

Spring solids 2017

**SOLIDS WORKSHEET 2 - NUTRIENT BALANCE**

Tract	Field No.	Acres
	H6	11

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation	<input type="text" value="Corn Silage (Ton)"/>		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	<input type="text" value="20.0"/>		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	194	72	160
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold	<input type="text" value="0"/>		
5. Fertilizer Credits (lbs/ac)	<input type="text"/>		
6. Plant Nutrients Needed Minus Credits (lbs/ac)	194	72	160
7. Nutrients in Manure (lbs/ton) Enter lab results in box on right to override Worksheet 1 values	10.6	4.9	8.1
8. Percent Nutrients Retained in System <input type="text" value="Table 1"/> Enter Table 1 values or Enter zero if lab results are used in Step 7	80%	95%	95%
9. Net Retained Nutrients in Manure (lbs./ton)	8.5	4.7	7.7
10. Percent of Available Nutrients Enter Table 2 value for N <input type="text" value="Table 2"/>	35%	80%	100%
11. Net Available Nutrients (lbs./ton)	3.0	3.7	7.7
12. Application Rate (tons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	7	7	7
13. Net Application Amount for All Nutrients (lbs/ac)	21	26	54
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	-173	-46	-106
<b>Tons Available</b> <input type="text" value="269"/> - <b>Tons Applied in Field</b> <input type="text" value="77"/> = <b>Balance</b> <input type="text" value="192"/>			

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7

N	P205	K20
<input type="text"/>	<input type="text"/>	<input type="text"/>

Chosen Application Rate MUST ENTER

<input type="text" value="7"/>
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Go to Worksheet 3 Solids

## SOLIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres
	H7	32

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation	Corn Silage (Ton)		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	20.0		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	194	72	160
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold		72	
5. Fertilizer Credits (lbs/ac)			
6. Plant Nutrients Needed Minus Credits (lbs/ac)	194	72	160
7. Nutrients in Manure (lbs/ton) Enter lab results in box on right to override Worksheet 1 values	10.6	4.9	8.1
8. Percent Nutrients Retained in System First Worksheet 2 values are used or zero if lab results are used	80%	95%	95%
9. Net Retained Nutrients in Manure (lbs./ton)	8.5	4.7	7.7
10. Percent of Available Nutrients Enter Table 2 value for N	35%	80%	100%
	<input type="text" value="Table 2"/>		
11. Net Available Nutrients (lbs./ton)	3.0	3.7	7.7
12. Application Rate (tons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	4	4	4
13. Net Application Amount for All Nutrients (lbs/ac)	12	15	31
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	-182	-57	-129
<b>Tons Available</b> <input type="text" value="192"/> - <b>Tons Applied in Field</b> <input type="text" value="128"/> = <b>Balance</b> <input type="text" value="64"/>			

- 401-500 STP - Phosphorus applications at rates not to exceed the estimated removal of phosphorus in the harvested plant biomass.
- 601-800 STP - Phosphorus applications at rates not to exceed 1/2 of the estimated removal of phosphorus in the harvested plant biomass.
- > 800 STP - Phosphorus applications are no longer allowed (manure may not be land applied in accordance with this guidance).

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
N	P205	K20

Chosen Application Rate MUST ENTER
4

Go to Worksheet 3 Solids

## SOLIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres
	H10	8

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation	<input type="text" value="Corn Silage (Ton)"/>		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	<input type="text" value="20.0"/>		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	194	72	160
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold	<input type="text" value="0"/>		
5. Fertilizer Credits (lbs/ac)	<input type="text"/>		
6. Plant Nutrients Needed Minus Credits (lbs/ac)	194	72	160
7. Nutrients in Manure (lbs/ton) Enter lab results in box on right to override Worksheet 1 values	10.6	4.9	8.1
8. Percent Nutrients Retained in System First Worksheet 2 values are used or zero if lab results are used	80%	95%	95%
9. Net Retained Nutrients in Manure (lbs./ton)	8.5	4.7	7.7
10. Percent of Available Nutrients Enter Table 2 value for N	35%	80%	100%
	<input type="text" value="Table 2"/>		
11. Net Available Nutrients (lbs./ton)	3.0	3.7	7.7
12. Application Rate (tons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	7	7	7
13. Net Application Amount for All Nutrients (lbs/ac)	21	26	54
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	-173	-46	-106
<b>Tons Available</b>	<b>64</b>	<b>-</b>	<b>Tons Applied in Field</b>
			<b>56</b>
		<b>= Balance</b>	<b>8</b>

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
<b>N</b>	<b>P205</b>	<b>K20</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>

<i>Chosen Application Rate MUST ENTER</i>
<input type="text" value="7"/>
<input type="text"/>

Go to Worksheet 3 Solids

**SOLIDS WORKSHEET 3 - APPLICATION RATES AND LAND REQUIREMENTS <sup>1</sup>**

Tract No.										
Field No.	Acres	Soil Test Phosphorus (STP)	Crop Rotation / Sequence	Planned Application Date or Timing	Planned Application Rate <sup>2</sup> (tons/ac)	Solid or Commercial Fertilizer (S or C)	Actual Application Date	Actual Application Rate <sup>2</sup> (tons/ac)	Weather at Time of Application <sup>3</sup> (Cloudy, Raining, Sunny)	
									24 Hours Before	24 Hours After
									H6	11
H7	32	450	Corn Silage (Ton)	Spring 2017	4					
H10	8	126	Corn Silage (Ton)	Spring 2017	7					
0	0	0	0		0					
0	0	0	0		0					
0	0	0	0		0					
0	0	0	0		0					
0	0	0	0		0					
0	0	0	0		0					
0	0	0	0		0					

1. Where land application is occurring under long term lease or agreement with adjacent landowner, fields must be included in the above table.
2. Fields that have a "High" soil test phosphorus (>400) should implement Best Management Practices (BMPs) to reduce the risk of nutrient movement to sensitive waterbodies. BMPs may include, but not be limited to: installing conservation buffers, reducing P<sub>2</sub>O<sub>5</sub> application rate, incorporating manure, adding chemical treatments to litter that tie up soluble P and keep it from moving over the landscape, and/or adjusting application timing.
3. It is illegal to make land applications when the ground is frozen. It is recommended that land applications are not made within 48 hours of forecasted precipitation.

When making a NMP you must ask the farmer if they own their own manure spreader. The maximum for a one time application of solid manure to 10 tons to the acre. If they own a manure spreader, are they willing to go back for a second application? In many cases the producer may be too busy. The reason I put 7 T/ac for fields H6 & H10 was because the P level was much lower than field H6. In this case all three fields has P soil test levels above 45 lbs./ac, so we are not effectively utilizing the Phosphorus in the manure. It would be suggested to put on a field with a P soil test level below 45 lbs./ac, if possible and if the farmer is willing.

**LIQUIDS WORKSHEET 2 - NUTRIENT BALANCE**

Tract	Field No.	Acres	Soil Test P Value (Mehlich 3) <input type="text" value="120"/>		
	H2	32			

1. Crop or Crop Sequence/Rotation

2. Realistic Yield (Average from 5-10 Years on a per acre basis)

3. Plant Nutrients Needed or Allowed (lbs/ac)	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
	228	50	78

4. Adjusted P<sub>2</sub>O<sub>5</sub> Application Rate According to Threshold

5. Fertilizer Credits (lbs/ac)

6. Plant Nutrients Needed Minus Credits (lbs/ac)	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
	228	50	78

7. Nutrients in Manure (lbs/1,000 gallons)  
Enter lab results in box on right to override Worksheet 1 values

	2.0	1.0	2.0
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8. Percent Nutrients Retained in System   
Enter Table 1 values or Enter zero if lab results are used in Step 7

	35%	50%	65%
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9. Net Retained Nutrients in Manure (lbs/1,000 gallons)

	2.0	1.0	2.0
--	-----	-----	-----

10. Percent of Available Nutrients   
Enter Table 2 value for N

	45%	80%	100%
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11. Net Available Nutrients (lbs/1,000 gallons)

	0.9	0.8	2.0
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12. Application Rate (1,000 gallons/ac)  
Application limitations may apply.  
Enter Chosen Application Rate in box on right

	2	2	2
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13. Net Application Amount for All Nutrients (lbs/ac)

	2	2	4
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14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)

	-226	-49	-74
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Gallons Available 356,664 - Gallons Applied in Field 64,000 = Balance 292,664

If applying to a legume, apply based on phosphorus.  
(Unless STP exceeds 600)

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7

N	P205	K20
2	1	2

*Chosen Application Rate*  
**MUST ENTER**

2

Go to Worksheet 3 Liquids

Soybeans are not the best utilization of manure because it is a legume. If the farmer requests applying to the soybeans and will not compromise, then we can still apply to these fields because the soil test P levels are below 800 lbs./ac. At this point you would be inefficiently using nutrients/money.

## LIQUIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres
	H5	19

Soil Test P Value (Mehlich 3)

If applying to a legume, apply based on phosphorus. (Unless STP exceeds 600)

1. Crop or Crop Sequence/Rotation	<input type="text" value="Soybean Grain (Bushel) (legume)"/>		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	<input type="text" value="60.0"/>		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	<input type="text" value="228"/>	<input type="text" value="50"/>	<input type="text" value="78"/>
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold	<input type="text" value="0"/>		
5. Fertilizer Credits (lbs/ac)	<input type="text"/>		
6. Plant Nutrients Needed Minus Credits (lbs/ac)	<input type="text" value="228"/>	<input type="text" value="50"/>	<input type="text" value="78"/>
7. Nutrients in Manure (lbs/1,000 gallons) Enter lab results in box on right to override Worksheet 1 values	<input type="text" value="2.0"/>	<input type="text" value="1.0"/>	<input type="text" value="2.0"/>
8. Percent Nutrients Retained in System First Worksheet 2 values used or zero if lab results are used	<input type="text" value="0%"/>	<input type="text" value="0%"/>	<input type="text" value="0%"/>
9. Net Retained Nutrients in Manure (lbs/1,000 gallons)	<input type="text" value="2.0"/>	<input type="text" value="1.0"/>	<input type="text" value="2.0"/>
10. Percent of Available Nutrients Enter Table 2 value for N	<input type="text" value="45%"/>	<input type="text" value="80%"/>	<input type="text" value="100%"/>
11. Net Available Nutrients (lbs/1,000 gallons)	<input type="text" value="0.9"/>	<input type="text" value="0.8"/>	<input type="text" value="2.0"/>
12. Application Rate (1,000 gallons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="2"/>
13. Net Application Amount for All Nutrients (1,000 gallons/ac)	<input type="text" value="2"/>	<input type="text" value="2"/>	<input type="text" value="4"/>
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	<input type="text" value="-226"/>	<input type="text" value="-49"/>	<input type="text" value="-74"/>

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
N	P205	K20
<input type="text" value="2"/>	<input type="text" value="1"/>	<input type="text" value="2"/>

Chosen Application Rate MUST ENTER
<input type="text" value="2"/>

Gallons Available 292,664 - Gallons Applied in Field 38,000 = Balance 254,664

This field could use phosphorus because the soil test levels show P levels below 45 lbs./ac. If there is a crop rotation in, then the soybean/legume can utilize some N to get the plant started.

## LIQUIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres
	H6	11

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation	<input type="text" value="Corn Silage (Ton)"/>		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	<input type="text" value="20.0"/>		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	194	72	160
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold	<input type="text" value="0"/>		
5. Fertilizer Credits (lbs/ac)	21	26	54
6. Plant Nutrients Needed Minus Credits (lbs/ac)	173	46	106
7. Nutrients in Manure (lbs./1,000 gallons) Enter lab results in box on right to override Worksheet 1 values	2.0	1.0	2.0
8. Percent Nutrients Retained in System First Worksheet 2 values used or zero if lab results are used	0%	0%	0%
9. Net Retained Nutrients in Manure (lbs./1,000 gallons)	2.0	1.0	2.0
10. Percent of Available Nutrients Enter Table 2 value for N	45%	80%	100%
	<input type="text" value="Table 2"/>		
11. Net Available Nutrients (lbs./1,000 gallons)	0.9	0.8	2.0
12. Application Rate (1,000 gallons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	5	5	5
13. Net Application Amount for All Nutrients (1,000 gallons/ac)	5	4	10
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	-169	-42	-96

Gallons Available 254,664 - Gallons Applied in Field 55,000 = Balance 199,664

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
N	P205	K20
2	1	2

Chosen Application Rate MUST ENTER
5

Go to Worksheet 3 Liquids

The fertilizer credit (step. 5) is used because we applied solid & liquid manure as the farmer requested. The numbers come from solid worksheet 2, step 13.

## LIQUIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres
	H7	32

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation	Corn Silage (Ton)		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	20.0		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	194	72	160
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold	72		
5. Fertilizer Credits (lbs/ac)	12	15	31
6. Plant Nutrients Needed Minus Credits (lbs/ac)	182	57	129
7. Nutrients in Manure (lbs./1,000 gallons) Enter lab results in box on right to override Worksheet 1 values	2.0	1.0	2.0
8. Percent Nutrients Retained in System First Worksheet 2 values used or zero if lab results are used	0%	0%	0%
9. Net Retained Nutrients in Manure (lbs./1,000 gallons)	2.0	1.0	2.0
10. Percent of Available Nutrients Enter Table 2 value for N <input type="text" value="Table 2"/>	45%	80%	100%
11. Net Available Nutrients (lbs./1,000 gallons)	0.9	0.8	2.0
12. Application Rate (1,000 gallons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	5	5	5
13. Net Application Amount for All Nutrients (1,000 gallons/ac)	5	4	10
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	-178	-53	-119

Gallons Available 199,664 - Gallons Applied in Field 160,000 = Balance 39,664

• 401-600 STP - Phosphorus applications at rates not to exceed the estimated removal of phosphorus in the harvested plant biomass.  
 • 601-800 STP - Phosphorus applications at rates not to exceed 1/2 of the estimated removal of phosphorus in the harvested plant biomass.  
 • > 800 STP - Phosphorus applications are no longer allowed (manure may not be land applied in accordance with this guidance).

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
N	P205	K20
2	1	2

Chosen Application Rate MUST ENTER
5

Go to Worksheet 3 Liquids

The fertilizer credit (step. 5) is used because we applied solid & liquid manure as the farmer requested. The numbers come from solid worksheet 2, step 13.



## LIQUIDS WORKSHEET 2 - NUTRIENT BALANCE

Tract	Field No.	Acres
	H10	8

Soil Test P Value (Mehlich 3)

1. Crop or Crop Sequence/Rotation	<input type="text" value="Corn Silage (Ton)"/>		
2. Realistic Yield (Average from 5-10 Years on a per acre basis)	<input type="text" value="20.0"/>		
3. Plant Nutrients Needed or Allowed (lbs/ac)	<b>N</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>
	194	72	160
4. Adjusted P <sub>2</sub> O <sub>5</sub> Application Rate According to Threshold	<input type="text" value="0"/>		
5. Fertilizer Credits (lbs/ac)	21	26	54
6. Plant Nutrients Needed Minus Credits (lbs/ac)	173	46	106
7. Nutrients in Manure (lbs./1,000 gallons) Enter lab results in box on right to override Worksheet 1 values	2.0	1.0	2.0
8. Percent Nutrients Retained in System First Worksheet 2 values used or zero if lab results are used	0%	0%	0%
9. Net Retained Nutrients in Manure (lbs./1,000 gallons)	2.0	1.0	2.0
10. Percent of Available Nutrients Enter Table 2 value for N <input type="text" value="Table 2"/>	45%	80%	100%
11. Net Available Nutrients (lbs./1,000 gallons)	0.9	0.8	2.0
12. Application Rate (1,000 gallons/ac) Application limitations may apply. Enter Chosen Application Rate in box on right	5	5	5
13. Net Application Amount for All Nutrients (1,000 gallons/ac)	5	4	10
14. Nutrient Needs (-) or Surpluses (+) (lbs/ac)	-169	-42	-96

Gallons Available 39,664 - Gallons Applied in Field 40,000 = Balance Applied more than Available

Enter Lab Results Here to Override Calculations From Worksheet 1 on Step 7		
N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
2	1	2

Chosen Application Rate MUST ENTER
5

[Go to Worksheet 3 Liquids](#)

The fertilizer credit (step. 5) is used because we applied solid & liquid manure as the farmer requested. The numbers come from solid worksheet 2, step 13.

**LIQUIDS WORKSHEET 3 - APPLICATION RATES AND LAND REQUIREMENTS <sup>1</sup>**

Tract No.											
Field No.	Acres	Soil Test Phosphorus (STP)	Crop Rotation / Sequence	Planned Application Date or Timing	Planned Application Rate <sup>2</sup> (1,000 gal/ac)	Liquid or Commercial Fertilizer (L or C)	Actual Application Date	Actual Application Rate <sup>2</sup> (1,000 gal/ac)	Weather at Time of Application <sup>3</sup> (Cloudy, Raining, Sunny)		
									24 Hours Before	24 Hours After	
H2	32	120	Soybean Grain (Bushel)(legume)	Spring 2017	2						
H5	19	36	Soybean Grain (Bushel)(legume)	Spring 2017	2						
H6	11	79	Corn Silage (Ton)	Spring 2017	5						
H7	32	450	Corn Silage (Ton)	Spring 2017	5						
H10	8	126	Corn Silage (Ton)	Spring 2017	5						
0	0	0	0		0						
0	0	0	0		0						
0	0	0	0		0						
0	0	0	0		0						
0	0	0	0		0						

1. Where land application is occurring under long term lease or agreement with adjacent landowner, fields must be included in the above table.  
 2. Fields that have a "High" soil test phosphorus (>400) should implement Best Management Practices (BMPs) to reduce the risk of nutrient movement to sensitive waterbodies. BMPs may include, but not be limited to: installing conservation buffers, reducing P2O5 application rate, incorporating manure, adding chemical treatments to litter that tie up soluble P and keep it from moving over the landscape, and/or adjusting application timing.  
 3. It illegal to make land applications when the ground is frozen. It is recommended that land applications are not made within 48 hours of forecasted precipitation.

When spreading manure, legumes are usually not the best place to apply because they can create their own Nitrogen. In some cases, such as a crop rotation, applying manure in a small amount can help the legume get started.