

Supplement 3

Nutrient Balance Worksheet User Guide

Completing Nutrient Balance Worksheets for Imported Manure

Nutrient Balance Sheets (NBS) are required within Pennsylvania's Nutrient Management Act (NMA) and Concentrated Animal Feeding Operation (CAFO) programs to meet the manure exporting requirements established for these programs. The Nutrient Balance Sheet, Version 2.0 can be downloaded from the Pennsylvania Nutrient Management Program website (<http://panutrientmgmt.cas.psu.edu/>).

The Nutrient Balance Worksheet includes the following required components:

- Cover Page
- Nutrient Balance Sheet Summary and Summary Notes
- Nutrient Balance Worksheet(s)
- Appendix 1 – Operation Maps
- Appendix 2 – Phosphorus Index (if using Option 3)

This guide provides direction on how to complete the Nutrient Balance Worksheets for the Nutrient Balance Sheet. The worksheet documents appropriate nutrient (manure and fertilizer) application rates, timing and application procedures for the crop management units listed in the NBS. If the importing farm has an approved nutrient management plan a NBS is not required.

To meet the requirements of the NMA or CAFO program, these forms must be developed or signed off by either an Act 38 Nutrient Management Specialists or an Act 49 Manure Broker 2 as certified through the Pennsylvania Department of Agriculture.

The Nutrient Balance Worksheet format provides three options for a farmer to follow in order to determine appropriate manure and fertilizer application rates, taking into account the concerns relating to the application of nitrogen and phosphorus. All three options require that nitrogen not be applied above the amount that the crop will take up the given year, with phosphorus addressed by implementing one of the following options:

1. Application rates based on phosphorus removal of the planned crop with a 150' manure application setback from streams, lakes and ponds.
2. Application rates based on the annual nitrogen requirements of the planned crop with a 150' manure application setback from streams, lakes and ponds. This option is only available for fields that have soil test levels less than 200 ppm phosphorus by Mehlich-3 test.
3. Implementation of the phosphorus index on each crop management unit where manure will be applied.

Complete a worksheet for each crop group on the importing operation. Fields with similar historical and planned management can be combined into a crop group and one worksheet developed for the group. The worksheet Crop Management Unit will need to list the fields covered by that worksheet. The same CMU is likely to appear on several worksheets for a particular farm, as there are various crops that may be grown on that CMU over the crop rotation for the farm.

Check the Manure Plan Basis option that will be followed for the completion of the worksheet. Remember to include maps covering all the fields addressed in the NBS. These maps need to include crop management unit (field) identification, acreage and boundaries, manure application setback areas and buffers and associated landscape features (streams and other water bodies, sinkholes, and active water wells), and location of in-field manure stacking areas (including each site in stacking rotation).

Nutrient Balance Worksheet

CMU/Field Identification <small>(Area must be clearly identified on a map)</small>		Acres	Crop Group		Yield	
Manure Plan Basis <small>(check planning option)</small>	OPTION 1 P Removal	OPTION 2 N Requirement		OPTION 3 P Index		
	<ul style="list-style-type: none"> P removal rates 150' application setback from streams, lakes or ponds 	<ul style="list-style-type: none"> N requirement rates 150' application setback from streams, lakes or ponds Soil test < 200 ppm 		<ul style="list-style-type: none"> P Index evaluation (must be attached) 		
	Will P banking be used?		Soil Test P (ppm)			
	No					
	Yes, for _____ years.					
(Use the P ₂ O ₅ column to determine acceptable rate)		(Use the N column to determine acceptable rate)		(Use appropriate column based on the P Index to determine acceptable rate)		
Manure Type	Manure Analysis (lb/ton or 1000 gal)			Application Timing	Application Method	
	Total N	P₂O₅	K₂O			
Notes						

	N ¹	P ₂ O ₅ ¹	K ₂ O ¹	Recommendation Basis
A) Recommendation or Removal (lb/A) <small>N – Soil Test or Tables 1 & 2 (AG Table 1.2-6; 1.2-8) P₂O₅ & K₂O – Soil Test or Table 3 (AG Table 1.2-9)</small>				Soil Tests
B) Fertilizer Applied (lb/A) <small>(Regardless of Manure e.g. Starter)</small>				Crop Removal
C) Other Organic Sources Applied (lb/A) <small>(e.g. Biosolids, Other Manure)</small>				Application Record & Notes <small>Record when the planned manure and fertilizer rates were applied or note changes.</small>
D) Residual Manure N (lb/A) <small>Table 4 (AG Table 1.2-14B)</small>				
E) Previous Legume N (lb/A) <small>Table 5 (AG Table 1.2-7) or Soil Test Report</small>				
F) Net Nutrient Requirement (lb/A) <small>(A – B – C – D – E)</small>				
G) Manure Nutrient Content (lb/ton or lb/1000gal)				
H) Nitrogen Availability Factor <small>Table 6 (AG Table 1.2-14A)</small>				
I) Available Nitrogen (lb/ton or lb/1000gal) (G x H)				
J) Balanced Manure Rate (tons/A or gallons/A) <small>For N: (F ÷ I) For P: (F ÷ G)</small>				
K) Planned Manure Rate (tons/A or gallons/A) <small>Must be less than or equal to the appropriate Balanced Rate based on the plan basis being used</small>				
L) Nutrients Applied at Planned Rate (lb/A) For N: (K x I) For P & K: (K x G)				
M) Nutrient Balance at Planned Rate (lb/A) (F - L) (Indicate short or excess)				

¹ Completion of N column required for all options; P₂O₅ column is optional for N based rates; K₂O is optional for all rates.

Completing Nutrient Balance Worksheets

Completing the Information Section

Three questions need to be answered from input provided by the operator of the importing operation.

1. **What crop groups will receive the imported manure?** A separate worksheet must be completed for each crop group and may be used for multiple years.
2. **What manure plan basis will be used to determine application rates?** If option 1 is selected the option of P banking should be discussed with the operator. Option 2 and 3 will require soil tests.
3. **What application management will be used?** Specifically, when will the manure be applied and will it be incorporated?

The information received from the importing operation and the manure analysis results obtained from the exporting operation will be used to complete the first section of the worksheet.

- List the crop group, expected yield, the fields that potentially could receive this imported manure, and the total combined acreage of those fields.
- Check the manure planning base option that will be used to determine manure application rates. For Option 1 complete the P banking information. For Option 2 and 3 list the soil test ppm P for the fields listed on the worksheet. If there are too many fields to list on the worksheet, a separate summary sheet may be attached to the Nutrient Balance Sheet.
- Record the manure type and analysis and the application management information.

Completing the Manure Application Rate Section

In addition to the three questions above, the importing operator should also determine which of the three nutrient columns (N, P₂O₅ or K₂O) will be completed. The N column must be completed on all worksheets. The P₂O₅ column is optional for N based rates and the K₂O column is optional for all rates.

If soil test recommendations will be used as the basis of determining the manure rate, the nutrient balance numbers are valuable to the importing operator in determining supplemental fertilizer needs. However, if crop removal figures are used as the starting point, the nutrient balance numbers are not a reliable indicator of additional fertilizer needs. The information “Note” at the bottom of the worksheet should be explained to the importing operator.

Row A – Recommendation or Removal

- The recommendations are obtained from soil test reports. Crop removal figures come from Tables 1, 2 or 3. Soil test reports, if available, should be used instead of the nutrient removal tables. Complete the “Recommendation Basis” box. When using the P Banking Option, add the P removal values for each of the crops in the two or three year term.

Row B – Fertilizer Applied

- The fertilizer nutrients listed here are from fertilizer, such as starter or herbicide carrier that will be applied regardless of the amount of manure nutrients applied.

Row C – Other Organic Sources Applied

- In this row list the amount of nutrients from other sources such as other manure applications, biosolid applications, or uncollected manure on pastures.

Row D – Residual Manure N

- This is an estimate of how much nitrogen will be available to the crop from previous manure applications. Use Table 4 to determine this value in the N column.

Row E – Previous Legume N

- This is an estimate of how much nitrogen will be available to the crop following a previous legume crop. Use Table 5 to determine this value in the N column.

Row F – Net Nutrient Requirement

- To obtain these values subtract the nutrient amounts from rows B, C, D and E from the recommendations in Row A.

Row G – Manure Nutrient Content

- Transfer the appropriate values from the manure analysis values of the imported manure listed in the upper section of the worksheet.

Row H – Nitrogen Availability Factor

- Only a portion of the total nitrogen is available to the crop in the year the manure is applied. Use Table 6 to select an N availability factor and list it in the N column. The table considers four aspects to determine this factor: the crop, season of application, application management with respect to incorporation, and the manure type use.

Row I – Available Nitrogen

- Multiply the nitrogen content of the manure (Row G) by the nitrogen availability factor (Row H) to obtain this number and list it in the N column.

Row J – Balanced Manure Rate

- Use the appropriate column to determine this manure rate. For P removal rates use the P_2O_5 column. For N requirement rates use the N column.
- For nitrogen divide the net N requirement (Row F) by the available nitrogen (Row I) and place in the N column.
- For P_2O_5 divide the net P_2O_5 requirement (Row F) by the P_2O_5 content of the manure (Row G) and place in P_2O_5 column.
- The balance rate is the maximum amount of this manure type that can be applied for the nutrient being considered.

Row K – Planned Manure Rate

- This is the actual planned manure rate. The planned rate cannot exceed the balanced rate. It should be based on the application equipment capabilities determined by calibration.

Row L – Nutrients Applied at Planned Rate

- For nitrogen multiply the planned rate (Row K) by the available nitrogen (Row I).
- For P_2O_5 and K_2O multiply the planned rate (Row K) by the manure nutrient content (Row G).

Row M – Nutrient Balance at Planned Rate

- Subtract the nutrients applied at the planned rate (Row L) from the net nutrients required (Row F).
- This will indicate if more fertilizer or other sources of nutrients are required to meet crop production (yield) goals. **Note:** Nutrient balances for P_2O_5 and K_2O based on crop

removal (Row A) should not be used to determine additional fertilizer needs. Only recommendations based on soil tests should be used for this purpose.

Completing the Summary Sheets

The summary sheets are completed by transferring the required information from each of the worksheets included in the Nutrient Balance Sheet.

The Summary Notes sheet includes two required notes related to the use of the P banking option as part of Option 1 and the use crop removal values in Row A of the worksheet.

Nutrient Balance Worksheet Examples

Following the tables are two examples of completed Nutrient Balance Worksheets. In addition, the required information from the two worksheets is summarized in the Nutrient Balance Sheet Summary and Summary Notes.

The first example is for **Option 1, Manure Rates Based on P Removal.**

The second example is for **Option 2, Manure Rates Based on N Required.**

Table 1. Nitrogen recommendations for agronomic crops. (Table 1.2-6, Penn State Agronomy Guide)

These are base recommendations and should be adjusted for previous crop, previous manure history, and planned manure applications (see “Manure Nutrient Management” section).

Crop	Recommendation (lb N/unit of expected yield)	Comments
Corn grain	1	For better N efficiency, delay application of the nitrogen until the corn is between 10 and 20 inches tall. If the field has a history of manure and/or legumes, delay all of the N. If there is no history of manure and/or legumes, split the N, applying one-third near to planting and delaying the balance. Adjust this recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 or 1.2-15). The PSNT or chlorophyll meter test can be used to refine N recommendations for corn, especially where manure is a major nutrient source.
Corn silage	7	For better N efficiency, delay application of the nitrogen until the corn is between 10 and 20 inches tall. If the field has a history of manure and/or legumes, delay all of the N. If there is no history of manure and/or legumes, split the N, applying one-third near to planting and delaying the balance. Adjust this recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 or 1.2-15). The PSNT or chlorophyll meter test can be used to refine N recommendations for corn, especially where manure is a major nutrient source.
Grain sorghum	0.75	Adjust this recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 or 1.2-15).
Forage sorghum	7	Adjust this recommendation for any previous legume in the rotation (see Table 1.2-8) and for residual N from previous manure applications (see Tables 1.2-14 or 1.2-15).
Oats	0.8	Apply the N with any other fertilizer before planting. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 or 1.2-15).
Wheat/Rye	1.0	If plants did not tiller well, apply N by mid-March; otherwise, apply any time up to growth stage 5. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 or 1.2-15).
Barley	0.8	If plants did not tiller well, apply N by mid-March; otherwise, apply any time up to growth stage 5. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 or 1.2-15).
Small grain silage	17	Apply at greenup in the spring.
Grass hay	50	Split the nitrogen recommendation and apply it based on the expected yield for each cutting. For grass-legume mixtures, if the legume is more than 50% of the stand, the field should be managed as a legume; thus, no nitrogen is recommended. Adjust this recommendation for any residual N from previous manure applications (see Tables 1.2-14 or 1.2-15).

Table 2. Nitrogen removal by legumes. (Table 1.2-8, Penn State Agronomy Guide)

Legume crop (no nitrogen application recommended)	Pounds of N removed/unit of yield	Pounds of N removed/A	Comments
Alfalfa (5 ton/A)	50	250	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.
Clover (3.5 ton/A)	40	140	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.
Trefoil (3.5 ton/A)	50	175	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.
Soybeans (40 bu/A)	3.2	130	Although legumes will use N from manure and other sources, applying N may increase the competition from weeds and grasses. If you apply manure, limit it to an application rate that balances the crop's P requirement.

Table 3. Typical crop nutrient removal for phosphorus and potassium. (Table 1.2-9, Penn State Agronomy Guide)

Crop (units)	Per unit of yield		Typical yield/A	Removal for given yield	
	P ₂ O ₅	K ₂ O		P ₂ O ₅	K ₂ O
Corn (bu)	0.4	0.3	125 (bu)	50	40
Corn silage (T) ¹	5.0	11.0	21 (T)	105	230
Grain sorghum (bu)	0.6	0.8	125 (bu)	75	100
Forage sorghum (T) ¹	3.0	10.0	15 (T)	45	150
Sorghum/sudangrass ¹	7.0	7.0	15 (T)	105	105
Alfalfa (T) ^{2,3}	15.0	50.0	5 (T)	75	250
Red Clover (T) ^{2,3}	15.0	40.0	3.5 (T)	55	140
Trefoil (T) ^{2,3}	15.0	40.0	3.5 (T)	55	140
Cool-season grass (T) ^{2,3}	15.0	50.0	4 (T)	60	200
Bluegrass (T) ^{2,3}	10.0	30.0	2.5 (T)	25	75
Wheat/rye (bu) ⁴	1.0	1.8	60 (bu)	60	110
Oats (bu) ⁴	0.9	1.5	80 (bu)	70	120
Barley (bu) ⁴	0.6	1.5	75 (bu)	45	110
Soybeans (bu)	1.0	1.4	40 (bu)	40	55
Small grain silage (T) ¹	7.0	26.0	6 (T)	40	160

¹ 65 percent moisture.

² For legume-grass mixtures, use the predominant species in the mixture.

³ 10 percent moisture.

⁴ Includes straw.

Table 4. Manure nitrogen availability factors for use in determining manure application rates based on planning conditions. (Table 1.2-14B, Penn State Agronomy Guide)

B. Historical Frequency of Manure Application on the Field

To use this table, determine the frequency of manure application and go across to the amount of residual N that is available from past manure applications. Deduct this amount of residual N from the basic N recommendation before determining any additional fertilizer or manure application rates.

	Residual N availability (lbs N/A)
Rarely received manure in the past (< 2 out of 5 years)	0
Frequently received manure (2 - 3 out of 5 years)	20
Continuously received manure (4 - 5 out of 5 years)	35

Table 5. Residual nitrogen contributions from legumes. (Table 1.2-7 Penn State Agronomy Guide)

Previous crop ¹	Percent stand	High-productivity fields (Soil productivity group 1) ²	Moderate-productivity fields (Soil productivity groups 2 & 3) ²	Low-productivity fields (Soil productivity groups 4 & 5) ²
Nitrogen credit (lbs/A)				
First year after alfalfa	>50 stand	120	110	80
	25–49 stand	80	70	60
	<25 stand	40	40	40
First year after clover or trefoil	>50 stand	90	80	60
	25–49 stand	60	60	50
	<25 stand	40	40	40
First year after soybeans harvested for grain	1 lb N/bu soybeans			

1. When a previous legume crop is checked on the Penn State soil test information sheet, the residual nitrogen for the year following the legume is calculated and given on the report. This credit should be deducted from the N recommendation given on the soil test report.
2. See Agronomy Guide Table 1.1-1 in the basic soils section for information on soil productivity groups.

Table 6. Manure nitrogen availability factors for use in determining manure application rates based on planning conditions. (Table 1.2-14A, Penn State Agronomy Guide)

A. Current Year

To use this table find the *planned manure application season* in the left column, then move to the right in that row and select the *Target Crop Utilization*. Continue to the right in that row to find the *nitrogen availability factor* for the *planned manure application management*.

Planned manure application season	Planned manure target crop utilization	Application management	Nitrogen availability factor ¹		
			Poultry manure	Swine manure	Other manure
Spring or Summer	Spring utilization by grass hay and small grains. Summer utilization by corn, other summer annuals, and grass hay.	Incorporation the same day	0.75	0.70	0.50
		Incorporation within 1 day	0.50	0.60	0.40
		Incorporation within 2–4 days	0.45	0.40	0.35
		Incorporation within 5–7 days	0.30	0.30	0.30
		Incorporation after 7 days or no incorporation	0.15	0.20	0.20
Early Fall ²	Fall and spring utilization by grass hay and small grains.	Incorporation within 2 days	0.50	0.45	0.40
		Incorporation within 3–7 days	0.30	0.30	0.30
		Incorporation after 7 days or no incorporation	0.15	0.20	0.20
	Following summer utilization by corn and other summer annuals.	All situations	0.15	0.20	0.20
Late Fall or Winter ³	Spring utilization by small grains and grass hay.	All situations	0.50	0.45	0.40
	Following summer utilization by corn or other summer annuals.	No cover crop	0.15	0.20	0.20
		Cover crop harvested for silage	0.15	0.20	0.20
		Cover crop used as green manure	0.50	0.45	0.40
Grazing	Late spring through early fall grazing	Manure deposited more or less continuously by grazing cattle	----	----	0.20
	Year-round grazing	Manure deposited more or less continuously by grazing cattle	----	----	0.30

¹ Multiply this factor times the manure N content to estimate the manure N available for the planning conditions.

² Early fall would be when it is still warm enough for plant growth and microbial activity to continue (soil temperature >50°F at 2").

³ Late fall and winter is when it is so cold that there is no plant growth or microbial activity (soil temperature <50°F at 2").

Nutrient Balance Worksheet

CMU/Field Identification <small>(Area must be clearly identified on a map)</small>		Acres	Crop Group		Yield	
Neighbor 1, 3, 4		50	Corn Silage		21 T/A	
Manure Plan Basis <small>(check planning option)</small>	OPTION 1 P Removal	X	OPTION 2 N Requirement		OPTION 3 P Index	
	<ul style="list-style-type: none"> P removal rates 150' application setback from streams, lakes or ponds 		<ul style="list-style-type: none"> N requirement rates 150' application setback from streams, lakes or ponds Soil test < 200 ppm 		<ul style="list-style-type: none"> P Index evaluation (must be attached) 	
	Will P banking be used?	Soil Test P (ppm)				
	X	No				
		Yes, for	years.			
<small>(Use the P₂O₅ column to determine acceptable rate)</small>		<small>(Use the N column to determine acceptable rate)</small>		<small>(Use appropriate column based on the P Index to determine acceptable rate)</small>		
Manure Type	Manure Analysis (lb/ton or 1000 gal)			Application Timing	Application Method	
Broiler Litter	Total N	P₂O₅	K₂O	Spring	Surface applied; 5-7 day incorporation	
65	54	49				
Notes	This farm receives manure annually and the farmer applies 100 lb/A of 10-20-10 starter fertilizer.					

	N ¹	P ₂ O ₅ ¹	K ₂ O ¹	Recommendation Basis
A) Recommendation or Removal (lb/A) <small>N – Soil Test or Tables 1 & 2 (AG Table 1.2-6; 1.2-8) P₂O₅ & K₂O – Soil Test or Table 3 (AG Table 1.2-9)</small>	150	105		Soil Tests X Crop Removal
B) Fertilizer Applied (lb/A) <small>(Regardless of Manure e.g. Starter)</small>	10	20		Application Record & Notes <small>Record when the planned manure and fertilizer rates were applied or note changes.</small>
C) Other Organic Sources Applied (lb/A) <small>(e.g. Biosolids, Other Manure)</small>	0	0		
D) Residual Manure N (lb/A) <small>Table 4 (AG Table 1.2-14B)</small>	35			
E) Previous Legume N (lb/A) <small>Table 5 (AG Table 1.2-7) or Soil Test Report</small>	0			
F) Net Nutrient Requirement (lb/A) <small>(A – B – C – D – E)</small>	105	85		
G) Manure Nutrient Content (lb/ton or lb/1000gal)	65	54		
H) Nitrogen Availability Factor <small>Table 6 (AG Table 1.2-14A)</small>	.3			
I) Available Nitrogen (lb/ton or lb/1000gal) (G x H)	19.5			
J) Balanced Manure Rate (tons/A or gallons/A) <small>For N: (F ÷ I) For P: (F ÷ G)</small>	NA	1.6		
K) Planned Manure Rate (tons/A or gallons/A) <small>Must be less than or equal to the appropriate Balanced Rate based on the plan basis being used</small>	1.5 tons/A			
L) Nutrients Applied at Planned Rate (lb/A) For N: (K x I) For P & K: (K x G)	29	81		Note: Nutrient balances for P ₂ O ₅ and K ₂ O based on crop removal (Row A) should not be used to determine additional fertilizer needs. Only recommendations based on soil tests should be used for this purpose.
M) Nutrient Balance at Planned Rate (lb/A) (F - L) (Indicate short or excess)	76 short	4 short		

¹ Completion of N column required for all options; P₂O₅ column is optional for N based rates; K₂O is optional for all rates.

Nutrient Balance Worksheet

CMU/Field Identification <small>(Area must be clearly identified on a map)</small>			Acres	Crop Group	Yield	
Neighbor 2, 5, 6			50	Corn Silage	21 T/A	
Manure Plan Basis <small>(check planning option)</small>	OPTION 1 P Removal		OPTION 2 N Requirement		X	
	<ul style="list-style-type: none"> P removal rates 150' application setback from streams, lakes or ponds 		<ul style="list-style-type: none"> N requirement rates 150' application setback from streams, lakes or ponds Soil test < 200 ppm 		<ul style="list-style-type: none"> P Index evaluation (must be attached) 	
	Will P banking be used?		Soil Test P (ppm)			
	No		64, 78, 57			
	Yes, for _____ years.					
<small>(Use the P₂O₅ column to determine acceptable rate)</small>		<small>(Use the N column to determine acceptable rate)</small>		<small>(Use appropriate column based on the P Index to determine acceptable rate)</small>		
Manure Type	Manure Analysis (lb/ton or 1000 gal)			Application Timing	Application Method	
Broiler Litter	Total N	P₂O₅	K₂O	Spring	Surface applied; 5-7 day incorporation	
Notes	This farm receives manure annually and the farmer applies 100 lb/A of 10-20-10 starter fertilizer.					

	N ¹	P ₂ O ₅ ¹	K ₂ O ¹	Recommendation Basis	
A) Recommendation or Removal (lb/A) <small>N – Soil Test or Tables 1 & 2 (AG Table 1.2-6;1.2-8) P₂O₅ & K₂O – Soil Test or Table 3 (AG Table 1.2-9)</small>	150			X	Soil Tests
B) Fertilizer Applied (lb/A) <small>(Regardless of Manure e.g. Starter)</small>	10				Crop Removal
C) Other Organic Sources Applied (lb/A) <small>(e.g. Biosolids, Other Manure)</small>	0			Application Record & Notes <small>Record when the planned manure and fertilizer rates were applied or note changes.</small>	
D) Residual Manure N (lb/A) <small>Table 4 (AG Table 1.2-14B)</small>	35				
E) Previous Legume N (lb/A) <small>Table 5 (AG Table 1.2-7) or Soil Test Report</small>	0				
F) Net Nutrient Requirement (lb/A) <small>(A – B – C – D – E)</small>	105				
G) Manure Nutrient Content <small>(lb/ton or lb/1000gal)</small>	65				
H) Nitrogen Availability Factor <small>Table 6 (AG Table 1.2-14A)</small>	.3				
I) Available Nitrogen <small>(lb/ton or lb/1000gal) (G x H)</small>	19.5				
J) Balanced Manure Rate <small>(tons/A or gallons/A) For N: (F ÷ I) For P: (F ÷ G)</small>	5.4				
K) Planned Manure Rate <small>(tons/A or gallons/A) Must be less than or equal to the appropriate Balanced Rate based on the plan basis being used</small>	5 tons/A				
L) Nutrients Applied at Planned Rate <small>(lb/A) For N: (K x I) For P & K: (K x G)</small>	98				
M) Nutrient Balance at Planned Rate <small>(lb/A) (F - L) (Indicate short or excess)</small>	7 short				

Completion of N column required for all options; P₂O₅ column is optional for N based rates; K₂O is optional for all rates.

Nutrient Balance Sheet Summary

CMU/ Field ID	Crop Group	Manure Group	Application Season	Application Management	Planned Manure Rate	Starter/Other Fertilizer (lb/A)			Nutrient Balance @ Planned Rate (lb/A) ¹			Notes (check)
						N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Neighbor 1, 3, 4	Corn Silage	Broiler Litter	Spring	Surface applied; 5-7 day incorp.	1.5 tons/A	10	20	10	76	4		✓
Neighbor 2, 5, 6	Corn Silage	Broiler Litter	Spring	Surface applied; 5-7 day incorp.	5 tons/A	10	20	10	7			✓

¹ Positive numbers = nutrient deficit; negative numbers = nutrient excess

