



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

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 ^a
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 ^c)

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 ft²

Volume

1 ft³ = 0.8 bu
 1 bu = 1.25 ft³
 1 ft³ = 7.5 gal
 27,154 gal = 1 ac-in
 5 gal = 2/3 ft³
 1 yd³ = 27 ft³

Length

1 mi = 5,280 ft = 1.61 km

Mass

1 gal H₂O = 8.33 lbs

Oxide Conversions

P x 2.3 = P₂O₅
 K x 1.2 = K₂O






Speed

1 mi/hr = 1.47 ft/sec
 1 mi/hr = 88 ft/min

Misc. Conversion

ppm x 0.0001 = %

Manure Mineralization Rates

Manure 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	0.10	0.05
	0.50	0.15	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


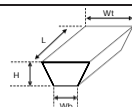




Primary Nutrient Content of Various Fertilizers

Fertilizer	N	P ₂ O 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
 Box	$V = W \times L \times H$	 Trapizoidal prism	$V = H \times L \times [(Wt + Wb)/2]$ {Wt = width of top} {Wb = width of bottom}
 Cylinder	$V = 3.14 \times (D/2)^2 \times L$	 Pyramid	$V = (W \times L \times H) / 3$
 Cone	$V = [3.14 \times (D/2)^2 \times H] / 3$	 Triangular prism	$V = (W \times L \times H) / 2$