

Determining the Economic Value of Manure

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Value of Manure

- Example Analysis and Calculation
- Manure Value Tool
- Recent Trends

Nutrient Availability

- Estimate of what will be available during the first year following application.
- Includes estimated organic nitrogen mineralization and ammonia volatilization.
- Availability factors are based on NRCS guidance, can use site-specific values if available

Sample ID : 601

	Analysis Dry Basis	Lbs / Ton		Available First Year
		Dry Basis	As Is Basis	
Organic N, % N	0.80	16.0	12.4	3.1
Ammonium, % N	0.028	0.6	0.4	0.4
Nitrate, % N	< 0.001	0.0	0.0	0.0
Total N (TKN), % N	0.83	16.5	12.9	3.5
Phosphorus, % P ₂ O ₅	1.10	22.0	17.2	12.0
Potassium, % K ₂ O	1.25	24.9	19.5	17.5
Sulfur, % S	0.47	9.5	7.4	3.0
Calcium, % Ca	0.80	16.0	12.5	8.7
Magnesium, % Mg	0.33	6.7	5.2	3.6
Sodium, % Na	0.20	4.1	3.2	3.2
Sodium Adsorption Ratio (SAR)	4.82			
Zinc, ppm Zn	137.2	0.3	0.2	0.1
Iron, ppm Fe	7940.1	15.9	12.4	8.7
Manganese, ppm Mn	172.3	0.3	0.3	0.2
Copper, ppm Cu	37.3	0.1	0.0	0.1
Soluble Salts, mmho / cm	21.92	28.1	21.9	21.9
pH	8.4			
Moisture, %	21.96			
Dry Matter (TS), %	78.04			
Ash, %	84.10			
Organic Matter, %	15.90			
Organic Carbon, %	9.22			
Organic C:N Ratio	11.3			

"<" - Not Detected / Below Detection Limit

Nutrient Availability Estimates

	Manure Nutrients (lb/ton)	Estimated % Available in Soil	Total Available (lb/ton)
Organic N	12.4	45%	5.6
NH₄-N	0.4	50%	0.2
NO₃-N	0.0	100%	0.0
P₂O₅	17.2	75%	12.9

Local Fertilizer Value

- Equate available nutrients based on local commercial fertilizer values.

Anhydrous Price (\$/ton)	Equivalent N Price (\$/lb)
\$1,000	\$0.610
10-34-0 Price (\$/ton)	Equivalent P₂O₅ (\$/lb)
\$1,000	\$1.291

Estimated Fertilizer Value

	Total Available (lb/ton)	Projected Price (\$/lb)	Total Value (\$/ton)
Total N	5.8	0.610	\$3.54
P₂O₅	12.9	1.291	\$16.66
Total			\$20.19

Fertilizer Value Based On Application Rate

Rate	15 tons/ac	
Total N	87 lb/ac	\$53.07/ac
P₂O₅	194 lb/ac	\$250.45/ac
	Total	\$303.52/ac

KLA Environmental Services, Inc. Manure Value Tool

- Designed for the KLA Cattle Feeders Council
- Many other similar tools available

FACILITY NAME: xyz feedyard

NUTRIENT AVAILABILITY ESTIMATES

	Manure Nutrients (lb/ton)	Estimated % Available in Soil ^a	Total Available (lb/ton)
Organic N	12.4	45%	5.6
NH ₄ -N	0.2	50%	0.1
NO ₃ -N	0.0	100%	0.0
P ₂ O ₅	17.2	75%	12.9

PRICE CONVERTER

Anhydrous Price (\$/ton)	Equivalent Nitrogen Price (\$/lb)
\$1,000	\$0.610
10-34-0 Price (\$/ton)	Equivalent P ₂ O ₅ Price (\$/lb)
\$1,000	\$1.291

ESTIMATED FERTILIZER VALUE

	Total Available (lb/ton)	Projected Price (\$/lb)	Total Value (\$/ton)
Total N	5.7	0.610	\$3.48
P ₂ O ₅	12.9	1.291	\$16.66
		Total	\$20.13

ESTIMATED FERTILIZER VALUE BASED ON APPLICATION RATE

Rate	15 ton/ac	
Total N	86 lb/ac	\$52.46/ac
P ₂ O ₅	194 lb/ac	\$250.45/ac
Total		\$302.91/ac

Notes:

Prices based on values given by the local COOP on March 13, 2008 and the manure analysis dated 2-6-08.

Points of Consideration

- Weed Seed
- Nutrient Availability
- Hauling and Spreading Costs
- Organic Matter Additions
- Micronutrients

Recent Trends

- Fuel and commercial fertilizer prices have increased
- Nutrient management regulations and deadlines are being finalized
- Some confined feeding operations are having success with selling manure to local land owners

Discussion & Questions

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