

Available Nutrients and Value for Manure from Various Livestock Types

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The nutrients from manure have a nutrient and economic value. The tables that follow give an indication of the available nitrogen, phosphorus and potassium from various livestock types. The information is based on average analysis results for over 12,000 Ontario samples. All information in the tables is presented in an “as-is basis,” — in other words, the nutrients as applied at the listed dry matter content. There can be large variations between manures, therefore taking a sample at the time of application for analysis is your best guide to nutrient availability.

The amount of nitrogen available in the year of application, assuming the manure is applied and incorporated within 24 hours, can vary with composition and weather. Solid manure applied in fall will maximize nitrogen available for the following crop, while liquid manure with high ammonium content will contain more available nitrogen when applied in spring or to a growing crop. Manure pH of 7 is assumed. As pH increases above 7, the loss of ammonium becomes more rapid unless manure is injected or incorporated immediately after application. 80% of the phosphorus in manure is assumed to be available to a crop, however a portion (up to half, depending on livestock type) may not be available immediately after application. 90% of the potassium is assumed available to a crop.

The organic nitrogen portion of manure becomes available over time with a portion becoming available in subsequent years; the amount is higher for solid manure than for liquid manure. The value of that nitrogen for the 3 years is reflected in the column that reads “Year 2–4 value,” which also reflects the remaining portion of the available phosphorus value.

The actual immediate economic nutrient value for crop production will be less than what is reflected in the tables 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 Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), with aggregate sample data provided by A&L Labs, Honeyland Labs, SRG (Agri-Food Labs), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the [AgriSuite software](#).

Market and input prices were from December 2021. Given the volatile markets, it is important to be aware of current prices.

Table 1a. Liquid Manure — Available Nutrients and Value for Manure from Common Livestock Types — Metric

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type	Sub-Type	DM %	Available Nutrients ¹					Value ^{2,4}			Lab Analysis				Samples #
			Nitrogen		P ₂ O ₅			Year 1			N %	NH ₄ -N ppm	P %	K %	
			Fall Applied ¹	Spring Applied	Total Available	Immediately Available	K ₂ O	Fall Applied	Spring Applied	Year 2-4					
			kg/m ³					\$/m ³							
Hogs	composite	3.2	1.4	2.5	2.0	1.0	2.0	9.9	12.7	2.9	0.37	2,452	0.11	0.19	3,558
	0%–2%	1.2	0.8	1.5	0.7	0.4	1.4	5.6	7.4	1.1	0.21	1,600	0.04	0.13	1,251
	2%–4%	2.9	1.4	2.5	2.0	1.0	2.0	9.8	12.8	2.9	0.37	2,433	0.11	0.19	1,165
	4%–6%	4.9	2.0	3.5	2.9	1.5	2.7	13.8	17.8	4.3	0.53	3,330	0.16	0.25	573
	6%–10%	7.8	2.5	4.1	4.3	2.2	3.2	17.9	22.1	6.3	0.66	4,054	0.24	0.30	358
	10%–18%	12.3	3.1	4.6	6.0	3.0	3.7	22.2	26.2	8.7	0.81	4,634	0.33	0.34	94
	nursery	3.0	1.2	2.1	1.9	1.0	1.9	9.0	11.5	2.8	0.32	2,005	0.10	0.18	67
	farrowing sows	1.7	0.9	1.6	1.1	0.6	1.2	5.8	7.7	1.6	0.23	1,654	0.06	0.11	497
	weaners	1.9	0.8	1.5	2.1	1.1	2.5	9.3	11.0	2.9	0.22	1,455	0.12	0.23	159
	finishers	4.7	1.9	3.2	2.6	1.3	2.9	13.4	17.0	3.8	0.49	3,321	0.14	0.27	897
	farrow to finish	3.5	1.5	2.6	1.9	0.9	2.3	10.5	13.5	2.8	0.40	2,717	0.10	0.21	179
	dry sows and boars	1.9	1.0	2.0	1.3	0.7	1.4	6.9	9.4	2.1	0.28	1,700	0.07	0.13	204
	Dairy	composite	8.1	1.0	1.6	1.5	0.8	2.6	9.2	11.0	2.8	0.36	1,492	0.08	0.24
sand-bedded (3.2% sand) ³		7.2	0.6	1.2	1.0	0.5	2.7	7.7	9.2	1.7	0.22	1,119	0.05	0.25	51
thick (10%–18%)		14.0	1.4	2.0	2.4	1.2	3.3	12.7	14.3	4.5	0.52	1,721	0.13	0.31	821
(8%–10%)		8.9	1.1	1.9	1.6	0.8	2.9	10.2	12.2	2.9	0.41	1,881	0.09	0.27	561
(6%–8%)		7.1	0.9	1.6	1.2	0.6	2.5	8.6	10.5	2.3	0.34	1,604	0.07	0.24	836
fluid (2%–6%)		4.4	0.7	1.3	0.8	0.4	2.0	6.4	8.0	1.5	0.24	1,222	0.04	0.19	861
watery (0%–2%)		1.2	0.3	0.8	0.4	0.2	1.2	3.5	4.8	0.7	0.12	628	0.02	0.11	164
Beef	composite	8.1	1.0	1.6	1.4	0.7	2.5	8.8	10.5	2.6	0.36	1,572	0.08	0.23	244
	10%–18%	14.6	1.4	2.0	2.6	1.3	3.7	13.6	15.1	4.7	0.53	1,691	0.14	0.34	80
	6%–10%	7.9	1.2	2.2	1.7	0.9	2.4	9.7	12.6	3.1	0.43	2,151	0.10	0.23	58
	2%–6%	4.1	0.7	1.4	1.0	0.5	1.8	6.3	8.1	1.7	0.25	1,308	0.05	0.17	72
	0%–2%	1.0	0.3	0.8	0.4	0.2	0.9	3.0	4.3	0.7	0.11	598	0.02	0.09	31
	cow-calf	4.7	0.7	1.4	1.2	0.6	2.2	7.4	9.2	2.0	0.26	1,259	0.06	0.21	9
	finisher	8.6	1.2	2.3	1.7	0.8	2.1	9.2	12.1	3.1	0.45	2,054	0.09	0.20	25
Sheep	dairy	7.4	1.4	3.3	2.4	1.2	2.3	10.8	15.9	4.3	0.52	1,904	0.13	0.21	7
Runoff/washwater		0.8	0.3	0.6	0.2	0.1	0.6	2.0	2.9	0.3	0.09	744	0.01	0.05	126
Mink	composite	2.9	1.2	2.5	1.5	0.7	0.8	6.4	9.9	2.4	0.36	2,168	0.08	0.08	31
Veal (milk-fed)	composite	2.2	0.4	0.8	0.5	0.2	1.9	5.1	6.3	0.9	0.15	809	0.03	0.17	5
Chickens	layers	9.9	2.7	4.8	5.0	2.5	3.1	18.9	24.5	7.0	0.81	5,600	0.27	0.29	81
	pullets	15.3	2.7	3.5	7.4	3.7	3.7	22.7	25.0	9.5	0.81	6,200	0.40	0.34	11
Biosolids	aerobic	3.5	0.5	0.7	1.6	0.8	0.3	3.8	4.2	2.4	0.14	209	0.09	0.03	61
	anaerobic	3.9	1.0	1.7	1.5	0.8	1.3	7.0	8.9	2.6	0.27	950	0.08	0.12	55
	Lystegro (fertilizer)	9.8	1.9	2.8	5.5	2.8	5.5	21.9	24.1	7.9	0.53	2,165	0.30	0.51	15
Anaerobic digestate		4.2	1.7	3.0	1.4	0.7	1.8	9.4	13.0	2.6	0.44	2,386	0.08	0.16	86

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$2.72/kg, P₂O₅ = \$2.36/kg and K₂O = \$1.83/kg).

³ Sand-bedded dairy: the % sand is subtracted from the % DM for spring applied.

⁴ 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.

Table 1b. Liquid Manure — Available Nutrients and Value for Manure from Common Livestock Types — Imperial

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type	Sub-Type	DM %	Available Nutrients ¹					Value ^{2,4}			Lab Analysis				Samples #
			Nitrogen		P ₂ O ₅			Year 1			N	NH ₄ -N ppm	P	K	
			Fall Applied ¹	Spring Applied	Total Available	Immediately Available	K ₂ O	Fall Applied	Spring Applied	Year 2-4					
			lb/1,000 gal					\$/1,000 gal			%	%	%		
Hogs	composite	3.2	14.1	24.7	19.7	9.8	20.2	44.8	57.8	13.2	0.37	2,452	0.11	0.19	3,558
	0%–2%	1.2	8.1	15.0	7.4	3.7	13.5	25.2	33.7	5.1	0.21	1,600	0.04	0.13	1,251
	2%–4%	2.9	13.9	24.8	19.5	9.8	20.3	44.5	57.9	13.0	0.37	2,433	0.11	0.19	1,165
	4%–6%	4.9	20.0	34.7	29.3	14.6	27.1	62.8	80.9	19.7	0.53	3,330	0.16	0.25	573
	6%–10%	7.8	25.2	41.0	43.4	21.7	32.1	81.0	100.5	28.6	0.66	4,054	0.24	0.30	358
	10%–18%	12.3	30.9	45.5	60.4	30.2	36.5	100.7	118.8	39.6	0.81	4,634	0.33	0.34	94
	nursery	3.0	12.2	21.1	19.1	9.6	18.9	40.9	52.0	12.7	0.32	2,005	0.10	0.18	67
	farrowing sows	1.7	8.8	15.6	11.0	5.5	11.7	26.4	34.9	7.3	0.23	1,654	0.06	0.11	497
	weaners	1.9	8.4	14.7	21.3	10.7	24.6	42.0	50.0	13.0	0.22	1,455	0.12	0.23	159
	finishers	4.7	18.8	31.9	25.6	12.8	28.9	60.9	77.1	17.1	0.49	3,321	0.14	0.27	897
farrow to finish	3.5	15.2	26.3	18.8	9.4	22.7	47.6	61.3	12.7	0.40	2,717	0.10	0.21	179	
dry sows and boars	1.9	10.5	19.5	13.2	6.6	13.7	31.4	42.6	9.3	0.28	1,700	0.07	0.13	204	
Dairy	composite	8.1	9.7	16.4	15.1	7.5	25.9	41.6	49.9	12.5	0.36	1,492	0.08	0.24	3,252
	sand-bedded (3.2% sand) ³	7.2	6.0	11.6	9.8	4.9	26.6	34.7	41.7	7.5	0.22	1,119	0.05	0.25	51
	thick (10%–18%)	14.0	13.9	19.7	24.5	12.2	33.2	57.8	65.0	20.3	0.52	1,721	0.13	0.31	821
	(8%–10%)	8.9	11.0	18.5	16.0	8.0	28.9	46.2	55.5	13.1	0.41	1,881	0.09	0.27	561
	(6%–8%)	7.1	9.2	16.0	12.3	6.2	25.5	39.1	47.6	10.3	0.34	1,604	0.07	0.24	836
	fluid (2%–6%)	4.4	6.5	12.6	7.7	3.9	20.2	29.0	36.5	6.6	0.24	1,222	0.04	0.19	861
	watery (0%–2%)	1.2	3.2	7.8	3.7	1.8	12.2	16.0	21.8	3.1	0.12	628	0.02	0.11	164
Beef	composite	8.1	9.7	15.9	14.4	7.2	24.6	40.1	47.8	11.9	0.36	1,572	0.08	0.23	244
	10%–18%	14.6	14.3	20.0	25.6	12.8	36.5	61.6	68.7	21.2	0.53	1,691	0.14	0.34	80
	6%–10%	7.9	11.7	22.4	17.5	8.7	24.3	43.9	57.2	13.9	0.43	2,151	0.10	0.23	58
	2%–6%	4.1	6.7	13.6	9.8	4.9	17.9	28.4	36.9	7.7	0.25	1,308	0.05	0.17	72
	0%–2%	1.0	3.1	7.8	4.2	2.1	9.4	13.8	19.7	3.4	0.11	598	0.02	0.09	31
	cow-calf finisher	4.7	7.0	13.5	11.6	5.8	22.5	33.5	41.5	9.0	0.26	1,259	0.06	0.21	9
Sheep	dairy	8.6	12.1	22.8	16.9	8.5	21.4	41.8	55.0	14.2	0.45	2,054	0.09	0.20	25
Runoff/washwater		7.4	14.1	32.8	23.9	12.0	22.9	49.2	72.3	19.7	0.52	1,904	0.13	0.21	7
Mink	composite	0.8	2.5	6.0	2.2	1.1	5.6	9.0	13.3	1.6	0.09	744	0.01	0.05	126
Veal (milk-fed)	composite	2.9	11.8	24.7	14.7	7.4	8.1	29.2	45.1	10.8	0.36	2,168	0.08	0.08	31
Chickens	composite	2.2	4.0	8.5	4.8	2.4	18.8	23.1	28.6	4.0	0.15	809	0.03	0.17	5
	layers	9.9	26.7	47.6	49.7	24.8	31.3	86.5	101.3	31.8	0.81	5,600	0.27	0.29	81
Biosolids	pullets	15.3	26.7	35.5	73.6	36.8	36.7	102.8	113.6	43.3	0.81	6,200	0.40	0.34	11
	aerobic	3.5	5.3	6.8	15.8	7.9	2.8	17.3	19.2	11.0	0.14	209	0.09	0.03	61
	anaerobic	3.9	10.1	17.2	15.1	7.5	13.4	31.7	40.4	11.8	0.27	950	0.08	0.12	55
	Lystegro (fertilizer)	9.8	19.4	27.8	55.4	27.7	54.9	99.2	109.6	36.1	0.53	2,165	0.30	0.51	15
Anaerobic digestate		4.2	16.6	29.5	14.4	7.2	17.7	42.9	58.8	11.8	0.44	2,386	0.08	0.16	86

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$1.23/lb, P₂O₅ = \$1.07/lb and K₂O = \$0.83/lb).

³ Sand-bedded dairy the % sand is subtracted from the % DM for spring applied.

⁴ 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.

Table 2a. Solid Manure — Available Nutrients and Value for Manure from Common Livestock Types — Metric

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type	Sub-Type	DM %	Available Nutrients ¹					Value ^{2,4}			Lab Analysis				Samples #
			Nitrogen		P ₂ O ₅		K ₂ O	Year 1	Year 2-4	N	NH ₄ -N ppm	P %	K %		
			Fall Applied ¹	Spring Applied	Immediately Available	Total Available								N	
			kg/tonne					\$/tonne							
Hogs	composite	29.7	3.6	3.4	4.4	8.9	6.0	31.1	13.3	0.89	2,648	0.265	0.48	0.55	104
	18%-30%	23.9	3.5	4.2	4.3	8.6	5.7	30.1	13.0	0.88	2,805	0.281	0.47	0.52	72
	30%-100%	42.6	3.7	1.7	4.7	9.4	6.7	33.3	14.3	0.92	2,297	0.230	0.51	0.62	32
Dairy	composite	27.3	2.2	2.3	1.8	3.6	6.5	22.2	6.9	0.71	1,413	0.141	0.19	0.60	482
	sand-bedded (27.8% sand) ³	38.3	0.8	0.6	0.7	1.5	2.4	8.2	2.4	0.25	968	0.097	0.08	0.22	57
	compost bedded pack	43.4	6.7	14.6	3.4	6.8	18.3	59.7	17.9	2.17	100	0.010	0.37	1.69	23
	18%-30% (light bedding)	21.8	2.1	2.7	1.7	3.4	6.4	21.3	6.4	0.67	1,493	0.149	0.19	0.59	349
	30%-100% (heavy bedding)	42.0	2.6	1.3	2.0	4.1	7.4	25.4	8.2	0.85	1,168	0.117	0.22	0.68	133
Beef	composite	30.9	2.7	3.4	2.8	5.6	6.8	26.6	9.9	0.88	1,616	0.162	0.30	0.63	1,042
	18%-30% (light bedding)	23.9	2.1	2.7	1.9	3.8	5.7	20.8	7.1	0.69	1,313	0.131	0.21	0.53	596
	30%-40% (medium bedding)	34.3	3.0	3.8	3.1	6.3	7.7	29.7	11.1	0.98	1,782	0.178	0.34	0.71	252
	40%-100% (heavy bedding)	47.6	4.1	5.0	4.8	9.7	9.5	40.0	16.5	1.33	2,319	0.232	0.53	0.88	189
	cow-calf	29.5	2.1	1.9	1.5	3.1	7.0	22.2	6.4	0.69	889	0.089	0.17	0.65	24
	finisher	31.5	2.6	3.0	2.6	5.2	6.6	25.3	9.4	0.84	1,326	0.133	0.28	0.61	76
Sheep	composite	32.8	2.7	2.9	2.9	5.8	9.2	31.1	9.8	0.88	2,424	0.242	0.32	0.85	101
Dairy goats	composite	35.4	3.2	4.0	2.7	5.4	11.8	36.6	10.1	1.03	2,058	0.206	0.29	1.09	81
Compost	cured	46.2	3.2	0.6	2.2	4.3	4.7	22.5	8.8	0.81	94	0.009	0.23	0.44	106
	immature	53.7	6.9	7.8	4.9	9.8	9.6	47.8	18.4	1.72	2,430	0.243	0.53	0.89	120
	spent mushroom	34.3	3.1	2.0	2.9	5.8	5.7	25.6	10.1	0.78	568	0.057	0.31	0.52	33
Veal (grain-fed)	composite	31.7	2.5	2.6	1.8	3.5	5.4	20.8	7.3	0.81	1,421	0.142	0.19	0.50	30
Horses	composite ⁵	38.1	1.6	0.5	1.4	2.8	4.9	16.6	5.3	0.51	666	0.067	0.15	0.45	51
	<50% DM ⁵	34.9	1.5	0.5	1.4	2.7	4.2	14.8	5.0	0.47	688	0.069	0.15	0.39	45
	>50% DM	61.9	2.6	-1.7	2.1	4.1	10.4	31.1	8.5	0.85	521	0.052	0.22	0.97	6
Mink	composite	45.8	17.4	21.8	16.7	33.5	8.5	102.3	48.1	3.28	14,200	1.420	1.82	0.79	104

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on fall applied using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$2.72/kg, P₂O₅ = \$2.36/kg and K₂O = \$1.83/kg).

³ Sand-bedded dairy the % sand is subtracted from the % DM for spring applied.

⁴ 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.

⁵ Horse manure: only the ammonium N is calculated as available for composite and <50% DM and for N-Rich / N-Viro (organic lime).

Table 2a. Solid Manure — Available Nutrients and Value for Manure from Common Livestock Types — Metric

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			Nitrogen		P ₂ O ₅		Year 1	Year 2-4	N %	NH ₄ -N ppm	P %	K %			
			Fall Applied ¹	Spring Applied	Immediately Available	Total Available								K ₂ O kg/tonne	\$/tonne
Chickens	composite	58.6	13.9	15.4	11.2	22.3	15.3	92.2	36.0	2.63	5,373	0.537	1.21	1.42	2,357
	80% +	88.4	22.3	26.6	14.7	29.3	21.9	135.1	52.0	4.20	4,172	0.417	1.60	2.03	318
	70%-80%	74.3	16.6	18.0	12.2	24.4	17.5	106.0	41.0	3.13	4,757	0.476	1.33	1.62	507
	60%-70%	65.2	14.3	15.2	11.2	22.5	17.2	96.9	36.7	2.70	4,805	0.481	1.22	1.59	462
	50%-60%	55.0	12.3	13.0	12.7	25.5	14.9	90.8	38.4	2.32	5,055	0.506	1.38	1.38	336
	40%-50%	44.9	10.8	11.6	11.2	22.4	14.3	82.0	33.0	2.05	6,061	0.606	1.22	1.32	213
	30%-40%	34.5	9.0	9.9	8.3	16.6	10.0	62.5	24.5	1.71	6,315	0.632	0.90	0.93	274
	18%-30%	24.9	8.5	10.0	6.3	12.6	7.5	51.5	18.7	1.60	7,704	0.770	0.69	0.69	285
	layers	40.9	13.2	16.4	8.9	17.8	11.2	77.2	29.0	2.49	7,391	0.739	0.97	1.03	380
	pullets	46.7	14.9	19.1	11.5	23.0	13.9	93.2	37.5	2.81	5,767	0.577	1.25	1.29	131
broilers	62.8	15.1	17.0	10.3	20.6	18.0	98.4	35.1	2.85	5,046	0.505	1.12	1.67	467	
broiler-breeders	58.6	10.5	9.3	13.2	26.5	15.8	88.6	38.7	1.97	3,500	0.350	1.44	1.47	163	
Turkeys	composite	52.2	11.1	11.3	6.8	13.6	11.1	66.5	23.6	2.09	4,553	0.455	0.74	1.03	681
	60% +	74.7	10.6	7.1	5.6	11.1	10.0	60.2	21.0	2.00	2,900	0.290	0.60	0.92	158
	50%-60%	54.4	13.1	14.8	6.9	13.9	12.5	74.9	25.7	2.48	4,481	0.448	0.76	1.16	97
	40%-50%	44.8	10.8	12.2	5.6	11.3	10.4	61.8	20.9	2.04	3,865	0.387	0.61	0.96	188
	18%-40%	36.1	9.1	10.1	5.6	11.2	9.3	54.7	18.9	1.71	4,505	0.451	0.61	0.86	137
	toms	51.9	13.6	15.2	12.1	24.1	17.2	97.0	36.5	2.57	8,225	0.823	1.31	1.59	36
	poults	75.8	18.9	22.3	11.4	22.7	16.3	107.9	41.3	3.56	4,075	0.408	1.23	1.51	4
	breeders	54.8	11.4	21.1	12.0	23.9	14.6	86.0	34.2	2.16	8,600	0.860	1.30	1.35	12
	breeders (toms/hens)	52.6	10.8	10.1	9.8	19.5	12.6	75.3	29.2	2.04	6,846	0.685	1.06	1.16	50
	broilers growers	61.8	17.8	43.9	11.1	22.3	15.3	102.6	38.9	3.35	6,000	0.600	1.21	1.42	6
growers	61.0	17.6	22.2	10.5	20.9	15.2	100.1	38.0	3.31	4,149	0.415	1.14	1.40	13	
Anaerobic digestate solids	48.8	6.3	7.3	11.4	22.7	3.5	50.4	33.1	1.58	1,986	0.199	1.23	0.33	9	
Biosolids	composite	31.4	13.1	26.2	10.9	21.7	1.0	63.0	38.1	3.27	5,476	0.548	1.18	0.10	105
	pellets (fertilizer)	91.0	16.8	26.6	21.1	42.2	2.5	100.1	68.0	4.21	2,591	0.259	2.29	0.24	12
	N-Rich/N-Viro (lime) ⁵	58.6	2.6	0.2	5.2	10.5	21.5	58.8	15.2	0.65	264	0.026	0.57	1.99	3

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on fall applied using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$2.72/kg, P₂O₅ = \$2.36/kg and K₂O = \$1.83/kg).

³ Sand-bedded dairy the % sand is subtracted from the % DM for spring applied.

⁴ 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.

⁵ Horse manure: only the ammonium N is calculated as available for composite and <50% DM and for N-Rich / N-Viro (organic lime).

Table 2b. Solid Manure — Available Nutrients and Value for Manure from Common Livestock Types — Imperial

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type	Sub-Type	DM %	Available Nutrients ¹					Value ^{2,4}		Lab Analysis					Samples #
			Nitrogen		P ₂ O ₅		K ₂ O	Year 1	Year 2-4	N	NH ₄ -N		P	K	
			Fall Applied ¹	Spring Applied	Total Available	Immediately Available					ppm	%			
			lb/ton					\$/ton		%	ppm	%	%	%	
Hogs	composite	29.7	7.1	6.9	17.7	8.9	11.9	28.2	12.1	0.89	2,648	0.265	0.48	0.55	104
	18%–30%	23.9	7.0	8.4	17.3	8.6	11.3	27.4	11.8	0.88	2,805	0.281	0.47	0.52	72
	30%–100%	42.6	7.4	3.4	18.8	9.4	13.3	30.2	12.9	0.92	2,297	0.230	0.51	0.62	32
Dairy	composite	27.3	4.4	4.7	7.1	3.6	13.0	20.1	6.2	0.71	1,413	0.141	0.19	0.60	482
	sand-bedded (27.8% sand) ³	38.3	1.6	1.1	2.9	1.5	4.8	7.5	2.2	0.25	968	0.097	0.08	0.22	57
	compost bedded pack	43.4	13.5	29.2	13.5	6.8	36.5	54.2	16.3	2.17	100	0.010	0.37	1.69	23
	18%–30% (light bedding)	21.8	4.1	5.5	6.9	3.4	12.7	19.3	5.8	0.67	1,493	0.149	0.19	0.59	349
	30%–100% (heavy bedding)	42.0	5.2	2.7	8.1	4.1	14.8	23.1	7.4	0.85	1,168	0.117	0.22	0.68	133
Beef	composite	30.9	5.5	6.8	11.2	5.6	13.7	24.1	9.0	0.88	1,616	0.162	0.30	0.63	1,042
	18%–30% (light bedding)	23.9	4.3	5.4	7.7	3.8	11.4	18.9	6.4	0.69	1,313	0.131	0.21	0.53	596
	30%–40% (medium bedding)	34.3	6.1	7.6	12.5	6.3	15.3	26.9	10.1	0.98	1,782	0.178	0.34	0.71	252
	40%–100% (heavy bedding)	47.6	8.2	10.0	19.4	9.7	19.0	36.3	15.0	1.33	2,319	0.232	0.53	0.88	189
	cow-calf	29.5	4.3	3.8	6.1	3.1	14.0	20.2	5.8	0.69	889	0.089	0.17	0.65	24
	finisher	31.5	5.2	5.9	10.5	5.2	13.1	22.9	8.6	0.84	1,326	0.133	0.28	0.61	76
Sheep	composite	32.8	5.5	5.8	11.6	5.8	18.4	28.2	8.9	0.88	2,424	0.242	0.32	0.85	101
Dairy goats	composite	35.4	6.4	8.1	10.7	5.4	23.6	33.2	9.2	1.03	2,058	0.206	0.29	1.09	81
Compost	cured	46.2	6.5	1.1	8.6	4.3	9.4	20.4	8.0	0.81	94	0.009	0.23	0.44	106
	immature	53.7	13.7	15.6	19.7	9.8	19.2	43.4	16.7	1.72	2,430	0.243	0.53	0.89	120
	spent mushroom	34.3	6.2	4.1	11.5	5.8	11.3	23.2	9.2	0.78	568	0.057	0.31	0.52	33
Veal (grain-fed)	composite	31.7	5.0	5.2	7.1	3.5	10.7	18.9	6.6	0.81	1,421	0.142	0.19	0.50	30
Horses	composite ⁵	38.1	3.2	1.0	5.6	2.8	9.8	15.0	4.8	0.51	666	0.067	0.15	0.45	51
	<50% DM ⁵	34.9	2.9	1.0	5.4	2.7	8.4	13.5	4.6	0.47	688	0.069	0.15	0.39	45
	>50% DM	61.9	5.3	-3.5	8.2	4.1	20.9	28.3	7.7	0.85	521	0.052	0.22	0.97	6
Mink	composite	45.8	34.8	43.6	67.0	33.5	17.1	92.9	43.6	3.28	14,200	1.420	1.82	0.79	104

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on fall applied using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$1.23/lb, P₂O₅ = \$1.07/lb and K₂O = \$0.83/lb).

³ Sand-bedded dairy the % sand is subtracted from the % DM for spring applied.

⁴ 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.

⁵ Horse manure: only the ammonium N is calculated as available for composite and <50% DM and for N-Rich/N-Viro (organic lime).

Table 2b. Solid Manure — Available Nutrients and Value for Manure from Common Livestock Types — Imperial

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type	Sub-Type	DM %	Available Nutrients ¹					Value ^{2,4}		Lab Analysis					Samples #
			Nitrogen		P ₂ O ₅		K ₂ O	Year 1	Year 2-4	N	NH ₄ -N		P	K	
			Fall Applied ¹	Spring Applied	Total Available	Immediately Available					ppm	%			
			lb/ton					\$/ton		%	ppm	%	%	%	
Chickens	composite	58.6	27.9	30.8	44.6	22.3	30.6	83.7	32.6	2.63	5,373	0.537	1.21	1.42	2,357
	80% +	88.4	44.5	53.1	58.7	29.3	43.8	122.7	47.2	4.20	4,172	0.417	1.60	2.03	318
	70%-80%	74.3	33.2	36.1	48.9	24.4	35.1	96.2	37.2	3.13	4,757	0.476	1.33	1.62	507
	60%-70%	65.2	28.6	30.4	44.9	22.5	34.4	92.2	35.4	2.70	4,805	0.481	1.22	1.59	462
	50%-60%	55.0	24.6	26.0	50.9	25.5	29.9	82.4	34.8	2.32	5,055	0.506	1.38	1.38	336
	40%-50%	44.9	21.7	23.3	44.8	22.4	28.6	74.4	30.0	2.05	6,061	0.606	1.22	1.32	213
	30%-40%	34.5	18.1	19.7	33.2	16.6	20.0	56.7	22.2	1.71	6,315	0.632	0.90	0.93	274
	18%-30%	24.9	16.9	20.0	25.3	12.6	14.9	46.8	17.0	1.60	7,704	0.770	0.69	0.69	285
	layers	40.9	26.4	32.8	35.5	17.8	22.3	70.1	26.3	2.49	7,391	0.739	0.97	1.03	380
	pullets	46.7	29.8	38.2	46.1	23.0	27.8	84.6	34.0	2.81	5,767	0.577	1.25	1.29	131
Turkeys	broilers	62.8	30.2	34.0	41.2	20.6	36.1	89.3	31.9	2.85	5,046	0.505	1.12	1.67	467
	broiler-breeders	58.6	20.9	18.6	53.0	26.5	31.7	80.4	35.1	1.97	3,500	0.350	1.44	1.47	163
	composite	52.2	22.2	22.6	27.2	13.6	22.2	60.4	21.4	2.09	4,553	0.455	0.74	1.03	681
	60% +	74.7	21.2	14.2	22.2	11.1	20.0	54.6	19.0	2.00	2,900	0.290	0.60	0.92	158
	50%-60%	54.4	26.3	29.6	27.8	13.9	25.0	68.0	23.4	2.48	4,481	0.448	0.76	1.16	97
	40%-50%	44.8	21.7	24.4	22.6	11.3	20.8	56.1	19.0	2.04	3,865	0.387	0.61	0.96	188
	18%-40%	36.1	18.1	20.2	22.3	11.2	18.6	49.7	17.2	1.71	4,505	0.451	0.61	0.86	137
	toms	51.9	27.3	30.5	48.2	24.1	34.4	88.0	33.1	2.57	8,225	0.823	1.31	1.59	36
	poults	75.8	37.8	44.5	45.4	22.7	32.6	98.0	37.5	3.56	4,075	0.408	1.23	1.51	4
	breeders	54.8	22.9	21.1	47.8	23.9	29.2	78.1	31.0	2.16	8,600	0.860	1.30	1.35	12
Anaerobic digestate solids	breeders (toms/hens)	52.6	21.6	20.2	39.0	19.5	25.1	68.3	26.5	2.04	6,846	0.685	1.06	1.16	50
	broilers growers	61.8	35.5	43.9	44.5	22.3	30.7	93.1	35.3	3.35	6,000	0.600	1.21	1.42	6
	growers	61.0	35.1	44.3	41.8	20.9	30.3	90.9	34.5	3.31	4,149	0.415	1.14	1.40	13
Biosolids	composite	48.8	12.6	14.7	45.4	22.7	7.1	45.7	30.0	1.58	1,986	0.199	1.23	0.33	9
	pellets (fertilizer)	31.4	26.1	52.4	43.5	21.7	2.1	57.2	34.6	3.27	5,476	0.548	1.18	0.10	105
	N-Rich/N-Viro (lime) ⁵	91.0	33.7	53.2	84.4	42.2	5.1	90.9	61.7	4.21	2,591	0.259	2.29	0.24	12
	N-Rich/N-Viro (lime) ⁵	58.6	5.2	0.4	21.0	10.5	43.0	53.4	13.8	0.65	264	0.026	0.57	1.99	3

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on fall applied using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$1.23/lb, P₂O₅ = \$1.07/lb and K₂O = \$0.83/lb).

³ Sand-bedded dairy the % sand is subtracted from the % DM for spring applied.

⁴ 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.

⁵ Horse manure: only the ammonium N is calculated as available for composite and <50% DM and for N-Rich/N-Viro (organic lime).

Table 3a. Solid Manure — Available Nutrients and Value for Manure from Other Livestock Types — Metric

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type — Sub-Type	DM %	Available Nutrients ¹					Value ^{2,3}			Lab Analysis				Samples #
		Nitrogen		P ₂ O ₅		K ₂ O	Year 1	Year 2-4	N	NH ₄ -N		P	K	
		Fall Applied ¹	Spring Applied N	Total Available	Immediately Available					ppm	%			
		kg/tonne					\$/tonne			%	ppm	%	%	
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	3,642	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	1,280	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	4,856	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	14,151	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	18,363	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	19,337	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	1,149	0.115	0.56	0.26	7
Mink — females and kits	41.7	21.1	28.7	37.7	18.9	9.7	119.7	54.7	3.99	17,727	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	1,758	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	4,705	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	3,384	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	4,826	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	3,260	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	2,516	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	1,837	0.184	0.54	0.35	3

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on fall applied using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$2.72/kg, P₂O₅ = \$2.36/kg and K₂O = \$1.83/kg).

³ 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.

Table 3b. Solid Manure — Available Nutrients and Value for Manure from Other Livestock Types — Imperial

Values in these tables were compiled by OMAFRA with aggregate sample data provided by A&L, Honeyland, SRG (Agri-Food), Stratford Agri-Analysis and University of Guelph Analytical Services. This is a summary of the information used in the AgriSuite software.

Type — Sub-Type	DM %	Available Nutrients ¹					Value ^{2,3}			Lab Analysis				Samples #
		Nitrogen		P ₂ O ₅			Year 1	Year 2–4	N	NH ₄ -N		P	K	
		Fall Applied ¹	Spring Applied N	Total Available	Immediately Available	K ₂ O				ppm	%			
		lb/ton					\$/ton			%	ppm	%	%	
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	3,642	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	1,280	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	4,856	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	14,151	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	18,363	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	19,337	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	1,149	0.115	0.56	0.26	7
Mink — females and kits	41.7	42.3	57.4	75.4	37.7	19.4	108.7	49.6	3.99	17,727	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	1,758	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	4,705	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	3,384	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	4,826	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	3,260	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	2,516	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	1,837	0.184	0.54	0.35	3

¹ Table assumes manure is incorporated in 1 day for spring and/or early-fall application and a pH of 7.0.

² Value is based on fall applied using fertilizer equivalent N-P₂O₅-K₂O (December 2021 N = \$1.23/lb, P₂O₅ = \$1.07/lb and K₂O = \$0.83/lb).

³ 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.

