

What you need to know

- Manure is good stuff!!
 - Contains nutrients
- All manure is not created equally
- All manure nutrients are not available
 - Total nutrient content = inorganic + organic
- Some nutrients can be lost
- Nutrient credit is dependent upon
 - Amount of manure applied among other things

Average nutrient & dry matter content of manure

Species – Storage	DM	N	P_2O_5	K ₂ 0	
	%	lb/T	lb/T or lb/1000gal		
Dairy – Solid	24	10	5	9	
Dairy – Liquid	6	24	9	20	
Swine – Solid	20	14	10	9	
Swine – Liquid indoor	7	50	42	30	
Swine – Liquid outdoor	4	34	16	20	
Chicken – Solid	60	40	50	30	
Turkey – Solid	60	40	40	30	
Poultry – Liquid	3	16	10	12	

Nitrogen Availability

• Total $N = NH_4 - N + organic N$

Available, but can be lost thru volatilization

Not available until mineralized

• Available $N = NH_4-N$ that isn't lost

+

Mineralized N from organic N

Nitrogen Availability

- First year availability varies with animal species and storage/management
 - 2nd year is 10 %, regardless of species/storage
 - 3rd year is 5%, regardless of species/storage

Greater availability if manure is incorporated within 3 days of application

Phosphorus Availability

- Total P = inorganic P + organic P
- Commonly considered to be less available than P fertilizer
- 60 % of total P₂O₅ available in 1st year regardless of species or storage
 - 2nd year is 10 %
 - -3^{rd} year is 5%
- More research is needed in this area

Potassium Availability

• K in liquid fraction

- 80 % available in first year
 - $-2^{\rm nd}$ year is 10 %
 - 3rd year is 5%

Actual availability may be 70-100%

Estimated 1st Year Nutrient Availability

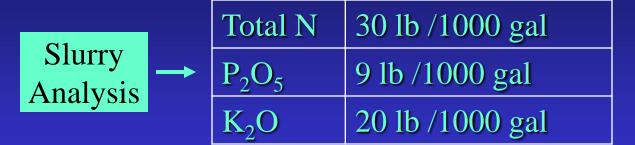
Species	N	P ₂ 0 ₅	K ₂ 0
Dairy, surface applied	30%	60%	80%
Dairy, incorporated	40%	60%	80%
Veal calf, surface applied	40%	60%	80%
Veal calf, incorporated	50%	60%	80%
Beef, surface applied	25%	60%	80%
Beef, incorporated	35%	60%	80%
Swine, solid surface applied	50%	60%	80%
Swine, solid incorporated	65%	60%	80%
Swine, liquid indoor pit, surface	50%	60%	80%
Swine, liquid indoor pit, incorporated	65%	60%	80%
Swine, liquid outdoor pit, surface	50%	60%	80%
Swine, liquid outdoor pit, incorporated	65%	60%	80%
Swine, liquid, farrow-nursery indoor pit, surface	50%	60%	80%
Swine, liquid, farrow-nursery indoor pit, incorporated*	65%	60%	80%
Duck, surface applied	50%	60%	80%
Duck, incorporated	60%	60%	80%
Chicken, surface applied	50%	60%	80%
Chicken, incorporated	60%	60%	80%
Turkey, surface applied	50%	60%	80%
Turkey, incorporated	60%	60%	80%
Poultry, liquid, surface	50%	60%	80%
Poultry, liquid, incorporated	60%	60%	80%
Sheep, solid surface applied	25%	60%	80%
Sheep, solid incorporated	35%	60%	80%
Horse, solid surface applied	25%	60%	80%
Horse, solid incorporated	35%	60%	80%

2nd year availability is 10% 3rd year availability is 5%

From: Technical Note of the NRCS 590 Standard

Manure Nutrient Crediting Example

- Dairy Slurry
- 4000 gal/a
- Knifed in



Year after	Nutrient Credits				
application	N	P_2O_5	K ₂ O		
1 st	0.4 x 30 x 4 =	0.6 x 9 x 4 =	0.8 x 20 x 4 =		
	48 lb N/a	22 lb P ₂ O ₅ /a	64 lb K ₂ O/a		
2 nd	$0.1 \times 30 \times 4 =$	$0.1 \times 9 \times 4 =$	$0.1 \times 20 \times 4 =$		
	12 lb N/a	$3.6 \text{ lb P}_2\text{O}_5/\text{a}$	8 lb K ₂ O/a		
3 rd	$0.05 \times 30 \times 4 =$	$0.05 \times 9 \times 4 =$	$0.05 \times 20 \times 4 =$		
	6 lb N/a	1.8 lb P ₂ O ₅ /a	4 lb K ₂ O/a		

Manure Nutrient Crediting

• Remember:

- If manure is applied 2 or more consecutive years:
 - Then take credits for manure just applied + all other applications in the past 3 years

Where/How do we apply it:

- 1. Where nutrients can be used
 - Replace or reduce fertilizer
 - Consider crop year and rotation

2. Where environmental risks are small

3. Follow regulations!

