



**Do you have problems with:**

- Rising costs of fertilizers
- Low fertility soils
- Poor soil tilth (workability)
- Manure storage on the farm

**Managing the nutrients in manure can help these problems.**

Manure contains nutrients that crops use just like the nutrients in fertilizers that you buy. Managing manure for nutrients means taking advantage of the nutrients in the manure so you buy less fertilizer and improve soil and water quality.

**Benefits of managing manure for nutrients:**

- Purchase less fertilizer
- Add organic matter to soil
- Improve soil quality
- Improve water quality
- Improve crop production



*Manure is a valuable source of plant nutrients.*



*Manure not being utilized for crop nutrients is wasted money.*

**General Value of the Manure per Ton**

Type of Manure	N Value	P <sub>2</sub> O <sub>5</sub> Value	K <sub>2</sub> O Value	Fertilizer Value
Dairy	\$.60	\$.57	\$1.32	\$2.49
Swine	\$1.35	\$2.37	\$1.35	\$5.07
Poultry	\$6.00	\$13.50	\$8.40	\$27.90
Assumes: N = \$.30/lb; P <sub>2</sub> O <sub>5</sub> = \$.30/lb; K <sub>2</sub> O = \$.21/lb Pack Type Manure (with Straw Bedding)				

**General Nutrient Levels in Manure/Ton**

Type of Manure	N Lb/ton	P <sub>2</sub> O <sub>5</sub> Lb/ton	K <sub>2</sub> O Lb/ton
Dairy	2	1.9	6.3
Swine	6.4	7.9	6.4
Poultry	20	45	40
Pack Type Manure (with Straw Bedding)			

**How much does it cost?**

- Generally no cost for the manure.
- Cost to transport and apply the manure – a few dollars per acre.
- Soil tests - \$7-\$10 per 20 acres.
- Manure analysis - \$25-\$50 per year.

# Managing Manure Nutrients

## What you need to manage manure for its nutrient value:

- Minimum of one soil test for each field
- One manure analysis for each type of manure
- Crop yield goals
- The crop rotation for each field
- Manure spreader calibrated to apply the desired tons/acre



Spreading manure is like spreading chemical fertilizer. It contains (N) nitrogen, ( $P_2O_5$ ) phosphate, and ( $K_2O$ ) potash just like purchased fertilizer. It just looks different.



Manure application is calibrated by measuring the weight of manure applied over a measured area. In this case a 10 X 10 tarp is used to catch manure which is then weighed to determine tons/acre.



NRCS provides technical assistance for conservation planning at no cost to you.

## Other benefits of using manure nutrients:

- Manure contains micronutrients needed by crops that typical fertilizer does not provide
- Manure can reduce soil erosion by improving soil quality
- Turns manure into an asset

## How to maintain your manure and nutrient management plan.

- Soil test each field every 3 to 5 years
- Analyze the manure annually for nutrient content
- Keep records of crop yields and the amount of manure and other nutrients applied
- Evaluate crop and soil response and revise the plan as needed

# Managing Manure Nutrients

Example Nutrient Application for Field #3 and for Year #1						
Field ID	Acre	Crop	Nutrient Recommendations / Applications			
			Yield	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
			Goal/Acre	Lb/Acre	Lb/Acre	Lb/Acre
Field 3	9.7	Grass Hay	4 ton/ac	100 (Rec)	60 (Rec)	225 (Rec)
12 Ton Manure Applied Jul - Yr 1				<b>22</b>	<b>56</b>	<b>85</b>
231 lbs/ac 0-0-60 Applied Apr - Yr 1				0	0	139
175 lbs/ac 45-0-0 Applied in April - Yr 1				79	0	0
Total Nutrients Applied - Yr 1				101	56	224
Balance After Rec's - Yr 1				+1	-4	-1

Corn Grain - Yr 1		
Oats - Yr 2		Field 1 Crops
Hay - Yr 3		9.3
Hay - Yr 4		
Oats - Yr 1		
Hay - Yr 2		Field 2 Crops
Hay - Yr 3		9.7
Corn Grain - Yr 4		
Hay - Yr 1		
Hay - Yr 2		Field 3 Crops
Corn Grain - Yr 3		9.7
Oats - Yr 4		
Farm HQ's	3.2	
Hay - Yr 1		
Corn Grain - Yr 2		
Oats - Yr 3		Field 4 Crops
Hay - Yr 4		7.5

The manure applied:

- About 20% of the needed Nitrogen
- Almost all the P<sub>2</sub>O<sub>5</sub>
- about 37% of the K<sub>2</sub>O
- The value of the manure in this case was **\$41.25 per acre.**
- This means the manure can replace about \$400 in fertilizer costs for field #3

## CONSERVATION SOLUTIONS FOR YOUR PENNSYLVANIA FARM

### Technical Help Is Available

Your local Natural Resources Conservation Service (NRCS) office has experienced conservationists that can assist you with developing a manure management plan to maximize the nutrient benefits of manure. They can also help you develop a Conservation Plan to solve other problems you have identified on your farm.

There is no charge for our assistance. Simply call your local office at the number listed below to set up an appointment and we will come to your farm.

You may also be eligible to receive financial assistance, through a state or federal program. Your NRCS office will explain any programs that are available so you can make the best decision for your operation. All NRCS programs and services are voluntary.



*Helping People Help the Land*

#### NRCS FIELD OFFICES:

Adams: 717-334-2317 ext 3	Dauphin: 717-921-2380 ext 3	Monroe: 610-625-8392 ext 3
Allegheny: 717-482-4800 ext 3	Delaware: 610-696-0398 ext 3	Montgomery: 610-372-4655 ext 3
Armstrong: 724-545-1022 ext 3	Elk: 814-375-2125 ext 3	Northhampton: 610-625-8392 ext 3
Beaver: 724-482-4800 ext 3	Erie: 814-796-6760 ext 3	Northumberland: 570-286-7114 ext 3
Bedford: 814-623-7900 ext 3	Fayette: 724-437-7971 ext 3	Perry: 717-582-4144 ext 3
Berks: 610-372-4655 ext 3	Forest: 814-226-8160 ext 3	Pike: 570-282-8732 ext 3
Blair: 814-695-6291 ext 3	Franklin: 717-264-8074 ext 3	Potter: 814-274-8166 ext 3
Bradford: 570-265-6969 ext 3	Fulton: 717-485-3812 ext 3	Schuykill: 570-622-1312 ext 3
Bucks: 215-453-9527 ext 3	Greene: 724-627-5821	Snyder: 570-837-0007 ext 3
Butler: 724-482-4800 ext 3	Huntingdon: 814-627-1626 ext 3	Somerset: 814-445-6876 ext 3
Cambria: 814-472-5502 ext 3	Indiana: 727-463-8547 ext 3	Sullivan: 570-836-2490 ext 3
Cameron: 814-375-2125 ext 3	Jefferson: 814-375-2125 ext 3	Susquehanna: 570-278-1011 ext 3
Carbon: 610-625-8392 ext 3	Juniata: 717-436-8953 ext 3	Tioga: 570-724-1726 ext 3
Centre: 570-726-3196 ext 3	Lackawanna: 570-282-8732 ext 3	Union: 570-523-3280
Chester: 610-696-0398 ext 3	Lancaster: 717-299-5361 ext 3	Warren: 814-563-3125
Clarion: 814-226-8160 ext 3	Lawrence: 724-652-5811	Washington: 724-222-3060 ext 3
Clearfield: 814-375-2125 ext 3	Lebanon: 717-272-3908 ext 3	Wayne: 570-282-8732 ext 3
Clinton: 570-726-3196 ext 3	Lehigh: 610-625-8392 ext 3	Westmoreland: 724-834-3970 ext 3
Columbia: 570-784-1062 ext 3	Luzerne: 570-799-0645 ext 3	Wyoming: 570-836-2490 ext 3
Crawford: 814-724-1852 ext 3	Lycoming: 570-433-3902 ext 3	Venago: 814-437-2473 ext 3
Cumberland: 717-249-1037 ext 3	McKean: 814-274-8166 ext 3	York: 717-755-2966 ext 3
	Mercer: 724-662-3740 ext 3	
	Mifflin: 717-248-9541 ext 3	