Nutrient

Management Plan

For

Jim Veldkamp

(Name)

Moody County

(County)

Prepared by:
Grif Vlietstra, CNMP, TSP
CENTROL Crop Consulting
605-690-9042
gvlietstra@centrol.com

March 25, 2020
(Date)

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SD CPA 63

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UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

INITIAL NUTRIENT MANAGEMENT PLAN
FOR
SOUTH DAKOTA ANIMAL FEEDING OPERATIONS

SD-CPA-63A
Rev. 5/18

1. **Operator:** Jim Veldkamp 2. **County:** Moody 3. **Prepared By:** Grif Vlietstra, Centrol Crop Consulting 4. **Date:** 25-Mar-20

Total Nitrogen And Phosphorus Produced From Livestock Operation(s)

5.	6.	7.	8.	9.		10.		11.	12.	13.		14.	15.		16.	
Animal Type:	No. of animals	Avg. weight (lbs.)	Days of Confine-ment	N Total solid/liquid Manure as Excreted (lbs.)	P_2O_5 Total solid/liquid Manure as Excreted (lbs.)	N retained Handling/Storage	%	Total N available for application (lbs.)	Time of applic-ation	N Retained Application Method	%	Total N retained in field (lbs.)	3-Yr. Mineralization Rate Manure Handling	%	N Available for the crop (lbs.)	P_2O_5 Available for the crop (lbs.)
Finishing pig	2,400	160	365	56,064	46,813	Liquid - anaerobic pit	78	43,730	Spring/Fall/Summer	Injection	98	42,855	Pits beneath slatted floor	83	35,570	46,813
Other Animals																

Total Manure as Excreted: 24,320 **OR** 8,876,800 **lbs/year** **Total lbs. of N and P2O5 available for the crop:** 35,570 46,813

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

NUTRIENT MANAGEMENT PLAN
FOR
SOUTH DAKOTA ANIMAL FEEDING OPERATIONS

SD-CPA-63B
Rev. 5/18

Field Information

Operator: Jim Veldkamp **County:** Moody **Date:** 03/25/20

Line #	17. Field ID (Include maps to illustrate location) Name or Tract	Field #	18. Date added to Plan	19. Beginning acres in field	20. County	21. Soil map unit symbol	22. Field Location: (1/4 Section, Township, Range)							23. Predicted soil loss - Wind/Water (T/ac/yr)	24. Control of Land	25. 100' Vegetated Buffer	25. Excluded acres	26. Irrigated	27. Winter Application	28. No-Till	29. Current Soil Test Levels									
																					N lb/ac		Phosphorus (ppm)		K (ppm)	Organic Matter	Soil PH	Electric Conductivity (EC)		Soil Sample Date
																					0-2'	2-4'	0-6"	P Test				Surface	Sub-surface	
1	Moody 1/4	1	3/25/20	152.0	Moody	GrB	NE 1/4	Sec.	21	,T	105	,R	47	0.9	Leased		0.0		X		13		19	Olsen	172	4.3%	6.3	0.23	0.23	09/30/19
2	DeBeer N	2	3/25/20	53.0	Rock	17B	SW 1/4	Sec.	3	,T	104	,R	47	1.2	Leased		2.0				5		4	Olsen	139	3.6%	6.6	0.08	0.19	09/30/19
3	DeBeer S	3	3/25/20	75.0	Rock	17B	SE 1/4	Sec.	4	,T	104	,R	47	1.2	Leased		5.0				16		10	Olsen	164	4.0%	6.0	0.1	0.2	09/30/19
4	Dads 1/4	4	3/25/20	95.0	Rock	24B	SE 1/4	Sec.	18	,T	104	,R	46	0.9	Leased		1.0						25	Olsen	287	5.5%	6.2	0.28		06/05/18
5	Dads 1/4-SE	5	3/25/20	9.0	Rock	46	SE 1/4	Sec.	18	,T	104	,R	46	0.7	Leased		0.0						10	Olsen	192	3.3%	6.1	0.07		10/26/19
6	Dads 80 W	6	3/25/20	19.0	Rock	46	NE 1/4	Sec.	19	,T	104	,R	46	0.7	Leased		1.0						12	Olsen	169	5.2%	7.1	0.25		06/05/18
7	Dads 80 E	7	3/25/20	31.0	Rock	34B	NE 1/4	Sec.	19	,T	104	,R	46	0.9	Leased		1.0						17	Olsen	247	3.4%	6.8	0.24		10/26/19
8								Sec.		,T		,R																		
9								Sec.		,T		,R																		
10								Sec.		,T		,R																		
11								Sec.		,T		,R																		
12								Sec.		,T		,R																		
13								Sec.		,T		,R																		
14								Sec.		,T		,R																		
15								Sec.		,T		,R																		
16								Sec.		,T		,R																		
17								Sec.		,T		,R																		
18								Sec.		,T		,R																		
19								Sec.		,T		,R																		
20								Sec.		,T		,R																		
21								Sec.		,T		,R																		
22								Sec.		,T		,R																		
23								Sec.		,T		,R																		
24								Sec.		,T		,R																		
25								Sec.		,T		,R																		
26								Sec.		,T		,R																		
27								Sec.		,T		,R																		

Total: 434.0

Comments:

Developed by SD-DENR, SD-NRCS, and SDSU.

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

NUTRIENT MANAGEMENT PLAN
FOR
SOUTH DAKOTA ANIMAL FEEDING OPERATIONS

SD-CPA-63B
Rev. 5/18

Estimated Nutrient Requirement

17. 30.

○ Actual or Yield Goal
○ Yields indexed by soil productivity (Productivity Index)
◉ County Average Yields (SD Agricultural Statistics Service)

Line #	Field ID (Include maps to illustrate location) Name or Tract	Field #	Previous Year Crop	Previous Year County Yield	Previous Year Actual Yield	Year 1 Crop	Year 1 County Yield	Year 1 Yield Goal	Year 2 Crop	Year 2 County Yield	Year 2 Yield Goal	Year 3 Crop	Year 3 County Yield	Year 3 Yield Goal	Year 4 Crop	Year 4 County Yield	Year 4 Yield Goal	Year 5 Crop	Year 5 County Yield	Year 5 Yield Goal
1	Moody 1/4	1	Soybean (bu)	52		Corn (bu)	179		Soybean (bu)	52		Corn (bu)	179		Soybean (bu)	52		Corn (bu)	179	
2	DeBeer N	2	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52
3	DeBeer S	3	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52
4	Dads 1/4	4	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52
5	Dads 1/4-SE	5	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179
6	Dads 80 W	6	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52
7	Dads 80 E	7	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179	Soybean (bu)		52	Corn (bu)		179
8																				
9																				
10																				
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Part 3: Planned Nutrient Application

Date: 03/25/20 **Operator:** **County:** Moody **Date:** 03/25/20

Line #	17. Field ID (Include maps to illustrate location) Name or Tract	Field #	Alternative crops for years 1 through 5	31. Initial Nutrient Mgt. Plan - N based fields (acres)	32. Nutrient Recommendation - SDSU Extension Service EC-750 N	P_2O_5	K_2O	33. Manure application based on:	34. Phosphorus Risk Assessment	35. Nitrogen Risk Assessment	36. Nutrients Applied: Commercial lbs/acre N	P_2O_5	K_2O	Manure lbs/acre N	P_2O_5	K_2O	Total lbs/acre N	P_2O_5	K_2O	37. Estimated years to reapplication based on P_2O_5 rate
1	Moody 1/4	1		152.0	162	0	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
2	DeBeer N	2		51.0	0	51	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
3	DeBeer S	3		70.0	0	8	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
4	Dads 1/4	4		94.0		0	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
5	Dads 1/4-SE	5		9.0		47	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
6	Dads 80 W	6		18.0		0	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
7	Dads 80 E	7		30.0		0	0	Nitrogen need	Low	Low	0	0	0	0	0	0	0	0	0	N/A
8											0	0	0	0	0	0	0	0	0	
9											0	0	0	0	0	0	0	0	0	
10											0	0	0	0	0	0	0	0	0	
11											0	0	0	0	0	0	0	0	0	
12											0	0	0	0	0	0	0	0	0	
13											0	0	0	0	0	0	0	0	0	
14											0	0	0	0	0	0	0	0	0	
15											0	0	0	0	0	0	0	0	0	
16											0	0	0	0	0	0	0	0	0	
17											0	0	0	0	0	0	0	0	0	
18											0	0	0	0	0	0	0	0	0	
19											0	0	0	0	0	0	0	0	0	
20											0	0	0	0	0	0	0	0	0	
21											0	0	0	0	0	0	0	0	0	
22											0	0	0	0	0	0	0	0	0	
23											0	0	0	0	0	0	0	0	0	
24											0	0	0	0	0	0	0	0	0	
25											0	0	0	0	0	0	0	0	0	
26											0	0	0	0	0	0	0	0	0	
27											0	0	0	0	0	0	0	0	0	
				424.0	N	P_2O_5														

Total lbs of N and P2O5 available for crops: 35,570 46,813
Total lbs of N and P2O5 required by fields: 75,358 21,675

Adequate acres are available based on Nitrogen analysis

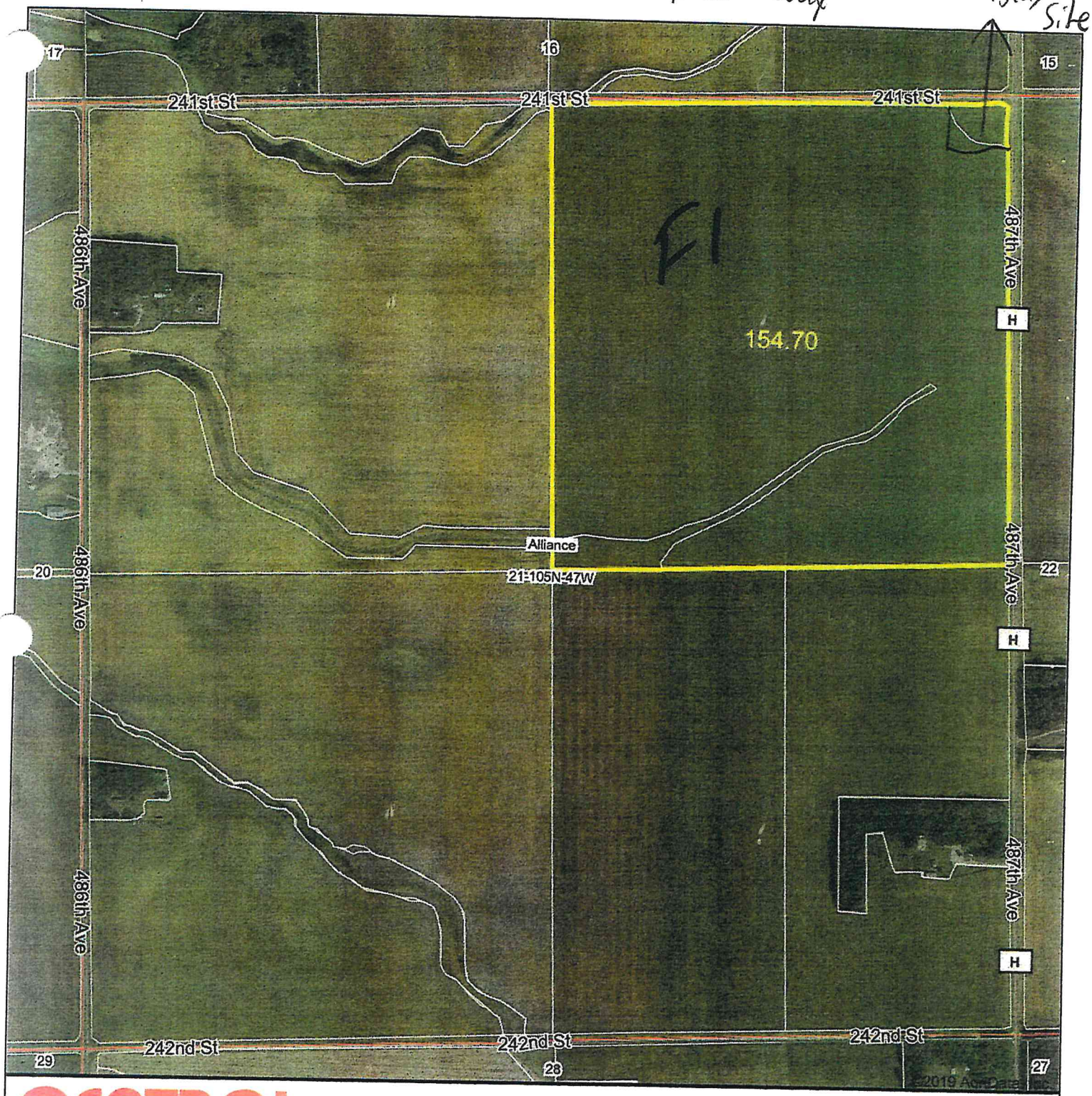
However, P2O5 is in excess of removal. At this rate, it will take approximately 11 year(s) to build all listed fields up to 50 ppm P (Olsen).

Comments:

Aerial Map

Dads Moody

Blds Site



CENTROL CROP CONSULTING

Map Center: 43° 53' 2.99, -96° 28' 36.35

0ft 850ft 1699ft

21-105N-47W
Moody County
South Dakota

N W E S

3/20/2020

Maps Provided By:
surety CUSTOMIZED ONLINE MAPPING
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Field borders provided by Farm Service Agency as of 5/21/2008.

Aerial Map

CENTROL CROP CONSULTING

Map Center: 43° 48' 46.76, -96° 24' 8.73

0ft 820ft 1640ft

18-104N-46W
Rock County
Minnesota

N
W E
S

3/23/2020

Maps Provided By:
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Field borders provided by Farm Service Agency as of 5/21/2008.

Aerial Map

CENTROL CROP CONSULTING

Map Center: 43° 48' 45.63, -96° 24' 8.19

0ft 817ft 1634ft

18-104N-46W
Rock County
Minnesota

N W E S

3/20/2020

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Field borders provided by Farm Service Agency as of 5/21/2008.

Aerial Map

Dads 80

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Map Center: 43° 47' 54.47, -96° 24' 8.32

0ft 830ft 1660ft

19-104N-46W
Rock County
Minnesota

N W E S

3/20/2020

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Field borders provided by Farm Service Agency as of 5/21/2008.

Water Quality Risk Assessment Map
21-105-47

0 280 560 1,120 1,680 2,240

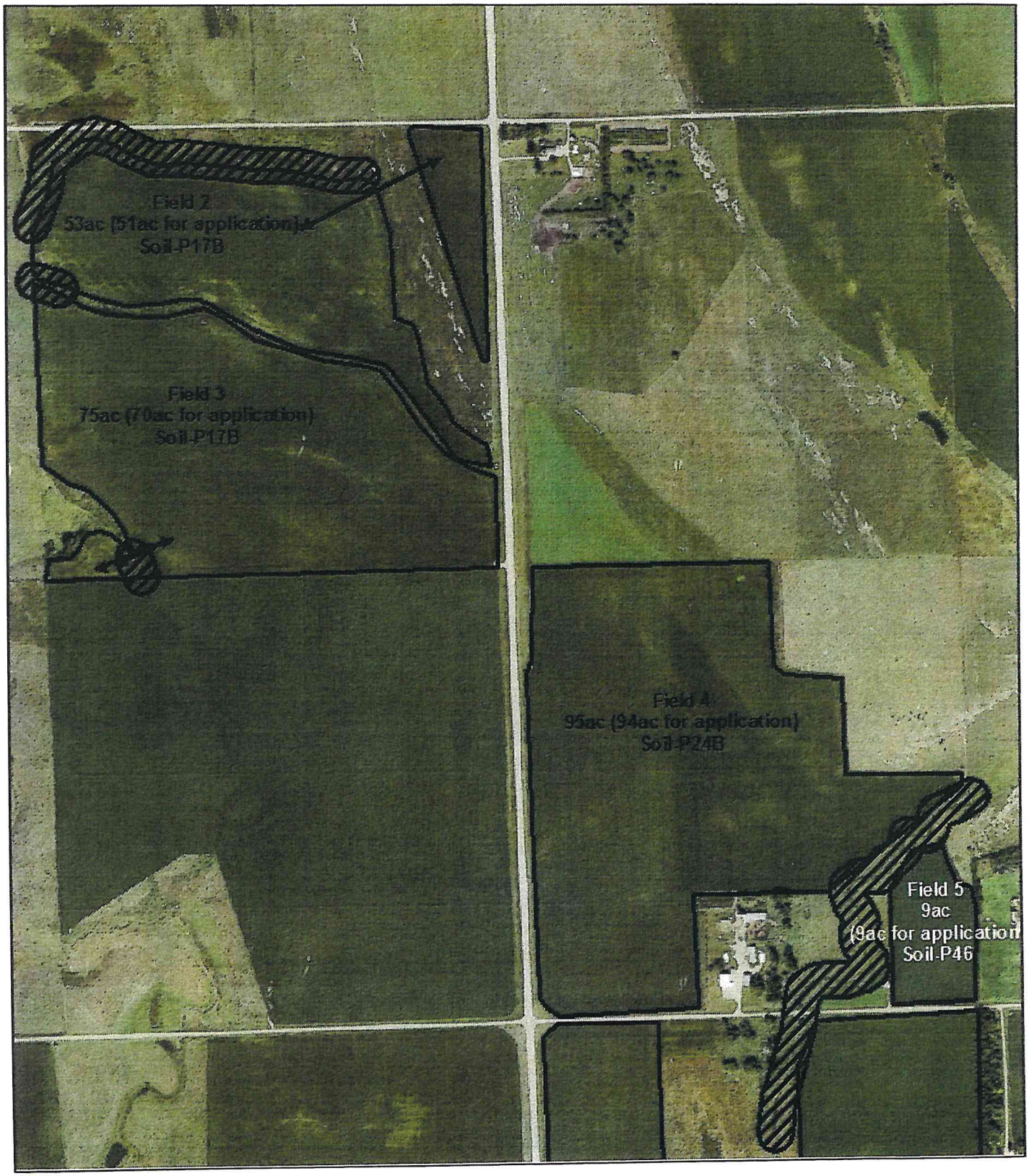
Feet

Setback and/or Exclusion Area

NO MANURE APPLICATION
WITHIN 10 FT OF FIELD BORDER
MOODY COUNTY ORDINACE (WHEN INJECTED)

N
W E
S

Water Quality Risk Assessment Map
18-104-46



0 300 600 1,200 1,800 2,400

Feet

N

W E

S

Setback and/or Exclusion Area

Water Quality Risk Assessment Map
19-104-46

0 312.5 625 1,250 1,875 2,500

Feet

Setback and/or Exclusion Area

N
W E
S

Winter Water Quality Risk Assessment Map
Winter Application Map
21-105-47

0 287.5 575 1,150 1,725 2,300

Feet

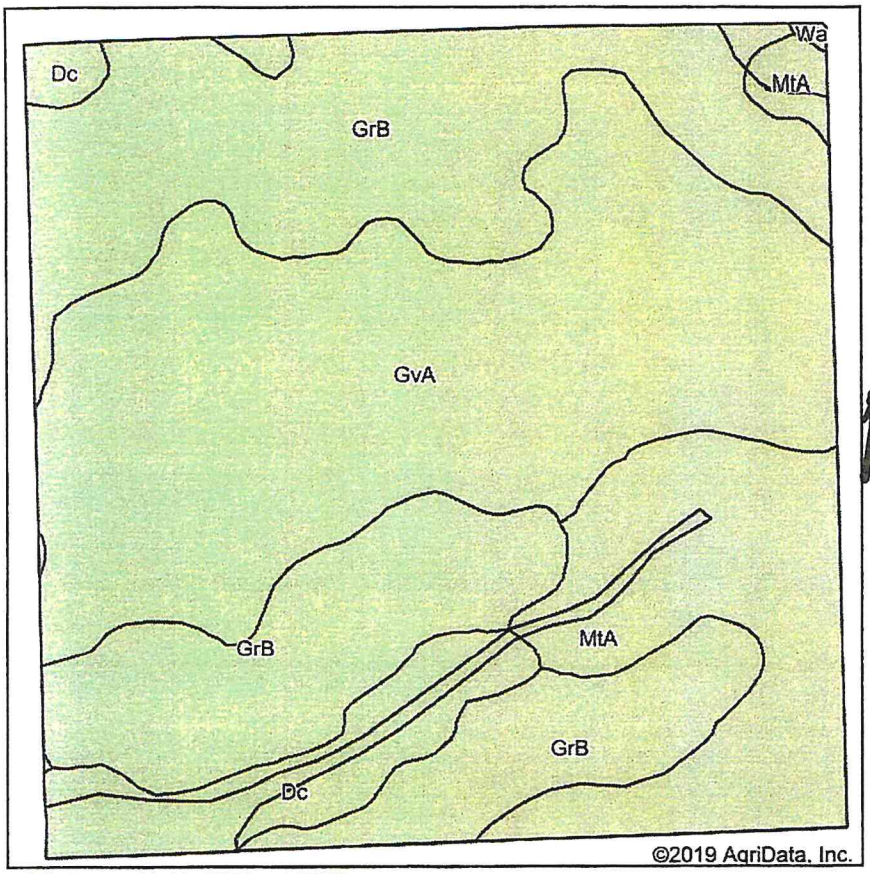
NO MANURE APPLICATION
WITHIN 10 FT OF FIELD BORDER
MOODY COUNTY ORDINACE (WHEN INJECTED)

Setback and/or Exclusion Area

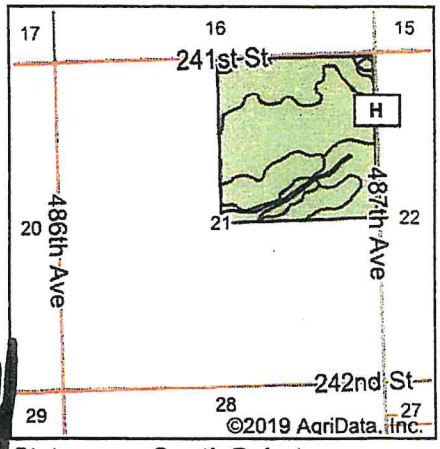
Winter Excluded Areas (slope, leaching, floodplain). NO Manure Application

N
W E
S

Soils Map



Soils data provided by USDA and NRCS.



Field 11

State: **South Dakota**
County: **Moody**
Location: **21-105N-47W**
Township: **Alliance**
Acres: **154.74**
Date: **3/24/2020**

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Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

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N W E S

Area Symbol: SD101, Soil Area Version: 23

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	Productivity Index	Alfalfa hay	Corn	Soybeans	*n NCCPI Soybeans
GrB	Grovena loam, 2 to 6 percent slopes	61.22	39.6%	IIe		84	3.8	95	34	57
GvA	Grovena-Bonilla loams, 0 to 2 percent slopes	59.52	38.5%	Is		90	4.1	104	37	60
MtA	Moody-Trent complex, 0 to 2 percent slopes	22.80	14.7%	I	I	95				73
Dc	Davison-Crossplain clay loams	11.05	7.1%	IIs		80	2.6	88	28	48
Wa	Wakonda-Chancellor complex, 0 to 2 percent slopes	0.15	0.1%	IIs		83				64
					Weighted Average	**87.6**	**3.3**	**83.9**	**29.7**	***n 59.9**

*n: The aggregation method is "Weighted Average using major components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
Soils data provided by USDA and NRCS.

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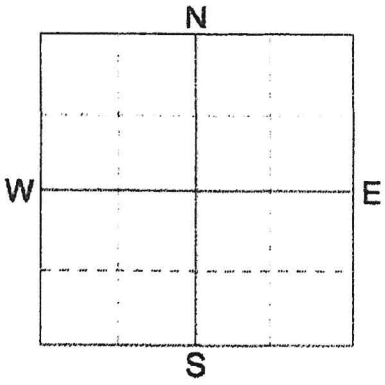
CROP CONSULTING

Soil Analysis by Agvise Laboratories
(http://www.agvise.com)
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **Moody East**
SAMPLE ID
FIELD NAME **Moody East** Field1
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Corn-Grain**



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
CENTROL CROP CONSULTING
351 BURLINGTON CIRCL
PO BOX 236
MARSHALL, MN 56258

REF # **2717776** BOX # **584**
LAB # **BN90131**

Date Sampled | Date Received **09/30/2019** | Date Reported **3/20/2020**

Nutrient In The Soil		Interpretation (Very Low / Low / Med / High)
Nitrate	0-6" 7 lb/ac 6-24" 6 lb/ac 0-24" 13 lb/ac	
Phosphorus (Olsen)	19 ppm	
Potassium	172 ppm	
Chloride		
Sulfur	0-6" 8 lb/ac 6-24" 18 lb/ac	
Boron		
Zinc	1.48 ppm	
Iron		
Manganese		
Copper		
Magnesium	601 ppm	
Calcium	2829 ppm	
Sodium	19 ppm	
Org.Matter	4.3 %	
Carbonate(CCE)		
Sol. Salts	0-6" 0.23 mmho/cm 6-24" 0.23 mmho/cm	

1st Crop Choice		
Alfalfa		
YIELD GOAL		
6 Tons		
SUGGESTED GUIDELINES		
Control		
LB/ACRE		APPLICATION
N	0	
P_2O_5	0	
K_2O	125	Broadcast
Cl		
S	20	Broadcast
B		
Zn	0	
Fe		
Mn		
Cu		
Mg	0	
Lime	2.0	Tons

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Control		
LB/ACRE		APPLICATION
N	200	
P_2O_5	20	Broadcast
K_2O	40	Broadcast
Cl		
S	20	Broadcast
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Control		
LB/ACRE		APPLICATION
N	210	
P_2O_5	20	Broadcast
K_2O	45	Broadcast
Cl		
S	20	Broadcast
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 6.3 6-24" 6.9		22.5 meq	(65-75) 63.0	(15-20) 22.3	(1-7) 2.0	(0-5) 0.4	(0-5) 12.4

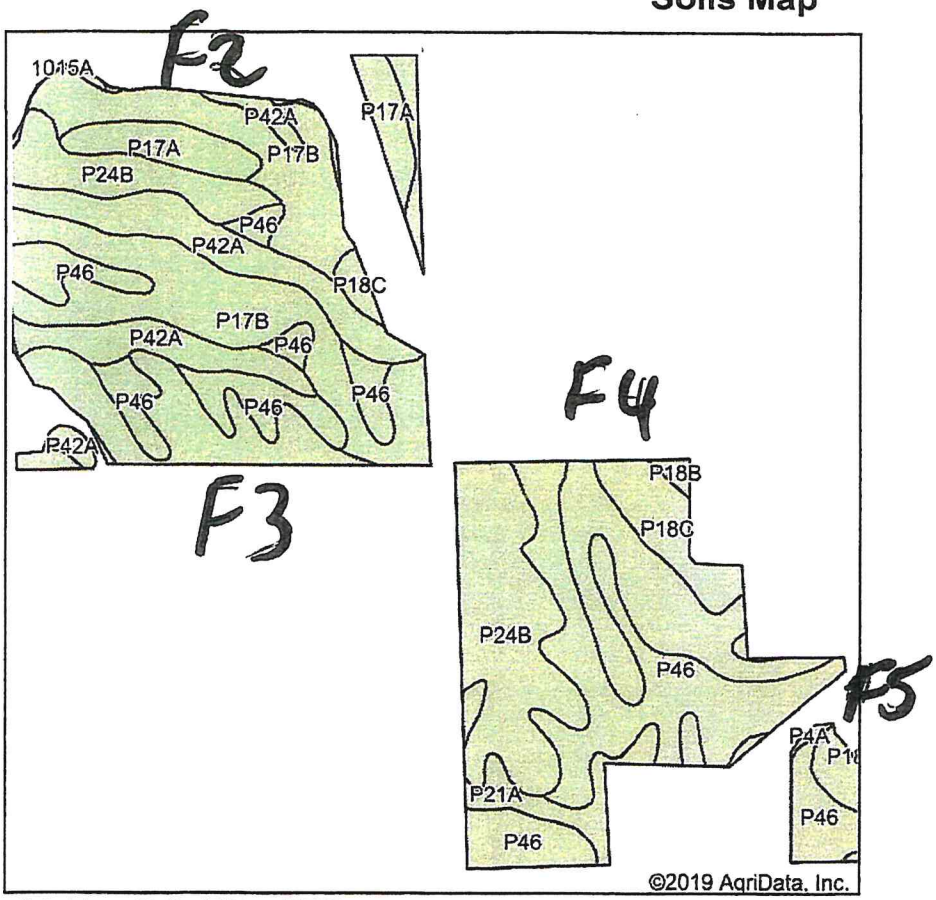
General Comments: (Reduce Lime by 1/2 for W.MN, W.IOWA and the DAKOTAS).
Fine Loams (CEC range 21 to 30) (Medium)
Percent hydrogen is estimated from water pH, CEC corrected for exchangeable acidity.

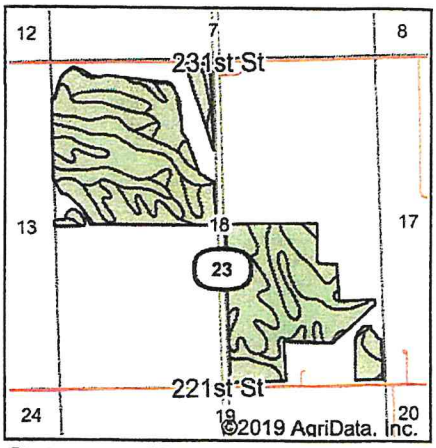
Crop 1: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:0 P2O5:0 K2O:0 S:25 Lime:2 Mg:0 Crop Removal: P2O5 = 60 K2O = 300

Crop 2: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:225 P2O5:15 K2O:30 ZN:0 S:20 Lime:0 Mg:0 Crop Removal: P2O5 = 74 K2O = 46

Crop 3: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:240 P2O5:15 K2O:35 ZN:0 S:20 Lime:0 Mg:0 Crop Removal: P2O5 = 78 K2O = 48

Soils Map





State: **Minnesota**
County: **Rock**
Location: **18-104N-46W**
Township: **Rose Dell**
Acres: **232.22**
Date: **3/24/2020**

CENTROL CROP CONSULTING

Maps Provided By: surety CUSTOMIZED ONLINE MAPPING

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N W E S

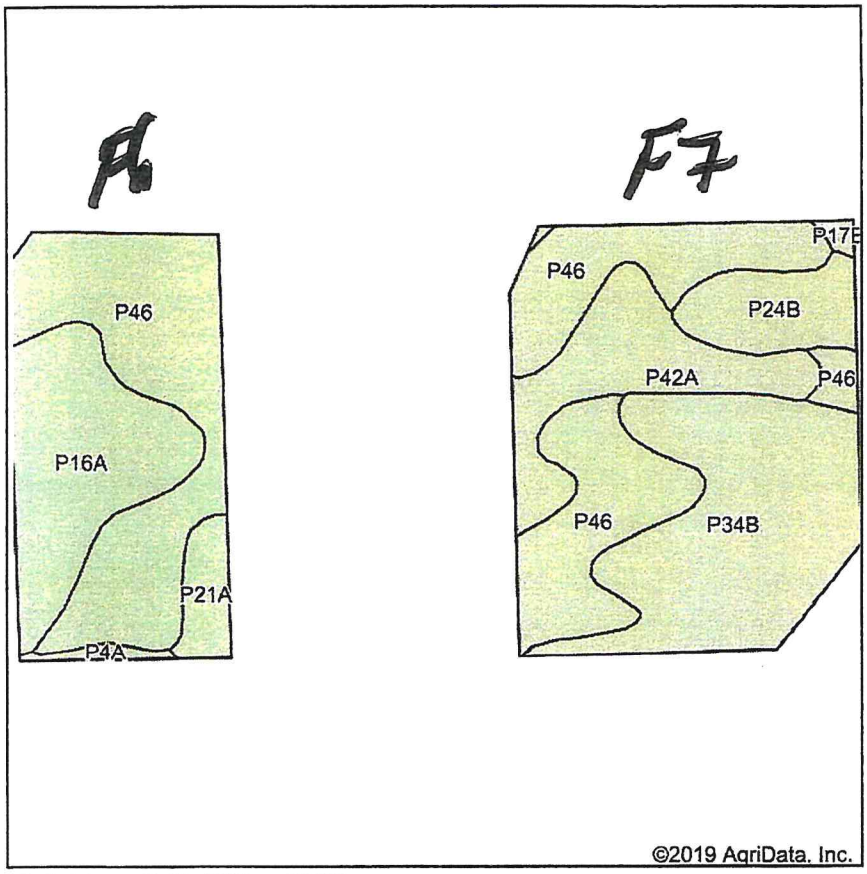
Soils data provided by USDA and NRCS.

Area Symbol: MN133, Soil Area Version: 17

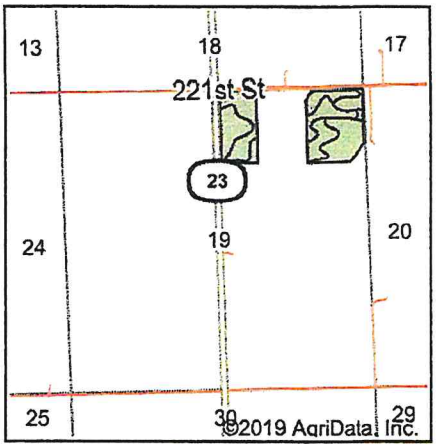
Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	Productivity Index	Corn	Soybeans	*n NCCPI Soybeans
P17B	Ihlen silty clay loam, 2 to 6 percent slopes	68.66	29.6%	IIe		53	95	29	34
P46	Trent silty clay loam, 0 to 3 percent slopes	57.16	24.6%	I	I	100			76
P24B	Moody silty clay loam, cool, 2 to 6 percent slopes	51.30	22.1%	IIe		95			70
P42A	Whitewood silty clay loam, 0 to 2 percent slopes	24.67	10.6%	IIw		94	169	52	82
P17A	Ihlen silty clay loam, 0 to 2 percent slopes	10.55	4.5%	IIs		57	103	31	35
P18C	Ihlen-Rock outcrop complex, 4 to 35 percent slopes	10.14	4.4%	VIIe		26			10
P21A	Marcus silty clay loam, 0 to 2 percent slopes	6.83	2.9%	IIw		93			72
P34C2	Splitrock silty clay loam, 5 to 9 percent slopes, eroded	0.97	0.4%	IIIe		83	149	46	56
P18B	Ihlen-Rock outcrop complex, 0 to 4 percent slopes	0.77	0.3%	IIe		43	77	24	16
P4A	Calco silty clay loam, 0 to 2 percent slopes, frequently flooded	0.66	0.3%	Vw		20			23
1015A	Havelock clay loam, 0 to 2 percent slopes, frequently flooded	0.51	0.2%	Vw		20			24
					Weighted Average	**78.3**	**51.6**	**15.8**	***n 57.5**

*n: The aggregation method is "Weighted Average using major components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
Soils data provided by USDA and NRCS.

Soils Map



Soils data provided by USDA and NRCS.



State: **Minnesota**
County: **Rock**
Location: **19-104N-46W**
Township: **Rose Dell**
Acres: **48.47**
Date: **3/24/2020**

CENTROL CROP CONSULTING

Maps Provided By:
surety CUSTOMIZED ONLINE MAPPING
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N W E S

Area Symbol: MN133, Soil Area Version: 17

Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	Productivity Index	Cor n	Soybeans	*n NCCPI Soybeans
P46	Trent silty clay loam, 0 to 3 percent slopes	20.24	41.8%	I	I	100			76
P34B	Splitrock silty clay loam, 2 to 5 percent slopes	11.00	22.7%	IIe		91	164	50	68
P16A	Graceville silty clay loam, 0 to 2 percent slopes	7.10	14.6%	Is		98	176	54	74
P42A	Whitewood silty clay loam, 0 to 2 percent slopes	5.28	10.9%	IIw		94	169	52	82
P24B	Moody silty clay loam, cool, 2 to 6 percent slopes	2.87	5.9%	IIe		95			70
P21A	Marcus silty clay loam, 0 to 2 percent slopes	1.36	2.8%	IIw		93			72
P4A	Calco silty clay loam, 0 to 2 percent slopes, frequently flooded	0.41	0.8%	Vw		20			23
P17B	Ihlen silty clay loam, 2 to 6 percent slopes	0.21	0.4%	IIe		53	95	29	34
					Weighted Average	**95.6**	**81.8**	**25**	***n 73.4**

*n: The aggregation method is "Weighted Average using major components"
*c: Using Capabilities Class Dominant Condition Aggregation Method
Soils data provided by USDA and NRCS.

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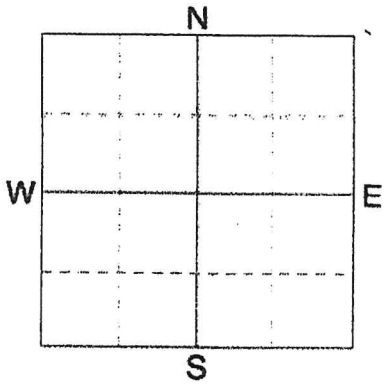
Soil Analysis by Agvise Laboratories
(http://www.agvise.com)
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **DeBeer N** Field 2
SAMPLE ID
FIELD NAME
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Corn-Grain**



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
CENTROL CROP CONSULTING
351 BURLINGTON CIRCL
PO BOX 236
MARSHALL, MN 56258

REF # **2717773** BOX # **584**
LAB # **BN90135**

Date Sampled | Date Received **09/30/2019** | Date Reported **3/23/2020**

Nutrient In The Soil		Interpretation (VLow Low Med High)
Nitrate 0-6"	2 lb/ac	*
Nitrate 6-24"	3 lb/ac	
Nitrate 0-24"	5 lb/ac	
Phosphorus Olsen	4 ppm	*****
Potassium	139 ppm	**********
Chloride		
Sulfur 0-6"	4 lb/ac	****
Sulfur 6-24"	12 lb/ac	**********
Boron		
Zinc	0.85 ppm	**********
Iron		
Manganese		
Copper		
Magnesium	648 ppm	**********
Calcium	2742 ppm	**********
Sodium	24 ppm	****
Org.Matter	3.6 %	**********
Carbonate(CCE)		
Sol. Salts 0-6"	0.08 mmho/cm	**
Sol. Salts 6-24"	0.19 mmho/cm	****

1st Crop Choice		
Corn-Grain		
YIELD GOAL		
190 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	205	
P_2O_5	105	Broadcast
K_2O	70	Broadcast
Cl		
S	25	Broadcast
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	210	
P_2O_5	110	Broadcast
K_2O	75	Broadcast
Cl		
S	25	Broadcast
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	215	
P_2O_5	115	Broadcast
K_2O	75	Broadcast
Cl		
S	25	Broadcast
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 6.6		20.8 meq	(65-75) 65.8	(15-20) 25.9	(1-7) 1.7	(0-5) 0.5	(0-5) 6.1
6-24" 7.4							

General Comments: Fine Loams (CEC range 21 to 30) (Medium)
Percent hydrogen is estimated from water pH, CEC corrected for exchangeable acidity.

Crop 1: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:225 P2O5:100 K2O:65 ZN:0 S:25 Mg:0 Crop Removal: P2O5 = 70 K2O = 44

Crop 2: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:235 P2O5:105 K2O:70 ZN:0 S:25 Mg:0 Crop Removal: P2O5 = 74 K2O = 46

Crop 3: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:245 P2O5:110 K2O:70 ZN:0 S:25 Mg:0 Crop Removal: P2O5 = 78 K2O = 48

12# 47 121 - 78 15

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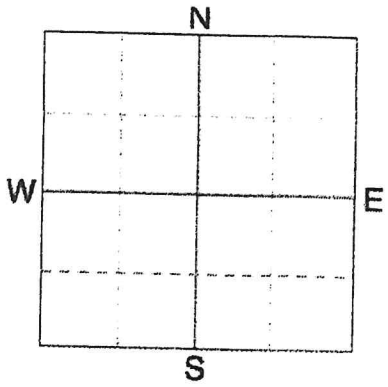
Soil Analysis by Agvise Laboratories
(http://www.agvise.com)
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **DeBeer S**
SAMPLE ID
FIELD NAME
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Corn-Grain**

Field 3



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
CENTROL CROP CONSULTING
351 BURLINGTON CIRCL
PO BOX 236
MARSHALL, MN 56258

REF # **2717775** BOX # **584**
LAB # **BN90133**

Date Sampled
Date Received **09/30/2019**
Date Reported **3/23/2020**

Nutrient In The Soil		Interpretation (Very Low / Low / Med / High)
Nitrate 0-6"	10 lb/ac	
Nitrate 6-24"	6 lb/ac	
Nitrate 0-24"	16 lb/ac	
Phosphorus Olsen	10 ppm	
Potassium	164 ppm	
Chloride		
Sulfur 0-6"	4 lb/ac	
Sulfur 6-24"	12 lb/ac	
Boron		
Zinc	1.77 ppm	
Iron		
Manganese		
Copper		
Magnesium	587 ppm	
Calcium	2484 ppm	
Sodium	30 ppm	
Org.Matter	4.0 %	
Carbonate(CCE)		
Sol. Salts 0-6"	0.1 mmho/cm	
Sol. Salts 6-24"	0.2 mmho/cm	

1st Crop Choice		
Corn-Grain		
YIELD GOAL		
190 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	190	
P_2O_5	65	Broadcast
K_2O	45	Broadcast
Cl		
S	25	Broadcast
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	200	
P_2O_5	70	Broadcast
K_2O	50	Broadcast
Cl		
S	25	Broadcast
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	205	
P_2O_5	70	Broadcast
K_2O	50	Broadcast
Cl		
S	25	Broadcast
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 6.0 6-24" 7.4		22.8 meq	(65-75) 54.4	(15-20) 21.4	(1-7) 1.8	(0-5) 0.6	(0-5) 21.8

General Comments: Fine Loams (CEC range 21 to 30) (Medium)
Percent hydrogen is estimated from water pH, CEC corrected for exchangeable acidity.

Crop 1: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:210 P2O5:50 K2O:40 ZN:0 S:25 Lime:0 Mg:0
Crop Removal: P2O5 = 70 K2O = 44

Crop 2: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:225 P2O5:50 K2O:40 ZN:0 S:25 Lime:0 Mg:0
Crop Removal: P2O5 = 74 K2O = 46

Crop 3: Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:235 P2O5:55 K2O:40 ZN:0 S:25 Lime:0 Mg:0
Crop Removal: P2O5 = 78 K2O = 48

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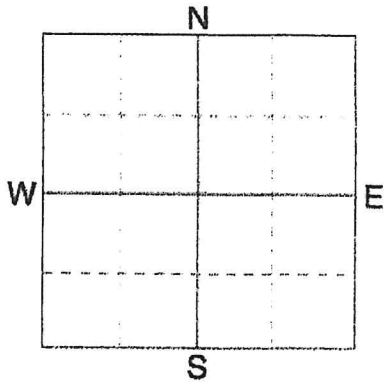
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **Dads Qtr 1E**
SAMPLE ID
FIELD NAME Field 4
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Soybeans**



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
MARK MOELLER-CENTROL
1407 EVERGREEN DR
LUVERNE, MN 56156

REF # **2261915** BOX # **762**
LAB # **BN35254**

Date Sampled | Date Received **06/05/2018** | Date Reported **3/20/2020**

Nutrient In The Soil		Interpretation (Low / Low / Med / High)
Nitrate		
Phosphorus Olsen	25 ppm	
Potassium	287 ppm	
Chloride		
Sulfur		
Boron		
Zinc	1.39 ppm	
Iron		
Manganese		
Copper		
Magnesium	398 ppm	
Calcium	2596 ppm	
Sodium	21 ppm	
Org.Matter	5.5 %	
Carbonate(CCE)		
Sol. Salts 0-6"	0.28 mmho/cm	

1st Crop Choice		
Corn-Grain		
YIELD GOAL		
190 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	140	
P_2O_5	20	Broadcast
K_2O	0	
Cl		
S		
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	145	
P_2O_5	20	Broadcast
K_2O	0	
Cl		
S		
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	150	
P_2O_5	20	Broadcast
K_2O	0	
Cl		
S		
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 6.2		20.2 meq	(65-75) 64.3	(15-20) 16.4	(1-7) 3.6	(0-5) 0.5	(0-5) 15.2

General Comments: Fine Loams (CEC range 21 to 30) (Medium)

Crop 1: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:150 P2O5:15 K2O:0 ZN:0 Lime:0 Mg:0 Crop Removal: P2O5 = 70 K2O = 44

Crop 2: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:160 P2O5:15 K2O:0 ZN:0 Lime:0 Mg:0 Crop Removal: P2O5 = 74 K2O = 46

Crop 3: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:170 P2O5:15 K2O:0 ZN:0 Lime:0 Mg:0 Crop Removal: P2O5 = 78 K2O = 48

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Soil Analysis by Agvise Laboratories
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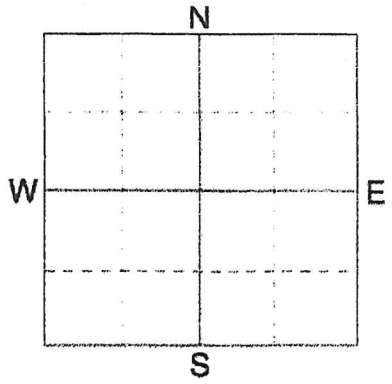
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **Dads Home 2** Field 5
SAMPLE ID
FIELD NAME
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Soybeans**



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
CENTROL CROP CONSULTING
351 BURLINGTON CIRCL
PO BOX 236
MARSHALL, MN 56258

REF # **2595696** BOX # **2474**
LAB # **BN120353**

Date Sampled | Date Received **10/26/2019** | Date Reported **3/20/2020**

Nutrient In The Soil		Interpretation (VLow Low Med High)
Nitrate		
Olsen Phosphorus	10 ppm	**********
Potassium	192 ppm	**********
Chloride		
Sulfur		
Boron		
Zinc	0.63 ppm	**********
Iron		
Manganese		
Copper		
Magnesium		
Calcium		
Sodium		
Org Matter	3.3 %	**********
Carbonate(CCE)		
0-6" Sol. Salts	0.07 mmho/cm	**

1st Crop Choice		
Corn-Grain		
YIELD GOAL		
190 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	140	
P_2O_5	65	Broadcast
K_2O	20	Broadcast
Cl		
S		
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg		
Lime	0	

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	145	
P_2O_5	70	Broadcast
K_2O	20	Broadcast
Cl		
S		
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg		
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	150	
P_2O_5	70	Broadcast
K_2O	25	Broadcast
Cl		
S		
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg		
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 6.1							

Crop 1: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:150 P2O5:50 K2O:10 ZN:5 Lime:0 Crop Removal: P2O5 = 70 K2O = 44

Crop 2: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:160 P2O5:50 K2O:10 ZN:5 Lime:0 Crop Removal: P2O5 = 74 K2O = 46

Crop 3: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:170 P2O5:55 K2O:10 ZN:5 Lime:0 Crop Removal: P2O5 = 78 K2O = 48

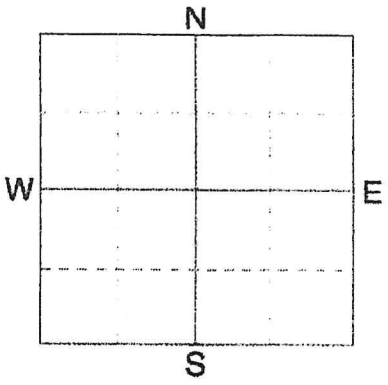
CENTROL® CROP CONSULTING

Soil Analysis by Agvise Laboratories
(http://www.agvise.com)
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **Dads 80 1**
SAMPLE ID **Dads 80 West**
FIELD NAME **Dads 80 1**
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Soybeans**

Field 6



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
MARK MOELLER-CENTROL
1407 EVERGREEN DR
LUVERNE, MN 56156

REF # **2261913** BOX # **763**
LAB # **BN35287**

Date Sampled | Date Received **06/05/2018** | Date Reported **3/20/2020**

Nutrient In The Soil		Interpretation (Very Low / Low / Med / High)
Nitrate		
Phosphorus (Olsen)	12 ppm	
Potassium	169 ppm	
Chloride		
Sulfur		
Boron		
Zinc	1.08 ppm	
Iron		
Manganese		
Copper		
Magnesium	619 ppm	
Calcium	3251 ppm	
Sodium	26 ppm	
Org.Matter	5.2 %	
Carbonate(CCE)		
Sol. Salts (0-6")	0.25 mmho/cm	

1st Crop Choice		
Corn-Grain		
YIELD GOAL		
190 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	140	
P_2O_5	50	Broadcast
K_2O	40	Broadcast
Cl		
S		
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	145	
P_2O_5	55	Broadcast
K_2O	45	Broadcast
Cl		
S		
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	150	
P_2O_5	55	Broadcast
K_2O	45	Broadcast
Cl		
S		
B		
Zn	2	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 7.1		22.2 meq	(65-75) 73.3	(15-20) 23.3	(1-7) 2.0	(0-5) 0.5	(0-5) 0.9

General Comments: Fine Loams (CEC range 21 to 30) (Medium)

Crop 1: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:150 P2O5:35 K2O:35 ZN:0 Mg:0 Crop Removal: P2O5 = 70 K2O = 44

Crop 2: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:160 P2O5:35 K2O:35 ZN:0 Mg:0 Crop Removal: P2O5 = 74 K2O = 46

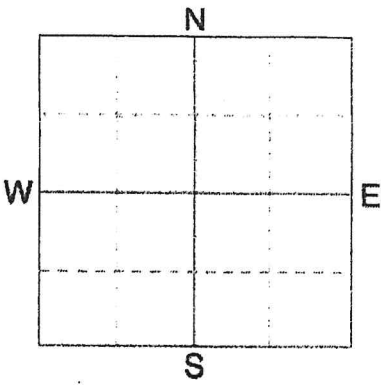
Crop 3: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:170 P2O5:35 K2O:35 ZN:0 Mg:0 Crop Removal: P2O5 = 78 K2O = 48

CENTROL®
CROP CONSULTING

Soil Analysis by Agvise Laboratories
(http://www.agvise.com)
Northwood: (701) 587-6010
Benson: (320) 843-4109

SOIL TEST REPORT

FIELD ID **Dads 80 2**
SAMPLE ID
FIELD NAME **Dads 80 2** Field 7
COUNTY
TWP RANGE
SECTION QTR ACRES **0**
PREV. CROP **Soybeans**



SUBMITTED FOR:
Bryce Kindt

SUBMITTED BY: **MO2103**
CENTROL CROP CONSULTING
351 BURLINGTON CIRCL
PO BOX 236
MARSHALL, MN 56258

REF # **2592382** BOX # **2474**
LAB # **BN120357**

Date Sampled | Date Received **10/26/2019** | Date Reported **3/20/2020**

Nutrient In The Soil		Interpretation (Very Low / Low / Med / High)
Nitrate		
Phosphorus (Olsen)	17 ppm	**********
Potassium	247 ppm	**********
Chloride		
Sulfur		
Boron		
Zinc	0.93 ppm	**********
Iron		
Manganese		
Copper		
Magnesium	657 ppm	**********
Calcium	3413 ppm	**********
Sodium	19 ppm	***
Org.Matter	3.4 %	**********
Carbonate(CCE)		
Sol. Salts (0-6")	0.24 mmho/cm	*****

1st Crop Choice		
Corn-Grain		
YIELD GOAL		
190 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	140	
P_2O_5	20	Broadcast
K_2O	0	
Cl		
S		
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

2nd Crop Choice		
Corn-Grain		
YIELD GOAL		
200 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	145	
P_2O_5	20	Broadcast
K_2O	0	
Cl		
S		
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

3rd Crop Choice		
Corn-Grain		
YIELD GOAL		
210 BU		
SUGGESTED GUIDELINES		
Centrol		
LB/ACRE		APPLICATION
N	150	
P_2O_5	20	Broadcast
K_2O	0	
Cl		
S		
B		
Zn	4	Broadcast
Fe		
Mn		
Cu		
Mg	0	
Lime	0	

Soil pH	Buffer pH	Cation Exchange Capacity	% Base Saturation (Typical Range)				
			% Ca	% Mg	% K	% Na	% H
0-6" 6.8		24.1 meq	(65-75) 70.9	(15-20) 22.7	(1-7) 2.6	(0-5) 0.3	(0-5) 3.4

General Comments: Fine Loams (CEC range 21 to 30) (Medium)
Percent hydrogen is estimated from water pH, CEC corrected for exchangeable acidity.

Crop 1: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:150 P2O5:15 K2O:0 ZN:0 Mg:0 Crop Removal: P2O5 = 70 K2O = 44

Crop 2: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:160 P2O5:15 K2O:0 ZN:0 Mg:0 Crop Removal: P2O5 = 74 K2O = 46

Crop 3: Soil Nitrate level for 0-24" is estimated at 40 lbs/acre. Nitrogen is credited 30 lbs for the previous crop. Nitrogen credits may need to be adjusted based on local conditions. The Nitrogen Guidelines are based on crop use only as no nitrogen test was requested. Many crops may respond to a starter application of P & K even on high soil tests. Univ. of MN Guidelines: (Broadcast): N:170 P2O5:15 K2O:0 ZN:0 Mg:0 Crop Removal: P2O5 = 78 K2O = 48

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 1

Inputs:

File: profiles\Moody County

Location: USA\South Dakota\Moody County
Soil: Moody County, South Dakota\GrB Grovena loam, 2 to 6 percent slopes\Grovena Loam 85%
T value: 5.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 3.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:

Soil loss for cons. plan: 0.93 t/ac/yr Sediment delivery: 0.93 t/ac/yr
Net C factor: 0.11
Net K factor: 0.20
Net LS factor: 0.40

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.436
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.44
SCI FO subfactor: 0.33
SCI ER subfactor: 0.63
Avg. annual slope STIR: 67.8

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 3

Inputs:

File: profiles\Moody County

Location: USA\South Dakota\Moody County
Soil: Pipestone Co. MN 2014\P17B Ihlen silty clay loam, 2 to 6 percent slopes\Ihlen Silty clay loam 80%
T value: 2.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 3.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:

Soil loss for cons. plan: 1.2 t/ac/yr Sediment delivery: 1.2 t/ac/yr
Net C factor: 0.10
Net K factor: 0.27
Net LS factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.554
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.80
SCI FO subfactor: 0.33
SCI ER subfactor: 0.52
Avg. annual slope STIR: 67.8

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 2

Inputs: **File:** profiles\Moody County
Location: USA\South Dakota\Moody County
Soil: Pipestone Co. MN 2014\P17B Ihlen silty clay loam, 2 to 6 percent slopes\Ihlen Silty clay loam 80%
T value: 2.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 3.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:
Soil loss for cons. plan: 1.2 t/ac/yr Sediment delivery: 1.2 t/ac/yr
Net C factor: 0.10
Net K factor: 0.27
Net LS factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.554
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.80
SCI FO subfactor: 0.33
SCI ER subfactor: 0.52
Avg. annual slope STIR: 67.8

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 4

Inputs:

File: profiles\Moody County

Location: USA\South Dakota\Moody County
Soil: Pipestone Co. MN 2014\P24B Moody silty clay loam, 2 to 5 percent slopes\Moody Silty clay loam 85%
T value: 5.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 3.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:

Soil loss for cons. plan: 0.92 t/ac/yr Sediment delivery: 0.92 t/ac/yr
Net C factor: 0.10
Net K factor: 0.20
Net LS factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.578
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.80
SCI FO subfactor: 0.33
SCI ER subfactor: 0.64
Avg. annual slope STIR: 67.8

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 5

Inputs:

File: profiles\Moody County

Location: USA\South Dakota\Moody County
Soil: Pipestone Co. MN 2014\P46 Trent silty clay loam, 1 to 3 percent slopes\Trent Silty clay loam 78%
T value: 5.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:

Soil loss for cons. plan: 0.74 t/ac/yr Sediment delivery: 0.74 t/ac/yr
Net C factor: 0.10
Net K factor: 0.24
Net LS factor: 0.28

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.593
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.80
SCI FO subfactor: 0.33
SCI ER subfactor: 0.71
Avg. annual slope STIR: 67.8

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 6

Inputs: **File:** profiles\Moody County
Location: USA\South Dakota\Moody County
Soil: Pipestone Co. MN 2014\P46 Trent silty clay loam, 1 to 3 percent slopes\Trent Silty clay loam 78%
T value: 5.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 2.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:
Soil loss for cons. plan: 0.74 t/ac/yr Sediment delivery: 0.74 t/ac/yr
Net C factor: 0.10
Net K factor: 0.24
Net LS factor: 0.28

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.593
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.80
SCI FO subfactor: 0.33
SCI ER subfactor: 0.71
Avg. annual slope STIR: 67.8

USDA NRCS Natural Resources Conservation Service

SD-CPA-29

RUSLE2 Profile Erosion Calculation Record

Info: Field 7

Inputs: **File:** profiles\Moody County
Location: USA\South Dakota\Moody County
Soil: Pipestone Co. MN 2014\P34B Splitrock silty clay loam, 2 to 5 percent slopes\Splitrock Silty clay loam 82%
T value: 5.0 t/ac/yr
Slope length (horiz): 150 ft
Avg. slope steepness: 3.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Soybean, mw 30 in rows	bu	52.000
managements\CMZ 04\c.Other Local Mgt Records\soy/corn	vegetations\Corn, grain	bushels	179.00

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Adjust res. burial level: Normal res. burial

Outputs:
Soil loss for cons. plan: 0.91 t/ac/yr Sediment delivery: 0.91 t/ac/yr
Net C factor: 0.10
Net K factor: 0.20
Net LS factor: 0.41

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
11/1/0	Subsoiler		87
5/15/1	Cultivator, field 6-12 in sweeps		75
5/15/1	Planter, double disk opnr	Soybean, mw 30 in rows	75
10/10/1	Harvest, killing crop 50pct standing stubble		29
10/10/1	Chisel, twisted shovel		29
5/5/2	Cultivator, field 6-12 in sweeps		22
5/5/2	planter, double disk opnr	Corn, grain	22
10/20/2	Harvest, killing crop 50pct standing stubble		85

Soil conditioning index (SCI): 0.579
Wind & irrigation-induced erosion for SCI: 0 t/ac/yr
SCI OM subfactor: 0.80
SCI FO subfactor: 0.33
SCI ER subfactor: 0.64
Avg. annual slope STIR: 67.8

Manure Application Agreement

Legal Description	Application Acres
Moody County Farm	153.4 Acres
NE 1/4 of Section 21 Alliance Township Moody County S. Dak	
105N - 47W	

The undersigned hereby authorizes: Jim Veldkamp
to spread manure on the above referenced land for a period of 10 year(s). This agreement will renew year to year unless canceled 30 days prior to the anniversary date of the agreement. Cancellation of this agreement will be made in writing to the above listed person.

Land Owner (Printed): Bryce Kindt

Land Owner (Signature): Bryce Kindt

Date: 3-25-2020

Moody

TABLE 4.25-3
COUNTY MANURE APPLICATION SETBACKS

CATEGORY	SURFACE OR IRRIGATION APPLIED	INCORPORATED OR INJECTED
Lake, Rivers and Streams Classified as Fisheries	300 feet	100 feet (lake) 50 feet (river & stream)
Streams and Lakes classified as Drinking Water Supplies	1000 feet	300 feet
Public Roads	25 feet (surface) from right-of-way 300 feet (irrigation)	10 feet from right-of-way
Area of 10 or more Residences	300 feet (surface) 1,000 feet (irrigation)	300 feet
Public Wells	1000 feet	1000 feet
Private Shallow Wells	250 feet	250 feet
A Residence other than the Operator	300 feet (surface) 1,000 feet (irrigation)	300 feet
Natural or Manmade Surface Drainage	200 feet	50 feet

b. The Board of Adjustment may require liquid manure to be incorporated or injected in order to minimize air and water quality impacts.

c. Requests for application of liquid manure by means of irrigation will be reviewed by the Board of Adjustment on a site-specific basis, and may be allowed by conditional use permit. Impact on air and water quality will be taken into consideration.

d. Requests for surface application and/or application on frozen ground, when an emergency situation has or will develop due to circumstances beyond the permit holder's control, shall be submitted to the Administrative Official for consideration. Information on property location, slope, soil nutrients, manure nutrients, and proposed application rate shall be provided with the request.

9. Standards for Concentrated Animal Feeding Operations

   a. The Board of Adjustment may request information relating to a Concentrated Animal Feeding Operation not contained in these regulations.

   b. The Board of Adjustment may impose, in addition to the standards and requirements set forth in these regulations additional conditions which the Board of Adjustment considers necessary to protect the public health, safety and welfare.

   c. Conditional use permits for concentrated Animal Feeding Operations shall be in effect only as long as sufficient land specified for spreading purposes is available for such purposes and other provisions of the permit are being adhered to.

   d. When considering an application, the Board of Adjustment will take into consideration current and past violations relating to Concentrated Animal Feeding Operations that the applicant has or had an interest in.

Table 2. Nitrogen Need/Phosphorus Crop Removal Manure Application Determination Table[1]						
Soil Test Phosphorus (ppm)		Predicted Annual Erosion – Sum of Wind and Water Erosion (tons per acre per year)[2]				
		Less than 6		6 to 8		Greater than 8
		100 Foot Vegetated Buffer		100 Foot Vegetated Buffer		
Olsen	Bray-1	Yes	No	Yes	No	
0-25	0-35	Nitrogen Need	Nitrogen Need	Nitrogen Need	Nitrogen Need	Five Year Phosphorus crop removal
26-50	36-75	Nitrogen Need	Nitrogen Need	Nitrogen Need	Five Year Phosphorus crop removal	One Year Phosphorus crop removal
51-75	76-110	Nitrogen Need	Five Year Phosphorus crop removal	Five Year Phosphorus crop removal	Five Year Phosphorus crop removal	One Year Phosphorus crop removal
76-100	111-150	One Year Phosphorus crop removal	One Year Phosphorus crop removal	One Year Phosphorus crop removal	One Year Phosphorus crop removal	No application
Greater than 100	Greater than 150	No application	No application	No application	No application	No application

Crop removal is the amount of phosphorus a crop removes in one crop year (SDSU-Extra 8009). Five year phosphorus crop removal is phosphorus removal for up to a five year crop sequence.

#3

Dealing with a Manure Spill

Nutrient management professionals urge producers and professional nutrient applicators alike to remember the **"Four Cs"** if the worst happens and they are faced with a manure spill emergency:

Step 1: Control-eliminate the source of the manure spill.

Step 2: Contain-limit the area impacted.

Step 3: Comply-assess and report damage to the proper authorities.

Step 4: Clean up-restore the affected area.

During the recent North American Manure Expo, officials demonstrated ways producers and applicators could create dams with hay or straw bales to help slow the manure's spread. Five-gallon buckets, PVC pipe, plastic sheets and plywood are some examples of items that can be used to help plug tile outlets and cover tile inlets in the event of a spill. If the spill is sizeable, using tillage equipment to stop the manure's movement toward vulnerable waterways may be necessary. Using sand or other materials to soak up or slow the manure's spread can also be a containment option.

Experts recommend assembling a manure spill response kit to have ready and accessible on the farm when pumping and applying manure. The kit should include:

1. A copy of the farm's emergency response plan, if it has one, including emergency numbers and a site map;
2. Hay or straw bales that could be used to block a culvert or build a berm or diversion;
3. T-posts to support plywood or bale stacks;
4. 14-inch diameter PVC pipe in both 3-foot and 2-foot sections to be used to cover tile inlets;
5. Several 6-mil plastic sheets of approximately 12-foot x 25-foot lengths that could be applied to tile inlets or other sensitive areas with duct tape;
6. At least one sheet of 4-foot x 4-foot plywood that could be used to block culverts. Round the plywood on one end to fit the curve of the ditch;
7. Pliers, vice grips, fencing pliers, channel lock pliers, hammers, utility knife, hand saw, hatchet, post driver;
8. 1 roll duct tape;
9. Baling wire; and
10. Sand shovels.

At the minimum, nutrient management experts recommend a mini-kit that could be kept in the truck or tractor. The mini-kit should contain a sand shovel, duct tape, utility knife and 6-mil plastic sheets.

The Department of Environment and Natural Resources (DENR) should be contacted as soon as possible after the spill, but no later than twenty-four (24) hours from the time the producer first became aware of it. The report shall be made to the State of South Dakota at (605) 773-3351. If after normal business hours (8:00 am to 5:00 p.m. Central time on Monday through Friday), the producer shall report the discharge by calling (605)773-3231. The producer shall also take immediate steps to stop the discharge and notify anyone downstream that may be impacted by the discharge. When notifying the DENR, be prepared to provide information about the location, time, and estimated amount and source of the manure spill. Let the DENR know about any water resources that have been or could be impacted by the spill.

Manure Application Agreement

Legal Description | **Application Acres**

DeBeer farm — 127.3 Acres

NW 1/4 Section 18 Rose Dell Township Rock Cty MN

T 104 N - 46 W

Fields 2, 3

The undersigned hereby authorizes: Jim Veldkamp

to spread manure on the above referenced land for a period of 10 year(s). This agreement will renew year to year unless canceled 30 days prior to the anniversary date of the agreement. Cancellation of this agreement will be made in writing to the above listed person.

Land Owner (Printed): Dale DeBeer

Land Owner (Signature): Dale DeBeer

Date: 3-24-20

Manure Application Agreement

Legal Description	Application Acres
Dads 1/4 (Fields 4,5) SE 1/4 Section 18 Rose Dell Township Rock Cty MN T 104N - 46W	103.8 Acres
Dads 80 (Fields 6,7) N 1/2 of NE 1/4 Section 19 Rose Dell Township Rock Cty MN T 104N - 46W	30.8 Acres

The undersigned hereby authorizes: Jim Veldkamp

to spread manure on the above referenced land for a period of 16 year(s). This agreement will renew year to year unless canceled 30 days prior to the anniversary date of the agreement. Cancellation of this agreement will be made in writing to the above listed person.

Land Owner (Printed): Milton Kindt

Land Owner (Signature): Milton [redacted]dt

Date: 3-24-2020

Fly Control Options for Jim Veldkamp Finishing Barn

1. Wash equipment and manure storage areas when possible to minimize fly breeding areas
2. Clean up spilled or spoiled feed on a regular basis
3. Repair leaky waterers
4. Keep vegetation mowed near and around building

Odor Control Options for Barn

1. Trees and buildings at the site will help disperse odors
2. Observe setback distances from neighbors as outlined by county zoning
3. Carcasses should be removed quickly and disposed via rendering service
4. Maintain clean/dry buildings
5. Deep pit manure barns contain most odors underground in the pit – impenetrable concrete

Odor Control Options for Field Application

1. Inject manure
2. If possible, avoid hauling manure on hot/humid days with minimal air movement
3. If possible, try to minimize manure hauling at times when neighbors are most likely outdoors (evenings, weekends, holidays, etc)