

The background image shows a misty, rolling landscape. In the foreground, there is a field of tall, dry grasses and a single, bare tree on the left. The middle ground features rolling hills with patches of green and brown fields. The background is dominated by a large, dark, forested hill that is partially obscured by a thick layer of mist or fog. The overall atmosphere is serene and somewhat somber due to the weather conditions.

# Wisconsin Crop Production and Nutrient Needs

# What are Farmers Growing?

- Corn
  - Corn grain 3 million acres
  - Corn silage 980,000 acres
- Soybeans 1.58 million acres
- Small grains (oats, wheat, barley) 600,000 acres
- Alfalfa 1 million acres
- Potatoes 62,500 acres

# Why These Crops?

- Corn
  - Animal feed (1.3 million dairy cows in WI)
  - Ethanol
- Soybeans
  - Animal feed
  - Bio fuels
- Alfalfa
  - Animal feed

# Crop Nutrient Needs & Costs

180 bu/ac corn crop needs:

- 165-190 lbs Nitrogen
- 68 lbs  $P_2O_5$
- 52 lbs  $K_2O$

Cost: \$138/ac

# Crop Nutrient Needs & Costs

Equivalent 24 tons/ac Corn Silage

- 165-190 lbs Nitrogen
- 86 lbs  $P_2O_5$
- 200 lbs  $K_2O$

Cost: \$196/ac

# Crop Nutrient Needs & Costs

## 50 bu/ac Soybean crop needs:

- Soybeans will need 300 lbs of N but make it on their own
- 40 lbs  $P_2O_5$
- 70 lbs  $K_2O$

Cost: \$42/ac

# Crop Nutrient Needs & Costs

## 5 tons/ac Alfalfa

- 300 lbs/ac of N but will make on its own
- 65 lbs  $P_2O_5$
- 300 lbs  $K_2O$

Cost: \$131/ac

# Nutrient Management Plans



Farmer's and Agronomist's World

# Snap Plus Nutrient Management Planning Software

SnapPlus 2.0.13217.1305 - Sample Farm

File View Tools Help

Farm name: Sample Farm.snapDb  
Location: C:\Users\Sturgis\Documents\Crop IMS

Farm Fields Soil Tests **Nutrients** Cropping Daily Log Reports

Farm:  FSA code:

Contact name:  Phone:

Address:

City:  Cell:

State:  Zip:  Fax:

eMail:

Manure/Nutrient Credits  WPDES permitted farm (CAFO)

Do not use 2nd or 3rd year manure credits  
 Use 2nd year manure credits  
 Use 2nd and 3rd year manure credits

Select any crops you might grow for this operation

Unselected Crops Selected Crops

Alfalfa (1st cut) to Corn grain  
Alfalfa (1st cut) to Corn silage  
Alfalfa (1st cut) to Snapbean  
Alfalfa (1st cut) to Sorghum-soybean forage (milage)  
Alfalfa (1st cut) to Sorghum-sudangrass  
Alfalfa (1st cut) to Soybean  
Alfalfa (grassy, yr 3+)  
Alfalfa Seeding Fall  
Alfalfa Seeding Spring  
Alfalfa, fall killed  
Alfalfa/Brome  
Alfalfa/Brome Seeding Fall  
Alfalfa/Brome Seeding Spring  
Alfalfa/Brome, fall killed  
Alfalfa/Grass

Alfalfa  
Corn grain  
Soybeans 7-10 inch row

Plan Completion / Update Date  
2001-01-01

Farm Narrative:

Concentrated flow channel protection:

Select counties for the field locations for this operation

Unselected Counties Selected Counties

Adams  
Ashland  
Barron  
Bayfield  
Brown  
Buffalo  
Burnett  
Calumet  
Chippewa  
Columbia  
Crawford  
Dane

Clark  
Taylor



This calculator converts biosolid lab analysis reports to the proper units for use in SnapPlus. The results shown in the grid below will be inserted as the available nutrient values for this nutrient source.

Source: Bio solids, year 2014

Source type: Biosolid, solid

Material applied as:

Dry tons/acre

Cubic yards/acre

% Solids

Total Kjeldahl Nitrogen (TKN)  % dry matter

Ammonium Nitrogen (NH<sub>4</sub>)  % dry matter

Organic Nitrogen  % dry matter

Potassium (K), Total recoverable  % dry matter

Total Phosphorous (P)  % dry matter

Neutralizing Index (NI)

Available nutrients (lbs/dry ton)

	N Surface	N Incorporated	P2O5	K2O
▶ Application year	29.50	40.50	149.20	5.00
Second year	6.70	6.70	0.00	0.00
Third year	3.00	3.00	0.00	0.00

OK

Cancel

File View Tools Help

Sub-Farm: Show all fields. \* Field: 14 Farm name: Sample Farm.snapDb  
 Group: Show all fields. Location: C:\Users\Sturgis\Documents\Crop IMS

Farm Fields Soil Tests Nutrients Cropping Daily Log Reports

Year	Soil Test	pH	OM	P	K	County	Acres	Pred. Soil	Symbol	Rest	Group	Texture
2014	2012-04-26	6.7	3.0	21	98	Taylor	19.2	Brill	48B	yes	L	Silt Loam

Rotation Wizard Calculate all years Add/Delete Years

Crop Year (Fall to Fall):	2011			2012			2013			2014			2015			2016		
	N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20	N	P205	K20
Crop:	Soybeans 7-10 inch row			Corn grain			Soybeans 7-10 inch row			Corn grain			Soybeans 7-10 inch row			Corn grain		
Yield Goal:	46-55			151-170			56-65			171-190			46-55			151-170		
Tillage:	Fall Chisel, disked			Spring Cultivation			Fall Chisel, disked			Spring Cultivation			Fall Chisel, disked			Spring Cultivation		
Soil Test Date:	2012-04-26			2012-04-26			2012-04-26			2012-04-26			2012-04-26			2012-04-26		
Lime Rec:	NA			0			0			0			0			NA		
Irrigation / MRTN info:	<input type="checkbox"/> Irrigated			<input type="checkbox"/> Irrigated 0.05/MRTN			<input type="checkbox"/> Irrigated			<input type="checkbox"/> Irrigated 0.05/MRTN			<input type="checkbox"/> Irrigated			<input type="checkbox"/> Irrigated 0.05/MRTN		
Season notes:																		
UW Recommendation:	0	0	110	110	30	75	0	25	115	140	35	80	0	20	100	140	30	75
Prior years' extra:	-	0	0	-	0	0	-	204	0	-	216	0	-	191	0	-	171	0
Adjusted UW recommendation:	0	0	110	110	30	75	0	0	115	140	0	80	0	0	100	140	0	75
1st & 2nd year legume credit:	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
2nd year manure credit:	0	0	0	0	0	0	13	0	0	6	0	0	0	-	-	0	0	0
This years' manure:	0	0	0	81	224	8	0	0	0	0	0	0	0	0	0	0	0	0
This years' fertilizer:	0	0	0	5	10	5	0	0	0	5	10	5	0	0	0	5	10	5
Total credits & applications:	0	0	0	86	234	13	13	37	1	11	10	5	0	0	0	5	10	5
Over(+)/Under(-) adj UW rec:	0	0	-110	-24	204	-62	13	37	-114	-129	10	-75	0	0	-100	-135	10	-70
Annual Total Pt:	2			6			2			3			2			2		
Particulate Pt:	1.8			5.8			1.8			2.5			1.6			2.8		
Soluble Pt:	0.0			0.6			0.1			0.1			0.0			0.0		

**Dominant critical soil details:**  
 Name: Brill  
 Symbol: 48B Slope: 4.0  
 Texture: (D) Silt Loam

**Rotation Settings**  
 Start: 2011 Years: 6  
 Contouring:  None  On contour  Strip crop  
 Filter Area:  None  Designed, field edge  Designed, in field

**Summary 2011 to 2016**  
 Avg soil loss: 2.4 t/ac/yr  
 Field "T": 4 t/ac/yr  
 Avg P Index: 3 SCI: 0.3  
 Removal: P205 320 K20 365 lb/ac  
 Balance: P205 -29 K20 -341 lb/ac

Soil test P is 50 or less so no P205 balance target is needed.

Year	Soil Test	pH	OM	P	K	County	Acres	Pred. Soil	Symbol	Rest	Group	Texture
2016	2012-04-26	6.7	3.0	21	98	Taylor	19.2	Brill	48B	yes	L	Silt Loam

Crop Year (Fall to Fall):	2011	2012	2013	2014	2015	2016
Crop:	Soybeans 7-10 inch row	Corn grain	Soybeans 7-10 inch row	Corn grain	Soybeans 7-10 inch row	Corn grain
Yield Goal:	46-55	151-170	56-65	171-190	46-55	151-170
Tillage:	Fall Chisel, disked	Spring Cultivation	Fall Chisel, disked	Spring Cultivation	Fall Chisel, disked	Spring Cultivation
Soil Test Date:	2012-04-26	2012-04-26	2012-04-26	2012-04-26	2012-04-26	2012-04-26
Lime Rec:	NA	0	0	0	0	NA
Irrigation / MRTN info:	<input type="checkbox"/> Irrigated	<input type="checkbox"/> Irrigated 0.05/MRTN	<input type="checkbox"/> Irrigated	<input type="checkbox"/> Irrigated 0.05/MRTN	<input type="checkbox"/> Irrigated	<input type="checkbox"/> Irrigated 0.05/MRTN
Season notes:						
(lbs/acre)	N P205 K20	N P205 K20	N P205 K20	N P205 K20	N P205 K20	N P205 K20
UW Recommendation:	0 0 110	110 30 75	0 25 115	140 35 80	0 20 100	140 30 75
Prior years' extra:	- 0 0	- 0 0	- 204 0	- 216 0	- 415 0	- 395 0
Adjusted UW recommendation:	0 0 110	110 30 75	0 0 115	140 0 80	0 0 100	140 0 75
1st & 2nd year legume credit:	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -
2nd year manure credit:	0 0 0	0 0 0	13 0 0	6 0 0	13 - -	6 0 0
This years' manure:	0 0 0	81 224 8	0 0 0	81 224 8	0 0 0	0 0 0
This years' fertilizer:	0 0 0	5 10 5	0 0 0	5 10 5	0 0 0	5 10 5
Total credits & applications:	0 0 0	86 234 13	13 37 1	92 234 13	13 0 0	11 10 5
Over(+)/Under(-) adj UW rec:	0 0 -110	-24 204 -62	13 37 -114	-48 234 -67	13 0 -100	-129 10 -70
Annual Total Pt:	2	6	2	5	2	3
Particulate Pt:	1.8	5.8	1.8	4.5	1.7	2.9
Soluble Pt:	0.0	0.6	0.1	0.4	0.1	0.1

**Dominant critical soil details:**  
 Name: Brill  
 Symbol: 48B Slope: 4.0  
 Texture: (D) Silt Loam

**Rotation Settings**  
 Start 2011 Years 6  
 Contouring:  None  
 On contour  
 Strip crop  
 Filter Area:  None  
 Designed, field edge  
 Designed, in field

**Summary 2011 to 2016**

Avg soil loss	2.4	t/ac/yr
Field "T"	4	t/ac/yr
Avg P Index	3	SCI 0.3
	P205	K20
Removal	320	365
Balance	195	-333

Soil test P is 50 or less so no P205 balance target is needed.



Year	Soil Test	pH	OM	P	K	County	Acres	Pred. Soil	Symbol	Rest	Group	Texture
2016	2012-04-26	6.7	3.0	21	98	Taylor	19.2	Brill	48B	yes	L	Silt Loam

Rotation Wizard Calculate all years Add/Delete Years

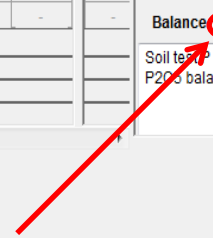
Crop Year (Fall to Fall):  
 Crop: Soybeans 7-10 inch row  
 Yield Goal: 46-55  
 Tillage: Fall Chisel, disked  
 Soil Test Date: 2012-04-26  
 Lime Rec: NA  
 Irrigation / MRTN info:  Irrigated  
 Season notes:  
 (lbs/acre)  
 UW Recommendation:  
 Prior years' extra:  
 Adjusted UW recommendation:  
 1st & 2nd year legume credit:  
 2nd year manure credit:  
 This years' manure:  
 This years' fertilizer:  
 Total credits & applications:  
 Over(+)/Under(-) adj UW rec:  
 Annual Total Pt:  
 Particulate Pt:  
 Soluble Pt:

	2011	2012	2013	2014	2015	2016	
Crop:	Soybeans 7-10 inch row	Corn grain	Soybeans 7-10 inch row	Corn grain	Soybeans 7-10 inch row	Corn grain	
Yield Goal:	46-55	151-170	56-65	171-190	46-55	151-170	
Tillage:	Fall Chisel, disked	Spring Cultivation	Fall Chisel, disked	Spring Cultivation	Fall Chisel, disked	Spring Cultivation	
Soil Test Date:	2012-04-26	2012-04-26	2012-04-26	2012-04-26	2012-04-26	2012-04-26	
Lime Rec:	NA	0	0	0	0	NA	NA
Irrigation / MRTN info:	<input type="checkbox"/> Irrigated	<input type="checkbox"/> Irrigated 0.05/MRTN	<input type="checkbox"/> Irrigated	<input type="checkbox"/> Irrigated 0.05/MRTN	<input type="checkbox"/> Irrigated	<input type="checkbox"/> Irrigated 0.05/MRTN	<input type="checkbox"/> Irrigated
Season notes:							
(lbs/acre)	N P205 K20	N P205 K20	N P205 K20	N P205 K20	N P205 K20	N P205 K20	N P205 K20
UW Recommendation:	0 0 110	110 30 75	0 25 115	140 35 80	0 20 100	140 30 75	
Prior years' extra:	- 0 0	- 0 0	- 204 0	- 216 0	- 415 0	- 395 0	
Adjusted UW recommendation:	0 0 110	110 30 75	0 0 115	140 0 80	0 0 100	140 0 75	
1st & 2nd year legume credit:	0 - -	0 - -	0 - -	0 - -	0 - -	0 - -	
2nd year manure credit:	0 0 0	0 0 0	13 - -	6 - -	13 - -	6 - -	
This years' manure:	0 0 0	81 224 8	0 0 0	81 224 8	0 0 0	81 298 10	
This years' fertilizer:	0 0 0	5 10 5	0 0 0	5 10 5	0 0 0	5 10 5	
Total credits & applications:	0 0 0	86 234 13	13 37 1	92 234 13	13 0 0	92 308 15	
Over(+)/Under(-) adj UW rec:	0 0 -110	-24 204 -62	13 37 -114	-48 234 -67	13 0 -100	-48 308 -60	
Annual Total Pt:	2	6	2	5	2	7	
Particulate Pt:	1.8	5.8	1.8	4.5	1.7	6.0	
Soluble Pt:	0.0	0.6	0.1	0.4	0.1	0.6	

**Dominant critical soil details:**  
 Name: Brill  
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**Rotation Settings**  
 Start 2011 Years 6  
 Contouring:  None  
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**Summary 2011 to 2016**  
 Avg soil loss 2.4 t/ac/yr  
 Field "T" 4 t/ac/yr  
 Avg P Index 4 SCI 0.3  
 P205 K20  
 Removal 320 365 lb/ac  
 Balance 493 -323 lb/ac  
 Soil test P is 50 or less so no P205 balance target is needed.



# Take Away Message

## COMMUNICATION

Communication between the producer and the bio solids supplier is absolutely critical. The producer must communicate his NMP to the supplier and the supplier must communicate the product details to the producer.

# Questions ???



# Contact Information

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