

Understanding a Manure Report

Manure is a valuable resource that provides nutrients for crop production. Before spreading your fields with manure, you should know what nutrients it contains so that you're adding the right quantity and not creating any potential problems.

At a minimum, all manure samples should be analyzed for Nitrogen (N), Phosphorus (P), Potassium (K), Sulfur (S) and dry matter (DM) to determine its fertilizing value. These nutrients in the manure can be matched to the requirements of a specific crop. Then additional nutrient sources, such as fertilizer or compost, can be applied to balance what is lacking in the manure. Clients can also have samples analyzed for ammonium-N, nitrate-N, micronutrients, pH, Electrical Conductivity (EC), or ash content.

The VAS Laboratories manure report provides test results on an 'as received' basis. This is also called a wet-basis, and that reflects the way manure is usually spread. The only exception are minor elements which are reported on 'dry matter' basis.

Manure nutrients are not 100 percent available the first year. VAS Laboratories estimates the manure credits for nitrogen, phosphorus, potassium and sulfur. *Note: Manure nutrient content can vary so it is wise to test all the manure sources on your farm.*

1) Dry Matter – DM - (%) Dry matter indicates the dry weight of the manure after the water has been removed. The lab reports dry matter as the percentage total fresh weight, which determines if it is liquid, semi-solid or solid.

Moisture (%) Indicates the amount of water in the sample. (100 – DM% = moisture percent)

2) Nitrogen – N reported as total nitrogen (lbs./1,000 gal. or lbs./ton). This includes both the immediately available inorganic ammonium – N (NH_4^+) and the slowly released organic-N. The amount of each type of N can vary dramatically (20 to 80 percent) depending upon manure type and storage conditions. The N availability is also given for differences coming from incorporating the manure at specific time intervals.

Manure Analysis				
Submitted By: BN8888	Submitted For: Example Report		Laboratory Sample # CC47004	
106 North Cecil Street PO BOX 7 Bonduel, WI 54107			Information Sheet # TEST_20200923	
Date Received: 14-Jul-2021	Date Reported: 16-Jul-2021	Date Sampled: 7/6/2021		
Sample Id: Test16	Livestock Type: Dairy	Manure Type: Solid		
Dry Matter: 33.34 %	Estimated Available Nutrient Credits			
Moisture: 66.66 %	Total Nutrients lbs/Ton	In 1st Year of Application lbs/Ton	In 2nd Year of Application lbs/Ton	In 3rd Year of Application lbs/Ton
Nitrogen: > 72h or Not Inc (method=TN)	12.70	3.18	1.27	0.64
Inc in 1 to 72h		3.81	1.27	0.64
Inc within 1h or inj		4.45	1.27	0.64
Phosphorus as P₂O₅	6.57	5.25	0.00	0.00
Potassium as K₂O	5.68	4.54	0.00	0.00
Sulfur	3.20	1.76	0.32	0.16
Estimated Value of Available Nutrients	\$6.14	\$0.56	\$0.28	
Other Manure Tests:				
NH4-N: 1.74 lbs/Ton			Wet Basis	Dry Basis
NO3-N: 0.03 lbs/Ton				
			%N:	0.64 %
Comments:				
**1 Applications of manure on the same field for 2 consecutive years increases the availability of N and S by 10%, and for 3 or more consecutive years by 15%. There is zero availability on P and K for 2 or more consecutive years. Availability of N changes depending on the application technique. Injection or incorporation within 3 days of application results in higher N availability.				
**2 Value based on commercial fertilizer costs as of 01/08/2018.				
(N/Urea) \$0.364 / lb, P2O5(Diammonium Phosphate(DAP)) \$0.522 / lb, K2O(Potash) \$0.274 / lb, S(Elemental Sulfur) \$0.304 / lb.				
**3 If minor elements are requested, they are reported on a 'dry matter' basis.				
**4 If ammonia, nitrate or pH are requested, they are reported on an 'as is' basis.				
** References: Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin (A2809), Table 9.1				
<small>DISCLAIMER: Data and information in this report are intended solely for the individual(s) for whom samples were submitted. Reproduction of this report must be to the entity. Levels listed are guidelines only. Data was reported based on standard laboratory procedures and deviations.</small>				
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3) Phosphorus as P₂O₅ (lbs./1,000 gal. or lbs./ton)

Phosphorus is converted to phosphate (P₂O₅) to determine the fertilizer-equivalent P. About 90 percent of P is found in the solid portion of manure. And as little as 40 percent of P₂O₅ may be available in the first year of applying manure.

4) Potassium as K₂O (lbs./1,000 gal. or lbs./ton)

Potassium is converted to potassium oxide (K₂O) to determine the fertilizer-equivalent K. About 75 percent of potassium is found in the liquid portion of manure.

5) Sulfur – S (lbs./1,000 gal. or lbs./ton) This is the level of available sulfur, in both organic and inorganic forms. The first year availability is estimated at 55 percent.

Manure Analysis



Submitted By: **BN88888**

Submitted For:

106 North Cecil Street

Example Report

PO BOX 7

Laboratory Sample #

Bonduel, WI 54107

CC47004

Date Received

14-Jul-2021

Date Reported

16-Jul-2021

Date Sampled

7/6/2021

Information Sheet #

TEST_20200923

Sample Id: Test16

Livestock Type: Dairy

Manure Type: Solid

Dry Matter: 33.34 %

Moisture: 66.66 %

Nitrogen: > 72h or Not Inc
(method-TKN)

Inc in 1 to 72h

Inc within 1h or Inj

Phosphorus as P₂O₅

Potassium as K₂O

Sulfur

Estimated Available Nutrient Credits

Total Nutrients lbs/Ton	In 1st Year of Application lbs/Ton	In 2nd Year of Application lbs/Ton	In 3rd Year of Application lbs/Ton
12.70	3.18	1.27	0.64
	3.81	1.27	0.64
	4.45	1.27	0.64
6.57	5.25	0.00	0.00
5.68	4.54	0.00	0.00
3.20	1.76	0.32	0.16
Estimated Value of Available Nutrients	\$6.14	\$0.56	\$0.28

Other Manure Tests:

	Wet Basis	Dry Basis
NH4-N: 1.74 lbs/Ton		
NO3-N: 0.03 lbs/Ton		
	%N: 0.64 %	

Comments:

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- ** References: Nutrient application guidelines for field, vegetable, and fruit crops in Wisconsin (A2809), Table 9.1

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Minor Elements

6) Calcium – Ca (%) – is the level of total calcium in the manure.

Magnesium – Mg (%) – is the level of total magnesium in the manure.

Sodium – Na (%) – is the level of total sodium in the manure.

Iron – Fe (ppm) – is the level of available iron found in the manure.

Manganese – Mn (ppm) – is the level of available manganese found in the manure.

Copper – Cu (ppm) – is the level of available copper found in the manure. Some animal manures have high levels of copper from copper foot baths. Toxic effects from applying too much copper can last for years especially in soil.

Zinc – Zn (ppm) – is the level of available zinc found in the manure. Zinc is important for root development. It can be tied up and unavailable to the crop when soil levels of phosphorus are high.

Other Manure Tests

7) Ammonium-N – NH₄ +-N (lbs./1,000 gal) is immediately available to crops after land application and is considered a quick-release N but can easily be released as a gas (volatilize) and lost into the environment if it is surface applied. Ammonium is retained by 75 percent if the manure is mixed into the soil immediately after surface application.

Nitrate-Nitrogen – NO₃-N (lbs./1,000 gal.) is immediately available to plants when applied to the soil. Nitrate is typically very low in manure but it is a helpful to test for in aerobic manure sources (lagoons).

pH – If manure is to be surface applied, knowing the pH can be beneficial because high pH can increase the proportion of ammonium-N and therefore result in increased volatilization during or after application. Manure is typically between pH 8 and 12. Do not expect the manure pH to affect soil pH levels.

Electrical Conductivity – EC (mmhos/cm) is an indication of the soluble salt content in manure liquids. A measure of EC may be important when irrigating liquid manure or effluent onto standing crops to avoid potential leaf burn.

Carbon to Nitrogen Ratio – C:N Ratio – is the ratio of the

total C and total N analyzed and is primarily measured in compost or manure containing large amounts of bedding. The C:N ratio indicates whether the manure will be an immediate source of plant available N, or if microbial decomposition of the manure will immobilize or make N unavailable after manure application.

Additional Information

A) Submitted By – Includes the customer name and address provided to the lab. The first time you submit samples to VAS Laboratories you will be assigned an account number. Please reference this number when submitting samples you will be assigned an account number.

B) Submitted For – This is the name of the farm/grower and other information provided on manure sample form.

C) Laboratory Sample # and Information Sheet # – These numbers are assigned by VAS Laboratories to an individual sample for tracking and recordkeeping at the lab.

D) Date Received – The date the sample arrived to the lab.

E) Date Reported – This is the date VAS Laboratories analyzed the sample and produced the report.

F) Date Sampled – This is the date that the sample was taken on the farm. To assist you with recordkeeping the date is transferred to the report from the manure sample form.

G) Sample ID – This is assigned to the sample by client and is often a name or number.

H) Livestock Type – This identifies the animal species of the manure submitted.

I) Manure Type – This is client provided information on the type of manure (Liquid, Slurry, Semi-Solid, or Solid).