Blair County Conservation District
1407 Blair St. Hollidaysburg, PA 16648
814-696-0877 ext. 5
www.blairconservationdistrict.org

REGULATIONS AFFECT ALL PA FARMERS & ANIMAL OWNERS:

(INCLUDING HAVING 1 HORSE, GOAT, COW, SHEEP, CHICKEN, ETC... AND/OR 5,000 SQFT OF CROP/PASTURE GROUND)

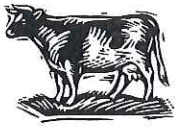
Are you in compliance?

New regulations and new updates to current regulations Affect You.

Addition and changes to long standing PA Chapter 102 regulations addressing Ag. Erosion and Sediment (E&S) Control and Stormwater Management have taken effect. Since 1972, all farms are **required** to develop and implement a written plan to minimize erosion when plowing and tilling (includes no-till cropping). Most recently, any farm that has an Animal Heavy Use Area (AHUA) or near stream areas, **must** have those areas addressed in the plan. AHUA include: Barnyards, feedlot, loafing areas, exercise lot or similar area on agricultural operations where due to the concentration of animals it is not possible to establish and maintain vegetative cover. This plan must be in writing and available on the farm at all times. The plan can be written by the farmer, or a specialist.

PA's Chapter 91.36 addresses pollution control and prevention at Agricultural operations and relates to the Manure Management Plan. All Farming Operations that land apply manure or Agricultural wastewater, whether they generate the manure or import it from another operation, **Must** have a written Manure Management Plan. All farming operations that include an Animal Concentration Area or pasture **Must** have a written manure Management Plan. Farming operations includes those with only 1 animal (a person with 1 horse, or 1 cow, or 1 goat etc. in the back yard is included in the regulations). The Manure Management Plan can be written by anyone using the State Format and does not have to be submitted for approval, but must be kept on the farm and made available upon request. Please be sure you have these plans in writing and are following your plans to stay in compliance with State Regulations.

The State is requiring all operations in the Chesapeake Bay Drainage Area (all of Blair County) to have an **INFORMATIONAL** visit by The County Conservation District. The Blair County Conservation District is currently conducting the State required farm **INFORMATIONAL** visits to discuss the requirements of these plans. If you wish to get further information, schedule your informational visit, and/or inquire about a training session, please call Rich Huether at (814) 696-0877 ext. 5.



Preparing To Write A Nutrient/Manure Management Plan

The following are some important actions that you can take to work through the development of your required nutrient or manure management plan

A. Determine if you need a **Manure** Management Plan or a **Nutrient** Management Plan
    1. Are you a CAO or CAFO, if so you need to find a certified planner to help you write a Nutrient Management Plan
        a. Refer to CAO and CAFO worksheets for help in determining if you are a CAO or CAFO
    2. If you are **not** a CAO or CAFO, you can begin now to write your own Manure Management Plan or find someone to guide you in developing your own plan

B. Get a copy of the *Land Application of Manure, Manure Management Plan Guidance* document to help work you through the development of your manure management plan

C. Take soil tests of all your crop fields

D. Develop a farm map (you can get help from FSA, PAOneStop.org, conservation district, Ag extension)
    - Include fields, roads, buildings, manure storages, existing and proposed BMPs, streams, lakes, ponds, sinkholes, wells, manure application setback areas, manure stacking areas, barnyards, exercise lots and feedlots.

E. Determine average crop yields for the various crops you grow on your farm

F. Identify nearby water wells, streams (lakes and ponds), and sinkholes that require manure setbacks

G. Calibrate your manure spreader
    - See PSU *Agronomy Facts 68, Manure Spreader Calibration* for help

H. Determine **if** winter manure application is necessary, if so look for fields (considering slope, cover and setbacks) where this practice will be acceptable and of lowest risk for manure runoff

I. Check your manure storage for problems
    - Leaks, cracks, bank erosion, trees and woody shrubs, holes, tears, overtopping, etc

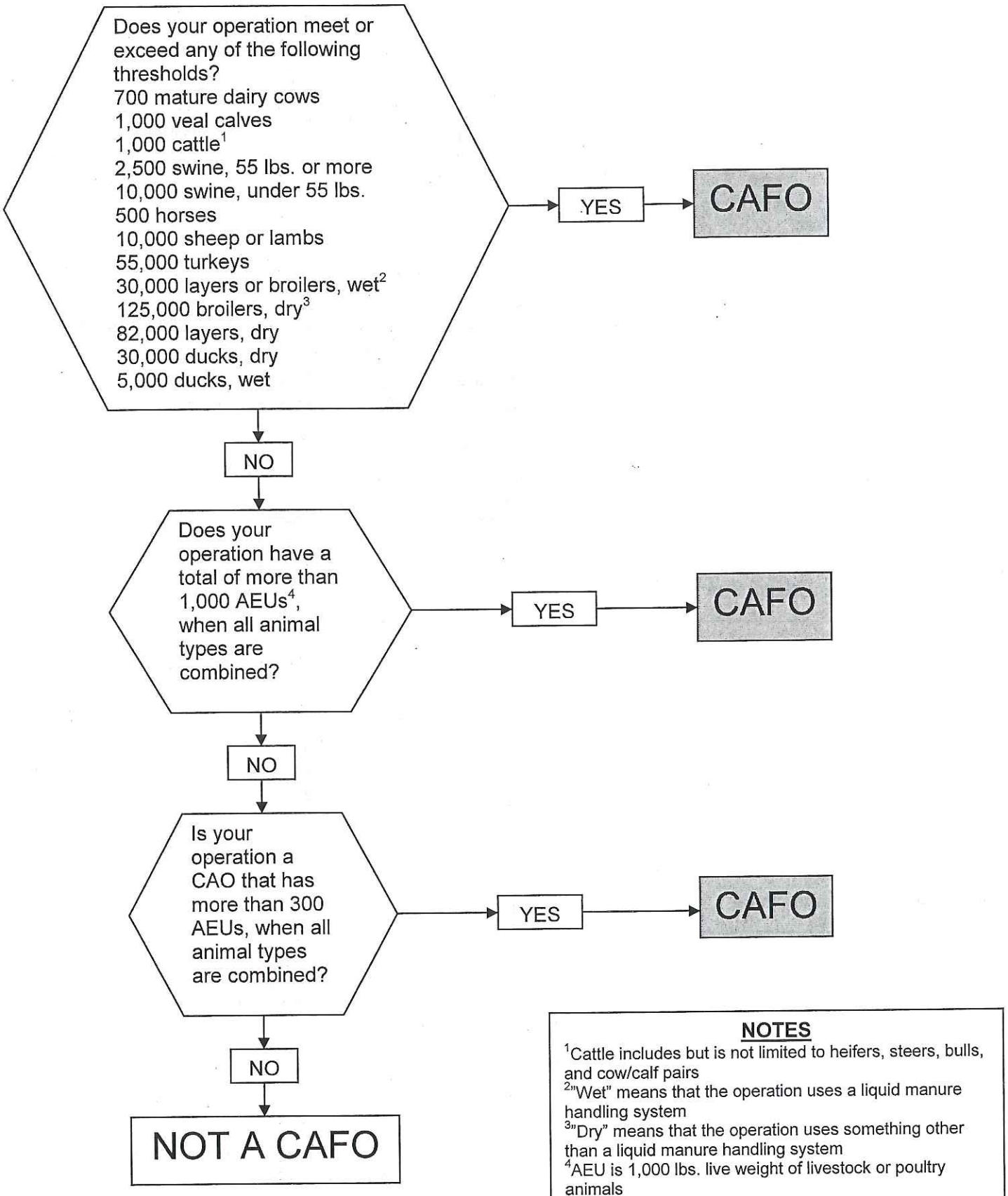
J. Check ACAs (barnyards, feedlots, exercise lots) for runoff to nearby streams or other water bodies

K. Look for good manure stacking areas if this practice will be necessary

L. Check your pasture for meeting the dense vegetation standard (average of 3" of growth across the pasture throughout the growing season).

M. Get help with your planning if you need it
    - Conservation district, PSU extension, Ag consultants, nutrient planners, manure brokers, etc
    - Look for locally or regionally held manure management planning workshops where trained individuals will help you work through developing your own plan

IS MY OPERATION A CAFO ?



NOTES

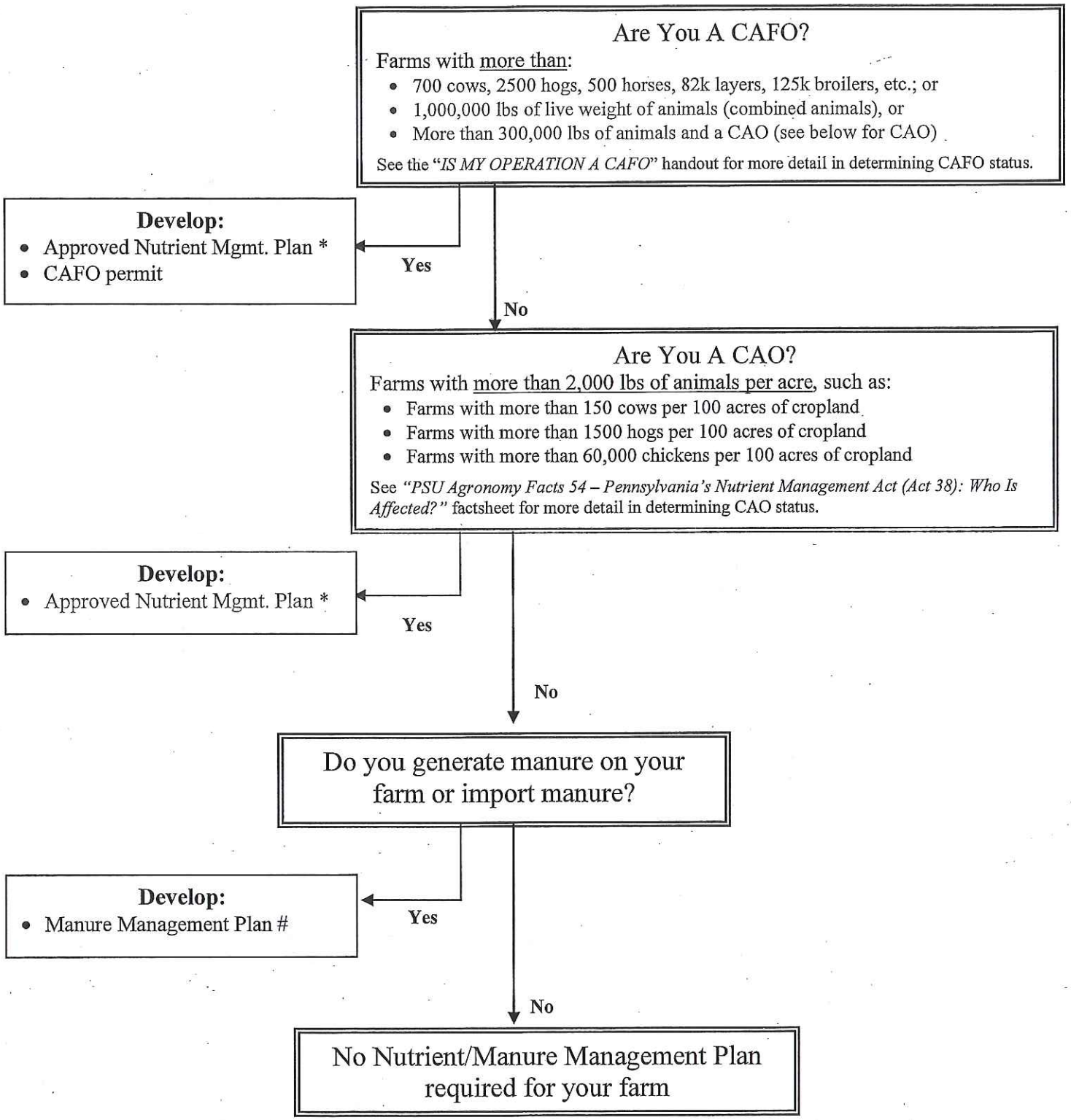
[1]Cattle includes but is not limited to heifers, steers, bulls, and cow/calf pairs

[2]"Wet" means that the operation uses a liquid manure handling system

[3]"Dry" means that the operation uses something other than a liquid manure handling system

[4]AEU is 1,000 lbs. live weight of livestock or poultry animals

What type of Nutrient/Manure Management Plan do you need for your farm?



* **Nutrient Management Plan:** written to Nutrient Management Act 38 standards by certified specialist and approved by Conservation District or SCC.

\# **Manure Management Plan:** certified specialist not necessary (farmer can develop the plan themselves according to Manure Management Manual standards), no submission/approval required.

Manure Management Manual: http://panutrientmgmt.cas.psu.edu/manure_management_program.htm

PA OneStop for Mapping and AG E&S Plan: http://www.paonestop.org

Overview of AG E&S Guidelines for PA Farmers Plowing or Tilling (including no-till), that have a Heavy Use Area, and/or have a Near Stream Area

Erosion Control From

A. Cropland

B. Animal Heavy Use Areas

C. Near Stream Areas

AG Plowing and Tilling

A. If Plowing, tilling or no-tilling > 5,000 sqft

B. If have an Animal Heavy Use Areas

C. If have a Near Stream Area

D. Treat sheet and rill erosion to Tolerable Soil Loss "T" over the rotation

E. Use Traditional BMP's to treat:
   1. Gully Erosion: Diversions, Waterways, Strip-cropping
   2. Sheet/rill Erosion: Crop rotation, conservation tillage, contour farming etc.

Animal Heavy Use Areas

A. Erosion and sedimentation caused by animal activity
   1. Traditional Barnyards (ACA):
      a. manure handling areas,
      b. exercise lots
   2. Non-Traditional ACA's in pastures:
      a. Sacrifice areas
      b. Supplemental Feeding Areas
      c. Shade Areas

B. Use Traditional BMP's to Treat:
   1. Keep Clean Water Clean,& Filter/collect/treat contaminated water
      a. Roof Runoff system, Diversion, Fencing, Vegetative Treatment Strips, manure collection & storage, etc.

Near Stream Areas –New Planning Element for most

A. Crop fields must maintain 25% cover within 100' of rivers and streams at all times.
   1. Cover = Living and dead plant material

B. Meeting "T" over the crop rotation is NOT sufficient for these situations

C. Additional BMP's or conservation practices are required if 25% cover cannot be achieved.

D. Solutions
   1. Crop Rotation: Leave areas in high residue crops (perennial forage, small grains, corn grain with residue left)
   2. Permanent 35' vegetative Buffer
   3. Living Cover such as cover crop

4. Long Term continuous No-Till (>7 years) provides soil quality improvements & erosion reduction
5. Rolling Stubble on high cut corn (>20 inches) can provide up to 30% cover.
6. Tillage / planting management
    a. Use less aggressive implements
    b. Spring or late summer tillage
        i. Last field tilled – First planted
        ii. Planted within 7 days of tillage (max 2 weeks)
    c. Fall Tillage for winter grain or cover crop
        i. Harvest, till and Plant to ensure 25% cover growth
        ii. Plant within 7 days of tillage (max 2 weeks)

Implementation Schedule

A. Crop fields BMP's should be implemented ASAP, but within crop rotation or 5 years.

B. ACA plans must be developed within 2 years with an additional 3 years to fully implement.

On Farm Construction Activities

A. On-Farm construction activities affecting 1 ac or more requires:
    1. Post Construction storm water management plan
    2. NPDES Permit
    3. Riparian Buffer Requirements (Setbacks) if in HQ or EV Watershed
    4. Same as everyone Else
    5. Includes
        a. Barnes
        b. Manure storage
        c. Buildings
        d. House
        e. Silo
        f. Etc

B. Ag. Plowing and Tilling and animal heavy Use Areas are excluded from NPDES Permitting if addressed in AG E&S Plan
    1. Includes those items associated with AG. Plowing and Tilling
        a. Barnyards,
        b. Waterways/Diversions,
        c. filter strips,
        d. animal walkways,
        e. normal tillage
        f. etc.

    2. Other permits and E&S plans are still required for:
        a. Timber Harvesting
        b. Clearing and Grubbing
        c. Stream Crossing / Stream Work
        d. Flood Plain Work (50' from top of bank)
        e. Wetland work
        f. Etc.

Manure Management Manual: http://panutrientmgmt.cas.psu.edu/manure_management_program.htm

PA OneStop for Mapping and AG E&S Plan: http://www.paonestop.org

Overview of Manure Management Guidelines for PA Farmers Generating or Using Manure

Who these guidelines pertain to:

A. All farms that generate or use manure, regardless of the size of the farm, including farms that:
   1. Pasture livestock or poultry, or
   2. Maintain an Animal Concentration Area (barnyard, exercise lot, or feedlot), or
   3. Apply manure to their crop fields

B. Farms that are defined as CAOs or CAFOs need to follow a different, more detailed **Nutrient** Management Planning process than that outlined below.

General manure management requirements for farms generating or using manure:

A. Develop a written **Manure** Management Plan

B. The DEP Manure Management Manual provides a standardized process for developing these written plans. An alternative plan format can used if approved by DEP

C. The planner does not need to be a Certified Nutrient Management Planner (the farmer can write their own plan)

D. The manure management plan written for these operations does not need to be submitted for review and approval, these plans just need to be retained on site

E. The farm must be managed consistent with the manure management plan

DEP authorized manure management practices to be incorporated into the manure management plan:

A. The below DEP authorized manure management practices are described in more detail in DEP's "*Land Application of Manure, Manure Management Plan Guidance*" manual.
   - Note that alternative manure management practices from those outlined below may be implemented if the farmer gets specific approved from DEP to use an alternative practice

B. Acceptable manure application rates can be developed using any one of the following 3 methods:
   1. The manure application rate look-up charts provided in the manual, or
   2. Nutrient Balance Sheets providing a more farm specific recommendation, or
   3. The Pa Phosphorus Index, developed with the assistance of a properly trained individual

C. Year-round manure application setbacks for the mechanical application of manure include:
   1. 100' setback from streams (during seasons when water flows in those channels), lakes, ponds, existing open sinkholes, and from private or public active water wells
   2. The 100' setback from a stream, lake or pond (surface water) can be reduced to the following if these additional measures are taken:
      a. 50' setback if the soil phosphorus level is less than 200 ppm P, the field is farmed using continuous no-till and if residue is removed, a cover crop is planted on the field.
      b. 35' setback if the stream, lake or pond has a 35' permanent vegetative cover

D. Winter spreading restrictions:
   1. Winter is defined as meeting any one of the following:
      a. The date includes or is between Dec 15 to February 28th, or
      b. The ground is frozen more than 4 inches, or
      c. The ground is snow covered

D. Winter spreading restrictions (continued from previous page)
   2. Farmers may not apply more than the following manure rates during the winter season:
      a. 5,000 gallons per acre of liquid manure
      b. 20 tons per acre non-poultry dry manure
      d. 3 tons per acre poultry manure

   3. The winter application field must have at least 25% crop reside cover or a cover crop
   4. The winter application field may not have a slope greater than 15%

E. Pasture management:
   1. Pastures must maintain an average height across the field of 3" during the growing season • Farms with an NRCS grazing plan will meet this requirement

   2. Overgrazed pastures not meeting the required vegetation height are considered Animal Concentration Areas and must follow the requirements for these areas (see below)

F. Animal Concentration Area (barnyard, feedlots, exercise lots, etc) management:
   1. These are areas for outdoor animal confinement that will not maintain the dense vegetation of a pasture
   2. The following criteria must be followed to address runoff from these areas:
      a. Divert upslope water
      b. Direct runoff into a storage or allow it to flow thru an adequate vegetative filter
      c. Disallow animal access to a stream except for properly constructed crossings
      d. Keep watering, feeding, etc areas as far from streams as practical

G. Manure storage management:
   1. All liquid or semi-solid manure storage facilities built since 2000 must:
      a. Be designed by a Pa Professional Engineer to meet NRCS standards
      b. Have an engineer certification stating the storage was built to the required standards

   2. Certain manure storages are required to have a DEP permit, those being:
      a. Liquid or semi-solid manure storages with a volume in excess of 2.5 million gallons
      b. Liquid or semi-solid manure storages with a volume in excess of 1.0 million gallons if the storage is being built in a Special Protection or Agriculture Impaired watershed

   3. Proper manure storage maintenance:
      a. Check for leaks, cracks, overflows, trees, or other issues threatening storage integrity
      b. Must maintain the required freeboard at all times
         i. 12" for manure storage ponds
         ii. 6" for all other manure storage structures

H. In-Field manure stacking of dry manure:
   1. In-field stacking is acceptable on unimproved areas if the following conditions are met:
      a. 100' setback from streams, lakes, ponds, water wells, open sinkholes
      b. Placed on areas with a slope of less than 8%
      c. Cover the stacks with an impermeable cover if on the area for more than 120 days
      d. Divert upslope water if necessary

   2. Stacking on improved areas is allowed as long as runoff from the stack does not directly reach streams, wells, sinkholes or other water

Determining Mechanical Manure Application Rates on Pastures

For pastures where there will be grazing AND mechanical manure application, use the following procedure:

1. Determine if the rate is based on Nitrogen (Soil Test P <200 ppm) or Phosphorus (Soil Test >200 ppm or no soil test).
2. Find the "Grass Hay" crop under the appropriate Nitrogen Based or Crop Phosphorus Removal Based table for Solid manure for animal type.
3. Find the lowest yield group for Grass Hay across the top of the table.
4. Find the application management that corresponds to when the manure will be mechanically applied in the left column of the table under "Manure Application Method". Choose "Spring No Incorporation" for spring and summer applications, "Fall" for fall applications, or "Winter With Cover Crop" for winter applications.
5. Where these intersect is the maximum total manure that can be applied in ton/A. (See the example below)
6. Determine the manure deposited by grazing dairy cattle as follows: (Use the calculation worksheet attached and see the example below)
    a. Determine the number of days that dairy cows, calves (0-1 year), or heifers (1-2 years) typically are on pasture for "Less than 8 hours, 8-16 hours, or more than 16 hours per day".
        - This does not have to be exact but try to be within ±10 days.
        - This does not have to add up to 365 days if there are days when the cattle are not on pasture.
        - If the cows, calves, or heifers are on separate pastures or if pastures have different stocking management, do this calculation for each of those pastures.
    b. Multiply the days in each category times the "Tons" factor for that category.
    c. Multiply that answer by the number of cattle on the pasture in that group.
    d. Sum up the totals for the categories.
    e. Determine the number of acres in the pasture.
    f. Divide the total manure applied by grazing animals by the acres to determine the amount of manure applied per acre by the grazing animals.
    g. Subtract this from the total maximum allowable manure application in 5 above to determine the ton/A of manure that can be applied in addition to what is applied by the grazing animals.

Mechanical Manure Application Rates on Dairy Pastures Example

10 acre pasture, 60 dairy cows are grazed for 1 month in the spring, for 8-16 hrs per day. After that, 30 heifers, and 20 calves are grazed on this pasture for the next 6 months for more than 16 hours per day.
The soil test for the pastures is 65 ppm P which means the Nitrogen Based Rate tables can be used. Manure from the barn is to be spread on the pasture in either the spring or the fall.

Determining the allowable manure application rates from the tables.

The chart maximum N based application of dairy manure to a "Grass Hay" (pasture) applied in the spring or fall is 50 ton/A.

Solid Dairy – Nitrogen Based Manure Application Rates

Grass Hay	Yield Groups (ton/A)								For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
	3-4		4.1-5		5.1-6		6.1-7		
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	35	0	45	0	50	30	50	80	5
Spring Incorporation within 1 week	50	0	50	55	50	105	50	155	4
Spring No Incorporation →	50	80	50	130	50	180	50	230	2
Fall	50	80	50	130	50	180	50	230	2
Winter with cover crop	20	100	20	150	20	200	20	250	4
Winter No cover crop	20	140	20	190	20	240	20	290	2

Determining the amount of manure deposited by the dairy animals on pasture and the amount of manure that could be applied in addition to this.

	Tons	X	Days on Pasture	X	Number of Animals	=	Tons of Manure from Grazing
COWS							
Less than 8 Hours	0.024	X		X		=	
8-16 Hours	0.048	X	30	X	60	=	86
Over 16 Hours	0.072	X		X		=	
HEIFERS							
Less than 8 Hours	0.009	X		X		=	
8-16 Hours	0.018	X		X		=	
Over 16 Hours	0.027	X	180	X	30	=	146
CALVES							
Less than 8 Hours	0.005	X		X		=	
8-16 Hours	0.010	X		X		=	
Over 16 Hours	0.015	X	180	X	20	=	54
Total Manure Applied by Grazing Animals (ton) *Add the amounts calculated above*						=	286
Acres in the Pasture						=	10
Manure Applied per Acre by Grazing Animals (ton/A) *Divide the total manure applied by grazing animals by the acres in the pasture*						=	29
Maximum Allowable Rate (ton/A) *From MMM Rates Table for solid dairy manure*						=	50
Allowable Mechanical Manure Application Rate (ton/A) *Difference between the manure applied by grazing animals and the maximum allowable rate*						=	21

In this example, the difference, up to 21 ton/A of dairy manure can be applied in addition to what the dairy animals deposit while grazing.

Determining Mechanical Manure Application Rates on Pastures

For pastures where there will be grazing AND mechanical manure application

Calculation Worksheet

	Tons	X	Days on Pasture	X	Number of Animals	=	Tons of Manure from Grazing
Animal Group 1:							
Less than 8 Hours		X		X		=	
8-16 Hours		X		X		=	
Over 16 Hours		X		X		=	
Animal Group 2:							
Less than 8 Hours		X		X		=	
8-16 Hours		X		X		=	
Over 16 Hours		X		X		=	
Animal Group 3							
Less than 8 Hours		X		X		=	
8-16 Hours		X		X		=	
Over 16 Hours		X		X		=	
Total Manure Applied by Grazing Animals (ton) *Add the amounts calculated above*						=	
Acres in the Pasture						=	
Manure Applied per Acre by Grazing Animals (ton/A) *Divide the total manure applied by grazing animals by the acres in the pasture*						=	
Maximum Allowable Rate (ton/A) *From MMM Rates Table for solid manure*						=	
Allowable Mechanical Manure Application Rate (ton/A) *Difference between the manure applied by grazing animals and the maximum allowable rate*						=	

Tons of Manure Applied by Animals on Pastures

Animal	Tons Less than 8 Hrs	Tons 8-16 Hrs	Tons Over 16 hrs
BEEF			
Cow/Bull	0.021	0.042	0.042
Finishing Steer	0.01	0.021	0.031
Calf	0.005	0.009	0.014
DAIRY CATTLE			
Cows	0.024	0.048	0.072
Heifers	0.009	0.018	0.027
Calves	0.005	0.01	0.015
HORSES			
Light Horses	0.01	0.02	0.03
Draft Horses	0.017	0.033	0.05
GOATS			
Does/Bucks	0.001	0.002	0.003
Kids	0.0004	0.0009	0.0013
SHEEP			
Ewes/Rams	0.0012	0.0024	0.0036
Lambs	0.0006	0.0012	0.0018

Sheep and Goats
Nitrogen Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	10	0	10	25	15	0	15	30	12
Spring Incorporation within 1 week	15	0	15	20	20	0	25	0	8
Spring No Incorporation	25	0	30	0	35	0	40	15	5
Fall	25	0	30	0	35	0	40	15	5
Winter with cover crop	10	20	15	0	20	0	20	15	9
Winter No cover crop	20	20	20	50	20	80	20	110	5

Corn Grain after Alfalfa	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	0	5	15	10	0	10	0	12
Spring Incorporation within 1 week	5	0	10	0	10	0	15	0	8
Spring No Incorporation	10	0	15	0	20	0	25	0	5
Fall	10	0	15	0	20	0	25	0	5
Winter with cover crop	5	0	10	0	10	0	10	20	9
Winter No cover crop	10	0	15	0	20	0	20	20	5

Corn Grain after Soybeans	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	15	10	0	10	0	10	15	12
Spring Incorporation within 1 week	10	0	10	0	15	0	15	0	8
Spring No Incorporation	15	0	20	0	25	0	30	0	5
Fall	15	0	20	0	25	0	30	0	5
Winter with cover crop	10	0	10	0	10	20	15	0	9
Winter No cover crop	15	0	20	0	20	20	20	40	5

Corn Silage	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	10	15	15	0	15	20	20	0	12
Spring Incorporation within 1 week	15	0	20	0	25	0	25	20	8
Spring No Incorporation	30	0	35	0	40	0	40	35	5
Fall	30	0	35	0	40	0	40	35	5
Winter with cover crop	15	0	15	20	20	0	20	35	9
Winter No cover crop	20	40	20	70	20	100	20	130	5

Corn Silage after Alfalfa	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	15	10	0	10	0	10	15	12
Spring Incorporation within 1 week	10	0	10	0	15	0	15	0	8
Spring No Incorporation	15	0	20	0	25	0	30	0	5
Fall	15	0	20	0	25	0	30	0	5
Winter with cover crop	10	0	10	0	10	20	15	0	9
Winter No cover crop	15	0	20	0	20	20	20	40	5

Corn Silage after Soybeans	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	10	0	10	0	10	15	15	0	12
Spring Incorporation within 1 week	10	0	15	0	15	0	20	0	8
Spring No Incorporation	20	0	25	0	30	0	35	0	5
Fall	20	0	25	0	30	0	35	0	5
Winter with cover crop	10	0	10	20	15	0	15	10	9
Winter No cover crop	20	0	20	20	20	40	20	60	5

Grass Hay	Yield Groups (ton/A)								
	3-4		4.1-5		5.1-6		6.1-7		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	15	0	20	0	25	0	30	0	12
Spring Incorporation within 1 week	20	20	30	0	35	0	40	0	8
Spring No Incorporation	40	0	40	45	40	95	40	145	5
Fall	40	0	40	45	40	95	40	145	5
Winter with cover crop	20	0	20	45	20	95	20	145	9
Winter No cover crop	20	90	20	140	20	190	20	240	5

Small Grains	Yield Groups (bu/A)								
	60-75		76-90		91-105		106-130		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	0	5	0	5	0	5	25	12
Spring Incorporation within 1 week	5	0	5	0	10	0	10	0	8
Spring No Incorporation	10	0	10	0	15	0	15	10	5
Fall	10	0	10	0	15	0	15	10	5
Winter with cover crop	5	0	5	0	5	20	10	0	9
Winter No cover crop	10	0	10	0	15	0	15	10	5

No more than 9000 gal/A of liquid manure can be applied in a single application.
Spilt higher rates into multiple applications.

Turkey
Nitrogen Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	2	15	3	0	4	0	4	15	47
Spring Incorporation within 1 week	4	0	4	30	4	60	4	90	28
Spring No Incorporation	4	75	4	105	4	135	4	165	9
Fall	4	75	4	105	4	135	4	165	9
Winter with cover crop	3	15	3	45	3	75	3	105	31
Winter No cover crop	3	80	3	110	3	140	3	170	9

Corn Grain after Alfalfa	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	0	2	0	2	0	2	15	47
Spring Incorporation within 1 week	2	0	3	0	3	0	4	0	28
Spring No Incorporation	4	15	4	35	4	55	4	75	9
Fall	4	15	4	35	4	55	4	75	9
Winter with cover crop	2	0	2	0	3	0	3	15	31
Winter No cover crop	3	20	3	40	3	60	3	80	9

Corn Grain after Soybeans	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	2	0	2	0	2	15	3	0	47
Spring Incorporation within 1 week	3	0	3	0	4	0	4	20	28
Spring No Incorporation	4	35	4	55	4	75	4	95	9
Fall	4	35	4	55	4	75	4	95	9
Winter with cover crop	2	0	3	0	3	15	3	35	31
Winter No cover crop	3	40	3	60	3	80	3	100	9

Corn Silage	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	3	0	3	20	4	0	4	35	47
Spring Incorporation within 1 week	4	20	4	50	4	80	4	110	28
Spring No Incorporation	4	95	4	125	4	155	4	185	9
Fall	4	95	4	125	4	155	4	185	9
Winter with cover crop	3	35	3	65	3	95	3	125	31
Winter No cover crop	3	100	3	130	3	160	3	190	9

Corn Silage after Alfalfa	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	2	0	2	0	2	15	3	0	47
Spring Incorporation within 1 week	3	0	3	0	4	0	4	20	28
Spring No Incorporation	4	35	4	55	4	75	4	95	9
Fall	4	35	4	55	4	75	4	95	9
Winter with cover crop	2	0	3	0	3	15	3	35	31
Winter No cover crop	3	40	3	60	3	80	3	100	9

Corn Silage after Soybeans	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	2	0	2	15	3	0	3	10	47
Spring Incorporation within 1 week	3	0	4	0	4	20	4	40	28
Spring No Incorporation	4	55	4	75	4	95	4	115	9
Fall	4	55	4	75	4	95	4	115	9
Winter with cover crop	3	0	3	15	3	35	3	55	31
Winter No cover crop	3	60	3	80	3	100	3	120	9

Grass Hay	Yield Groups (ton/A)								
	3-4		4.1-5		5.1-6		6.1-7		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	4	0	4	45	4	95	4	145	47
Spring Incorporation within 1 week	4	70	4	120	4	170	4	220	28
Spring No Incorporation	4	145	4	195	4	245	4	295	9
Fall	4	145	4	195	4	245	4	295	9
Winter with cover crop	3	85	3	135	3	185	3	235	31
Winter No cover crop	3	150	3	200	3	250	3	300	9

Small Grains	Yield Groups (bu/A)								
	60-75		76-90		91-105		106-130		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	0	1	0	1	20	2	0	47
Spring Incorporation within 1 week	1	0	2	0	2	0	3	0	28
Spring No Incorporation	4	0	4	15	4	30	4	45	9
Fall	4	0	4	15	4	30	4	45	9
Winter with cover crop	1	0	2	0	2	0	3	0	31
Winter No cover crop	3	0	3	20	3	35	3	50	9

No more than 9000 gal/A of liquid manure can be applied in a single application.
Spilt higher rates into multiple applications.

Veal
Nitrogen Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	9000	25	9000	55	9000	85	9000	115	10
Spring Incorporation within 1 week	9000	50	9000	80	9000	110	9000	140	7
Spring No Incorporation	9000	75	9000	105	9000	135	9000	165	4
Fall	9000	75	9000	105	9000	135	9000	165	4
Winter with cover crop	5000	70	5000	100	5000	130	5000	160	8
Winter No cover crop	5000	90	5000	120	5000	150	5000	180	4

Corn Grain after Alfalfa	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	5000	0	7000	0	9000	0	9000	25	10
Spring Incorporation within 1 week	8000	0	9000	10	9000	30	9000	50	7
Spring No Incorporation	9000	15	9000	35	9000	55	9000	75	4
Fall	9000	15	9000	35	9000	55	9000	75	4
Winter with cover crop	5000	10	5000	30	5000	50	5000	70	8
Winter No cover crop	5000	30	5000	50	5000	70	5000	90	4

Corn Grain after Soybeans	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	7000	0	9000	0	9000	25	9000	45	10
Spring Incorporation within 1 week	9000	10	9000	30	9000	50	9000	70	7
Spring No Incorporation	9000	35	9000	55	9000	75	9000	95	4
Fall	9000	35	9000	55	9000	75	9000	95	4
Winter with cover crop	5000	30	5000	50	5000	70	5000	90	8
Winter No cover crop	5000	50	5000	70	5000	90	5000	110	4

Corn Silage	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	8000	55	9000	75	9000	105	9000	135	10
Spring Incorporation within 1 week	8000	75	9000	100	9000	130	9000	160	7
Spring No Incorporation	8000	100	9000	125	9000	155	9000	185	4
Fall	8000	100	9000	125	9000	155	9000	185	4
Winter with cover crop	5000	90	5000	120	5000	150	5000	180	8
Winter No cover crop	5000	110	5000	140	5000	170	5000	200	4

Corn Silage after Alfalfa	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	7000	0	9000	0	9000	25	9000	45	10
Spring Incorporation within 1 week	9000	10	9000	30	9000	50	9000	70	7
Spring No Incorporation	9000	35	9000	55	9000	75	9000	95	4
Fall	9000	35	9000	55	9000	75	9000	95	4
Winter with cover crop	5000	30	5000	50	5000	70	5000	90	8
Winter No cover crop	5000	50	5000	70	5000	90	5000	110	4

Corn Silage after Soybeans	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	9000	0	9000	25	9000	45	9000	65	10
Spring Incorporation within 1 week	9000	30	9000	50	9000	70	9000	90	7
Spring No Incorporation	9000	55	9000	75	9000	95	9000	115	4
Fall	9000	55	9000	75	9000	95	9000	115	4
Winter with cover crop	5000	50	5000	70	5000	90	5000	110	8
Winter No cover crop	5000	70	5000	90	5000	110	5000	130	4

Grass Hay	Yield Groups (ton/A)								
	3-4		4.1-5		5.1-6		6.1-7		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	9000	95	9000	145	9000	195	9000	245	10
Spring Incorporation within 1 week	9000	120	9000	170	9000	220	9000	270	7
Spring No Incorporation	9000	145	9000	195	9000	245	9000	295	4
Fall	9000	145	9000	195	9000	245	9000	295	4
Winter with cover crop	5000	140	5000	190	5000	240	5000	290	8
Winter No cover crop	5000	160	5000	210	5000	260	5000	310	4

Small Grains	Yield Groups (bu/A)								
	60-75		76-90		91-105		106-130		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	4000	0	5000	0	7000	0	8000	0	10
Spring Incorporation within 1 week	5000	0	8000	0	9000	0	9000	20	7
Spring No Incorporation	9000	0	9000	15	9000	30	9000	45	4
Fall	9000	0	9000	15	9000	30	9000	45	4
Winter with cover crop	5000	0	5000	10	5000	25	5000	40	8
Winter No cover crop	5000	15	5000	30	5000	45	5000	60	4

No more than 9000 gal/A of liquid manure can be applied in a single application.
Spilt higher rates into multiple applications.

Sheep and Goats
Phosphorus Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	55	10	25	10	55	10	85	12
Spring Incorporation within 1 week	5	70	10	60	10	90	10	120	8
Spring No Incorporation	5	85	10	95	10	125	10	155	5
Fall	5	85	10	95	10	125	10	155	5
Winter with cover crop	5	65	10	50	10	80	10	110	9
Winter No cover crop	5	85	10	95	10	125	10	155	5

Corn Grain after Alfalfa	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	0	5	15	10	0	10	0	12
Spring Incorporation within 1 week	5	0	10	0	10	0	10	30	8
Spring No Incorporation	5	25	10	25	10	45	10	65	5
Fall	5	25	10	25	10	45	10	65	5
Winter with cover crop	5	0	10	0	10	0	10	20	9
Winter No cover crop	5	25	10	25	10	45	10	65	5

Corn Grain after Soybeans	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	15	10	0	10	0	10	15	12
Spring Incorporation within 1 week	5	30	10	0	10	30	10	50	8
Spring No Incorporation	5	45	10	45	10	65	10	85	5
Fall	5	45	10	45	10	65	10	85	5
Winter with cover crop	5	25	10	0	10	20	10	40	9
Winter No cover crop	5	45	10	45	10	65	10	85	5

Corn Silage	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	10	15	15	0	15	20	20	0	12
Spring Incorporation within 1 week	15	0	15	40	20	30	20	60	8
Spring No Incorporation	15	60	15	90	20	100	20	130	5
Fall	15	60	15	90	20	100	20	130	5
Winter with cover crop	15	0	15	20	20	0	20	35	9
Winter No cover crop	15	60	15	90	20	100	20	130	5

Corn Silage after Alfalfa	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	15	10	0	10	0	10	15	12
Spring Incorporation within 1 week	10	0	10	0	15	0	15	0	8
Spring No Incorporation	15	0	15	20	20	20	20	40	5
Fall	15	0	15	20	20	20	20	40	5
Winter with cover crop	10	0	10	0	10	20	15	0	9
Winter No cover crop	15	0	15	20	20	20	20	40	5

Corn Silage after Soybeans	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	10	0	10	0	10	15	15	0	12
Spring Incorporation within 1 week	10	0	15	0	15	0	20	0	8
Spring No Incorporation	15	20	15	40	20	40	20	60	5
Fall	15	20	15	40	20	40	20	60	5
Winter with cover crop	10	0	10	20	15	0	15	10	9
Winter No cover crop	15	20	15	40	20	40	20	60	5

Grass Hay	Yield Groups (ton/A)								
	3-4		4.1-5		5.1-6		6.1-7		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	10	65	10	115	10	165	15	160	12
Spring Incorporation within 1 week	10	100	10	150	10	200	15	210	8
Spring No Incorporation	10	135	10	185	10	235	15	260	5
Fall	10	135	10	185	10	235	15	260	5
Winter with cover crop	10	90	10	140	10	190	15	190	9
Winter No cover crop	10	135	10	185	10	235	15	260	5

Small Grains	Yield Groups (bu/A)								
	60-75		76-90		91-105		106-130		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	5	0	5	0	5	0	5	25	12
Spring Incorporation within 1 week	5	0	5	0	10	0	10	0	8
Spring No Incorporation	10	0	10	0	10	20	15	10	5
Fall	10	0	10	0	10	20	15	10	5
Winter with cover crop	5	0	5	0	5	20	10	0	9
Winter No cover crop	10	0	10	0	10	20	15	10	5

No more than 9000 gal/A of liquid manure can be applied in a single application.
Spilt higher rates into multiple applications.

Turkey
Phosphorus Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	65	1	95	1	125	1	155	47
Spring Incorporation within 1 week	1	80	1	110	1	140	1	170	28
Spring No Incorporation	1	100	1	130	1	160	1	190	9
Fall	1	100	1	130	1	160	1	190	9
Winter with cover crop	1	80	1	110	1	140	1	170	31
Winter No cover crop	1	100	1	130	1	160	1	190	9

Corn Grain after Alfalfa	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	0	1	25	1	45	1	65	47
Spring Incorporation within 1 week	1	20	1	40	1	60	1	80	28
Spring No Incorporation	1	40	1	60	1	80	1	100	9
Fall	1	40	1	60	1	80	1	100	9
Winter with cover crop	1	20	1	40	1	60	1	80	31
Winter No cover crop	1	40	1	60	1	80	1	100	9

Corn Grain after Soybeans	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	25	1	45	1	65	1	85	47
Spring Incorporation within 1 week	1	40	1	60	1	80	1	100	28
Spring No Incorporation	1	60	1	80	1	100	1	120	9
Fall	1	60	1	80	1	100	1	120	9
Winter with cover crop	1	40	1	60	1	80	1	100	31
Winter No cover crop	1	60	1	80	1	100	1	120	9

Corn Silage	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	85	2	65	2	95	2	125	47
Spring Incorporation within 1 week	1	100	2	105	2	135	2	165	28
Spring No Incorporation	1	120	2	140	2	170	2	200	9
Fall	1	120	2	140	2	170	2	200	9
Winter with cover crop	1	100	2	100	2	130	2	160	31
Winter No cover crop	1	120	2	140	2	170	2	200	9

Corn Silage after Alfalfa	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	
Spring Incorporation within 1 day	1	25	2	0	2	15	2	35	47
Spring Incorporation within 1 week	1	40	2	35	2	55	2	75	28
Spring No Incorporation	1	60	2	70	2	90	2	110	9
Fall	1	60	2	70	2	90	2	110	9
Winter with cover crop	1	40	2	30	2	50	2	70	31
Winter No cover crop	1	60	2	70	2	90	2	110	9

Corn Silage after Soybeans	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Spring Incorporation within 1 day	1	45	2	15	2	35	2	55	47
Spring Incorporation within 1 week	1	60	2	55	2	75	2	95	28
Spring No Incorporation	1	80	2	90	2	110	2	130	9
Fall	1	80	2	90	2	110	2	130	9
Winter with cover crop	1	60	2	50	2	70	2	90	31
Winter No cover crop	1	80	2	90	2	110	2	130	9

Grass Hay	Yield Groups (ton/A)								
	3-4		4.1-5		5.1-6		6.1-7		
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Spring Incorporation within 1 day	1	135	1	185	1	235	1	285	47
Spring Incorporation within 1 week	1	150	1	200	1	250	1	300	28
Spring No Incorporation	1	170	1	220	1	270	1	320	9
Fall	1	170	1	220	1	270	1	320	9
Winter with cover crop	1	150	1	200	1	250	1	300	31
Winter No cover crop	1	170	1	220	1	270	1	320	9

Small Grains	Yield Groups (bu/A)								
	60-75		76-90		91-105		106-130		
Manure Application Method	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	Manure ton/A	Fert N lb/A	For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Spring Incorporation within 1 day	1	0	1	0	1	20	1	35	47
Spring Incorporation within 1 week	1	0	1	20	1	35	1	50	28
Spring No Incorporation	1	25	1	40	1	55	1	70	9
Fall	1	25	1	40	1	55	1	70	9
Winter with cover crop	1	0	1	20	1	35	1	50	31
Winter No cover crop	1	25	1	40	1	55	1	70	9

No more than 9000 gal/A of liquid manure can be applied in a single application.
Spilt higher rates into multiple applications.

Veal
Phosphorus Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	4000	70	5000	95	6000	115	7000	135	10
Spring Incorporation within 1 week	4000	85	5000	105	6000	130	7000	155	7
Spring No Incorporation	4000	95	5000	120	6000	145	7000	175	4
Fall	4000	95	5000	120	6000	145	7000	175	4
Winter with cover crop	4000	80	5000	100	5000	130	5000	160	8
Winter No cover crop	4000	95	5000	120	5000	150	5000	180	4

Corn Grain after Alfalfa	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	4000	10	5000	25	6000	35	7000	45	10
Spring Incorporation within 1 week	4000	25	5000	35	6000	50	7000	65	7
Spring No Incorporation	4000	35	5000	50	6000	65	7000	85	4
Fall	4000	35	5000	50	6000	65	7000	85	4
Winter with cover crop	4000	20	5000	30	5000	50	5000	70	8
Winter No cover crop	4000	35	5000	50	5000	70	5000	90	4

Corn Grain after Soybeans	Yield Groups (bu/A)								
	100-130		131-160		161-190		191-220		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	4000	30	5000	45	6000	55	7000	65	10
Spring Incorporation within 1 week	4000	45	5000	55	6000	70	7000	85	7
Spring No Incorporation	4000	55	5000	70	6000	85	7000	105	4
Fall	4000	55	5000	70	6000	85	7000	105	4
Winter with cover crop	4000	40	5000	50	5000	70	5000	90	8
Winter No cover crop	4000	55	5000	70	5000	90	5000	110	4

Corn Silage	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	8000	55	9000	75	9000	105	9000	135	10
Spring Incorporation within 1 week	8000	75	9000	100	9000	130	9000	160	7
Spring No Incorporation	8000	100	9000	125	9000	155	9000	185	4
Fall	8000	100	9000	125	9000	155	9000	185	4
Winter with cover crop	5000	90	5000	120	5000	150	5000	180	8
Winter No cover crop	5000	110	5000	140	5000	170	5000	200	4

Corn Silage after Alfalfa	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	7000	0	9000	0	9000	25	9000	45	10
Spring Incorporation within 1 week	8000	15	9000	30	9000	50	9000	70	7
Spring No Incorporation	8000	40	9000	55	9000	75	9000	95	4
Fall	8000	40	9000	55	9000	75	9000	95	4
Winter with cover crop	5000	30	5000	50	5000	70	5000	90	8
Winter No cover crop	5000	50	5000	70	5000	90	5000	110	4

Corn Silage after Soybeans	Yield Groups (ton/A)								
	17-21		22-25		26-29		30-33		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	8000	15	9000	25	9000	45	9000	65	10
Spring Incorporation within 1 week	8000	35	9000	50	9000	70	9000	90	7
Spring No Incorporation	8000	60	9000	75	9000	95	9000	115	4
Fall	8000	60	9000	75	9000	95	9000	115	4
Winter with cover crop	5000	50	5000	70	5000	90	5000	110	8
Winter No cover crop	5000	70	5000	90	5000	110	5000	130	4

Grass Hay	Yield Groups (ton/A)								
	3-4		4.1-5		5.1-6		6.1-7		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	5000	135	6000	175	7000	215	8000	255	10
Spring Incorporation within 1 week	5000	145	6000	190	7000	235	8000	275	7
Spring No Incorporation	5000	160	6000	205	7000	255	8000	300	4
Fall	5000	160	6000	205	7000	255	8000	300	4
Winter with cover crop	5000	140	5000	190	5000	240	5000	290	8
Winter No cover crop	5000	160	5000	210	5000	260	5000	310	4

Small Grains	Yield Groups (bu/A)								
	60-75		76-90		91-105		106-130		For each Ton/A less than the rate in the table, apply lbs. N fertilizer listed below.
Manure Application Method	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	Manure gal/A	Fert N lb/A	
Spring Incorporation within 1 day	4000	0	5000	0	7000	0	8000	0	10
Spring Incorporation within 1 week	5000	0	6000	10	7000	20	8000	25	7
Spring No Incorporation	5000	15	6000	25	7000	40	8000	50	4
Fall	5000	15	6000	25	7000	40	8000	50	4
Winter with cover crop	5000	0	5000	10	5000	25	5000	40	8
Winter No cover crop	5000	15	5000	30	5000	45	5000	60	4

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