

Manure Management

An overview & guide to completing a manure management plan for your farm



Jefferson County Conservation District
(814) 849 - 7463

Why the need for a plan?

- Set a level of standards for all operations across PA to improve manure management
- Organize information
- Maximize use of on-farm nutrients without over applying N or P
- Prevent runoff of nutrients & sedimentation
- Pathogen control



Manure Management Plan Requirements

- Every PA farm that has animals or land applies manure must have & implement a written Manure Management Plan
- Can be prepared by farmer or trained individual
- Format & worksheets from manual must be followed unless an alternative is approved by DEP
- Doesn't need to be submitted for approval
 - But must be available to DEP or Conservation District staff upon request for inspection
- Records of implementation must be kept on the farm

What are Nutrient Management Plans?

Required for CAOs & CAFOs

CAO: Concentration Animal Operations

- >2,000 lbs of animal wt. per acre*, & at least 8,000lbs of animal wt.
- Regulated by PA SCC under PA's Nutrient Management Act (Act 38)

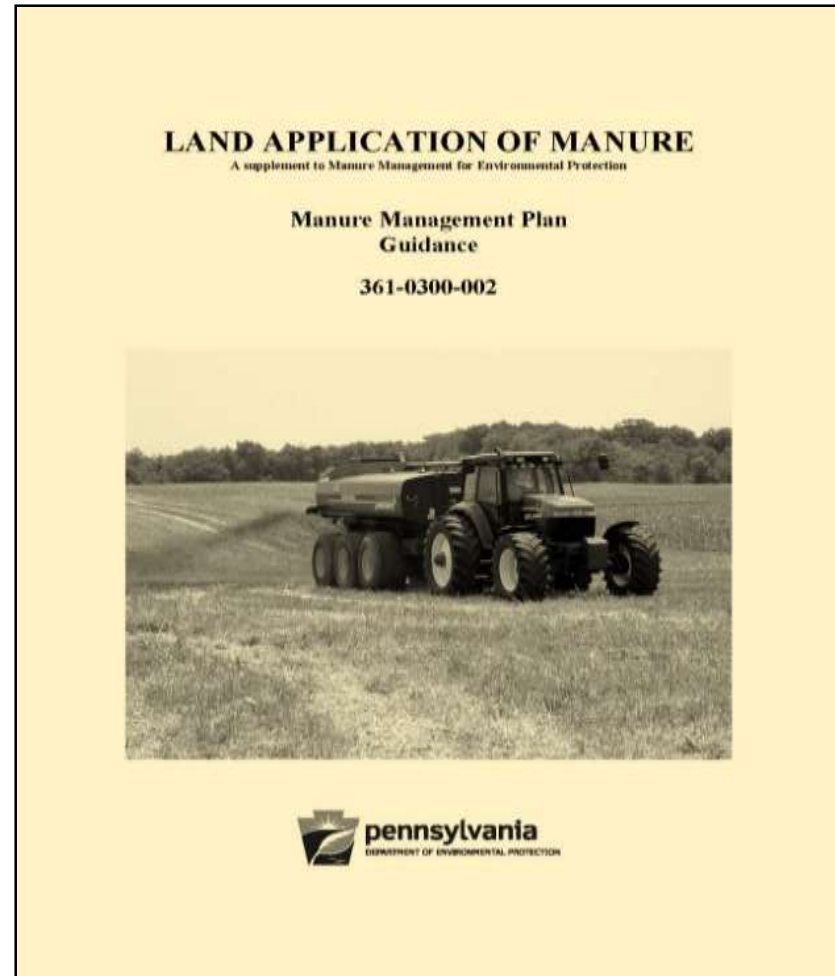
*cropland, hay land, pasture

CAFO: Concentrated Animal Feeding Operations

- >1,000,000 lbs animal wt. (regardless of acreage)
- >300,000 lbs animal wt., and a CAO.
- Regulated by PA DEP
- Requires a CAFO permit

Manure Management Manual Components

- **Guidelines/Examples**
- **Workbook**
- **Recordkeeping Forms**
- **Application Rate Tables**

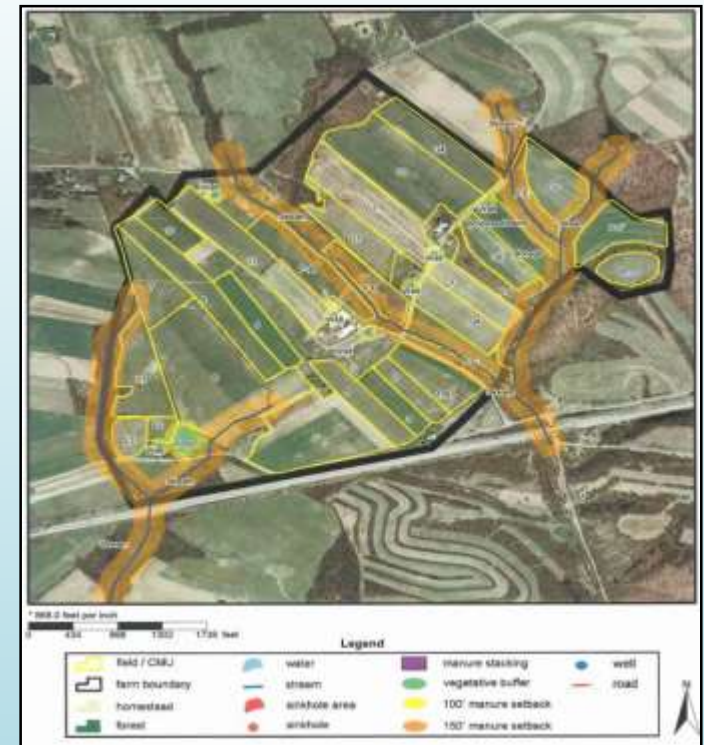


FARM MAPS

- ✓ Farm boundaries
- ✓ Field boundaries, names, acreage
- ✓ Slope identification for fields receiving winter application
- ✓ Environmentally sensitive areas & setbacks
- ✓ Manure storage structures
- ✓ Manure stockpiling & stacking areas
- ✓ Pastures
- ✓ Animal Concentration Areas
- ✓ Road names

MAP SOURCES

- Hand drawn
- FSA Maps
- Conservation Plan Maps (NRCS)
- Google Earth
- PA Onestop
- Texas A&M Forest Service “Map My Property”
- Web Soil Survey



**MANURE MANAGEMENT PLAN
CHECKLIST**

	Manure Management Plan Page No.	Completed or Reviewed	Not Needed
REQUIRED SECTIONS			
Contact Information Page	2		
Operation Information Page	3		
Environmentally Sensitive Areas Worksheet	4		
Winter Application Worksheet	5		
Manure Management Plan Summary	6		
Farm Map	7		
Recordkeeping	11-15		
Managing Manure Storage in Structures and Stockpiling Areas (If the farm has manure storage)	19		
Manure Storage Facilities Worksheet	8		
Manure Stockpiling and Stacking	20 of Instructions		
Managing Manure in Pastures (If the farm has pastures)			
Pasture Management Worksheet	9		
Animal Concentration Areas (If the farm has ACAs) SEE NOTE BELOW			
ACA Worksheet	9-10		
Please note that all farms with crops or ACAs must also have an Agricultural Erosion and Sediment Control Plan meeting the requirements of 25 Pa. Code Chapter 102. Additional information can be obtained from the county conservation district.			

MANURE MANAGEMENT PLAN

CONTACT INFORMATION PAGE

(See Page 3 of Manure Management Guidance Instructions)

Farm Name: _____
Name of Owner/Operator: _____
Operation Street Address: _____
City, State and Zip Code: _____
Phone number (Home/Barn): _____
(Cell): _____
Email Address: _____

Name of person preparing the Manure Management Plan (if other than owner/operator)

Preparer Name: _____
Preparer Organization: _____
Street Address: _____
City, State and Zip Code: _____
Phone Number (Business): _____
(Cell): _____
Email Address: _____
Date of Development: _____

Note that the manure management plan must be evaluated by the owner/operator annually and updated when necessary to keep the plan consistent with farm management practices.

OPERATION INFORMATION PAGE
(See Page 4 of Manure Management Guidance Instructions)

a. Acres of the operation available for manure application: Owned _____ Rented _____

b. Animals on the operation:

Animal type	Animal # (normal production day)	Days on farm per year

c. Crop Rotations used on the Operation (use additional pages if necessary): _____

- d. **Environmentally Sensitive Areas:**
- | | | | | |
|--|-----|--------------------------|----|--------------------------|
| Private or public drinking water wells | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| Streams, lakes or ponds | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| Sinkholes | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| Areas of concentrated flow including swales, ditches, gullies, etc. | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |
| For winter application, above ground inlet to agricultural drainage system | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> |

All farms containing environmentally sensitive areas must complete the Environmentally Sensitive Areas Worksheet on page 4 and develop a map of environmentally sensitive areas.

e. **Winter Application:** Is manure applied during the winter? Yes No
If yes, you must complete the Winter Application Worksheet on page 5.

f. **Manure Storage Facilities:** Is manure stored in a manure storage facility (concrete tank, metal tank, under building structure, earthen, clay, or synthetic lined pond or lagoon, etc.)? Yes No
If yes, you must complete the Manure Storage Facilities Worksheet on page 8.

g. **Solid Manure Stockpiling or Stacking:**
Is manure stockpiled or stacked in outdoor areas? Yes No
If yes, you must meet the requirements in Section 5 - Managing Manure Stockpiling/Stacking Areas on page 18 of the Instructions,

h. **Pasture Areas:** Yes No
If yes, list acres: Owned _____ Rented _____
All farms containing pastures must complete the Pasture Management Worksheet on page 9.

i. **Animal Concentration Areas (ACAs):** Yes No
If yes: Owned Rented
All farms containing ACAs must complete the ACA Worksheets on pages 9 and 10.

Setbacks

Only relevant to mechanical manure application

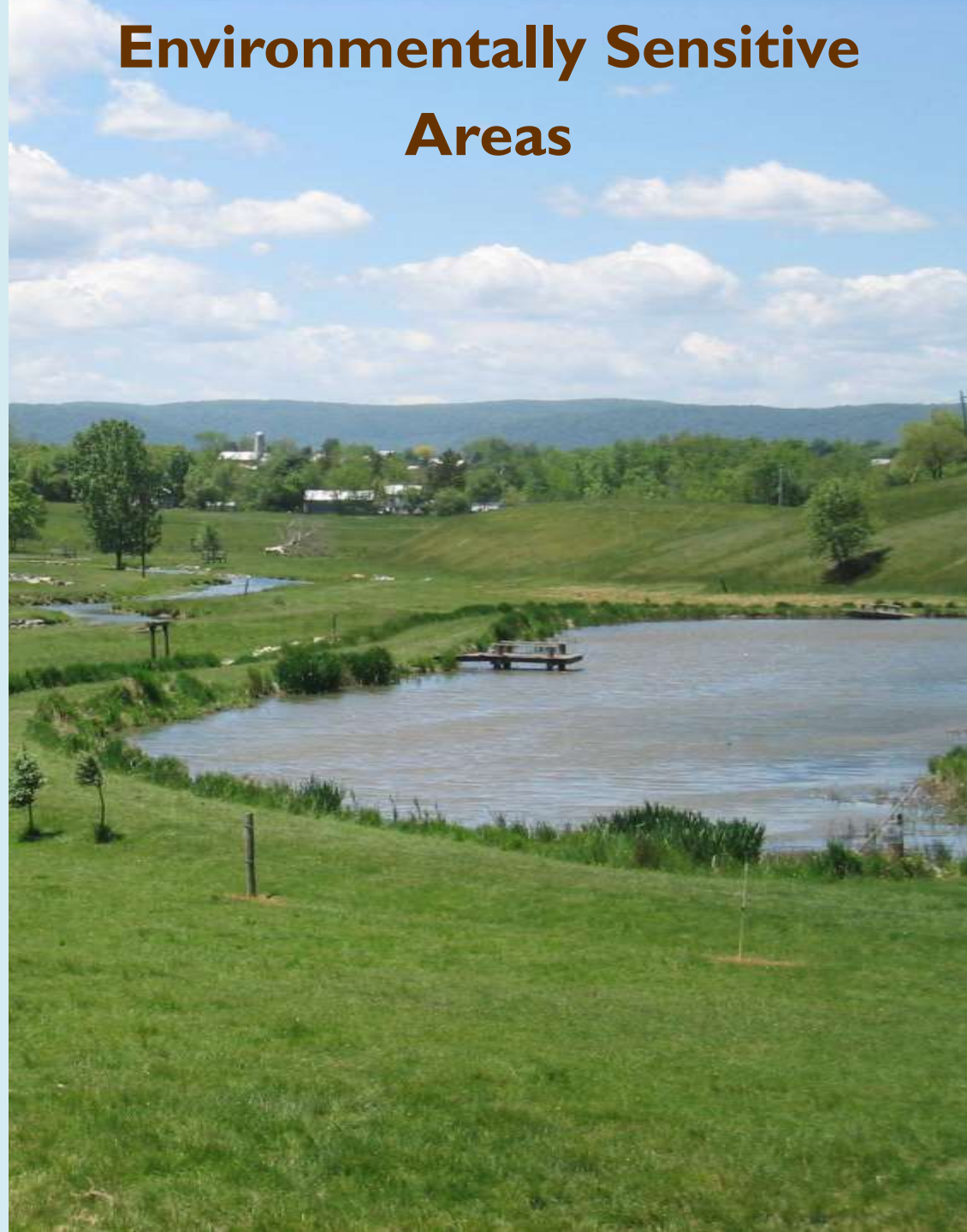
100' setback from ESAs, including: streams, lakes, ponds, sinkholes, drinking water sources.

Setback can be reduced (except in winter) for streams, lakes, ponds to:

50' if recent soil test <200ppm P, use no-till & cover crops

35' if a permanent vegetated buffer is established

Environmentally Sensitive Areas



Environmentally Sensitive Areas

- **No** application within the channel of a non-vegetated concentrated water flow area (swales, gullies, ditches)



EXAMPLE

Environmentally Sensitive Areas

Page 4

Field Identification	Environmentally Sensitive Area (stream, lake, pond, sinkhole, drinking water source, concentrated flow area)	Setback or restricted distance	Is this setback restricted area shown on the plan map (yes/no)
1	<i>Stream</i>	50' (<i>cover crop</i>)	<i>Yes</i>
16	<i>Home water well</i>	100'	<i>Yes</i>
10	<i>Stream</i>	35' (<i>buffer</i>)	<i>Yes</i>

Winter Spreading

Winter is defined as:

- December 15 – February 28 *or*
- Ground is frozen ≥ 4 in. *or*
- Ground is snow covered



Winter Spreading

Maximum Application Rate:

- 5000 gallons/acre liquid manure
- 20 tons/acre dry non-poultry manure
- 3 tons/acre dry poultry manure



Winter Spreading

Must have at least 25% plant or residue cover.



10%
This level of residue might be expected from a fall chisel with twisted shanks, a deep spring disking, a field cultivation, and planting. *



20%
This level of residue might be expected from a fall chisel with twisted shanks, a spring shallow disking, a field cultivation, and planting. *



30%
This level of residue might be expected from one fall chisel with straight shanks, a shallow disking in the spring, a field cultivation, and planting. *



40%
This level of residue might be expected from a fall shallow disking, one spring field cultivation, and planting. Paraplowing in the fall followed by a spring field cultivation and planting would be similar. *



50%
This level of residue will be difficult to reach without using a no-till system. One tillage system that could produce 50 percent ground cover after planting is to field cultivate twice in the spring and plant. *



60%
This level of residue might be expected from a no-till system where you plant directly into the existing residue. Another system is to field cultivate once in the spring and plant. *

Winter Spreading

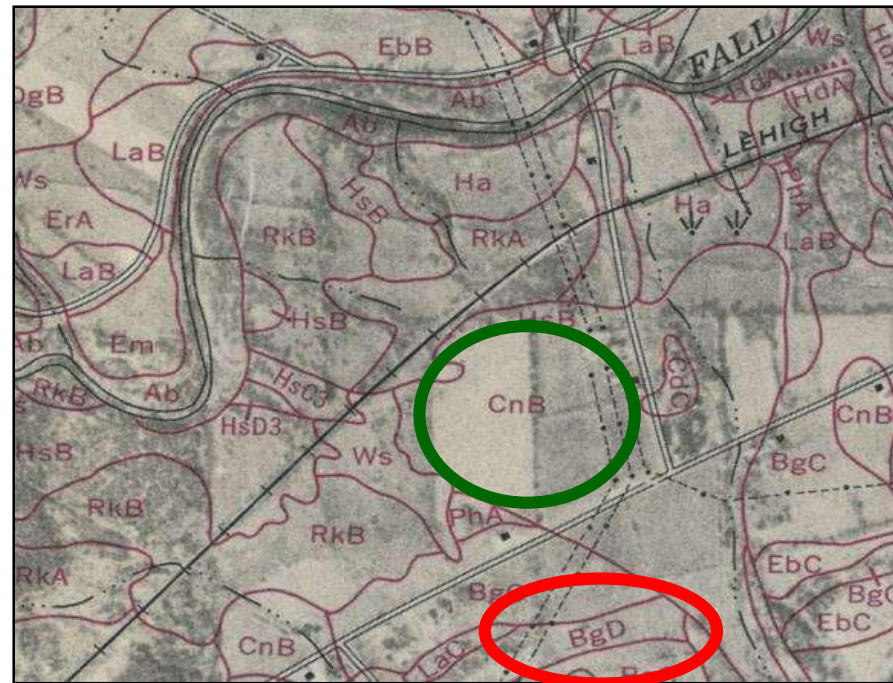
No application permitted on slopes $>15\%$ (NRCS soil survey slope designations A, B, C are acceptable)

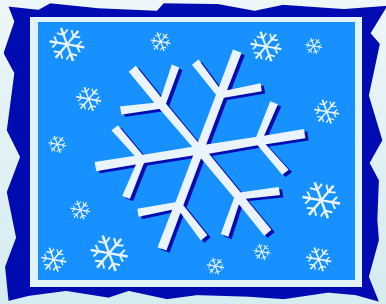
Soil Map Sources:

Web Soil Survey

Penn Soil

PA Onestop





Winter Spreading

Environmentally Sensitive Area Setback Restrictions

100' setback from an above ground inlet to an agricultural drainage system

- Such as inlet pipes to piped outlet terraces
- Where surface water flow is toward the above ground inlet

100' setback can't be reduced for streams, lakes, ponds

as it can in non-winter months when certain management practices are applied.

EXAMPLE

Winter Application

Page 5

Field Identification	Type of Manure (from the manure application charts)	Winter Season Application Rate	Percentage of Crop Residue	Type of Cover Crop (if applicable)	Field Slope Percentage
22	<i>Solid dairy</i>	<i>20 ton/acre</i>	<i>NA</i>	<i>Grass Hay</i>	<i>3-8%</i>

(a) Crop Group & Yield

- List crops that might receive manure
(consider crop rotation)
- List crop groups separately
(corn silage vs corn grain)
- List crops that follow a legume separately
(corn silage after soybeans)

Crop Group and Yield (a)

Corn Silage
23 tons

Corn Silage after alfalfa
23 tons

Grass Hay
5 tons

(b) Manure Group

- List the manure type each crop group will receive
- Solid or liquid (different manure, different group)

Crop Group and Yield (a)	Manure Group (b)
Corn Silage 23 tons	Liquid Dairy
Corn Silage after alfalfa 23 tons	Liquid Dairy
Grass Hay 5 tons	Liquid Dairy
Grass Hay 5 tons	Solid Dairy

(c) Application Season

- Spring, Summer, Fall, Winter
- Different season, different group

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)
Corn Silage 23 tons	Liquid Dairy	Spring
Corn Silage after alfalfa 23 tons	Liquid Dairy	Spring
Grass Hay 5 tons	Liquid Dairy	Spring
Grass Hay 5 tons	Solid Dairy	Fall
Grass Hay 5 tons	Solid Dairy	Winter

(d) Planned Application Rate

Record what you plan to spread on each crop group.

****You will need to confirm that you are not going over the maximum rate determined from either the Chart (Application Rate Tables), Nutrient Balance Sheet, or Phosphorus Index**

(d) Planned Application Rate from C, NBS, PI

C: Charts (Manure Application Rate Tables)

- Easiest, but not farm specific – based on averages

NBS: Nutrient Balance Sheet

- More involved, but farm specific

PI: Phosphorus Index

- Most complex, but also more flexible, & farm specific
- Assesses risk of phosphorus runoff into waterways
- Must be calculated by an authorized Planner

(d) Planned Application Rate

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI* (d)
Corn Silage 23 tons	Liquid Dairy	Spring	9,000 gal/A C
Corn Silage after alfalfa 23 tons	Liquid Dairy	Spring	9,000 gal/A C
Grass Hay 5 tons	Liquid Dairy	Spring	9,000 gal/A C
Grass Hay 5 tons	Solid Dairy	Fall	15 ton/A C
Grass Hay 5 tons	Solid Dairy	Winter	15 ton/A C

(e) Incorporation Timing

When & how you apply affects the availability of Nitrogen

Options in Application Rate Tables

- Spring incorporated within 1 day
- Spring incorporation within 1 week
- Spring no incorporation
- Fall
- Winter with cover crop
- Winter no cover crop

(e) Incorporation Timing

Crop Group and Yield (a)	Manure Group (b)	Application Season (c)	Planned Application Rate from C, NBS, PI* (d)	Incorporation Timing (e)
Corn Silage 23 tons	Liquid Dairy	Spring	9,000 gal/A C	No incorporation
Corn Silage after alfalfa 23 tons	Liquid Dairy	Spring	9,000 gal/A C	No incorporation
Grass Hay 5 tons	Liquid Dairy	Spring	9,000 gal/A C	No incorporation
Grass Hay 5 tons	Solid Dairy	Fall	15 ton/A C	No Incorporation
Grass Hay 5 tons	Solid Dairy	Winter	15 ton/A C	No Incorporation

(f) Commercial Fertilizer Application Rate

(g) Fields where this crop group can be used

Crop Group & Yield (a)	Manure Group (b)	App. Season (c)	Planned Application Rate (d) C, NBS, PI	Incorp. Timing (e)	Comm. Fertilizer App. Rate (f)	Fields where crop group can be used(g)
Corn Silage 23 tons	Liquid Dairy	Spring	9,000 gal/A C	No Incorp.	110 lbs. N	F1-F10

Using Manure Application Rate Tables

Step 1:

Determine if using N-based or Crop P-removal based tables

- N-based: if soil tests show $<200\text{ppm P}$
- Crop P-Removal: if soil tests show $>200\text{ppm P}$ or no soil tests are available

Liquid Dairy Nitrogen Based Manure Application Rates

Corn Grain	Yield Groups (bu/A)								Manure Application Rate Adjustment For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	100-130		131-160		161-190		191-220		
	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	
Manure Application Method									
Spring Incorporation within 1 day	8000	0	10000	0	12000	0	14000	0	14
Spring Incorporation within 1 week	11000	0	14000	0	16000	15	16000	45	10
Spring No Incorporation	16000	20	16000	50	16000	80	16000	110	6
Fall	16000	20	16000	50	16000	80	16000	110	6
Winter with cover crop	5000	55	5000	85	5000	115	5000	145	11
Winter No cover crop	5000	80	5000	110	5000	140	5000	170	6

Corn Grain after Alfalfa	Yield Groups (bu/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	100-130		131-160		161-190		191-220		
	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	
Manure Application Method									
Spring Incorporation within 1 day	4000	0	5000	0	6000	0	8000	0	14
Spring Incorporation within 1 week	5000	0	7000	0	9000	0	11000	0	10
Spring No Incorporation	9000	0	13000	0	16000	0	16000	20	6
Fall	9000	0	13000	0	16000	0	16000	20	6
Winter with cover crop	4000	0	5000	15	5000	35	5000	55	11
Winter No cover crop	5000	20	5000	40	5000	60	5000	80	6

Corn Grain after Soybeans	Yield Groups (bu/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	100-130		131-160		161-190		191-220		
	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	
Manure Application Method									
Spring Incorporation within 1 day	5000	0	6000	0	8000	0	9000	0	14
Spring Incorporation within 1 week	7000	0	9000	0	11000	0	13000	0	10
Spring No Incorporation	13000	0	16000	0	16000	20	16000	40	6
Fall	13000	0	16000	0	16000	20	16000	40	6
Winter with cover crop	5000	15	5000	35	5000	55	5000	75	11
Winter No cover crop	5000	40	5000	60	5000	80	5000	100	6

Corn Silage	Yield Groups (ton/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
	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	
Manure Application Method									
Spring Incorporation within 1 day	9000	0	11000	0	14000	0	16000	0	14
Spring Incorporation within 1 week	13000	0	16000	0	16000	35	16000	65	10
Spring No Incorporation	16000	40	16000	70	16000	100	16000	130	6
Fall	16000	40	16000	70	16000	100	16000	130	6
Winter with cover crop	5000	75	5000	105	5000	135	5000	165	11
Winter No cover crop	5000	100	5000	130	5000	160	5000	190	6

Corn Silage after Alfalfa	Yield Groups (ton/A)								For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
	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	
Manure Application Method									
Spring Incorporation within 1 day	5000	0	6000	0	8000	0	9000	0	14
Spring Incorporation within 1 week	7000	0	9000	0	11000	0	13000	0	10
Spring No Incorporation	13000	0	16000	0	16000	20	16000	40	6
Fall	13000	0	16000	0	16000	20	16000	40	6
Winter with cover crop	5000	15	5000	35	5000	55	5000	75	11
Winter No cover crop	5000	40	5000	60	5000	80	5000	100	6

Step 2:

Find manure type to be applied at top of page

Step 3:

Find crop group manure will be applied on

Step 4: Find the yield at the top

Step 5: Find application method in left column

Step 6: Find rate on the table

Corn Silage	Yield Groups (ton/A)								Manure Application Rate Adjustment For each 1000 gal/A less than the rate in the table, apply lbs. N fertilizer listed below.
	17-21		22-25		26-29		30-33		
	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	
Manure Application Method									
Spring Incorporation within 1 day	9000	0	11000	0	14000	0	16000	0	14
Spring Incorporation within 1 week	13000	0	16000	0	16000	35	16000	65	10
Spring No Incorporation	16000	40	16000	70	16000	100	16000	130	6
Fall	16000	40	16000	70	16000	100			
Winter with cover crop	5000	75	5000	105	5000	135			
Winter No cover crop	5000	100	5000	130	5000	160			

No more than 9000 gal/A of liquid manure can be applied in a single application.

Spilt higher rates into multiple applications.

Step 7: Go back to page 6 of your workbook (Manure Management Plan Summary) be sure that *your* planned rate and amt. of fertilizer you want to apply does not exceed the amounts in the table

Crop Group & Yield (a)	Manure Group (b)	App. Season (c)	Planned Application Rate (d)	Incorp. Timing (e)	Comm. Fertilizer App. Rate (f)	Fields where crop group can be used(g)
Corn Silage 23 tons	Liquid Dairy	Spring	9,000 gal/A C	No Incorp.	110 lbs. N	F1-F10

Chart (C):

16,000 gal/A manure, 70lbs/A N, can apply 6lbs fertilizer for every 1,000 gal/A less than rate in table.

Farmer's Summary:

9,000 gal/A manure, 110 lbs. N. $(16,000 - 9,000 = 7,000) 7 \times 6 = 42$. $(42 + 70 = 112 \text{ lbs. N})$ he is OK

MANURE STORAGE FACILITIES (PROVIDE FOR EACH FACILITY)
Use Additional Sheets as Necessary
(See Page 18 of Manure Management Guidance Instructions)

Type of storage(s) (concrete or metal tank, under building structure, earthen or clay or synthetically lined pond or lagoon, exposed concrete pad, roofed solid manure stacking pad, etc.) and year(s) of construction:

Approximate size and volume (for liquid and semisolid manure) of existing manure storage(s), indicate if exposed to precipitation.

Indicate if any additional materials are added to the manure including bedding, agricultural process wastewater (water system overflow, wash water, milkhouse waste, egg wash water, etc.):

Manure storage(s) related practices that need to be installed on the farm to address identified problems (such as inadequate storage volume, leaking facilities, inadequate maintenance, runoff from a stack that directly reaches a water body, etc.) and an implementation schedule (season and year) for installation of the practices:

NOTE - If you generate or import agricultural process wastewater at the farm, this wastewater must be included in your manure management plan. On many farms, this wastewater is mixed with manure within the manure storage facility. In that case, there is no separate planning requirement for the agricultural process wastewater. If the agricultural process wastewater is not mixed with manure in the manure storage facility, you should contact the county conservation district or DEP to discuss the process for managing that wastewater.

Manure Storages

- As of 2000, liquid & semi-solid manure storages must be designed by a licensed PA Professional Engineer. Copy of certification must be kept on site.
- Require a DEP permit if:
 - >2.5 million gallons or
 - > 1 million gallons in a SP or impaired watershed
- Maintain required freeboard (12" storage ponds, 6" all other storages)
- check for leaks, overflow, debris, etc.



Stacking Areas

In the Field

- 100' setback from ESAs
- Divert upslope water
- Stack on slopes <8%
- Cover stack if there >120 days
- Manure must be dry enough to stack at least 4ft high
- Cannot be in the same spot every year in crop fields



Stacking Areas

On the Farmstead

- Must use improved stacking pad or covered area
- Don't need to follow same restrictions as stacks in the field





**Unimproved & Unacceptable
Farmstead Manure Stacking**



1. Manure Storage Facilities

MANURE STORAGE FACILITIES (PROVIDE FOR EACH FACILITY) Use Additional Sheets as Necessary (See Instructions on Pages 18)

Type of storage(s) (concrete or metal tank, under building structure, earthen or clay or synthetically lined pond or lagoon, exposed concrete pad, roofed solid manure stacking pad, etc.) and year(s) of construction:

Concrete circular tank constructed in 1998

Manure stacking pad constructed in 2005

Approximate size and volume (for liquid and semisolid manure) of existing manure storage(s), indicate if exposed to precipitation.

Concrete Tank 92' diameter, 11' deep (excluding freeboard of 6 inches) exposed to precipitation, 550,000 gallons capacity

Stacking pad 50' by 60'

Indicate if any additional materials are added to the manure including bedding, agricultural process wastewater (water system overflow, wash water, milkhouse waste, egg wash water, etc.):

Tank - 150 gallons per day of milkhouse water

Pad - straw bedding used for stacked manure

Manure storage(s) related practices that need to be installed on the farm to address identified problems (such as inadequate storage volume, leaking facilities, inadequate maintenance, runoff from a stack that directly reaches a water body, etc.) and an implementation schedule (season and year) for installation of the practices:

Tank - No problems found with tank

Pad - Need to direct clean water from pad; To be completed in Spring of 2012.

NOTE - If you generate or import agricultural process wastewater at the farm, this wastewater must be included in your manure management plan. On many farms, this wastewater is mixed with manure within the manure storage facility. In that case, there is no separate planning requirement for the agricultural process wastewater. If the agricultural process wastewater is not mixed with manure in the manure storage facility, you should contact the county conservation district or DEP to discuss the process for managing that wastewater.

PASTURE MANAGEMENT WORKSHEET

(See Page 21 of Manure Management Guidance Instructions)

All pastures on the farm must be listed in the Manure Management Plan and identified on the farm map.

Please identify your pasture management approach below:

- I have a grazing plan meeting the requirements of the Natural Resources Conservation Service Pennsylvania Technical Guide Practice Standard 528 for Prescribed Grazing.

- I am managing my pastures by maintaining dense vegetation in the pasture throughout the growing season. Dense vegetation means that the pasture is managed to minimize bare spots and to maintain an average vegetation height across the pasture during the growing season at least 3 inches high.

Grazed fields that do not have an NRCS grazing plan which are overgrazed (as defined as not meeting the management requirements described above in check box “2”) need either to be managed to restore dense vegetation or these areas will be defined as Animal Concentration Areas (“ACAs”) and will need to meet the requirements of Section 5 Animal Concentration Areas of this manual.

Evaluating Dense Vegetation

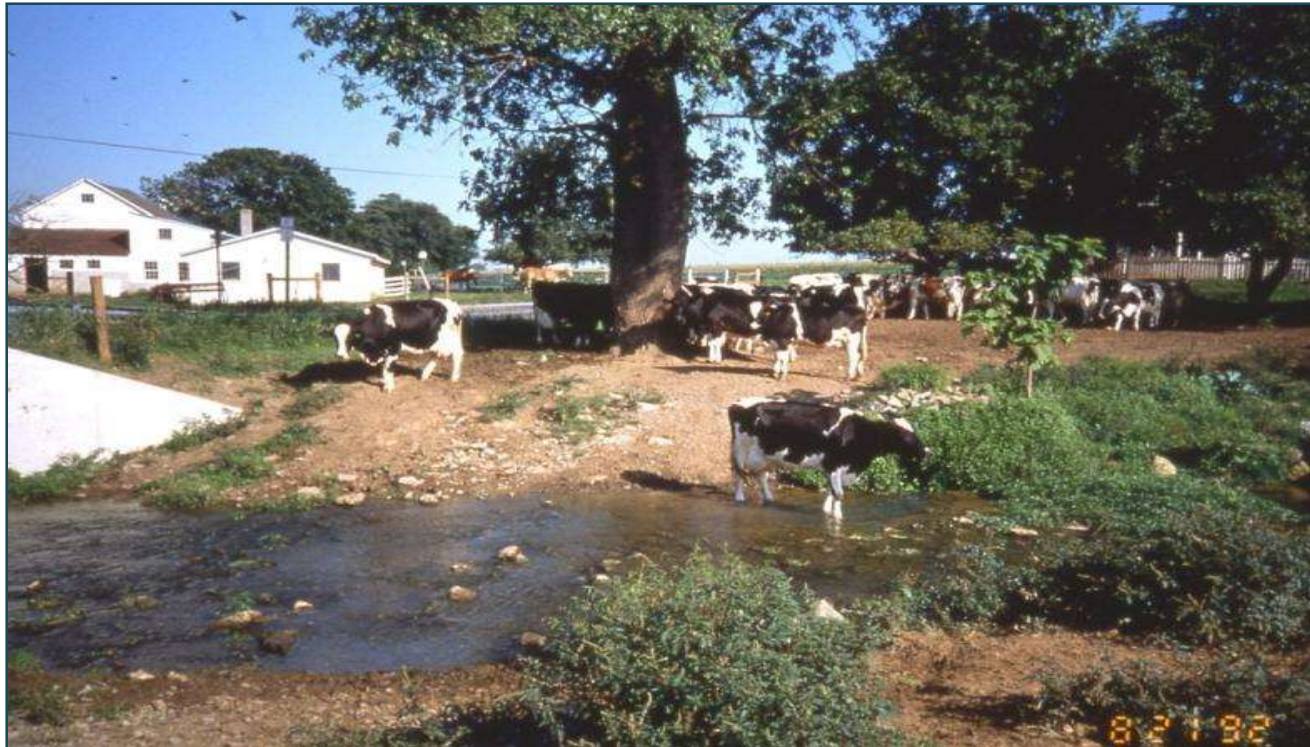


Unacceptable

Acceptable

Pasture Management

- Stream bank fencing not required for true pasture
- If pasture overgrazed, field would be considered a ACA, which does require animal exclusion from stream. Be sure to include area in the ACA worksheet.



What is an *ACA*?

A confinement or congregation area that will not maintain a growing crop, or where manure deposited by animals is in excess of crop needs



Types of *ACAS*

- Barnyards
- Feedlots
- Loafing areas
- Exercise lots
- Feeding areas
- Watering areas
- Shaded Areas
- Calf Hutches



Animal Concentration Areas

Note:

small areas such as under a shade tree or near a water bucket *do not* need to be included in the ACA section if they do not cause manure or sediment runoff into waterways



Animal Concentration Areas

ACA management:

- Divert clean water
- Direct polluted water to storage or vegetated treatment area
- Limit access to streams through stabilized crossings and watering areas
- Limit size of ACA
- Keep animal congregation areas (feeding, shade, watering, etc.) away from streams
- Routinely remove manure

EXAMPLE

ACAs

Page 10

ANIMAL CONCENTRATION AREA WORKSHEET

Part 2

Use Additional Sheets as Necessary
(See Instructions on Page 22)

Location of ACA (refer to Farm Map)	List Yes if BMP has been implemented and if BMP is planned, list planned date for installation				
	Divert clean water around ACA	Direct polluted water to storage or vegetated treatment area	Limit access to streams through stabilized crossings and watering areas	Limit size of denuded areas	Locate area where animals congregate (feed areas, shade, etc.) away from streams
<i>North side of heifer barn</i>	<i>Summer 2012</i>	<i>Summer 2012</i>	<i>Summer 2012</i>	<i>Yes</i>	<i>2012</i>

Recordkeeping

- Manure application records
- Crop yield records
- Manure transfer records
- Manure storage records

Records should be retained on the operation for at least 3 years, and must be available for review by DEP or conservation district upon request



Manure Application Rate Record (p.12)

MANURE APPLICATION RATE RECORD JANUARY 1, 2011 THROUGH DECEMBER 31, 2011

Use Additional Sheets as Necessary
(See Instructions on Page 15)

Date	Field Identification	Acres	Manure Group	Crop Group	Application Rate	Notes
4/22	1,3,5,7	24	Liquid dairy	Corn Silage	9,000 gal	
4/25	2,4,6,8	22	Liquid dairy	Grass Hay	7,000 gal	
10/5	9,11,13	12	Solid dairy	Corn Silage	25 tons	
10/15	10,12,14,16	29	Liquid dairy	Grass Hay	7,000 gal	
10/15	15,17,19	17	Liquid dairy	Corn Silage	9,000 gal	

Manure Transfer Record (p.14)

MANURE TRANSFER RECORD JANUARY 1, 2011 THROUGH DECEMBER 31, 2011

Use Additional Sheets as Necessary
(See Instructions on Page 16)

Date	Name of Importer/Broker	Address and Phone Number Importer/Broker	Manure Group	Amount of Manure Transferred	Crop Group and Application Rate
<i>4/20</i>	<i>Bill Jones</i>	<i>55 Manure Road Manure Town 717-555-4567</i>	<i>Solid Beef</i>	<i>20 tons</i>	<i>Unknown</i>
<i>10/5</i>	<i>Bill Jones</i>	<i>55 Manure Road Manure Town 717-555-4567</i>	<i>Solid Beef</i>	<i>15 tons</i>	<i>Unknown</i>

Manure Storage Facility Record (p.15)

MANURE STORAGE FACILITY RECORD MONTHLY INSPECTION FORM

Use Additional Sheets as Necessary
(See Instructions on Page 17)

Storage Name	Inspection Date	Manure Depth (liquid)	Depth from Surface of Manure to Freeboard (liquid)	Leak Detection System Inspections. Are there any leaks, overflows, or seepages? Describe.	Structural Integrity. Are there cracks, erosion, slope failures, liner deterioration, rodent holes, large vegetation, excessive or lush vegetation, fencing issues, loading area issues? Describe.
Liquid dairy	1/1/2010	3.5 feet	7.5 feet	None	No problems observed
Same	2/1/2010	5 feet	6 feet	None	Same
Same	3/1/2010	6.5 feet	4.5 feet	None	Same
Same	4/1/2010	8 feet	3 feet	None	Same
Same	5/1/2010	1 foot	10 feet	None	Same
Same	6/1/2010	2.5 feet	8.5 feet	None	Same

Resources

- **PA Nutrient Management Program**
<http://panutrientmgmt.cas.psu.edu/>
- **Jefferson County Conservation District**
<http://www.jeffersonconservation.com>
- **Natural Resource Conservation Service**
<http://www.pa.nrcs.usda.gov/>
- **Penn State Extension**
<http://extension.psu.edu/>