

## 2023 Table 2. Manure databank

Table 2 is used to calculate the available nitrogen (N), phosphorus (P) and potassium (K) from various livestock types. This technical information is for Ontario producers.

### Introduction

The nutrients from manure and other organic amendments have a nutrient and economic value. The Table that follows gives an estimate of the total and available nitrogen (N), phosphorus (P) and potassium (K), as well as estimates of the dry matter / total solids from various livestock types and other organic amendments. The information is based on average analysis results from over 12,000 Ontario laboratory samples. All information in the Table is presented in an "as-is basis," or the nutrients as applied at the listed dry matter content.

The available nitrogen is determined based on the total nitrogen concentration, the time of year of material application, and assumes that the material is applied and incorporated within 24 hours. The actual available nitrogen can vary due to the composition of the material and weather. The organic nitrogen portion of manure becomes more available over time. The expected amount of organic nitrogen (ON) that becomes available in progressive years is higher for solid manure than for liquid manure.

The total phosphorus (P) content available to crops is assumed to be 80%, however, a portion is unavailable to the crop immediately after application. This is reflected in the Tables through different values for immediate and long term available nutrient  $P_2O_5$ . The potassium (K) content immediately available to crops is assumed to be 90%.

The actual immediate economic nutrient value for crop production will be less than what is reflected in the Table if the nutrients being applied are not required for the production of the crop. An example of this would be the nitrogen from manure applied to a legume crop, or the phosphorus and/or potassium applied to a field with a soil test higher than 30 mg/L (ppm) or 120 mg/L (ppm) for P and K, respectively.

The values in these tables were compiled by the Ministry of Agriculture, Food and Rural Affairs, with aggregate sample data provided by Ontario labs.

When land applying nutrients using this Table, observe all regulatory requirements and necessary approvals. The nutrient content of sewage biosolids must be confirmed through analytical testing prior to land application as part of a Non-Agricultural Source Material (NASM) plan.

O. Reg. 267/03 (the Regulation) incorporates by reference the Nutrient Management Protocol (the Protocol). The Protocol forms part of the Regulation and it is legally binding. The Protocol is defined in the Regulation and includes the Nutrient Management Tables (Tables). Information from Table 2 regarding total nutrient content (TKN, NH<sub>4</sub>-N, TP, TK) and total solids / dry matter can be used to comply with requirements in subsections 81(5) and 91(3) of the Regulation and sections 7.3 and 10.3 of the Protocol. Other information found in Table 2 may be useful for other purposes.

Notes: TKN – Total Kjeldhal Nitrogen, NH<sub>4</sub>-N – Ammonia and Ammonium Nitrogen, P – Phosphorus, K - Potassium

# Liquid Manure – Available Nutrients and Value for Manure from Various Livestock Types – Imperial Units

## Swine

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	3.2	14.1	24.7	9.8	19.7	20.2	58	13	0.372	0.2452	0.107	0.187	3558
10-18% DM	12.3	30.9	45.5	30.2	60.4	36.5	119	40	0.813	0.4634	0.328	0.338	94
6-10% DM	7.8	25.2	41.0	21.7	43.4	32.1	100	29	0.664	0.4054	0.236	0.297	358
4-6% DM	4.9	20.0	34.7	14.6	29.3	27.1	81	20	0.526	0.3330	0.159	0.251	573
2-4% DM	2.9	13.9	24.8	9.8	19.5	20.3	58	13	0.366	0.2433	0.106	0.188	1165
0-2% DM	1.2	8.1	15.0	3.7	7.4	13.5	34	5	0.214	0.1600	0.040	0.125	1251
Nursery	3.0	12.2	21.1	9.6	19.1	18.9	52	13	0.32	0.2005	0.104	0.175	67
Farrowing sows	1.7	8.8	15.6	5.5	11.0	11.7	35	7	0.231	0.1654	0.060	0.108	497
Weaners	1.9	8.4	14.7	10.7	21.3	24.6	50	13	0.221	0.1455	0.116	0.228	159
Finishers	4.7	18.8	31.9	12.8	25.6	28.9	77	17	0.494	0.3321	0.139	0.268	897
Farrow to finish	3.5	15.2	26.3	9.4	18.8	22.7	61	13	0.40	0.2717	0.102	0.210	179
Dry sows and boars	1.9	10.5	19.5	6.6	13.2	13.7	43	9	0.276	0.1700	0.072	0.127	204

## Dairy

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	8.1	9.7	16.4	7.5	15.1	25.9	50	12.50	0.360	0.1492	0.082	0.240	3252
Sandbedded <sup>(4)</sup> (3.2% sand)	7.2	6.0	11.6	4.9	9.8	26.6	42	7.50	0.223	0.1119	0.053	0.246	51
10-18% DM	14.0	13.9	19.7	12.2	24.4	33.2	65	20	0.516	0.1721	0.133	0.307	821
8-10% DM	8.9	11.0	18.5	8.0	16.0	28.9	55	13	0.407	0.1881	0.087	0.268	561
6-8% DM	7.1	9.2	16.0	6.2	12.3	25.5	48	10	0.339	0.1604	0.067	0.236	836
2-6% DM	4.4	6.5	12.6	3.9	7.7	20.2	36	7	0.242	0.1222	0.042	0.187	861
0-2% DM	1.2	3.2	7.8	1.8	3.7	12.2	22	3	0.117	0.0628	0.02	0.113	164

## Beef

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Available Nutrients (in year of application) K <sub>2</sub> O	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup>	Total Nutrient Content (as is)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K	# Samples
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	(%)	<sup>(1)</sup> Fall Applied (lbs/1000 gallons)	<sup>(1)</sup> Spring Applied (lbs/1000 gallons)	P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	(lbs/1000 gallons)		(\$/1000 gallons)	basis) TKN (%)	(%)		(%)	
Composite	8.1	9.7	15.9	7.2	14.4	24.6	48	12	0.358	0.1572	0.078	0.228	244
10-18% DM	14.6	14.3	20.0	12.8	25.6	36.5	69	21	0.528	0.1691	0.139	0.338	80
6-10% DM	7.7	11.7	22.4	8.7	17.5	24.3	57	14	0.432	0.2151	0.095	0.225	58
2-6% DM	4.1	6.7	13.6	4.9	9.8	17.9	37	8	0.249	0.1308	0.053	0.166	72
0-2%DM	1.0	3.1	7.8	2.1	4.2	9.4	20	3	0.113	0.0598	0.023	0.087	31
Cow-calf	4.7	7.0	13.5	5.8	11.6	22.5	41	9	0.259	0.1259	0.063	0.208	9
Finisher	8.6	12.1	22.8	8.5	16.9	21.4	55	14	0.449	0.2054	0.092	0.198	25

## Sheep

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	7.4	14.1	32.8	12.0	23.9	22.9	72	20	0.521	0.1904	0.130	0.212	7

## Poultry

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Layers	9.9	26.7	47.6	24.8	49.7	101	32	19.3	0.81	0.56	0.27	0.29	81
Pullets	15.3	38.5	58.5	36.8	73.6	114	43	29.1	1.04	0.62	0.40	0.34	11

## Mink

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
composite	2.9	11.8	24.7	7.4	14.7	8.1	45	11	0.359	0.2168	0.08	0.075	31

## Washwater<sup>(5)</sup>/Runoff

Dry Matter (DM) Range	Average Dry Matter	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Year 1 Value <sup>(3)</sup>	Year 2-4 Value <sup>(3)</sup>	Total Nutrient Content (as is)	Total Nutrient Content (as	Total Nutrient	Total Nutrient Content	# Samples
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		(lbs/1000 gallons)	(lbs/1000 gallons)										
composite	4.2	16.6	29.5	7.2	14.4	17.7	59	12	0.4366	0.2386	0.078	0.164	86

### Sewage Biosolids<sup>(7)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Aerobic	3.5	5.3	6.8	7.9	15.8	2.8	19	11	0.142	0.0209	0.086	0.026	61
Anaerobic	3.9	10.1	17.2	7.5	15.1	13.4	40	12	0.273	0.095	0.082	0.124	55

### Canadian Food Inspection Agency (CFIA) Registered/Listed Fertilizers using processed Sewage Biosolids <sup>(8)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/1000 gallons)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/1000 gallons)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/1000 gallons)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/1000 gallons)	Year 1 Value <sup>(3)</sup> (\$/1000 gallons)	Year 2-4 Value <sup>(3)</sup> (\$/1000 gallons)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Lystegro	9.8	19.4	27.8	27.7	55.4	54.9	59	12	0.525	0.2165	0.301	0.508	15



The micronutrient and organic matter values are not reflected in these tables.

# Liquid Manure – Available Nutrients and Value for Manure from Various Livestock Types – Metric Units

## Swine

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	3.2	1.4	2.5	1.0	2.0	2.0	9.9	2.9	0.372	0.2452	0.107	0.187	3558
10-18% DM	12.3	3.1	4.6	3.0	6.0	3.7	22.2	8.7	0.813	0.4634	0.328	0.338	94
6-10% DM	7.8	2.5	4.1	2.2	4.3	3.2	17.8	6.3	0.664	0.4054	0.236	0.297	358
4-6% DM	4.9	2.0	3.5	1.5	2.9	2.7	13.8	4.3	0.526	0.3330	0.159	0.251	573
2-4% DM	2.9	1.4	2.5	1.0	2.0	2.0	9.8	2.9	0.366	0.2433	0.106	0.188	1165
0-2% DM	1.2	0.8	1.5	0.4	0.7	1.4	5.5	1.1	0.214	0.1600	0.040	0.125	1251
Nursery	3.0	1.2	2.1	1.0	1.9	1.9	9.0	2.8	0.32	0.2005	0.104	0.175	67
Farrowing sows	1.7	0.9	1.6	0.6	1.1	1.2	5.8	1.6	0.231	0.1654	0.060	0.108	497
Weaners	1.9	0.8	1.5	1.1	2.1	2.5	9.3	2.9	0.221	0.1455	0.116	0.228	159
Finishers	4.7	1.9	3.2	1.3	2.6	2.9	13.4	3.8	0.494	0.3321	0.139	0.268	897
Farrow to finish	3.5	1.5	2.6	0.9	1.9	2.3	10.5	2.8	0.40	0.2717	0.102	0.210	179
Dry sows and boars	1.9	1.0	2.0	0.7	1.3	1.4	6.9	2.1	0.276	0.1700	0.072	0.127	204

## Dairy

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	8.1	1.0	1.6	0.8	1.5	2.6	9.2	2.8	0.360	0.1492	0.082	0.240	3252
Sandbedded <sup>(4)</sup> (3.2% sand)	7.2	0.6	0.5	0.5	1.0	2.7	7.6	1.7	0.223	0.1119	0.053	0.246	51
10-18% DM	14.0	1.4	2.0	1.2	2.4	3.3	12.7	4.5	0.516	0.1721	0.133	0.307	821
8-10% DM	8.9	1.1	1.9	0.8	1.6	2.9	10.2	2.9	0.407	0.1881	0.087	0.268	561
6-8% DM	7.1	0.9	1.6	0.6	1.2	2.5	8.6	2.3	0.339	0.1604	0.067	0.236	836
2-6% DM	4.4	0.7	1.3	0.4	0.8	2.0	6.4	1.5	0.242	0.1222	0.042	0.187	861
0-2% DM	1.2	0.3	0.8	0.2	0.4	1.2	3.5	0.7	0.117	0.0628	0.02	0.113	164

## Beef

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	8.1	1.0	1.6	0.7	1.4	2.5	8.8	2.6	0.358	0.1572	0.078	0.228	244

10-18% DM	14.6	1.4	2.0	1.3	2.6	3.7	13.6	4.7	0.528	0.1691	0.139	0.338	80
6-10% DM	7.7	1.2	2.3	0.9	1.7	2.4	9.7	3.1	0.432	0.2151	0.095	0.225	58
2-6% DM	4.1	0.7	1.4	0.5	1.0	1.8	6.3	1.7	0.249	0.1308	0.053	0.166	72
0-2%DM	1.0	0.3	0.8	0.2	0.4	0.9	3.0	0.7	0.113	0.0598	0.023	0.087	31
Cow-calf	4.7	0.7	1.4	0.6	1.2	2.2	7.4	2.0	0.259	0.1259	0.063	0.208	9
Finisher	8.6	1.2	2.3	0.8	1.7	2.1	9.2	3.1	0.449	0.2054	0.092	0.198	25

## Sheep

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	7.4	1.4	3.3	1.2	2.4	2.3	10.8	4.4	0.521	0.1904	0.130	0.212	7

## Poultry

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Layers	9.9	2.7	4.8	2.5	5.0	3.1	18.9	7.0	0.81	0.56	0.27	0.29	81

Pullets	15.3	3.4	5.8	3.7	7.4	3.7	24.7	10.6	1.04	0.62	0.40	0.34	11
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## Mink

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
composite	2.9	1.2	2.5	0.7	1.5	0.8	6.4	2.4	0.359	0.2168	0.08	0.075	31

## Washwater<sup>(5)</sup>/Runoff

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/m <sup>3</sup> )	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/m <sup>3</sup> )	Available Nutrients (in year of application) K <sub>2</sub> O (kg/m <sup>3</sup> )	Year 1 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Year 2-4 Value <sup>(3)</sup> (\$/m <sup>3</sup> )	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	0.8	0.3	0.6	0.1	0.2	0.6	2.0	0.3	0.0937	0.0744	0.012	0.052	126

## Milk-fed veal



		<b>(<sup>1</sup>) Fall Applied (kg/m<sup>3</sup>)</b>	<b>(<sup>1</sup>) Spring Applied (kg/m<sup>3</sup>)</b>	<b>(kg/m<sup>3</sup>)</b>	<b>(kg/m<sup>3</sup>)</b>				<b>(%)</b>	<b>(%)</b>			
Aerobic	3.5	0.5	0.7	0.8	1.6	0.3	3.8	2.4	0.142	0.0209	0.086	0.026	61
Anaerobic	3.9	1.0	1.7	0.8	1.5	1.3	7.0	2.6	0.273	0.095	0.082	0.124	55

### Canadian Food Inspection Agency (CFIA) Registered/Listed Fertilizers using processed Sewage Biosolids<sup>(8)</sup>

<b>Dry Matter (DM) Range</b>	<b>Average Dry Matter (DM)/Total Solids (%)</b>	<b>Available Nutrients (in year of application) Useable N (<sup>1</sup>) Fall Applied (kg/m<sup>3</sup>)</b>	<b>Available Nutrients (in year of application) Useable N (<sup>1</sup>) Spring Applied (kg/m<sup>3</sup>)</b>	<b>Available Nutrients (in year of application) P<sub>2</sub>O<sub>5</sub> (<sup>2</sup>) Immediate (kg/m<sup>3</sup>)</b>	<b>Available Nutrients (in year of application) P<sub>2</sub>O<sub>5</sub> (<sup>2</sup>) Long Term (kg/m<sup>3</sup>)</b>	<b>Available Nutrients (in year of application) K<sub>2</sub>O (kg/m<sup>3</sup>)</b>	<b>Year 1 Value <sup>(3)</sup> (\$/m<sup>3</sup>)</b>	<b>Year 2-4 Value <sup>(3)</sup> (\$/m<sup>3</sup>)</b>	<b>Total Nutrient Content (as is basis) TKN (%)</b>	<b>Total Nutrient Content (as is basis) NH<sub>4</sub>-N (%)</b>	<b>Total Nutrient Content (as is basis) P (%)</b>	<b>Total Nutrient Content (as is basis) K (%)</b>	<b># Samples</b>
Lystegro	9.8	2.0	2.8	2.8	5.5	5.5	22.0	8.0	0.525	0.2165	0.301	0.508	15

The micronutrient and organic matter values are not reflected in these tables.

# Solid Manure - Available Nutrients and Value for Manure from Various Livestock Types – Imperial Units

## Swine

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	29.7	7.1	6.9	8.9	17.7	11.9	28	12	0.893	0.2648	0.482	0.553	104
18-30% DM	23.9	7.0	8.4	8.6	17.3	11.3	27	12	0.881	0.2805	0.470	0.524	72
30-100% DM	42.6	7.4	3.4	9.4	18.8	13.3	30	13	0.919	0.2297	0.511	0.618	32

## Dairy

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
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Composite	27.3	4.4	4.7	3.6	7.1	13.0	20	6	0.714	0.1413	0.194	0.604	482
Sandbedded ( <sup>4</sup> ) (27.8% sand)	38.3	1.6	1.1	1.5	2.9	4.8	7.50	2	0.253	0.0968	0.079	0.221	57
Compost Bedded Pack	43.4	13.5	29.2	6.8	13.5	36.5	54	16	2.17	0.0100	0.367	1.692	23
18-30% DM	21.8	4.1	5.5	3.4	6.9	12.7	19	6	0.666	0.1493	0.187	0.588	349
30-100% DM	42.0	5.2	2.7	4.1	8.1	14.8	23	7	0.845	0.1168	0.221	0.683	133

## Beef

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	30.9	5.5	6.8	5.6	11.2	13.7	24	9	0.883	0.1616	0.303	0.634	1042
18-30% DM	23.9	4.3	5.4	3.8	7.7	11.4	19	6	0.692	0.1313	0.208	0.530	596
30-40% DM	34.3	6.1	7.6	6.3	12.6	15.3	27	10	0.981	0.1782	0.340	0.709	252
40-100% DM	47.6	8.2	10.0	9.7	19.4	19.0	36	15	1.33	0.2319	0.527	0.879	189
Cow-calf	29.53	4.3	3.8	3.1	6.1	14.0	20	6	0.691	0.0889	0.167	0.646	24
Finisher	31.53	5.2	5.9	5.2	10.5	13.1	23	9	0.842	0.1326	0.284	0.608	76

## Sheep

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
composite	32.8	5.5	5.8	5.8	11.6	18.4	28	9	0.883	0.2424	0.315	0.850	101

## Goats

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	35.4	6.4	8.1	5.4	10.7	23.6	33	9	1.031	0.2058	0.291	1.093	81

## Manure Compost

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
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		<sup>(1)</sup> Fall Applied (lbs/ton)	<sup>(1)</sup> Spring Applied (lbs/ton)	(lbs/ton)	(lbs/ton)				(%)				
Cured <sup>(9)</sup>	46.2	6.5	1.1	4.3	8.6	9.4	20	8	0.811	0.0094	0.234	0.435	106
Immature <sup>(9)</sup>	53.7	13.7	15.6	9.8	19.7	19.2	43	17	1.716	0.2430	0.534	0.890	120

## Spent Mushroom Substrate

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	34.3	6.2	4.1	5.8	11.5	11.3	23	9	0.777	0.0568	0.313	0.524	33

## Grain-Fed Veal

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	31.7	5.0	5.2	3.5	7.1	10.7	19	7	0.812	0.1421	0.192	0.497	30

## Horses<sup>(10)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	38.1	3.2	1.0	2.8	5.6	9.8	15	5	0.511	0.0666	0.151	0.454	51
<50% DM	34.9	2.9	1.0	2.7	5.4	8.4	13.50	5	0.468	0.0688	0.147	0.39	45
>50% DM	61.9	5.3	0	4.1	8.2	20.9	28	8	0.848	0.0521	0.224	0.967	6

## Poultry

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	58.6	27.9	30.8	22.3	44.6	30.6	84	33	2.63	0.5373	1.213	1.415	2357
80+% DM	88.4	44.5	53.1	29.3	53.1	43.8	123	47	4.199	0.4172	1.595	2.026	318
70-80% DM	74.3	33.2	36.1	24.4	48.9	35.1	96	37	3.13	0.4757	1.328	1.623	507
60-70% DM	65.2	28.6	30.4	22.5	44.9	34.4	92	35	2.701	0.4805	1.221	1.591	462
50-60% DM	55.0	24.6	26.0	25.5	50.9	29.9	82	35	2.32	0.5055	1.384	1.383	336
40-50% DM	44.9	21.7	23.3	22.4	44.8	28.6	74	30	2.047	0.6061	1.217	1.322	213
30-40% DM	34.5	18.1	19.7	16.6	33.2	20.0	57	22	1.707	0.6315	0.902	0.928	274

18-30% DM	24.9	16.9	20.0	12.6	25.3	14.9	47	17	1.595	0.7704	0.687	0.690	285
Layers	40.9	26.4	32.8	17.8	35.5	22.3	70	26	2.49	0.7391	0.966	1.033	380
Pullets	46.7	29.8	38.2	23.0	46.1	27.8	85	34	2.814	0.5767	1.252	1.288	131
Broilers	62.8	30.2	34.0	20.6	41.2	36.1	89	32	2.85	0.5046	1.12	1.67	467
Broilers-Breeders	58.6	20.9	18.6	26.5	53.0	31.7	80	35	1.972	0.3500	1.439	1.466	163

## Turkeys

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	52.2	22.2	22.6	13.6	27.2	22.2	45	17	2.0948	0.4553	0.739	1.028	681
60+ % DM	74.7	21.2	14.2	11.1	22.2	20.0	55	19	2.00	0.2900	0.604	0.924	158
50-60 % DM	54.4	26.3	29.6	13.9	27.8	25.0	68	23	2.4784	0.4481	0.755	1.156	97
40-50 % DM	44.8	21.7	24.4	11.3	22.6	20.8	56	19	2.044	0.3865	0.613	0.962	188
18-40 % DM	36.1	18.1	20.2	11.2	22.3	18.6	50	17	1.708	0.4505	0.606	0.859	137
Toms	51.9	27.3	30.5	24.1	48.2	34.4	88	33	2.574	0.8225	1.31	1.591	36
Poults	75.8	37.8	44.5	22.7	45.4	32.6	98	37.50	3.562	0.4075	1.234	1.509	4
Breeders (Toms/Hens)	52.6	21.6	20.2	19.5	39.0	25.1	68	26.50	2.035	0.6846	1.060	1.163	50
Broilers Growers	61.8	35.5	43.9	22.3	44.5	30.7	93	35	3.35	0.60	1.21	1.42	6
Growers	61.0	35.1	44.3	20.9	41.8	30.3	91	34.50	3.312	0.4149	1.136	1.403	13

## Mink

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
composite	45.8	34.8	43.6	33.5	67.0	17.1	93	46	3.28	1.42	1.82	0.79	104

### Anaerobic Digestion Output<sup>(6)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	48.78	12.6	14.7	22.7	45.4	7.1	46	30	1.577	0.1986	1.234	0.327	9

### Sewage Biosolids<sup>(7)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
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		<sup>(1)</sup> Fall Applied (lbs/ton)	<sup>(1)</sup> Spring Applied (lbs/ton)	(lbs/ton)	(lbs/ton)				(%)				
Composite	32.1		61.5	24.1		2.4	34.6	22.4	3.76	0.64	1.31	0.11	89
Aerobic or anaerobic composite	31.4	26.1	52.4	21.7	43.5	2.1	57	35	3.2664	0.5476	1.182	0.097	105

### Canadian Food Inspection Agency (CFIA) Registered/Listed Fertilizers using processed Sewage Biosolids<sup>(8)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Pellets	91.0	33.7	53.2	42.2	84.4	5.1	91	62	4.2074	0.2591	2.294	0.235	12
N-Rich/N-Viro (lime) <sup>(10)</sup>	58.61	5.2	0.4	10.5	21.0	43.0	53	14	0.65	0.0264	0.57	1.99	3

The micronutrient and organic matter values are not reflected in these tables.

# Solid Manure - Available Nutrients and Value for Manure from Various Livestock Types – Metric Units

## Swine

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	29.7	3.6	3.4	4.4	8.9	6.0	31.1	13.4	0.893	0.2648	0.482	0.553	104
18-30% DM	23.9	3.5	4.2	4.3	8.6	5.7	30.1	13.0	0.881	0.2805	0.470	0.524	72
30-100% DM	42.6	3.7	1.7	4.7	9.4	6.7	33.3	14.3	0.919	0.2297	0.511	0.618	32

## Dairy

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
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		(kg/Tonne)	(kg/Tonne)										
Composite	27.3	2.2	2.3	1.8	3.6	6.5	22.2	6.9	0.714	0.1413	0.194	0.604	482
Sandbedded ( <sup>4</sup> ) (27.8% sand)	38.3	0.8	0	0.7	1.5	2.4	8.2	2.4	0.253	0.0968	0.079	0.221	57
Compost Bedded Pack	43.4	6.7	14.6	3.4	6.8	18.3	59.7	18.0	2.17	0.0100	0.367	1.692	23
18-30% DM	21.8	2.1	2.7	1.7	3.4	6.4	21.3	6.4	0.666	0.1493	0.187	0.588	349
30-100% DM	42.0	2.6	1.3	2.0	4.1	7.4	25.4	8.2	0.845	0.1168	0.221	0.683	133

## Beef

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	30.9	2.7	3.4	2.8	5.6	6.8	26.6	9.9	0.883	0.1616	0.303	0.634	1042
18-30% DM	23.9	2.1	2.7	1.9	3.8	5.7	20.8	7.1	0.692	0.1313	0.208	0.530	596
30-40% DM	34.3	3.0	3.8	3.1	6.3	7.7	29.7	11.1	0.981	0.1782	0.340	0.709	252
40-100% DM	47.6	4.1	5.0	4.8	9.7	9.5	40.0	16.5	1.33	0.2319	0.527	0.879	189
Cow-calf	29.53	2.1	1.9	1.5	3.1	7.0	22.2	6.4	0.691	0.0889	0.167	0.646	24
Finisher	31.53	2.6	3.0	2.6	5.2	6.6	25.3	9.4	0.842	0.1326	0.284	0.608	76

## Sheep

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
composite	32.8	2.7	2.9	2.9	5.8	9.2	31.1	9.8	0.883	0.2424	0.315	0.850	101

## Goats

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	35.4	3.2	4.0	2.7	5.4	11.8	36.6	10.1	1.031	0.2058	0.291	1.093	81

## Manure Compost

Dry Matter (DM) Range	Average Dry Matter	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application) Useable N	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Available Nutrients (in year of application)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is)	Total Nutrient Content (as is)	Total Nutrient Content	Total Nutrient Content	# Samples
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	(DM)/Total Solids (%)	<sup>(1)</sup> Fall Applied (kg/Tonne)	<sup>(1)</sup> Spring Applied (kg/Tonne)	P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	application) K <sub>2</sub> O (kg/Tonne)			basis) TKN (%)	basis) NH <sub>4</sub> -N (%)	(as is basis) P (%)	(as is basis) K (%)	
Cured <sup>(9)</sup>	46.2	3.2	0.6	2.2	4.3	4.7	22.5	8.8	0.811	0.0094	0.234	0.435	106
Immature <sup>(9)</sup>	53.7	6.9	7.8	4.9	9.8	9.6	47.9	18.4	1.716	0.2430	0.534	0.890	120

## Spent Mushroom Substrate

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	34.3	3.1	2.0	2.9	5.8	5.7	25.6	10.1	0.777	0.0568	0.313	0.524	33

## Grain-Fed Veal

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	31.7	2.5	2.6	1.8	3.5	5.4	20.8	7.3	0.812	0.1421	0.192	0.497	30

## Horses<sup>(10)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	38.1	1.6	0.5	1.4	2.8	4.9	16.6	5.3	0.511	0.0666	0.151	0.454	51
<50% DM	34.9	1.5	0.5	1.4	2.7	4.2	14.8	5.0	0.468	0.0688	0.147	0.39	45
>50% DM	61.9	2.6	0	2.1	4.1	10.4	31.1	8.5	0.848	0.0521	0.224	0.967	6

## Poultry

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	58.6	13.9	15.4	11.2	22.3	15.3	92.2	36.0	2.63	0.5373	1.213	1.415	2357
80+% DM	88.4	22.3	26.6	14.7	29.3	21.9	135.2	52.1	4.199	0.4172	1.595	2.026	318
70-80% DM	74.3	16.6	18.0	12.2	24.4	17.5	106.0	41.1	3.13	0.4757	1.328	1.623	507
60-70% DM	65.2	14.3	15.2	11.2	22.5	17.2	96.9	36.8	2.701	0.4805	1.221	1.591	462

50-60% DM	55.0	12.3	13.0	12.7	25.5	14.9	90.8	38.4	2.32	0.5055	1.384	1.383	336
40-50% DM	44.9	10.8	11.6	11.2	22.4	14.3	82.1	33.1	2.047	0.6061	1.217	1.322	213
30-40% DM	34.5	9.0	9.9	8.3	16.6	10.0	62.5	24.6	1.707	0.6315	0.902	0.928	274
18-30% DM	24.9	8.5	10.0	6.3	12.6	7.5	51.5	18.7	1.595	0.7704	0.687	0.690	285
Layers	40.9	13.2	16.4	8.9	17.8	11.2	77.3	29.1	2.49	0.7391	0.966	1.033	380
Pullets	46.7	14.9	19.1	11.5	23.0	13.9	93.2	37.5	2.814	0.5767	1.252	1.288	131
Broilers	62.8	15.1	17.0	10.3	20.6	18.0	98.4	35.2	2.85	0.5046	1.12	1.67	467
Broilers-Breeders	58.6	10.5	9.3	13.2	26.5	15.8	88.6	38.7	1.972	0.3500	1.439	1.466	163

## Turkeys

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	52.2	11.1	11.3	6.8	13.6	11.1	66.6	23.6	2.0948	0.4553	0.739	1.028	681
60+ % DM	74.7	10.6	7.1	5.6	11.1	10.0	60.2	21.0	2.00	0.2900	0.604	0.924	158
50-60 % DM	54.4	13.1	14.8	6.9	13.9	12.5	75.0	25.8	2.4784	0.4481	0.755	1.156	97
40-50 % DM	44.8	10.8	12.2	5.6	11.3	10.4	61.8	21.0	2.044	0.3865	0.613	0.962	188
18-40 % DM	36.1	9.1	10.1	5.6	11.2	9.3	54.8	19.0	1.708	0.4505	0.606	0.859	137
Toms	51.9	13.6	15.2	12.1	24.1	17.2	97.0	36.5	2.574	0.8225	1.31	1.591	36
Poults	75.8	18.9	22.3	11.4	22.7	16.3	108.0	41.4	3.562	0.4075	1.234	1.509	4

Breeders (Toms/Hens)	52.6	10.8	10.1	9.8	19.5	12.6	75.3	29.3	2.035	0.6846	1.060	1.163	50
Broilers Growers	61.8	17.8	21.9	11.1	22.3	15.3	102.6	39.0	3.35	0.60	1.21	1.42	6
Growers	61.0	17.6	22.2	10.5	20.9	15.2	100.1	38.1	3.312	0.4149	1.136	1.403	13

## Mink

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
composite	45.8	17.4	21.8	16.7	33.5	8.5	102.4	48.1	3.28	1.42	1.82	0.79	104

## Anaerobic Digestion Output<sup>(6)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	48.78	6.3	7.3	11.4	22.7	3.5	50.4	33.2	1.577	0.1986	1.234	0.327	9

## Sewage Biosolids<sup>(7)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Composite	32.1	15.0	30.8	12.1	24.1	1.2	71.5	42.9	3.76	0.64	1.31	0.11	89
Aerobic or anaerobic composite	31.4	13.1	26.2	10.9	21.7	1.0	63.1	38.2	3.2664	0.5476	1.182	0.097	105

## Canadian Food Inspection Agency (CFIA) Registered/Listed Fertilizers using processed Sewage Biosolids<sup>(8)</sup>

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Pellets	91.0	16.8	26.6	21.1	42.2	2.5	100.2	68.1	4.2074	0.2591	2.294	0.235	12
N-Rich/N-Viro (lime) <sup>(10)</sup>	58.61	2.6	0	5.2	10.5	21.5	58.8	15.3	0.65	0.0264	0.57	1.99	3

The micronutrient and organic matter values are not reflected in these tables.

## Other Livestock - Available Nutrients and Value for Manure from Other Livestock Types – Imperial Units

Animal Type	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (lbs/ton)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (lbs/ton)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (lbs/ton)	Available Nutrients (in year of application) K <sub>2</sub> O (lbs/ton)	Year 1 Value <sup>(3)</sup> (\$/ton)	Year 2-4 Value <sup>(3)</sup> (\$/ton)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (ppm)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Bison	21.1	2.5	1.0	2.6	1.3	1.5	5.7	2.9	0.40	320	0.032	0.07	0.07	7
Elk	30.5	4.5	4.4	7.4	3.7	5.2	13.8	6.7	0.73	620	0.060	0.20	0.24	13
Red Deer	25.0	3.8	2.2	6.3	3.1	4.3	11.7	5.7	0.62	514	0.051	0.17	0.20	6
White-Tailed Deer	31.1	7.9	16.9	15.8	7.9	7.6	24.5	13.5	1.27	784	0.078	0.43	0.35	6
Fallow Deer	29.4	5.4	6.9	12.9	6.4	7.6	19.8	10.2	0.87	680	0.068	0.35	0.35	6
Llama	34.9	4.7	5.1	12.9	6.4	5.4	17.1	9.8	0.75	558	0.056	0.35	0.25	16
Alpaca	27.1	4.1	1.4	14.7	7.4	5.0	17.0	10.3	0.66	867	0.087	0.40	0.23	11
Wild boar	29.8	5.8	5.3	12.1	6.1	7.6	19.9	9.2	0.72	623	0.062	0.33	0.35	6
Chinchilla	65.7	11.6	25.9	22.8	11.4	21.6	44.5	18.5	1.87	3642	0.364	0.62	1.00	7
Rabbit	44.7	7.4	2.0	31.3	15.6	12.1	36.0	21.2	1.20	1280	0.128	0.85	0.56	17
Fox	35.4	19.1	19.0	55.6	27.8	8.2	60.1	35.2	1.80	4856	0.486	1.51	0.38	9



Mink – composite	45.8	34.8	43.6	67.0	33.5	17.1	92.9	43.6	3.28	14151	1.415	1.82	0.79	104
Mink – kittens	50.0	44.1	57.7	70.3	35.1	19.0	107.8	47.3	4.16	18363	1.836	1.91	0.88	16
Mink – adults	44.2	46.2	63.1	89.4	44.7	23.5	124.4	58.0	4.36	19337	1.934	2.43	1.09	61
Mink – composted carcasses	45.9	6.3	0.3	20.6	10.3	5.6	23.5	13.8	0.79	1149	0.115	0.56	0.26	7
Mink – females & kits	41.7	42.3	57.4	75.4	37.7	19.4	108.7	49.6	3.99	17727	1.773	2.05	0.90	14
Pheasants	66.3	26.1	26.7	29.8	14.9	17.9	63.0	25.5	2.46	1758	0.176	0.81	0.83	19
Partridge	71.9	42.5	54.4	46.7	23.4	24.6	97.9	39.8	4.01	4705	0.471	1.27	1.14	8
Quail	59.6	52.6	78.1	39.7	19.9	23.1	105.3	40.6	4.96	3384	0.338	1.08	1.07	8
Squab (pigeon)	57.7	34.5	43.8	34.6	17.3	24.6	81.5	30.1	3.25	4826	0.483	0.94	1.14	13
Duck	38.1	11.2	7.2	14.8	7.4	10.7	30.6	11.0	1.06	3260	0.326	0.40	0.49	15
Ostrich	40.8	7.2	0.0	19.9	9.9	7.1	25.4	13.2	0.68	633	0.063	0.54	0.33	7
Emu	25.9	10.7	10.5	10.7	5.3	6.9	24.7	8.9	1.01	2516	0.252	0.29	0.32	9
Rhea	28.7	8.9	6.5	19.9	9.9	7.6	27.9	13.4	0.84	1837	0.184	0.54	0.35	3

The micronutrient and organic matter values are not reflected in these tables.

## Other Livestock - Available Nutrients and Value for Manure from Other Livestock Types – Metric Units

Dry Matter (DM) Range	Average Dry Matter (DM)/Total Solids (%)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Fall Applied (kg/Tonne)	Available Nutrients (in year of application) Useable N <sup>(1)</sup> Spring Applied (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Immediate (kg/Tonne)	Available Nutrients (in year of application) P <sub>2</sub> O <sub>5</sub> <sup>(2)</sup> Long Term (kg/Tonne)	Available Nutrients (in year of application) K <sub>2</sub> O (kg/Tonne)	Year 1 Value <sup>(3)</sup> (\$/Tonne)	Year 2-4 Value <sup>(3)</sup> (\$/Tonne)	Total Nutrient Content (as is basis) TKN (%)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (ppm)	Total Nutrient Content (as is basis) NH <sub>4</sub> -N (%)	Total Nutrient Content (as is basis) P (%)	Total Nutrient Content (as is basis) K (%)	# Samples
Bison	21.1	1.6	0.5	1.3	0.6	0.8	7.3	3.2	0.40	320	0.032	0.07	0.07	7
Elk	30.5	2.3	2.2	3.7	1.8	2.6	15.2	7.4	0.73	620	0.060	0.20	0.24	13
Red Deer	25.0	1.9	2.0	3.1	1.6	2.2	12.9	6.3	0.62	514	0.051	0.17	0.20	6
White-Tailed Deer	31.1	3.9	7.4	7.9	4.0	3.8	26.9	14.8	1.27	784	0.078	0.43	0.35	6
Fallow Deer	29.4	2.7	3.7	6.4	3.2	3.8	21.8	11.3	0.87	680	0.068	0.35	0.35	6
Llama	34.9	2.3	1.7	6.4	3.2	2.7	18.9	10.8	0.75	558	0.056	0.35	0.25	16
Alpaca	27.1	2.0	2.0	7.4	3.7	2.5	18.8	11.3	0.66	867	0.087	0.40	0.23	11
Wild boar	29.8	2.9	2.6	6.1	3.0	3.8	21.9	10.2	0.72	623	0.062	0.33	0.35	6
Chinchilla	65.7	5.8	7.1	11.4	5.7	10.8	49.0	20.4	1.87	3642	0.364	0.62	1.00	7
Rabbit	44.7	3.7	4.4	15.6	7.8	6.0	39.6	23.4	1.20	1280	0.128	0.85	0.56	17
Fox	35.4	9.5	11.0	27.8	13.9	4.1	66.2	38.4	1.80	4856	0.486	1.51	0.38	9
Mink – composite	45.8	17.4	21.8	33.5	16.7	8.5	102.3	48.1	3.28	14151	1.415	1.82	0.79	104
Mink – kittens	50.0	22.0	28.9	35.1	17.6	9.5	118.7	52.1	4.16	18363	1.836	1.91	0.88	16

Mink – adults	44.2	23.1	31.6	44.7	22.4	11.8	137.0	63.9	4.36	19337	1.934	2.43	1.09	61
Mink – composted carcasses	45.9	3.2	0.1	10.3	5.2	2.8	25.9	15.3	0.79	1149	0.115	0.56	0.26	7
Mink – females & kits	41.7	21.1	28.7	37.7	18.9	9.7	119.7	54.7	3.99	17727	1.773	2.05	0.90	14
Pheasants	66.3	13.0	13.4	14.9	7.5	9.0	69.4	28.1	2.46	1758	0.176	0.81	0.83	19
Partridge	71.9	21.3	27.2	23.4	11.7	12.3	107.8	43.9	4.01	4705	0.471	1.27	1.14	8
Quail	59.6	26.3	39.1	19.9	9.9	11.6	116.0	44.8	4.96	3384	0.338	1.08	1.07	8
Squab (pigeon)	57.7	17.2	21.9	17.3	8.6	12.3	89.7	33.2	3.25	4826	0.483	0.94	1.14	13
Duck	38.1	5.6	3.6	7.4	3.7	5.3	33.8	12.1	1.06	3260	0.326	0.40	0.49	15
Ostrich	40.8	3.6	0.0	9.9	5.0	3.6	28.0	14.6	0.68	633	0.063	0.54	0.33	7
Emu	25.9	5.4	5.3	5.3	2.7	3.5	27.2	9.8	1.01	2516	0.252	0.29	0.32	9
Rhea	28.7	4.5	3.3	9.9	5.0	3.8	30.7	14.7	0.84	1837	0.184	0.54	0.35	3

The micronutrient and organic matter values are not reflected in these tables.

## Footnotes

- (1) Assumes manure is incorporated within 24 hours and at a pH of 7.0.
- (2) In the year of application, 40% of the phosphorus in manure is immediately available; an additional 40% is available when considering subsequent years (long term).
- (3) Value is based on using fertilizer equivalent N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O (December 2021 N=\$2.72/kilogram; P<sub>2</sub>O<sub>5</sub>=\$2.36/kilogram; and K<sub>2</sub>O=\$1.83/kilogram). Economic value is based on half of P available in year of application with remainder of the P and the organic N credits in subsequent years.
- (4) For sandbedded dairy the percentage (%) sand is subtracted from the % dry matter (DM) for spring applied.
- (5) Washwater values refer to manure-based washwaters generated from washing of livestock facilities only.
- (6) Results from anaerobic digesters includes digesters that are approved through Environmental Compliance Approvals (ECAs) under the Environmental Protection Act or Nutrient Management Strategies under the Nutrient Management Act. None of the results are from systems accepting human sewage.
- (7) These results are meant for general information and planning purposes only. An approved NASM Plan is required before NASM containing sewage biosolids can be land applied. In addition, sampling and analysis of the NASM is required per O. Reg. 267/03 prior to land application.
- (8) Fertilizers registered/listed under the federal Fertilizers Act should be applied in accordance with label recommendations. Note that fertilizer labels provide a minimum guaranteed analysis and actual nutrient content may be higher.
- (9) Cured and Immature are as described in the Agricultural Composting Basics Factsheet, Agdex# 720/400, with publication date 03/05 and last reviewed in January 2019.

(10) Horse manure and N-Rich/N-Viro (organic lime) – only the ammonium N is calculated as available for composite and <50% DM. Parties using N-Rich/N-Viro products should utilize the nutrient values available on product labels when establishing liming potential.