#### **Purpose:**

This procedure describes the process to complete the App Input, (Appendix 4 Crop & Manure Management), Worksheet. All of the field or Crop Management Unit, (CMU), information is entered in one row including the Phosphorous Index, and Winter Manure Application Matrix information.

This is a worksheet that requires data entry and has a yellow colored worksheet tab in the NMP workbook. There is also a hyperlink to this worksheet in the NMP Index.

Look for a tab in the NMP Spreadsheet that looks like this:

Create Farm Crop List	App 4 Input	NMP Summary	
-----------------------	-------------	-------------	--

Here you will enter all the information in a row to complete a field. A maximum of 500 rows can be completed.

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Each field contains the following sections within a row of the App 4 Input worksheet.

- Field Information
- P Index Part A Questions
- Crop Information
- Soil Test Recommendations
- Starter Fertilizer
- Residual and Carryover Nitrogen
- Manure Application Information
- Manure Rate
- Balance after Manure
- Supplemental Fertilizer

- Final Nutrient Balance
- P Index Information
- Winter Matrix Information
- Field Notes

Within Each section are individual columns where information is entered or transferred. <u>The blue column headers with</u> <u>red triangles cells have helpful pop up notes</u> included to help you understand what needs to be entered or what the cell data is used for.

For example when you click in the blue column header "Field Count", the following pop-up box will appear:

- 4	A	В	C	D E	F	G	H	1	J	K	
1		L	ock App 4 In	put	Unloc	k App 4 I	Input				
2			Field	Information				>>>Ans Soil test	P Index I swer these Pa and Winter ch	Part A rt A Question ecked autom	ns na
3	Field or CMU ID	Field Count	Field Count The Field Cou crops or mu	t unt keeps track Itiple manure ap	of the number	of instanc	es of a f	field when o	completing d	ouble t	
4	A1	A1.1	The cell resu	It is populated a	utomatically.						
	App 4 I	nput									

In each row of the worksheet there are yellow, white, and grey cells.

- Yellow cells: are for data entry.
- White cells: contain information that's returned from a database look up. Don't enter data into the white cells.
- Grey cells: are conditionally formatted to turn yellow <u>if you need to enter data</u>. For example if you entered a starter P fertilizer and it's a P index field you will need to make a selection for the P Index Application Method. You can make a selection in a grey cell but if it's grey, you don't need to enter the information and it should be blank.

<u>The App 4 Input is only used for data entry and is not printed for submission</u>. Once you complete the appropriate sections in a field row the information is transferred to the printed worksheets that will be submitted for review and approval. The printed worksheets automatically populated from the App 4 Input sheet are:

- Appendix 4 Crop and Manure Mgmt.
- Appendix 5 P Index
- Winter Application Matrix

They are grey colored tabs in the workbook. <u>There is no data entry required in these worksheets since all information is</u> <u>transferred from the App 4 Input sheet.</u>

Appendix 4 Crop & Manure Mgmt.	Appendix 5 P Index	Appendix 10 Supporting Info	Manure Avg Printed	Winter Application Matrix

This guide only describes how to complete a single field within the App 4 Input sheet. For guidance on how to complete multiple applications of manure on a field or a double crop scenario, there are two separate guidance documents. They are listed in the references section of this handout.

There are two buttons on the top row of the App 4 Input sheet named "Unlock App 4 Input" and "Lock App 4 Input". You can click on them to unlock and lock the spreadsheet.



When the spreadsheet is unlocked the top row will be red and you can:

• Insert and delete rows.

When the spreadsheet is <u>locked</u>, the top row will be green. The spreadsheet is locked by default. Keep the worksheet locked, (top row green), so you can simply press enter to go to the next yellow data entry cell. There are cells that are not for data entry and when you are in the unlocked mode and press enter you can inadvertently enter a white cell and delete the formula.

Navigating this worksheet will be easier if your cursor is set to move to the right after pressing enter. To set your cursor to move to the right, Click on the file tab in the upper left hand corner of the worksheet



Select the Options icon.

Print	
Save & Send	
Help	
Options	
🔀 Exit	

Click on the "Advanced" tab and set the direction to "Right" after pressing enter, move selection. Then click OK

Excel Options	
General	Advanced options for working with Excel.
Formulas	
Proofing	Editing options
Save	After pressing Enter, <u>m</u> ove selection
Language	Direction: Right 🔽
Advanced	Automatically insert a <u>d</u> ecimal point Places: 2
Customize Ribbon	Enable fill handle and cell <u>d</u> rag-and-drop
Quick Access Toolbar	Allow editing directly in cells
	OK Cancel

#### 1. Procedure

**1.1.** Select the "App 4 Input" worksheet tab and complete the Field Section in the first empty yellow shaded row as follows:

#### 1.1..1. Enter the CMU of Field ID.

Avoid special characters like: . @ & # as they may interfere with the calculations. The field count cell is used to keep track of multiple applications and double crops. You don't need to enter anything here. (Remember a white cell is a formula cell and no data entry is needed.)

- Enter the Field or CMU acres
- Enter the Soil Sample Date
- Enter the Soil Testing Lab Name
- Enter the soil test pH result
- Enter the soil test P result in ppm. (Make sure the soil test P lab result was reported in Mehlich 3 soil test values ppm P)
- Enter the soil test K result in ppm.



#### 1.2. Complete the P Index Part A Questions Section

**1.2..1.** Review the P Index questions: Special Protection Watershed, Significant Farm Management Change, and <150 feet from water. Place an "X" if they apply to the field. You can select an "X" using the drop down box or enter an

"X". <u>If none of the Part B questions apply you must place an X in the "No to All Part A Questions" cell</u>. This acknowledges you reviewed this section and none of the Part A questions apply.

The soil test P and Winter Application Part B test is checked automatically. Completing the winter matrix is discussed in Section 1.13.

The P Index Part A result cell will return an answer based on your selections to the questions. In the example below No to all part A questions is checked but the P Index Part A result is "Part B" because the soil test is greater than 200ppm.

	A	G	Н		J	K	L	М	N
1		Unlock	App 4 Ir	nput					
2				>>>Ans Soil test a Yo	P Index P swer these Par and Winter che ou must click o	art A rt A Questio ecked autor one of these	ns<<< natically e		
3	Field #	P (ppm)	K (ppm)	No to these Part A Questions →	Special Protection Watershed	Farm Mgmt Change	<150 ft from water	Run P Index Part B	P Index Part A Result
4	A1	250	187	x					Part B

There is an option to run the P Index voluntarily if none of the Part A questions apply. Place an X in the "Run P Index Part B" column and the field will be included in the P Index.

In the example below, the soil test was less than 200ppm P and none of the Part A questions apply. The "Run P Index Par B" column was selected and the P Index Part A result will state "Part B".

- 24	А	G	Н		J	К	L	М	N	
1		Unlock	Unlock App 4 Input							
2				ns<<< natically e						
3	Field #	P (ppm)	K (ppm)	No to these Part A Questions →	Special Protection Watershed	Farm Mgmt Change	<150 ft from water	Run P Index Part B	P Index Part A Result	
4	A1	185	187	x				x	Part B	

Remember you can click in the blue column headers to get a pop-up note to help you complete the selections.

#### **1.3.** Complete the Crop Information Section

**1.3..1. Crop:** Select the crop from the drop down list. This cell is a drop down list of farm specific crops. To make a farm specific crop list go to the "Create Farm Crops List worksheet" and select the crops that are planned to be planted. All of the crops in the AASL Soil Test Recommendations for Agronomic Crops are listed here. If the crop isn't in

the list you can add a crop in the Crop Lists Option worksheet. After you select the crop the worksheet will assign the appropriate crop units. For example if you select corn silage then the crop unit of ton/A will be assigned.

- **1.3..2. Double Crop:** This example is only a single crop in a crop year so it will be left blank. If a double crop was planned for this field then either "Winter crop in a double crop" or "Summer crop in a double crop" would be selected. Remember a winter crop always needs to be completed first before a summer crop in a double crop scenario.
- **1.3..3. Yield:** Enter the expected crop yield. After you select the crop and yield the worksheet will assign the appropriate crop units. For example if you select corn silage then the crop unit of ton/A will be assigned.

4	A	0	Р	Q	R
1			Lock App	4 Input	
2		Сгор І	nformation		
3	Field #	Сгор	Double Crop	Yield	Units
4	A1	Corn for Silage		25	ton/A

#### 1.4. Review the Crop PSU and User Recommendations Section.

**1.4..1.** The crop and yield information is used to look up the recommendations based on the soil test results in the AASL Soil Test Recommendations for Agronomic Crops.

For example if a field had a soil test result of 250ppm P and 187 ppm K and you entered corn silage @ 25 ton/A you would get the example below:

- 24	A	0	Р	Q	R	S	Т	U
1			Lo	ock App	4 Input			
2		Сгор І	nformation			PSU R	ecommend	ations
3	Field #	Сгор	Double Crop	Yield	Units	PSU N Ibs/A	PSU P₂O₅ Ibs/A	PSU K₂O Ibs/A
4	A1	Corn for Silage		25	ton/A	200	0	20

Regulations require that recommendations are "similar" to AASL recommendations. However, the regulations do allow other recommendations. These alternative recommendations can be entered in the User N, User P, and User K columns as lbs. N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O/A. If User Recommendations are entered, these will be used for the calculations in the plan. Leave the User Recommendations blank to use the AASL recommendations. If you enter zeros for the User Recommendations then any N, P2O5, K2O applied will be calculated as excess and give a negative nutrient balance after manure. Even if User Recommendations are entered and used in the calculations, the AASL recommendations will be displayed in the plan printout for comparison in the review process. If you

enter a yield that's outside the range listed in the AASL Soil Test Recommendations for Agronomic Crops an asterisk \* will be in the PSU recommendation cells. You will need to enter user recommendations in the cells provided. You may also need to enter user recommendations for crops that are not in the AASL Recommendations for Agronomic Crops list.



#### 1.5. Enter the Starter Fertilizer

1.5..1. Enter a value for the starter fertilizer. The starter fertilizer must be listed in the first instance of a field when completing multiple manure applications or double crops. If there is no starter applied enter a zero "0" in each of the cells or the spreadsheet won't calculate properly when working on a plan that's been transferred from a <u>Version 4.x plan</u>. If the field is a P Index "Part B" field and a value is entered for the P fertilizer then the P Index application method cell will change from grey to yellow requiring you to select an application method. If you don't enter a starter P fertilizer and you select an application method the factor will appear in the P index but there will be no lbs. of P fertilizer associated with it. This can be confusing to reviewers when you have a lot of applications. If the P index application method cell is grey do not enter a P Index Application Method, or if one has been entered, delete the text.



#### 1.6. Complete the Residual and Carryover Nitrogen

**1.6..1.** Residual Manure N - Select the residual manure description that best fits the field history. These are the residual manure histories found in Agronomy Guide Table 1.2-14 B

	Residual and Ca	rryover Nitrogen
Field #	Residual Manure N	Legume N
A4		<b>-</b>
	Frequently - Summer Crop Frequently - Winter Crop Frequently - Winter Double Cr Frequently - Summer Double Continuously - Summer Crop Continuously - Winter Crop Continuously - Winter Double Continuously - Summer Double	

**1.6..2.** Carryover Legume N - Select the previous legume history description that best fits the field history. These are the previous legume categories found in Agronomy Guide Table 1.2-6. If the previous year's crop wasn't a legume it's recommended that you select "No previous Legume". If this was a winter double crop and the previous crop was a legume it's suggested to select "Legume Residual N Credited to Summer Crop". (Remember the legume residual gets credited to the summer crop in a double crop).

Legume residual nitrogen is only credited to summer annual crops. Crops considered a "Summer Annual" that will receive the legume residual credit are listed in the Crop List Option Tab in the spreadsheet. The cell will be yellow if the crop is a summer annual. The cell will be shaded green if the crop <u>IS NOT</u> a summer annual. Legume crops do not receive a carryover legume N credit.

Field Resid	ual and Carryover Nitrogen History	
Residual Manure N	Carryover Legume N	
Continuously - Summer Crop	1st yr. after alfalfa 25-49% stand, Moderate productivity soils	-
	No Previous Year Legume Legume Residual N Credited to Summer Crop 1st yr. after alfalfa >50% stand, High productivity soils 1st yr. after alfalfa >50% stand, Moderate productivity soils 1st yr. after alfalfa >50% stand, Low productivity soils 1st yr. after alfalfa 25-49% stand, High productivity soils 1st yr. after alfalfa 25-49% stand, Moderate productivity soils 1st yr. after alfalfa 25-49% stand, Low productivity soils	Ŷ

Remember you can click in the blue column headers to get a pop-up note to help you complete the selections.

## **1.7.** Complete the Manure Application Information

**1.7..1. Manure Group** - Select the Manure Group to be applied to the field. There is a pop up box button called "Manure Group & Manure Balance" above the Manure group header. After it opens it will display the manure groups and amounts available for allocation. If you have not created any manure groups yet, go to the Appendix 3 Input worksheet and enter the manure group Information. <u>Select the manure group from the drop down box in the</u>

yellow cell and not in the pop up box associated with the "Manure Group & Manure Balance" Button. If no manure is to be applied then leave this cell blank and "No Manure Applied" will display in the printed Appendix 4 Crop & Manure Management Section.

	Manure Group	& Manure Balance	Available Manure Bal	ance in each Manure (	Group
			Cow Fall Liquid Dry Cows Fall - Uncollected Cow Spring Liquid	240409.0 0.9 198289.0	qallons  tons allons
Field #	Manure Group	Planned App. Season	Dry Cows Spring - Uncollected	0.0	tons
A1					

**1.7..2.** Planned Application Season -.Select the Planned Application Season from the drop down list. If no manure is applied leave it blank



The Planned Application Season values are from Tables 5, (Agronomy Guide Table 1.2-14), and Table 6, (Agronomy Guide Table 1.2-15) in the spreadsheet. If you need further clarification of the selections, Tables 5 and 6 have pop up messages in the Planned Application Season boxes **Table 5** 

.4	Α	В	С	D
1	Table 5: Includes	Tables 5.1 and 5.2.		

Table 5.1. Manure nitrogen availability factors for use in determining manure application rates based on planning conditions - Penn State Agronomy Guide Table 1.2-14A

9				
6	Planned Manure Application Season	Planned Manure Application Season: Management	Nitr	ogen Availabilit Swine
8		<sup>S</sup> i Spring	5	0.70
9		S Spring utilization by small grains and grass or legume hay.	0	0.60
10	Spring	s Summer utilization by corn, other summer annuals, and grass or legume	hay. 5	0.40
11		S	0	0.30
12		Spring, opring or summer unitzation-incorporation alter r days or none	<del>.</del>	0.20
13		Summer: Summer utilization-Incorporation the same day	0.75	0.70
14		Summer: Summer utilization-Incorporation within 1 day	0.50	0.60
15	Summer	Summer: Summer utilization-Incorporation within 2–4 days	0.45	0.40
1	Table 5		0.00	0.00

	Table 6					
4	A	В	С	D	E	F
				-		

 1
 2

 2
 Table 6. Factors for calculating manure nitrogen availability based on time of application, incorporation, f

 3
 Recommended for all manures, but required for atypical or treated manures. Based on Penn State Agron

5					otal main
7			Ammonium N	Analysis	
	Application Season	Application Method	Poultry	Poultry <5% Solids <sup>2</sup>	Other
9		se Spring: 1.2-15 Spring utilization by small grains	and grass or leg	ume hav.	
10	Spring: 1.2-15	<sup>se</sup> Summer utilization by corn, oth	er summer annu	als, and grass or legun	ne hay.
11	For corn, other summer annuals, grass hay	Sp			
12		Sp			
13		Spring 1.2-15: Incorporated after 7 days	0.20	0.40	0.10
14		Summer 1.2-15: Incorporated the same day	0.90	0.90	0.80
15	Summer: 1.2-15	Summer 1.2-15: Incorporated within 1 day	0.80	0.80	0.60
Table 6					

1.7..3. Planned Application Management - The Planned Application Management categories are dependent on the Season selected, if the season is changed, the method must be re-selected. If no manure is applied leave it blank. The Planned Application Management values are from Tables 5,(Agronomy Guide Table 1.2-14), and Table 6, (Agronomy Guide Table 1.2-15) in the spreadsheet.

5

Total Mani

AG	AH	
	Manure and Application	
Planned Application Season	Planned Application Management	F Ap N
Early Fall	Early Fall: Summer utilization with cover crop used as green manure: Incorporated after 7 days or none	Ar No in
	Early Fall: Early spring utilization incl. winter crop in double crop system: Incorporated less than 2 days Early Fall: Early spring utilization incl. winter crop in double crop system: Incorporated 3–7 days Early Fall: Early spring utilization incl. winter crop in double crop system: Incorporated after 7 days or none Early Fall: Summer utilization with cover crop used as green manure: Incorporated 3–7 days Early Fall: Summer utilization with cover crop used as green manure: Incorporated 3–7 days Early Fall: Summer utilization with cover crop used as green manure: Incorporated after 7 days or none Early Fall: Summer utilization with cover crop used as green manure: Incorporated after 7 days or none Early Fall: Summer utilization with no cover crop: All methods of incorporation	
App 4 Input		

**1.7..4. P Index Application Method** - Select the P Index Application Method if applicable. If the field is a P Index "Part B" field and a manure group is selected then the P Index Application Method cell will change from grey to yellow indicating requiring you to select a manure application method.



#### **1.7..5.** Multiple / Split Application: When you are only applying one application of manure leave this cell blank.

Complete the Multiple /Split Application. This cell has a drop down list consisting of the following selections and their meanings. Mi = Multiple Initial. This would be the first application in a multiple manure application on a crop M = Multiple. This is any intermediate multiple application. Not the final application of manure. There may be more than 1 intermediate multiple applications.

Mf = Multiple Final. This is the final application of manure on a crop.

S = This is a split application of manure. <u>This does not represent a single application</u>. For a split application make it a separate field.

For the multiple applications to properly accounted for, the multiple applications must be planned in order i.e. Mi planned first and Mf planned last, and any intermediate multiples in between and in order of the initial and final applications.

- 21	А	0	AF	AG	AI	AJ						
1		Lock A	pp 4 In	op 4 Input								
2	Field Information	Crop Information		Manure and Application								
3	Field #	Сгор	Manure Group	Planned Application Season	Planned Application Management	P Index Application Method	Multiple/ Split Application					
4	A1	Corn for Silage	Cow Fall Liquid	Early Fall	Early Fall: Summer Utilization. Incorporated after 7 days or none with cover crop	April - Oct: No incorp or incorp > 1 wk.						
						Mi M Mf S						

#### 1.8. Manure Rate Section

There are three cells in this section.

- 1.8.1 Nitrogen, (N), balanced manure rate shown
- 1.8.2 Crop P removal manure rate
- 1.8.3 Planned Manure Rate. (yellow data entry cell)

All of the column headers for the N balanced rate, Crop Phosphorous Removal Rate, and Planned Manure Rate have pop-up messages to describe the conditional formatting color changes

1.8..1. Nitrogen Balanced Manure Rate: This is the amount manure that would be needed to meet the crop nitrogen needs based on the selected manure group, planned application season, and planned application management. (White cells =no data entry)

	A	0	AF	AG	AH	AI	AK	AL	AM		
1		Lock A	pp 4 In	put							
2	Field Information	Crop Information		Manure and Application				Manure Rate			
3	Field #	Сгор	Manure Group	Planned Application Season	Planned Application Management	P Index Application Method	Nitrogen Balanced Manure Rate	Crop Phosphorous Removal Manure Rate	Planned Manure Rate		
4	A1	Corn for Silage	Cow Fall Liquid	Early Fall	Early Fall: Summer Utilization. Incorporated after 7 days or none with cover crop	April - Oct: No incorp or incorp > 1 wk.	18458	6769	5000		

The Nitrogen Balanced Manure Rate: cell color will change to red <u>If</u> the field is a P Index Part B field <u>And</u> has a P index score greater than 80. (The P Index transport factors and a manure application rate need to be completed to get P Index Score. If no manure is applied than enter a zero in the "Planned Manure Rate" column.)

- 21	А	AK AL AM			AN	BF
1			Lock App 4 l		Unlock /	
2	Field Information		Manure Rate		Balance after Manure	P Index Transport Factors
3	Field #	Nitrogen Balanced Manure Rat	Nitrogen Crop Planned Balanced Phosphorous Manure Rate			P Index Value
4	A1 Corn	21481	7333	5000	89	81

**1.8..2.** Crop Phosphorous Removal Manure Rate: This is the amount of manure that will replace the P removed from the field by the crops accounting for all other P applied (White cells =no data entry)

	А	0	AF	AG	AH	AI	AK	AL	AM			
1		Lock A	ock App 4 Input									
2	Field Information	Crop Information			Manure and Application	Manure Rate						
3	Field #	Сгор	Manure Group	Planned Application Season	Planned Application Management	P Index Application Method	Nitrogen Balanced Manure Rate	Crop Phosphorous Removal Manure Rate	Planned Manure Rate			
4	A1	Corn for Silage	Cow Fall Liquid	Early Fall	Early Fall: Summer Utilization. Incorporated after 7 days or none with cover crop	April - Oct: No incorp or incorp > 1 wk.	18458	6769	5000			

The cell color will change to green if it's a P Index Part B field <u>And</u> has a P index score greater than 80 but less than 100 which limits all P to no more than crop removal.

	A	AK AL AM			AN	BF
1		L	ock App 4 li		Unlock /	
2	Field Information		Manure Rate		Balance after Manure	P Index Transport Factors
3	Field #	Nitrogen Balanced Manure Rate	en Crop Planned ed Phosphorous Manure Rate			P Index Value
4	A1 Corn	21481	7333	5000	89	81

The Phosphorous Removal Manure Rate cell color will change to red if it's a P Index Part B field <u>And</u> has a P index score greater than 100 which means no P may be applied.

	А	AK	AN	BF					
1			Lock App 4 Input						
2	Field Information		Manure Rate	1	Balance after Manure	P Index Transport Factors			
3	Field #	Nitrogen Balanced Manure Rate	Crop Phosphorous Removal	Planned Vanure Rate	N Balance	P Index Value			
4	A1 Corn	21481	7333	5000	89	102			

**1.8..3. Planned Manure Rate** - Enter the planned manure rate. If no manure is to be applied than enter a Zero. This will display as "No Manure Applied" in the NMP Summary for the field Planned Manure Rate.

	А	0	AF	AG	AH AI		AK	AL	AM
1		Lock A	pp 4 In	put					
2	Field Information	Crop Information			Manure Rate				
3	Field #	Сгор	Manure Group	Planned Application Season	Planned Application Management	P Index Application Method	Nitrogen Balanced Manure Rate	Crop Phosphorous Removal Manure Rate	Planned Manure Rate
4	A1	Corn for Silage	Cow Fall Liquid	Early Fall	Early Fall: Summer Utilization. Incorporated after 7 days or none with cover crop	April - Oct: No incorp or incorp > 1 wk.	18458	6769	5000

The Planned Manure Rate cell color will change to red if it's a P Index Part B field <u>And</u> has a P index score greater than 80 <u>And</u> the planned rate is greater than the Crop Phosphorous Removal rate.

	A	AK	AL	AM	AN	BF	
1		L	ock App 4 li	nput		Unlock	/
2	Field Information		Manure Rate		Balance after Manure	P Index Transport Factors	
3	Field #	Nitrogen Balanced Manure Rate	Crop Phosphorous Removal	Planned Manure Rate	N Balance	P Index Value	
4	A1 Corn	21481	7333	8000	73	82	

The Planned Manure Rate cell color will also change to red if it's a P Index Part B field <u>And</u> has a P index score greater than 100.

	А	AK	AN	BF						
1		L	Lock App 4 Input							
2	Field Information		Manure Rate		Balance after Manure	P Index Transport Factors				
3	Field #	Nitrogen Balanced Manure Rate	Crop Phosphorous Removal	Planned Manure Rate	N Balance	P Index Value				
4	A1 Corn	21481	7333	5000	89	102				

The Planned Manure Rate cell color will change to red if the N balance after manure rate is less than 0, which means excess N would be applied at the planned rate.

		Bala	nce after M	anure
Field #	Planned Manure Rate	N Balance	P2O5 Balance	K2O Balance
A1	4000	-1	-266	-429

## **1.9.** Balance after Manure Section

This is the nutrient balance after manure. A positive number indicates additional nutrients are required. A negative number indicates an excess nutrient balance. (White cells =no data entry).

	А	0	AF	AG	AH	AI	AN	AO	AP
1		Lock A	pp 4 Inj	put					
2	Field Information	Crop Information			Balance after Manure				
3	Field #	Сгор	Manure Group	Planned Application Season	Planned Application Management	P Index Application Method	N Balance	P2O5 Balance	K2O Balance
4	A1	Corn for Silage	Cow Fall Liquid	Early Fall	Early Fall: Summer Utilization. Incorporated after 7 days or none with cover crop	April - Oct: No incorp or incorp > 1 wk.	66	-77	-97

## 1.10. Supplemental Fertilizer

Enter any supplemental fertilizer values here. <u>If there is no supplemental fertilizer applied enter a zero "0" in</u> each of the cells or the spreadsheet won't calculate properly when working on a plan that's been transferred from a Version 4.x plan.

If it's a legume with manure applied the Supplemental N cell will be greyed out. This is an instance where a value would be entered in a grey cell. If <u>no supplemental fertilizer applied</u>, this entry should be zero for a legume because it won't calculate properly when working on a plan that's been transferred from a Version 4.x plan.

	А	0	AF	AN	AO	AP	AQ	AR	AS	AT				
1		Lock A	Lock App 4 Input											
2	Field Information	Crop Information	Manure and Applicati on	Baland	ce after M	ıtal Fertilizer								
3	Field #	Сгор	Manur <del>e</del> Group	N Balance	P2O5 Balance	K2O Balance	Suppl. N	Suppl. P2O5	Suppl. K2O	P Index App. Method				
4	A1	Corn for Silage	Cow Fall Liquid	66	-77	-97	66	0	0					

If it's a part B field and supplemental Phosphorous is applied, the P Index Application method cell will be yellow and an application method will need to be selected. If the cell is grey, there should not be a selection in the cell. In the screenshot below no supplemental Phosphorous was applied so the P Index Application Method is greyed out indicating no data entry is needed.

Field Information	Baland	ce after M	lanure	Supplemental Fertilizer					
Field #	N Balance	P2O5 Balance	K2O Balance	Suppl. N	Suppl. P2O5	Suppl. K2O	P Index App. Method	Ba	
A1	91	-77	-97	91	91 10 0			*	
				Select Method Starter or Injecte Incorporated with April - Oct: No inc Nov - Mar: No inc Surface app. whe			Select Method Starter or Injected Incorporated within 1 week April - Oct: No incorp or incorp Nov - Mar: No incorp or incorp Surface app. when frozen/sno	0 > 0 > 0 >	

#### 1.11. Final Nutrient Balance

The final nutrient balances for N,  $P_2O_5$ , and  $K_2O$  are calculated values. (White cells =no data entry). The "Final N Balance" can never be negative.

	A	0	AF	AN	AO	AP	AQ	AR	AS	AV	AW	AX
1		Lock A	pp 4 In	put							Manure (	Group & N Balance
2	Field Information	Crop Information	Manure and Applicati on	Balan	ce after N	Supplemental Fertilizer			Final Nutrient Balance			
3	Field #	Сгор	Manure Group	N Balance	P2O5 Balance	K2O Balance	Suppl. N	Suppl. P2O5	Suppl. K2O	Final N Balance	Final P2O5 Balance	Final K2O Balance
4	A1	Corn for Silage	Cow Fall Liquid	66	-77	-97	66	0	0	0	-77	-97

#### 1.12. P Index Transport Factors

Complete the P index transport factors. The soil loss is a typed entry. The others transport factors have a note to remind you of the selections and are drop down box selections or you can enter them by typing the number. Transport factors can be copied and pasted from other fields as well



The P Index value is conditionally formatted to change color.

Very High: 100 or greater	No Phosphorus applied
High: 80 to 99	Phosphorus limited to crop removal
Medium: 60 to 79	Nitrogen based management
Low: 59 or less	Nitrogen based management

If a field is a Part B field but a management decision has been made that that no Phosphorous will be applied then place an X in the "No P Applied" cell. The P Index Value will state "No P Applied"

If you previously entered a starter or supplemental phosphorous rate you need to go back and manually delete the entries. Any manure application rate will need to be deleted as well

AY	AZ	BA	BB	BC BD		BE	BF			
Input	Lock App 4 Input									
			P Index	Transport Fac	tors					
			1							
P Index Part A	No P Applied X	Soil Loss (ton/Ac)	Runoff Potential	Subsurface Drainage	Contributing Distance	Modified Connectivity	P Index Value			
Part B X		4	4	0	2	1	No P Applied			

#### 1.13. Winter Matrix

The winter matrix cells will be greyed out unless the manure application season selected was "Winter" or "Winter:1.2-15".

## Once "Winter" or "Winter: 1.2-15" is selected as the application season, the field will appear in the Printed Winter Manure Application Matrix and the winter matrix cells will turn yellow indicating they need to be completed.

Complete the Winter Matrix if the cells are yellow. Enter the appropriate cell information. The question "Is there 25% cover?" is a drop down selection. If you select No the winter matrix evaluation will state "Not Allowed". The Field slope and Runoff Control cells have a note to remind you of the selections and are drop down box selections or you can enter them by typing the number. The two evaluation criteria, "Distance from Water Bodies" and "Drainage Class" are automatically populated by the P Index selections of "Contributing Distance" and "Runoff Potential"

The winter matrix selections can be copied and pasted from other fields as well.

	Winter Matrix										
Field #	Is there 25% cover?	Field Slope		Runoff Control		Final Winter Matrix Value	Winter Matrix Interpretation				
A1	Yes		2		4	13	Good				
		1 2 3 4	- >15% -9-15% - 4-8% - <4%	1-No place 2-Sor place 3-Sor place 4-Rec pract POTE	conservatic . HIGH POT ne conserva . MODERAT ne conserva . LOW POTE commendec ices are in p .NTIAL	n practices are in ENTIAL tion practices are E POTENTIAL tion practices are ENTIAL I conservation lace, VERY LOW	: in				

#### 1.14. Field Notes

Enter field notes directly in the yellow cell. They can be copied and pasted to other fields or CMU's if needed.

	А	0	AF	AV	AW	AX	BF	BL	BM
1		Lock A	pp 4 In	put	Manure G Manure B	iroup & Ialance			
2	Field Information	Crop Information	Manure and Applicati on	Final N	Nutrient B	alance	P Index Transport Factors		<b>User Note</b> - Enter notes directly for each Field/CMU here. Note that are repeated can be copied from one CMU and pasted in another.
3	Field #	Сгор	Manur <del>e</del> Group	Final N Balance	Final P2O5 Balance	Final K2O Balance	P Index Value		Field Notes
4	A1	Corn for Silage	Cow Fall Liquid	0	-77	-97	69		Maintain a 100 foot manure application setback from the neighboring well.

#### 2. Notes:

- **2.1.** The App 4 Input sheet information <u>is transferred automatically</u> to the following printed pages:
  - Appendix 4 Crop & Manure Management section (Grey Tab)
  - Appendix 5 P Index (Grey Tab)
  - Winter Application Matrix. (Grey Tab)
- **2.2.** The information <u>is not automatically transferred</u> to:
  - Nutrient Management Plan Summary (Yellow Tab)
  - NMP Summary Notes (Grey Tab)

There is a button on the NMP Summary page to transfer the information from the App 4 Input to the <u>NMP</u> <u>Summary and NMP Summary Notes</u>.

**2.3.** A maximum of 500 rows can be completed in Appendix 4 Input. The following message will appear in the field count column if you exceed the 500 row limit



# 2.4. How the field will appear in the Printed Appendix 4 Crop & Manure Management Section after completing it in App 4 Input

All information is automatically transferred from Appendix 4 Input.

App. 4: Crop Yrs. 2018	A1				
CMU/Field ID					
Acres		5.0			
Soil Test Report Date	October 2, 2015				
Laboratory Name		AASL			
Soil Test Levels (Mehlich-3 P & K)	ppm P	ppm K	pН		
(Show conversions to ppm in Appendix 10)	250	187	6.4		
P Index Part A Evaluation		Soil Test F	5		
Part A Result		Part B			
Crop	(	Corn for Silag	36		
Planned Yield		25	ton/A		
	N	P205	K20		
PSU Soil Test Recommendation (Ib/A)	200	0	20		
Licer Soll Test Recommendation (IbJA)		·			
Other Nutriants Applied (Ibid)					
(Nutrients applied (brA) (Nutrients applied regardless of manure)	4	12	4		
P Index Application Method	April - Oct:	No incorp or i	acorp>1wk.		
Double Crop CarruOver N (lb/A)	0	i			
Manure History Description		Continuous	du - Summer		
Residual Manure N (Ib/A)	35 Crop				
Leave - Lister Decedation	1st yr. after alfalfa 25- 70 49% stand, Moderate				
Legume History Description Residual Legume N (Ib/6)					
nesidual Legunie in (ibrA)	productivity soils				
Net Nutrients Required (Ib/A)	91 -12 16				
Manure Group	Cow Fall Liquid				
Application Concern Management	Early Fall: Summer utilization with				
Application season: Management (Incorporation, course crops, etc.)	cover crop used as green manure:				
(moniporation, cover crops, etc.)	Incorporated after 7 days or none				
Ausilahibu Eastern	Total N	NH4-N	Org. N		
(Total Nor NH4-N & Organic N)	0.20				
(rotario in a mile cigano it)	0.20				
P Index Application Method	April - Oct: No incorp or incorp > 1 wk.				
N Balanced Manure Rate (ton; gal/A)	18,458 gal/A				
P Removal Balance Manure Bate		6,769	gal/A		
(ton or gal/A; If required by P Index)	Crop P Re	moval (Ib/A)	88.0		
P Index Value	2.55 P 14110Val (b/A) 85.0				
Planned Manura Pate (ten er asliå)	63 6 000 00				
Nutrients Applied at Planned Manure Rate	5,000.00 gal/A				
(Ib/A)	25	65	113		
Nutrient Balance after Manure	66	-77	-97		
Supplemental Fertilizer (Ib/A)	66	0	0		
P Index Application Method		A			
Final Nutrient Balance (Ib/A)	0	-77	-97		
Multiple Application	· · · · · · · · · · · · · · · · · · ·				
Marian Difference Chilling		25.000			
Manure Utilized on CMU	25,000 gallons				

#### 2.5. How the field will appear in the Printed Appendix 5 P Index after completing App 4 Input

All information automatically transferred from Appendix 4 Input.

Appendix 5 - P Index					Go to NMP Index				
Crop Yrs. 2018	Pennsylvania P Inc	Pennsulvania P Index Version 2 Go to App 4 last							
PART A: SCREENING TOOL CMU/Field ID	1		PART A: SCREENING	TOOL	CMU/Field ID	A1			
Is the CMU in a Special Protection watershed?		Is the CMU in a Specia	al Protection watershed?			No			
A significant farm management change as defined by Act	38?	Is there a significant fa	arm management change	as defined by Act 38?	If the answer is Ye	s to No			
Soil Test Mehlich 3 P greater than 200 ppm P?		Is the Soil Test Mehlic	h 3 P greater than 200 ppr	m P? (enter soil test value in ppr	any of these	250			
Contributing Distance from CMU to receiving water < 150 ft	?	Is the Contributing Dis	tance from this CMU to rea	ceiving water less than 150 ft.?	questions, Part B	No			
ls winter manure application planned for this field?		ls winter manure appli	cation planned for this fiel	d?	must be used.	No			
Run P Index Part B voluntarily? (No to all Part A guestions	.)	Run PIndex Part B vo	luntarily? (Answers are N	lo to all Part A guestions. )		No			
PART B: SOURCE FACTORS: Mehlich 3 Soil Test P (p	4		Mehlich 3 Soil Test P (p	opm P)		250			
Soil Test Rating = 0.20" Mehlich 3 Soil Test P (p	pm P)					50			
FERTILIZER P APPLIED REGARDLESS OF MANURE (Starter or other)	1				Fertilizer P (Ib P205/ac	re) 12			
	0.2	0.4	0.6	0.8	1.0	0.6			
P INDEX APPLICATION METHOD OF FERTILIZER P APPLIED	Placed or injected 2"	Incorporated <1 week	Incorporated > 1 week or not	Incorporated >1 week or not	Surface applied to fro	208			
REGARGLESS OF MANURE <sup>3</sup>	or more deep	following application	incorporated following	incorporated following application in	or snow covered so	il 🛛			
			application in April - October	INOV IVIATCH					
SUPPLEMENTAL P FERTILIZER					Fertilizer P (IB P205/se	rej			
DINDEX ADDITION METHOD OF SUDDIEMENTAL D	0.2 Discut or initiated 9"	0.4	0.6	0.8	1.0 Surface applied to fee				
FINDER AFFEIGATION METHOD OF SOFFEEMENTALF	or more deep	following application	incorporated / I week or not	incorporated following application in	or snow covered so	il			
FERTILIZER			application in April - October	Nov March					
Fertilizer Rating = Fertilizer Rate x Fertilizer App	lication Method					5			
	1				Manuel D (Ib D205)	ee			
MANURE P RATE					manure P (ID P200rad	rej 60			
	0.2	0.4	0.6	0.8	1.0				
MANUEE APPLICATION METHOD <sup>3</sup>	Placed or injected 2"	Incorporated (1 week	Incorporated > 1 week or not	Incorporated >1 week or not	Surface applied to fro	2cn 0.6			
	or more deep	reasoning application	application in April - October	Nov March	or show covered po	1			
P SOURCE COEFFICIENT <sup>3</sup>	Refer	to: Test results for PS	0.64						
Manure Rating = Manure Rate x Manure Applica	tion Method x P	Source Coefficient				25			
Source Factor Sum						82			
PART B: TRANSPORT FACTORS			Seille er (her bereil						
EROSION			soli Loss (conracter	97)		•			
	0	2	4	6	8				
RUNOFF POTENTIAL	Drainage Class is	Drainage Class is	Drainage Class is	Drainage Class is	Drainage Class is	4			
	Excessively	Somewhat Excessively	Well/Moderately Well	Somewhat Poorly	Poorly/Yery Poorly				
SUBSURFACE DRAINAGE	0		1 Duden		2	0			
	nois		Faildom		Patterned				
CONTRIBUTING DISTANCE	0	2	4	5 500 to 500 to 500	9 <sup>2</sup>	2			
>50		350 to 500 ft.	200 to 343 ft.	< 100 ft, with 35 ft, buffer	< 100 ft.	°			
Transport Sum = Erosion + Runoff Potential + S	ubsurface Draina	age + Contributing I	Distance		10				
		0.85	1,0	1.1					
MODIFIED CONNECTIVITY	50 ft. Ri	parian Buffer	Grassed Waterway or None	Direct Connection APPLIES	TO DIST > 100 FT	1.0			
Transport Sum x Modified Connectivity J 24	APPLIES II	cent slovin				0.42			
Dinden Value = 2 n Servee n Transfert						69			
r mues value = 2 x Source x transport	Medium: 60 to 78				_				
Low: 59 or less	Nitrogen based	High: 80 to 99		Very High: 100 or greater		Appendix 5 P Index			
Nitrogen based management		Phosphorus limited to c	ropremoval	The second s					

#### 2.6. How a field will appear in the Printed Winter Matrix

A field would need to have "Winter" or "Winter 1.2-15" as the application season to be automatically transferred into the Winter Application Matrix. All information is automatically transferred from Appendix 4 Input.

Crop Years 2018								
	User Notes for the Winter Manure Application Matrix							
Under Act 38, any one of the following conditions meets the "winter" definition - see §83.201.     December 15 to February 28     Frozen ground (4 inch depth)     Snow-covered ground								
	<ol> <li>All setbacks including those specific to winter manure application must be followed - see §83.294 (f) and (g).</li> <li>No winter manure application within 100 ft. of an above ground agricultural drainage inlet where surface flow is toward the inlet.</li> </ol>							
	No winter manure application within 100 ft. of a we Exceptional Value stream segment if surface flow is	etland (identified on Natio s toward the wetland.	nal Wetland Inventory Ma	aps) within the 100 year	floodplain of an			
	<ol> <li>Fields receiving winter manure applications must have</li> </ol>	ive 25% cover or an esta	iblished cover crop - see	e §83.294 (g).				
	Verify the CMU meets the required cover conditions described in User Note 3.							
	CMU/Field ID				CMU/Field ID	A1		
	Does the CMU have 25% cover or an established cover crop?		Yes					
	Evaluation Criteria	Evalu						
	Evaluation Criteria	4	3	2 <sup>b</sup>	1°			
	Field Slope	< 4 %	4 - 8%	9 - 15%	> 15%	4		
	Distance from Water Bodies <sup>a</sup> Determined using Phosphorus Index Contributing Distance	> 350 ft.	350 - 200 ft	199 - 100 ft	<100 ft	4		
Drainage Class Determined using Phosphorus Index Runoff Potential		Somewhat Excessively OR Excessively	Well OR Moderately Well	Somewhat Poorly	Poorly OR Very Poorly	3		
	Runoff Control	Recommended conservation practices are in place. <u>Yerg low potential</u> for concentrated flow.	Some conservation practices are in place. Low potential for concentrated flow.	Some conservation practices are in place. <u>Moderate potential</u> for concentrated flow.	No conservation practices are in place. <u>High potential</u> for concentrated flow.	3		
	Includes Perennial and Intermittent streams with defined bed and bank, Lakes, Ponds, Open sinkholes, and Active private and public water sources.							
	* If a field receives a rating of "2" in any two categories the field is	s not recommended for winter	application regardless of the	e final field Ranking Value.		Good		
	If a field receives a rating of "1" in any one category the field is n	ot recommended for winter ap	pplication regardless of the fi	inal field Ranking Value.				
	Recommended Winter Manure Application							

Prioritization		
Ranking Value - Category	Ranking Category	Recommendation for Winter Manure Spreading Prioritization
Greater than 12 - Good	Good	These fields should receive first priority for winter manure application.
8 to 12 - Fair	Fair	These fields should receive second priority for winter manure application.
Less than 8 - Poor	Poor	These fields are not recommended for winter manure application.

Winter Application Matrix

## 2.7. How the field appears in the NMP Summary

**Important Note**: All information is transferred from Appendix 4 Input <u>after clicking on the Create/Update</u> <u>Summary Button on the NMP Summary Page</u>.

	A	В	С	D	E	F	G	н	1	J	K	L	Μ	N	0	P	Q
1					Nutrient	Manageme	nt Plar	n Sun	nma	ry							
13									Sta Fert	rter/Ot ilizer (l	her Ib/A)	Sup Ferti	pleme ilizer (l	ntal b/A)	Nutri	ent Bal (Ib/A) <sup>2</sup>	ance
14	CMU/Field ID	Acres	Сгор	Manure Group	Application Season	Application Management	Planned M Rate	Manure 1	N	P <sub>2</sub> O <sub>5</sub>	K₂O	N	P <sub>2</sub> O <sub>5</sub>	K₂O	N	P <sub>2</sub> O <sub>5</sub>	K₂O
15	A1	5	Corn for Silage	Cow Fall Liquid	Early Fall	Early Fall: Summer utilization with cover crop used as green manure: Incorporated after 7 days or none	5000	gal/A	4	12	4	66	0	0	0	-77	-97
	IL 4D. Cummon and	1															

NMP Summary

#### 2.8. How the field appears in the NMP Summary Notes

**Important Note**: All information is transferred from Appendix 4 Input <u>after clicking on the Create/Update</u> <u>Summary Button on the NMP Summary Page</u>.

	NMP Summary Notes
	Crop Vears 2018
	Citip Tears 2010
CMU/Field ID	Notes
A1	Maintain a 100 foot manure application setback from the neighboring well.
NMP Summar	y Notes

#### 3. Attachments

None

#### 4. References

- **4.1.** How to Complete a Multiple Application in a NMP
- 4.2. How to Complete a Double Crop in a NMP

#### 5. Revision History

Date	Previous Revision	Description of Significant Changes				
Dec 21, 2015	None	First issue of the document.				
October 5, 2017	Dec 2015	Added references throughout the document that blue column headers in the spreadsheet cells have helpful pop up notes included.				
		Section 1.2.1 P Index Part A Questions - Added guidance how to run the P Index on a field voluntarily.				
		Section 1.4.1 User Soil Test Recommendation - Clarified to leave user recommendations blank and not enter zeros if PSU recommendations are being used.				

Date	Previous Revision	Description of Significant Changes							
		Section 1.6.2 Carryover Legume N - Added clarification that crops designated as Summer Annual crops receive legume residual credit.							
		Section 1.7.1 Manure Group Selection - Highlighted and boded text "If no manure is to be applied then leave this cell blank and "No Manure Applied" will display in the printed Appendix 4 Crop & Manure Management Section"							
		1.7.2 Add added guidance to look at Tables 5 and 6 pop- up notes to better understand the Planned Application Season designations.							
		Section 1.8.3 Planned Manure Rate - Added text "If no manure is to be applied than enter a Zero" and "No Manure Applied" will display in the NMP Summary for the field Planned Manure Rate".							
		Section 1.10 Supplemental Fertilizer – Added text "If it's a legume with manure applied the Supplemental N cell will be greyed out. This is an instance where information <u>is required</u> in a grey cell."							
		Added further clarification in various sections of the document and updated screenshots where appropriate.							
		<ul> <li>2. Notes</li> <li>Added screen shots of how the information entered in</li> <li>App 4 Input will look in: <ul> <li>Printed Appendix 4 Crop &amp; Manure Management</li> <li>Printed Appendix 5 P Index</li> <li>Printed Winter Matrix</li> <li>NMP Summary</li> <li>NMP Summary Notes</li> </ul> </li> </ul>							

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