

MEASURE AND MANAGE

What is in an Agri-Food Laboratories Manure Report?

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First Section

Analytical Values; These are the results of the laboratory methods used to determine the nutrient content of your sample. Moisture content indicates the water content and relates to the nutrient content and value of the manure. A 90% moisture manure contains more nutrients than 99% moisture sample. Moisture content is critical when talking about application rates there is a major difference in nutrient content in 5000 gallons per acre between 90% and 99 % water.

Laboratory Results	
Dry Matter %	7.50
Nitrogen %	0.32
Phosphorus %	0.07
Potassium %	0.20
Total Salts (mmho/cm)	14.84
Ammonium - N (ppm)	1700.00

Nitrogen is expressed as a % of the sample on an as is basis. So is phosphorus, and potassium. The ammonium is the readily available or potentially lost portion of the nitrogen, read in parts per million (ppm). Moving the decimal point 4 places to the left converts it to %. Ammonia is included in the total N reading.

The total salts (liquid samples) reading is in millisiemens and is a measure of the salty nature (ions in solution) of the manure. Multiplying the reading by 640 turns it into ppm. Total salt reading was thought to be an indicator of the Nitrogen content of the manure, however, the correlation between N and salts is not consistent. It was hoped that a salt meter reading on farm would be able to indicate the N content but this simply is not the case. However, it is interesting to consider how much salt is being applied per acre. Micronutrient content is also stated here when requested. (ppm divided by 100 = lbs. of nutrient per 1000 Imp.gallons) and (ppm x .002 = lbs per ton)

Second Section

This is the most interesting and confusing part of the report. This is where we express the nutrient content in a plant available context in either lbs. per 1000 gallons or lbs. per ton.

Reduction in Fertilizer Application	(kg/1000L)	(lb/1000gal)
Nitrogen - Incorporated 1 Day	1.58	15.79
Nitrogen - Incorporated 3 Days	1.40	14.08
Nitrogen - Incorporated 5 Days	1.23	12.38
Nitrogen - Not Incorporated	0.88	8.80
Nitrogen - Injected	2.00	20.05
Nitrogen - Early Fall Applied	1.28	12.83
Nitrogen - Late Fall Applied	1.60	16.04
Phosphate	0.64	6.45
Potash	2.13	21.32

These values are to be subtracted or credited from a fertilizer recommendation.

The Nitrogen credit is factored based on fall and winter application or spring applied and not incorporated or spring applied and incorporated in 24 hours. The phosphorus and potassium are relatively unaffected by application method or timing. To convert P to P₂O₅ multiply P x 2.3 and to convert K to K₂O multiply K x 1.2.(this has already been done for you.)

Third Section

Explains the availability factors we use in the second section to determine the available nutrients. This is already done for you no need to recalculate. This area also shows the dollar value of nutrients contained in 1000 gallons or in one ton. In addition, we have approximated the break even hauling distance based on the value of the manure and some basic assumptions, such as a 120 hp tractor, 4000 gallon tank 1.5 loads per acre and labor cost. Exceeding the distance means that the cost of spreading becomes greater than the value of the manure.

Value of Manure	Value of Available Nutrients (\$/1000gal)	Breakeven Hauling Distance (km)
Incorporated 1 Day	11.82	14.83
Incorporated 3 Days	11.28	14.15
Incorporated 5 Days	10.73	13.46
Not Incorporated	9.59	12.03
Injected	13.19	16.54
Early Fall Applied	10.88	13.65
Late Fall Applied	11.90	14.93

Manure has been valued at **\$0.64 for N, \$0.85 for P₂O₅ , and \$0.42 for K₂O**. If your fields are high in P and K then little or no value should be placed on P and K in the manure, therefore, you should back out the value using the stated pricing and just value the N component. Take the value per 1000 gallons and multiply by the application rate to determine the value per acre we assumed 6000 gallons per acre (multiply by 6) except on poultry manure where we used 3000gallons. Using the value per acre multiply **by 0.18** to determine the approximated breakeven hauling distance in kilometers. This section is a guide only, we urge farmers to determine their own values.

Fourth Section

This is a convenient chart to show the per acre amount of nutrients applied at selected application rates.

Nutrients Applied (lb/ac)									
Application Rate (gal/ac)	Nitrogen Incorporated 1 Day	Nitrogen Incorporated 3 Days	Nitrogen Incorporated 5 Days	Nitrogen Not Incorporated	Nitrogen Injected	Nitrogen Early Fall Applied	Nitrogen Late Fall Applied	Phosphate	Potash
1000	15.8	14.1	12.4	8.8	20.0	12.8	16.0	6.5	21.3
2000	31.6	28.2	24.8	17.6	40.1	25.7	32.1	12.9	42.6
3000	47.4	42.2	37.1	26.4	60.1	38.5	48.1	19.4	64.0
4000	63.1	56.3	49.5	35.2	80.2	51.3	64.1	25.8	85.3
5000	78.9	70.4	61.9	44.0	100.2	64.1	80.2	32.3	106.6