for N based rates; K_2O is optional for all rates.

	N	P_2O_5	K_2O
A) Recommendation or Removal (lb/A) N – Soil Test or Tables 1 & 2 (AG Table 1.2-6;1.2-8) P_2O_5 & K_2O – Soil Test or Table 3 (AG Table 1.2-9)			
B) Fertilizer Applied (lb/A) (Regardless of Manure e.g. Starter)			
C) Other Organic Sources Applied (lb/A) (e.g. Biosolids, Other Manure)			
D) Residual Manure N (lb/A) Table 4 (AG Table 1.2-14B)			
E) Previous Legume N (lb/A) Table 5 (AG Table 1.2-7) or Soil Test Report			
F) Net Nutrient Requirement (lb/A) (A – B – C – D – E)			
G) Manure Nutrient Content (lb/ton or lb/1000gal) Table 6 (AG Table 1.2-13) or Manure Analysis Report			
H) Nitrogen Availability Factor Table 7 (AG Table 1.2-14A)			
I) Available Nitrogen (lb/ton or lb/1000gal) (G x H)			
J) Balanced Manure Rate (tons/A or gallons/A) For N: (F ÷ I) For P: (F ÷ G)			
K) Planned Manure Rate (tons/A or gallons/A) Must be less than or equal to the appropriate Balanced Rate for the Manure Rate Planning Basis being used			

The "Nutrient Balance at Planned Rate" below is used to determine additional fertilizer needs at the planned manure rate. The N column must be completed to determine additional nitrogen (N) fertilizer needs. Completion of the P_2O_5 and K_2O columns is optional and should be used to determine additional P_2O_5 and K_2O fertilizer needs **ONLY** if soil test recommendations were used in (Row A).

L) Nutrients Applied at Planned Rate (lb/A) For N: (K x I) For P & K: (K x G)			
M) Nutrient Balance at Planned Rate (lb/A) (F - L) (Indicate short or excess)			