

Agricultural Nutrient Management Program

NH₄-N Conservation Factors

liquid manures & organic residuals (<10% dry matter, >90% moisture)			
Time to incorporation	Conventional tillage	Conservation tillage	No-till or tillage > 3 days
inject	1.0	1.0	1.0
< 1 hour	0.95	0.70	
1 – 3 hours	0.90	0.68	
3 – 6 hours	0.75	0.60	
6 – 12 hours	0.65	0.55	
12 – 24 hours	0.60	0.53	
1 – 2 days	0.55	0.50	
2 – 3 days	0.50	0.48	
> 3 days (no-till)			0.45

NH₄-N Conservation Factors

solid manures & organic residuals (>10% dry matter, <90% moisture)			
Time to incorporation	Conventional tillage	Conservation tillage	No-till or tillage > 3 days
< 1 hour	0.96	0.66	
1 – 3 hours	0.93	0.64	
3 – 6 hours	0.78	0.57	
6 – 12 hours	0.71	0.53	
12 – 24 hours	0.63	0.49	
1 – 2 days	0.58	0.47	
2 – 3 days	0.53	0.44	
> 3 days (no-till)			0.35

NH₄-N Conservation Factors

poultry litter	<u> </u>		
Time to incorporation	Conventional tillage	Conservation tillage	No-till or tillage > 14 days
< 1 day	0.97	0.85	
1 – 2 days	0.92	0.82	
3 days	0.88	0.80	
4 days	0.84	0.78	
5 days	0.81	0.77	
6 – 7 days	0.77	0.75	
8 – 14 days	0.74	0.73	
> 14 days (no-till)			0.72

Nitrogen Credits for Leguminous Crops

Crop	lbs/ac
Perennial Crops	
Alfalfa	100 to 150 <i>a</i>
Ladino clover	60
Red clover	40
Birdsfoot trefoil	40
Winter Annual Crops	
Hairy vetch	75 to 150 b
Crimson clover	50 to 100 b
Austrian winter peas	75 to 150 b
Summer Annual Crops	
Lespedeza	20
Soybeans	15 (to 40 <i>c</i>)

NOTE: If an unfertilized cereal grain cover crop was grown after the legume, then **DO NOT** take the credit.

- **a**. Depends on the stand:
 - If a stand is good (> 4 plants per square foot), credit 150 lbs.
 - If a stand is fair (1.5 to 4 plants per square foot), credit 125 lbs.
 - If a stand is poor (< 1.5 plants per square foot), credit 100 lbs.
- **b**. Depends upon planting date (and biomass production), kill date, and subsequent tillage.
- c. A minimum of 15 lbs and may be as much as 1 lb/bu of soybeans up to a maximum of 40 lbs.

Useful Conversions

Area 1 ac = 43,560 ft ²	Mass 1 gal H ₂ O = 8.33 lbs
Volume 1 ft ³ = 0.8 bu 1 bu = 1.25 ft ³ 1 ft ³ = 7.5 gal	Oxide Conversions P x 2.3 = P ₂ O ₅ K x 1.2 = K ₂ O
27,154 gal = 1 ac-in 5 gal = 2/3 ft³ 1 yd³ = 27 ft³	Speed 1 mi/hr = 1.47 ft/sec 1 mi/hr = 88 ft/min
Length 1 mi = 5,280 ft = 1.61 km	Misc. Conversion ppm x 0.0001 = %

Manure Mineralization Rates

Manu	re sources and types	Fraction of original organic N available from N mineralization each year		
		Year of application	1 year after application	2 years after application
	Cattle (dairy and beef), all types	0.35	0.18	0.09
	Poultry a – caged layers (high rise) b – broilers and others (bedding)	0.60 0.50	0.10 0.15	0.05 0.08
** **********************************	Swine, all types	0.50	0.15	0.08
	Horse	0.20	0.10	0.05
**	Sheep and goats	0.30	0.15	0.05

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Primary Nutrient Content of Various Fertilizers

Fertilizer	N	P_2O_5	K ₂ O
Ammonium nitrate	33	0	0
Ammonium polyphosphate	10	34	0
Ammonium sulfate	21	0	0
Anhydrous ammonia	82	0	0
Diammonium phosphate	18	46	0
Monoammonium phosphate	11	48	0
Muriate of potash	0	0	60
Nitrogen solutions (UAN)	28, 30 or 32*	0	0
Potassium nitrate	13	0	44
Potassium sulfate	0	0	50
Triple superphosphate	0	46	0
Urea	46	0	0

^{*}The following nitrogen concentrations apply to these UAN solutions:

28% is 3.1 lb N/gal; 30% is 3.3 lb N/gal; 32% is 3.5 lb N/gal

Agricultural Nutrient
Management Program
0116 Symons Hall
College Park, MD 20742
(301) 405-1319
FAX (301) 314-7375
www.extension.umd.edu/anmp

Volume Formulas

Object Shape Formula		Object Shape	Formula
Вох	V = W x L x H	Trapizoidal prism	V = H x L x [(Wt + Wb)/2] {Wt = width of top} {Wb = width of bottom}
Cylinder	V = 3.14 x (D/2) ² x L	Pyramid	V = (W x L x H) / 3
Cone	V = [3.14 x (D/2) ² x H] / 3	Triangular prism	V = (W x L x H) / 2

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