

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 4 Field Name 4 Field Acres 9.80 Application Acres 8.21
Crop Year 2011 Crop Corn Silage Yield Goal 25 Planned Application Acres 8.21

Nitrogen Phosphorus Potassium

N

P₂O₅

K₂O

Crop Removal per bushel
Crop Removal(needs) /acre

6.00
150

2.65
66

7.00
175

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0

0

0

LMFA 900.803 m) (7)

Legume

0

Corn Silage
Previous Crop

LMFA 900.803 m) (7)

Manure Applications 2008
2009
2010

0
0
0

Mineralization Rate = 12.5 %
Mineralization Rate = 25 %
Mineralization Rate = 50 %

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

Total Nitrogen Credits

0

LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

Crop Needs after Credits

150

66

175

LMFA 900.803 m) (6)

Sample Results From:

Book

If Book: Source MWPS 18

Manure Source: Pen Pack

9.0

3.0

6.0

Plant Ammonia Nitrogen / ton

4.0

Manure Application Method

Broadcast Solid, incorporated within 12 hours

Ammonia Loss During Application

3%

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / ton

5.13

Application Rate Based on

Tons/Acre

Nitrogen

29.2

LMFA 900.803 m) (8)

Phosphorus

22.1

Current Bray P1 Soil Test lbs/Acre

0

LMFA 900.803 l)

At Nitrogen Rate P1 Buildup Equals

2.4

of Apps at N rate to reach 300 P1

126

Target Application Rate Per Acre

29.2

Tons

Nitrogen Rate

Target Application Rate Entire Field

240

Tons

Nitrogen Phosphorus Potassium

Available Manure Nutrients Applied
Available Nutrients from all sources
Over (Under) application of nutrients

150
150
0

88
88
21

175
175
0

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year Nitrogen Credit/Acre Crop Year Mineralization Rate

Second Year Following Application

18

2012

50% of 1.25 / ton

Third Year Following Application

9

2013

25% of 1.25 / ton

Fourth Year Following Application

5

2014

12.5% of 1.25 / ton

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID:

Field # Field Name Field Acres Application Acres
 Crop Year Crop Yield Goal Planned Application Acres

	Nitrogen	Phosphorus	Potassium
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	N	P ₂ O ₅	K ₂ O
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Crop Removal per bushel	6.00	2.65	7.00
Crop Removal(needs) /acre	150	66	175

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0	0	0
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LMFA 900.803 m) (7)

Legume

0	Corn Silage	
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LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

0	Mineralization Rate = 12.5 %	
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LMFA 900.803 m) (7)

2009

0	Mineralization Rate = 25 %	
---	----------------------------	--

LMFA 900.803 m) (7)

2010

0	Mineralization Rate = 50 %	
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LMFA 900.803 m) (7)

Total Nitrogen Credits

0		
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LMFA 900.803 m) (7)

	Nitrogen	Phosphorus	Potassium
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150	66	175
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LMFA 900.803 m) (6)

Crop Needs after Credits

Sample Results From:

Book

If Book: Source MWPS 18

Manure Source: Pen Pack

9.0	3.0	6.0
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Plant Ammonia Nitrogen / ton

4.0		
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Manure Application Method

Broadcast Solid, incorporated within 12 hours

Ammonia Loss During Application

%

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / ton

5.13		
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Application Rate Based on

Tons/Acre

Nitrogen

29.2		
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LMFA 900.803 m) (8)

Phosphorus

22.1		
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Current Bray P1 Soil Test lbs/Acre

341		
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LMFA 900.803 I)

At Nitrogen Rate P1 Buildup Equals

2.4		
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of Apps at N rate to reach 300 P1

0		
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Target Application Rate Per Acre

22.1		
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Tons

Phosphorus Rate

Target Application Rate Entire Field

1,465		
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Tons

	Nitrogen	Phosphorus	Potassium
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Available Manure Nutrients Applied

113	66	133
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Available Nutrients from all sources

113	66	133
-----	----	-----

Over (Under) application of nutrients

-37	0	-43
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Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
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Second Year Following Application

14		
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2012

50% of 1.25 / ton

Third Year Following Application

7		
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2013

25% of 1.25 / ton

Fourth Year Following Application

3		
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2014

12.5% of 1.25 / ton

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID:

Field # Field Name Field Acres Application Acres
 Crop Year Crop Yield Goal Planned Application Acres

	Nitrogen	Phosphorus	Potassium
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	N	P ₂ O ₅	K ₂ O
Crop Removal per bushel	6.00	2.65	7.00
Crop Removal(needs) /acre	150	66	175

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
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LMFA 900.803 m) (7)

Legume

<input type="text" value="0"/>	<input type="text" value="Corn Silage"/>	
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LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

<input type="text" value="0"/>

Mineralization Rate = 12.5 %

LMFA 900.803 m) (7)

2009

<input type="text" value="0"/>

Mineralization Rate = 25 %

LMFA 900.803 m) (7)

2010

<input type="text" value="0"/>

Mineralization Rate = 50 %

LMFA 900.803 m) (7)

Total Nitrogen Credits

<input type="text" value="0"/>

LMFA 900.803 m) (7)

Nitrogen	Phosphorus	Potassium
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<input type="text" value="150"/>	<input type="text" value="66"/>	<input type="text" value="175"/>
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LMFA 900.803 m) (6)

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

<input type="text" value="9.5"/>	<input type="text" value="4.8"/>	<input type="text" value="7.8"/>
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Plant Ammonia Nitrogen / 1000 gallons

<input type="text" value="5.7"/>

Manure Application Method

Ammonia Loss During Application

%

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

<input type="text" value="5.08"/>

Application Rate Based on

Gallons/Acre

Nitrogen

<input type="text" value="29,513.0"/>

LMFA 900.803 m) (8)

Phosphorus

<input type="text" value="13,802.1"/>

Current Bray P1 Soil Test lbs/Acre

<input type="text" value="121"/>

LMFA 900.803 l)

At Nitrogen Rate P1 Buildup Equals

<input type="text" value="8.4"/>

of Apps at N rate to reach 300 P1

<input type="text" value="21"/>

Target Application Rate Per Acre

<input type="text" value="29,513.0"/>

Gallons

Nitrogen Rate

Target Application Rate Entire Field

<input type="text" value="1,188,195"/>
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Gallons

Nitrogen	Phosphorus	Potassium
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Available Manure Nutrients Applied

<input type="text" value="150"/>

<input type="text" value="142"/>

<input type="text" value="230"/>

Available Nutrients from all sources

<input type="text" value="150"/>

<input type="text" value="142"/>

<input type="text" value="230"/>

Over (Under) application of nutrients

<input type="text" value="0"/>

<input type="text" value="75"/>

<input type="text" value="55"/>

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	<input type="text" value="14"/>	2012	50% of 0.95 /1000 gal
Third Year Following Application	<input type="text" value="7"/>	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	<input type="text" value="4"/>	2014	12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID:

Field # Field Name Field Acres Application Acres
 Crop Year Crop Yield Goal Planned Application Acres

	Nitrogen	Phosphorus	Potassium
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	N	P ₂ O ₅	K ₂ O
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Crop Removal per bushel
 Crop Removal(needs) /acre

6.00	2.65	7.00
150	66	175

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0	0	0
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LMFA 900.803 m) (7)

Legume

0	Corn Silage	
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LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

0	Mineralization Rate = 12.5 %	
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LMFA 900.803 m) (7)

2009

0	Mineralization Rate = 25 %	
---	----------------------------	--

LMFA 900.803 m) (7)

2010

0	Mineralization Rate = 50 %	
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LMFA 900.803 m) (7)

Total Nitrogen Credits

0		
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LMFA 900.803 m) (7)

	Nitrogen	Phosphorus	Potassium
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Crop Needs after Credits

150	66	175
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LMFA 900.803 m) (6)

Sample Results From:

Book

If Book: Source MWPS 18

Manure Source: Pen Pack

9.0	3.0	6.0
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Plant Ammonia Nitrogen / ton

4.0		
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Manure Application Method

Broadcast Solid, incorporated within 12 hours

Ammonia Loss During Application

%

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / ton

5.13		
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Application Rate Based on

Tons/Acre

Nitrogen

29.2		
------	--	--

LMFA 900.803 m) (8)

Phosphorus

22.1		
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Current Bray P1 Soil Test lbs/Acre

82		
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LMFA 900.803 f)

At Nitrogen Rate P1 Buildup Equals

2.4		
-----	--	--

of Apps at N rate to reach 300 P1

91		
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Target Application Rate Per Acre

29.2		
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Tons

Nitrogen Rate

Target Application Rate Entire Field

515		
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Tons

	Nitrogen	Phosphorus	Potassium
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Available Manure Nutrients Applied

150	88	175
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Available Nutrients from all sources

150	88	175
-----	----	-----

Over (Under) application of nutrients

0	21	0
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Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
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Second Year Following Application

18		
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2012

50% of 1.25 / ton

Third Year Following Application

9		
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2013

25% of 1.25 / ton

Fourth Year Following Application

5		
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2014

12.5% of 1.25 / ton

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 15 Field Name 15 Field Acres 105.80 Application Acres 105.80
Crop Year 2011 Crop Corn Silage Yield Goal 25 Planned Application Acres 91.00

Nitrogen Phosphorus Potassium

N P₂O₅ K₂O

Crop Removal per bushel
Crop Removal(needs) /acre

6.00 2.65 7.00
150 66 175

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0 0 0

LMFA 900.803 m) (7)

Legume

0 Corn Silage

LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

0 Mineralization Rate = 12.5 %

LMFA 900.803 m) (7)

2009

0 Mineralization Rate = 25 %

LMFA 900.803 m) (7)

2010

0 Mineralization Rate = 50 %

LMFA 900.803 m) (7)

Total Nitrogen Credits

0

LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

150 66 175

LMFA 900.803 m) (6)

Crop Needs after Credits

Sample Results From: 09/03/08

If Book: Source MWPS 18

Manure Source: Pit Manure

4.2 2.4 1.9

Plant Ammonia Nitrogen / ton

2.2

Manure Application Method

Broadcast Solid, incorporated within 12 hours

Ammonia Loss During Application

3 % Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25 Source: MWPS 18 Table 10-5

Plant Available Nitrogen / ton

2.63

Application Rate Based on

Tons/Acre

Nitrogen

56.9

LMFA 900.803 m) (6)

Phosphorus

27.6

Current Bray P1 Soil Test lbs/Acre

123

LMFA 900.803 i)

At Nitrogen Rate P1 Buildup Equals

7.8

of Apps at N rate to reach 300 P1

23

Target Application Rate Per Acre

56.9

Tons

Nitrogen Rate

Target Application Rate Entire Field

5,182

Tons

Nitrogen Phosphorus Potassium

150 137 108
150 137 108
0 70 -67

Available Manure Nutrients Applied

Available Nutrients from all sources

Over (Under) application of nutrients

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year Nitrogen Credit/Acre Crop Year Mineralization Rate

Second Year Following Application

14

2012

50% of 0.50 / ton

Third Year Following Application

7

2013

25% of 0.50 / ton

Fourth Year Following Application

4

2014

12.5% of 0.50 / ton

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID:

Field # Field Name Field Acres Application Acres

Crop Year Crop Yield Goal Planned Application Acres

Nitrogen	Phosphorus	Potassium
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N	P ₂ O ₅	K ₂ O
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Crop Removal per bushel	6.00	2.65	7.00	
Crop Removal(needs) /acre	150	66	175	LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

Legume

Manure Applications 2008

2009

2010

Total Nitrogen Credits

0	0	0	LMFA 900.803 m) (7)
0	Corn Silage		LMFA 900.803 m) (7)
	Previous Crop		
0	Mineralization Rate = 12.5 %		LMFA 900.803 m) (7)
0	Mineralization Rate = 25 %		LMFA 900.803 m) (7)
0	Mineralization Rate = 50 %		LMFA 900.803 m) (7)
0			LMFA 900.803 m) (7)

Nitrogen	Phosphorus	Potassium
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Crop Needs after Credits

Sample Results From: Book

Manure Source: Pen Pack

Plant Ammonia Nitrogen / ton

Manure Application Method

Ammonia Loss During Application

Mineralization Rate - Application Year

Plant Available Nitrogen / ton

150	66	175	LMFA 900.803 m) (6)
	If Book: Source MWPS 18		
9.0	3.0	6.0	
4.0			

Broadcast Solid, incorporated within 12 hours

3 % Source: MWPS 18 Table 10-2 LMFA 900.803 m) (4)

0.25 Source: MWPS 18 Table 10-5

5.13

Application Rate Based on

Tons/Acre

Nitrogen

Phosphorus

Current Bray P1 Soil Test lbs/Acre

At Nitrogen Rate P1 Buildup Equals

of Apps at N rate to reach 300 P1

29.2
22.1
123
2.4
74

LMFA 900.803 m) (8)

LMFA 900.803 i)

Target Application Rate Per Acre

29.2

Tons

Nitrogen Rate

Target Application Rate Entire Field

433

Tons

Nitrogen	Phosphorus	Potassium
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Available Manure Nutrients Applied

Available Nutrients from all sources

Over (Under) application of nutrients

150	88	175
150	88	175
0	21	0

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
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Second Year Following Application	18	2012	50% of 1.25 / ton
Third Year Following Application	9	2013	25% of 1.25 / ton
Fourth Year Following Application	5	2014	12.5% of 1.25 / ton

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 17 Field Name 17 Field Acres 25.51 Application Acres 22.75

Crop Year 2011 Crop Corn Grain Yield Goal 137 Planned Application Acres 22.75

Nitrogen Phosphorus Potassium

	N	P ₂ O ₅	K ₂ O	
Crop Removal per bushel	1.20	0.43	0.28	
Crop Removal(needs) /acre	164	59	38	LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer	0	0	0	LMFA 900.803 m) (7)
Legume	40	Soybeans		LMFA 900.803 m) (7)
		Previous Crop		
Manure Applications 2008	0	Mineralization Rate = 12.5 %		LMFA 900.803 m) (7)
2009	0	Mineralization Rate = 25 %		LMFA 900.803 m) (7)
2010	0	Mineralization Rate = 50 %		LMFA 900.803 m) (7)
Total Nitrogen Credits	40			LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

Crop Needs after Credits	124	59	38	LMFA 900.803 m) (6)
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Sample Results From: 6/12 & 9/3/08 If Book: Source MWPS 18

Manure Source: Liquid Manure Average 9.5 4.8 7.8

Plant Ammonia Nitrogen / 1000 gallons 5.7

Manure Application Method Irrigation

Ammonia Loss During Application 27.5 % Source: MWPS 18 Table 10-2 LMFA 900.803 m) (4)

Mineralization Rate - Application Year 0.25 Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons 5.08

Application Rate Based on Gallons/Acre

Nitrogen	24,476.1	LMFA 900.803 m) (8)
Phosphorus	12,272.9	
Current Bray P1 Soil Test lbs/Acre	0	LMFA 900.803 i)
At Nitrogen Rate P1 Buildup Equals	6.5	
# of Apps at N rate to reach 300 P1	46	

Target Application Rate Per Acre 24,476.1 Gallons Nitrogen Rate

Target Application Rate Entire Field 556,832 Gallons

Nitrogen Phosphorus Potassium

Available Manure Nutrients Applied	124	117	191
Available Nutrients from all sources	164	117	191
Over (Under) application of nutrients	0	59	153

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	12	2012	50% of 0.95 /1000 gal
Third Year Following Application	6	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	3	2014	12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 24 Field Name 24 Field Acres 9.93 Application Acres 9.93
Crop Year 2011 Crop Soybeans Yield Goal 41 Planned Application Acres 6.00

Nitrogen Phosphorus Potassium

N	P ₂ O ₅	K ₂ O
3.75	0.85	1.30
154	35	53

LMFA 900.803 m) (6)

Crop Removal per bushel
Crop Removal(needs) /acre

Nitrogen Credits

Commercial Fertilizer

0	0	0
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LMFA 900.803 m) (7)

Legume

0	Corn Grain
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LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008
2009
2010

0
0
0

Mineralization Rate = 12.5 %
Mineralization Rate = 25 %
Mineralization Rate = 50 %

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

Total Nitrogen Credits

0

LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

154	35	53
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LMFA 900.803 m) (6)

Crop Needs after Credits

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

9.5	4.8	7.8
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Plant Ammonia Nitrogen / 1000 gallons

5.7

Manure Application Method

Irrigation

Ammonia Loss During Application

27.5%

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

5.08

Application Rate Based on

Gallons/Acre

Nitrogen

30,250.9

LMFA 900.803 m) (8)

Phosphorus

7,260.4

Current Bray P1 Soil Test lbs/Acre

0

LMFA 900.803 m) (1)

At Nitrogen Rate P1 Buildup Equals

12.3

of Apps at N rate to reach 300 P1

24

Target Application Rate Per Acre

30,250.9

Gallons

Nitrogen Rate

Target Application Rate Entire Field

181,505

Gallons

Nitrogen Phosphorus Potassium

154	145	236
154	145	236
0	110	183

Available Manure Nutrients Applied

Available Nutrients from all sources

Over (Under) application of nutrients

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	14	2012	50% of 0.95 /1000 gal
Third Year Following Application	7	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	4	2014	12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID:

Field # Field Name Field Acres Application Acres

Crop Year Crop Yield Goal Planned Application Acres

Nitrogen	Phosphorus	Potassium
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N

P₂O₅

K₂O

Crop Removal per bushel

Crop Removal(needs) /acre

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

Legume

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

2009

2010

Mineralization Rate = 12.5 %

Mineralization Rate = 25 %

Mineralization Rate = 50 %

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

Total Nitrogen Credits

LMFA 900.803 m) (7)

Nitrogen	Phosphorus	Potassium
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Crop Needs after Credits

LMFA 900.803 m) (6)

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

Plant Ammonia Nitrogen / 1000 gallons

Manure Application Method

Ammonia Loss During Application %

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

Application Rate Based on	Gallons/Acre
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Nitrogen

LMFA 900.803 m) (8)

Phosphorus

Current Bray P1 Soil Test lbs/Acre

LMFA 900.803 i)

At Nitrogen Rate P1 Buildup Equals

of Apps at N rate to reach 300 P1

Target Application Rate Per Acre

Nitrogen Rate

Target Application Rate Entire Field

Nitrogen	Phosphorus	Potassium
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Available Manure Nutrients Applied

Available Nutrients from all sources

Over (Under) application of nutrients

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	<input type="text" value="11"/>	2012	50% of 0.95 /1000 gal
Third Year Following Application	<input type="text" value="5"/>	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	<input type="text" value="3"/>	2014	12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID:

Field # Field Name Field Acres Application Acres
 Crop Year Crop Yield Goal Planned Application Acres

	Nitrogen	Phosphorus	Potassium
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	N	P ₂ O ₅	K ₂ O
Crop Removal per bushel	1.20	0.43	0.28
Crop Removal(needs) /acre	157	56	37

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0	0	0
---	---	---

LMFA 900.803 m) (7)

Legume

40	Soybeans	
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LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

0	Mineralization Rate = 12.5 %	
---	------------------------------	--

LMFA 900.803 m) (7)

2009

0	Mineralization Rate = 25 %	
---	----------------------------	--

LMFA 900.803 m) (7)

2010

0	Mineralization Rate = 50 %	
---	----------------------------	--

LMFA 900.803 m) (7)

Total Nitrogen Credits

40		
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LMFA 900.803 m) (7)

	Nitrogen	Phosphorus	Potassium
--	----------	------------	-----------

Crop Needs after Credits

117	56	37
-----	----	----

LMFA 900.803 m) (6)

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

9.5	4.8	7.8
-----	-----	-----

Plant Ammonia Nitrogen / 1000 gallons

5.7

Manure Application Method

Irrigation

Ammonia Loss During Application

27.5 %

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

5.08

Application Rate Based on

Gallons/Acre

Nitrogen

23,059.5

LMFA 900.803 m) (8)

Phosphorus

11,735.4

Current Bray P1 Soil Test lbs/Acre

0

LMFA 900.803 i)

At Nitrogen Rate P1 Buildup Equals

6.0

of Apps at N rate to reach 300 P1

50

Target Application Rate Per Acre

23,059.5

Gallons

Nitrogen Rate

Target Application Rate Entire Field

222,755

Gallons

	Nitrogen	Phosphorus	Potassium
--	----------	------------	-----------

Available Manure Nutrients Applied

117	111	180
-----	-----	-----

Available Nutrients from all sources

157	111	180
-----	-----	-----

Over (Under) application of nutrients

0	54	143
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Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	11	2012	50% of 0.95 /1000 gal
Third Year Following Application	5	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	3	2014	12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 27 Field Name 27 Field Acres 23.72 Application Acres 23.72

Crop Year 2011 Crop Corn Grain Yield Goal 127 Planned Application Acres 23.72

Nitrogen Phosphorus Potassium

N

P₂O₅

K₂O

Crop Removal per bushel
Crop Removal(needs) /acre

1.20
152

0.43
55

0.28
36

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0

0

0

LMFA 900.803 m) (7)

Legume

40

Soybeans

LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

0

Mineralization Rate = 12.5 %

LMFA 900.803 m) (7)

2009

0

Mineralization Rate = 25 %

LMFA 900.803 m) (7)

2010

0

Mineralization Rate = 50 %

LMFA 900.803 m) (7)

Total Nitrogen Credits

40

LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

Crop Needs after Credits

112

55

36

LMFA 900.803 m) (6)

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

9.5

4.8

7.8

Plant Ammonia Nitrogen / 1000 gallons

5.7

Manure Application Method

Irrigation

Ammonia Loss During Application

27.5 %

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

5.08

Application Rate Based on

Gallons/Acre

Nitrogen

22,115.1

LMFA 900.803 m) (8)

Phosphorus

11,377.1

Current Bray P1 Soil Test lbs/Acre

0

LMFA 900.803 i)

At Nitrogen Rate P1 Buildup Equals

5.7

of Apps at N rate to reach 300 P1

52

Target Application Rate Per Acre

22,115.1

Gallons

Nitrogen Rate

Target Application Rate Entire Field

524,570

Gallons

Nitrogen Phosphorus Potassium

Available Manure Nutrients Applied

112

106

172

Available Nutrients from all sources

152

106

172

Over (Under) application of nutrients

0

52

137

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year

Nitrogen Credit/Acre

Crop Year

Mineralization Rate

Second Year Following Application

11

2012

50% of 0.95 /1000 gal

Third Year Following Application

5

2013

25% of 0.95 /1000 gal

Fourth Year Following Application

3

2014

12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 28 Field Name 28 Field Acres 18.83 Application Acres 18.17

Crop Year 2011 Crop Soybeans Yield Goal 46 Planned Application Acres 18.17

Nitrogen Phosphorus Potassium

N

P₂O₅

K₂O

Crop Removal per bushel
Crop Removal(needs) /acre

3.75
173

0.85
39

1.30
60

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0

0

0

LMFA 900.803 m) (7)

Legume

0

Corn Grain

LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008

0

Mineralization Rate = 12.5 %

LMFA 900.803 m) (7)

2009

0

Mineralization Rate = 25 %

LMFA 900.803 m) (7)

2010

0

Mineralization Rate = 50 %

LMFA 900.803 m) (7)

Total Nitrogen Credits

0

LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

Crop Needs after Credits

173

39

60

LMFA 900.803 m) (6)

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

9.5

4.8

7.8

Plant Ammonia Nitrogen / 1000 gallons

5.7

Manure Application Method

Irrigation

Ammonia Loss During Application

27.5 %

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

5.08

Application Rate Based on

Gallons/Acre

Nitrogen

33,940.0

LMFA 900.803 m) (8)

Phosphorus

8,145.8

Current Bray P1 Soil Test lbs/Acre

0

LMFA 900.803 l)

At Nitrogen Rate P1 Buildup Equals

13.8

of Apps at N rate to reach 300 P1

22

Target Application Rate Per Acre

33,940.0

Gallons

Nitrogen Rate

Target Application Rate Entire Field

616,690

Gallons

Nitrogen Phosphorus Potassium

Available Manure Nutrients Applied

173

163

265

Available Nutrients from all sources

173

163

265

Over (Under) application of nutrients

0

124

205

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	16	2012	50% of 0.95 /1000 gal
Third Year Following Application	8	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	4	2014	12.5% of 0.95 /1000 gal

Waste Application Worksheet

Varel Dairy, Inc.

Operation ID: 52182

Field # 29 Field Name 29 Field Acres 96.20 Application Acres 72.99
Crop Year 2011 Crop Soybeans Yield Goal 45 Planned Application Acres 72.99

Nitrogen Phosphorus Potassium

N

P₂O₅

K₂O

Crop Removal per bushel
Crop Removal(needs) /acre

3.75
169

0.85
38

1.30
59

LMFA 900.803 m) (6)

Nitrogen Credits

Commercial Fertilizer

0

0

0

LMFA 900.803 m) (7)

Legume

0

Corn Grain

LMFA 900.803 m) (7)

Previous Crop

Manure Applications 2008
2009
2010

0
0
0

Mineralization Rate = 12.5 %
Mineralization Rate = 25 %
Mineralization Rate = 50 %

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

LMFA 900.803 m) (7)

Total Nitrogen Credits

0

LMFA 900.803 m) (7)

Nitrogen Phosphorus Potassium

Crop Needs after Credits

169

38

59

LMFA 900.803 m) (6)

Sample Results From: 6/12 & 9/3/08

If Book: Source MWPS 18

Manure Source: Liquid Manure Average

9.5

4.8

7.8

Plant Ammonia Nitrogen / 1000 gallons

5.7

Manure Application Method

Irrigation

Ammonia Loss During Application

27.5 %

Source: MWPS 18 Table 10-2

LMFA 900.803 m) (4)

Mineralization Rate - Application Year

0.25

Source: MWPS 18 Table 10-5

Plant Available Nitrogen / 1000 gallons

5.08

Application Rate Based on

Gallons/Acre

Nitrogen

33,202.2

LMFA 900.803 m) (8)

Phosphorus

7,968.8

Current Bray P1 Soil Test lbs/Acre

0

LMFA 900.803 m)

At Nitrogen Rate P1 Buildup Equals

13.5

of Apps at N rate to reach 300 P1

22

Target Application Rate Per Acre

33,202.2

Gallons

Nitrogen Rate

Target Application Rate Entire Field

2,423,426

Gallons

Nitrogen Phosphorus Potassium

Available Manure Nutrients Applied

169

159

259

Available Nutrients from all sources

169

159

259

Over (Under) application of nutrients

0

121

200

Nitrogen Mineralization Credit for Future Years

Mineralized Nitrogen / Crop Year	Nitrogen Credit/Acre	Crop Year	Mineralization Rate
Second Year Following Application	16	2012	50% of 0.95 /1000 gal
Third Year Following Application	8	2013	25% of 0.95 /1000 gal
Fourth Year Following Application	4	2014	12.5% of 0.95 /1000 gal