



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme
Lamb Grower, Medicated
Test Material Code # 202423

Method Summary Report
(Precision Report Follows)

Labs Reporting: 157
Methods Reported: 380
Issue Date : 04/30/2024

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO #fp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	5.720							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	39	38	10.98	0.3662	11.01	0.3319	0.0673	3.02%	0.1229	2.79%
001.99	Loss on Drying, Miscellaneous (%)	16	15	10.69	0.7370	10.74	0.6850	0.2211	6.38%	0.1040	2.80%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	4	3	11.12	0.4387	11.12	0.4387	0.2533	3.95%	0.0149	2.78%
001.03	Loss on Drying, Low temp. methods (%)	3	3	11.12	0.0985	11.12	0.0985	0.0569	0.89%	0.1133	2.78%
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	103	101	16.19	0.9839	16.29	0.3185	0.0396	1.96%	0.1557	2.48%
002.05	Protein, Crude, Copper, Boric Acid (%)	21	21	16.05	0.2630	16.08	0.2314	0.0631	1.44%	0.1007	2.49%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	16	14	16.08	0.1658	16.08	0.1807	0.0604	1.12%	0.1392	2.49%
002.11	Protein, Crude, NIR (%)	6	6	17.86	1.792	17.86	2.033	1.037	11.38%	0.2213	2.37%
002.00	Protein, Crude, Crude (%)	4	4	16.25	0.4770	16.25	0.4770	0.2385	2.94%	0.3050	2.48%
002.08	Protein, Crude, Cu/Ti (%)	2	2	16.32	0.0625						
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	1	1	16.19							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	16.31							
003.14	Fat, Crude, Ankom (%)	51	49	3.021	0.2719	3.012	0.2503	0.0447	8.31%	0.0733	3.39%
003.10	Fat, Crude, Randall, Pet Ether (%)	27	26	3.046	0.2334	3.035	0.2091	0.0513	6.89%	0.0920	3.38%
003.06	Fat, Crude, Pet Ether (%)	14	13	3.160	0.1675	3.160	0.1888	0.0655	5.97%	0.0746	3.36%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	12	12	3.227	0.3206	3.257	0.2058	0.0742	6.32%	0.0677	3.35%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	10	10	3.114	0.2159	3.110	0.2376	0.0939	7.64%	0.1120	3.37%
003.11	Fat, Crude, NIR (%)	5	5	4.534	1.696	4.534	1.696	0.7586	37.41%	0.0370	3.19%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	4	4	3.069	0.0682	3.069	0.0682	0.0341	2.22%	0.1525	3.38%
003.99	Fat, Crude, Miscellaneous (%)	5	4	3.126	0.2272	3.126	0.2272	0.1312	7.27%	0.2567	3.37%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	3	3	3.066	0.4389	3.066	0.4389	0.2534	14.32%	0.0909	3.38%
003.12	Fat, Crude, Hexane Ext (%)	2	2	3.178	0.1025						
004.07	Fiber, Crude, ANKOM (%)	68	67	5.532	0.7537	5.482	0.4456	0.0680	8.13%	0.1677	3.10%
004.06	Fiber, Crude, Fibertec (%)	14	14	5.382	0.2505	5.368	0.2500	0.0835	4.66%	0.1546	3.11%
004.00	Fiber, Crude, Asbestos Free (%)	9	9	6.797	3.563	5.713	0.5225	0.2177	9.14%	0.2481	3.08%
004.03	Fiber, Crude, Fritted Glass (%)	4	4	5.264	0.6104	5.264	0.6104	0.3052	11.60%	0.1175	3.12%
004.11	Fiber, Crude, NIR (%)	5	4	5.111	1.094	5.111	1.094	0.5470	21.41%	0.1188	3.13%
004.99	Fiber, Crude, Miscellaneous (%)	2	2	6.038	0.7036						

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005.00	Ash, 2h @ 600°C (%)	87	85	8.853	0.2560	8.866	0.2547	0.0345	2.87%	0.0849	2.88%
005.05	Ash, 3h @ 550°C (%)	23	23	9.124	0.3101	9.108	0.2962	0.0772	3.25%	0.0603	2.87%
005.99	Ash, Miscellaneous (%)	8	8	9.130	0.4382	9.140	0.4753	0.2101	5.20%	0.1960	2.87%
005.11	Ash, NIR (%)	5	5	7.578	2.195	7.578	2.195	0.9818	28.97%	0.1290	2.95%
005.03	Ash, Microwave furnace (%)	1	1	8.100							
006.99	Total Sugars, Miscellaneous (%)	6	6	5.540	0.7847	5.540	0.8899	0.4541	16.06%	0.3591	3.09%
006.00	Total Sugars, As sucrose (%)	6	5	5.538	0.2392	5.538	0.2392	0.0409	4.32%	0.0994	3.09%
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	44	43	6.961	0.4734	6.958	0.4182	0.0797	6.01%	0.1402	2.99%
008.02	Fiber, Acid Detergent, Crucible (%)	12	12	6.913	0.5161	6.961	0.4613	0.1665	6.63%	0.2629	2.99%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	2	2	7.210	0.4310						
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	39	39	17.06	1.102	16.91	0.7865	0.1574	4.65%	0.3378	2.43%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	11	11	17.28	1.077	17.20	1.049	0.3955	6.10%	0.5459	2.41%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	2	2	16.54	0.2758						
010.99	Moisture, Miscellaneous (%)	14	13	11.09	0.4896	11.08	0.4768	0.1653	4.30%	0.1001	2.78%
010.11	Moisture, NIR (%)	5	5	10.61	0.9499	10.61	0.9499	0.4248	8.96%	0.1400	2.80%
010.03	Moisture, Karl-Fischer (%)	2	2	10.98	0.3960						
011.01	Loss on Drying, HT, 135°C 2hr (%)	60	58	11.82	0.5474	11.90	0.3727	0.0612	3.13%	0.0980	2.76%
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	5	5	11.53	0.5541	11.53	0.5541	0.2478	4.80%	0.3812	2.77%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	1	1	11.93							
012.00	Starch, Polarimetric (Ewers) (%)	14	14	33.38	0.9595	33.45	0.9196	0.3072	2.75%	0.4398	1.73%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	12	12	32.10	1.551	32.10	1.758	0.6345	5.48%	0.6475	1.76%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	9	9	29.86	6.067	31.36	2.364	0.9851	7.54%	0.5968	1.79%
012.11	Starch, NIR (%)	2	2	33.40	2.468						
012.99	Starch, Miscellaneous (%)	2	2	32.12	0.9652						
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	1	1	32.01							
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	29.67							
013.00	Fat, Pretreat, Acid hydrolysis (%)	15	15	4.000	0.5979	4.071	0.4689	0.1513	11.52%	0.1361	3.24%
013.02	Fat, Pretreat, Mojonnier, Bak Ext, Acid hydrolysis (%)	14	14	4.410	0.3601	4.417	0.3931	0.1313	8.90%	0.1888	3.20%
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	9	9	3.992	0.4354	3.986	0.4808	0.2003	12.06%	0.1319	3.25%
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	6	6	3.908	0.3015	3.908	0.3419	0.1745	8.75%	0.1060	3.26%
013.08	Fat, Pretreat, Roese-Gottlieb Modified, Alkaline Hydrolysis (%)	1	1	1.855							
015.43	Aluminum, ICP, Microwave (ppm)	7	7	110.2	23.73	113.1	19.61	9.266	17.34%	3.063	7.85%
015.41	Aluminum, ICP, Dry ash (ppm)	4	4	97.60	6.406	97.60	6.406	3.203	6.56%	5.324	8.03%
015.42	Aluminum, ICP, Open vessel (ppm)	1	1	72.55							
015.53	Aluminum, ICP-MS, Microwave (ppm)	1	1	111.5							
017.43	Boron, ICP, Microwave (ppm)	6	6	7.734	0.4390	7.734	0.4978	0.2540	6.44%	0.2696	11.76%
017.41	Boron, ICP, Dry ash (ppm)	5	4	8.054	0.8088	8.054	0.8088	0.4044	10.04%	0.2714	11.69%
017.42	Boron, ICP, Open vessel (ppm)	4	4	7.916	0.8561	7.916	0.8561	0.4281	10.82%	0.2165	11.72%
017.53	Boron, ICP-MS, Microwave (ppm)	1	1	6.057							
019.43	Calcium, ICP, Microwave (%)	34	33	1.828	0.0903	1.825	0.0800	0.0174	4.39%	0.0533	3.65%

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019.41	Calcium, ICP, Dry ash (%)	21	21	1.797	0.1073	1.785	0.0889	0.0242	4.98%	0.0619	3.67%
019.42	Calcium, ICP, Open vessel (%)	19	18	1.873	0.1133	1.872	0.1271	0.0374	6.79%	0.0369	3.64%
019.31	Calcium, AAS, Dry ash (%)	12	12	1.743	0.2955	1.803	0.1017	0.0367	5.64%	0.0671	3.66%
019.08	Calcium, EDTA (%)	11	10	1.855	0.0861	1.840	0.0537	0.0212	2.92%	0.0166	3.65%
019.99	Calcium, Miscellaneous (%)	9	8	1.790	0.2512	1.738	0.1448	0.0640	8.33%	0.0564	3.68%
019.00	Calcium, Ox-Mn04 Vol. (%)	4	4	1.750	0.1600	1.750	0.1600	0.0800	9.14%	0.0370	3.68%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	1.700	0.1441	1.700	0.1441	0.0832	8.48%	0.0368	3.69%
019.53	Calcium, ICP-MS, Microwave (%)	3	3	1.641	0.2698	1.641	0.2698	0.1558	16.44%	0.0428	3.71%
019.44	Calcium, ICP, Dry ash (%)	2	2	1.845	0.0495						
019.09	Calcium, Ion-selective electrode (%)	1	1	1.568							
019.32	Calcium, AAS, Open vessel (%)	1	1	1.755							
019.51	Calcium, ICP-MS, Dry ash (%)	1	1	1.760							
021.43	Cobalt, ICP, Microwave (ppm)	11	10	2.738	0.3954	2.803	0.2678	0.1059	9.55%	0.1623	13.70%
021.41	Cobalt, ICP, Dry ash (ppm)	5	5	2.477	0.6956	2.477	0.6956	0.3111	28.08%	0.1807	13.96%
021.42	Cobalt, ICP, Open vessel (ppm)	3	3	2.523	0.1358	2.523	0.1358	0.0784	5.38%	0.1533	13.92%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	3	3	2.393	0.2495	2.393	0.2495	0.1441	10.43%	0.1100	14.03%
021.53	Cobalt, ICP-MS, Microwave (ppm)	4	3	2.726	0.0464	2.726	0.0464	0.0328	1.70%	0.1378	13.76%
021.31	Cobalt, AAS, Dry ash (ppm)	2	2	2.491	0.3520						
021.00	Cobalt, Color (ppm)	1	1	2.395							
022.43	Copper, ICP, Microwave (ppm)	27	26	7.204	0.9354	7.218	0.7436	0.1823	10.30%	0.4801	11.88%
022.42	Copper, ICP, Open vessel (ppm)	20	18	7.464	1.470	7.408	1.237	0.3646	16.70%	0.2514	11.83%
022.41	Copper, ICP, Dry ash (ppm)	17	17	7.342	1.630	7.152	1.298	0.3934	18.15%	0.7286	11.90%
022.31	Copper, AAS, Dry ash (ppm)	8	5	8.316	2.293	8.316	2.293	1.282	27.58%	0.7505	11.63%
022.53	Copper, ICP-MS, Microwave (ppm)	3	3	5.865	1.215	5.865	1.215	0.7015	20.72%	0.3421	12.26%
022.44	Copper, ICP, Dry ash (ppm)	2	2	7.849	1.060						
022.52	Copper, ICP-MS, Open vessel (ppm)	2	2	8.910	2.235						
022.99	Copper, Miscellaneous (ppm)	2	2	6.500	0.7071						
022.32	Copper, AAS, Open vessel (ppm)	1	1	7.665							
022.33	Copper, AAS, Microwave (ppm)	1	1	8.170							
024.52	Iodine, ICP-MS, Open vessel (ppm)	2	2	4.175	0.8210						
024.03	Iodine, Ion-selective electrode (ppm)	1	1	2.610							
025.43	Iron, ICP, Microwave (ppm)	27	26	244.4	18.11	243.3	17.69	4.337	7.27%	8.188	7.00%
025.41	Iron, ICP, Dry ash (ppm)	18	17	238.9	17.92	237.7	17.13	5.195	7.21%	8.185	7.02%
025.42	Iron, ICP, Open vessel (ppm)	18	17	237.8	34.18	232.3	22.35	6.777	9.62%	8.307	7.05%
025.31	Iron, AAS, Dry ash (ppm)	10	10	252.6	30.73	252.6	34.84	13.77	13.79%	8.227	6.96%
025.53	Iron, ICP-MS, Microwave (ppm)	4	4	222.8	53.15	222.8	53.15	26.57	23.86%	10.33	7.09%
025.99	Iron, Miscellaneous (ppm)	3	3	222.8	15.78	222.8	15.78	9.112	7.08%	5.667	7.09%
025.33	Iron, AAS, Microwave (ppm)	2	2	244.6	12.36						
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	226.4	80.43						
027.43	Magnesium, ICP, Microwave (%)	28	28	0.3775	0.0185	0.3782	0.0172	0.0041	4.56%	0.0112	4.63%

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027.42	Magnesium, ICP, Open vessel (%)	20	19	0.3854	0.0201	0.3848	0.0185	0.0053	4.81%	0.0105	4.62%
027.41	Magnesium, ICP, Dry ash (%)	17	17	0.3699	0.0132	0.3705	0.0134	0.0041	3.63%	0.0103	4.64%
027.31	Magnesium, AAS, Dry ash (%)	8	8	0.3699	0.0345	0.3722	0.0244	0.0108	6.55%	0.0071	4.64%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.3479	0.0704	0.3479	0.0704	0.0406	20.23%	0.0106	4.69%
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.3455	0.0485	0.3455	0.0485	0.0280	14.05%	0.0178	4.69%
027.99	Magnesium, Miscellaneous (%)	4	3	0.3517	0.0501	0.3517	0.0501				4.68%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.3841	0.0035						
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.3600							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.3940							
027.51	Magnesium, ICP-MS, Dry ash (%)	1	1	0.3650							
028.43	Manganese, ICP, Microwave (ppm)	28	28	234.5	12.57	233.8	12.73	3.008	5.45%	10.40	7.04%
028.42	Manganese, ICP, Open vessel (ppm)	20	19	240.4	21.13	238.8	19.33	5.544	8.10%	12.89	7.02%
028.41	Manganese, ICP, Dry ash (ppm)	16	16	225.9	20.45	228.6	16.30	5.093	7.13%	6.742	7.06%
028.31	Manganese, AAS, Dry ash (ppm)	7	6	225.1	9.375	226.1	7.978	4.071	3.53%	3.109	7.07%
028.53	Manganese, ICP-MS, Microwave (ppm)	5	4	234.2	11.89	234.2	11.89	5.947	5.08%	15.18	7.04%
028.99	Manganese, Miscellaneous (ppm)	3	3	235.0	10.40	235.0	10.40	6.007	4.43%	12.67	7.03%
028.44	Manganese, ICP, Dry ash (ppm)	2	2	242.7	13.69						
028.52	Manganese, ICP-MS, Open vessel (ppm)	2	2	283.7	66.07						
028.00	Manganese, Color (ppm)	1	1	197.0							
028.32	Manganese, AAS, Open vessel (ppm)	1	1	255.5							
028.33	Manganese, AAS, Microwave (ppm)	1	1	220.9							
028.34	Manganese, AAS, Dry ash (ppm)	1	1	251.2							
030.01	Nitrate, Ion-selective electrode (%)	1	1	0.0016							
031.43	Phosphorus, ICP, Microwave (%)	30	29	0.8033	0.0367	0.7997	0.0320	0.0074	4.00%	0.0268	4.14%
031.01	Phosphorus, Photometric (%)	25	23	0.7988	0.0804	0.7870	0.0284	0.0074	3.60%	0.0119	4.15%
031.41	Phosphorus, ICP, Dry ash (%)	20	20	0.7878	0.0409	0.7870	0.0446	0.0125	5.66%	0.0152	4.15%
031.42	Phosphorus, ICP, Open vessel (%)	19	19	0.8147	0.0604	0.8139	0.0519	0.0149	6.38%	0.0189	4.13%
031.99	Phosphorus, Miscellaneous (%)	6	6	0.7413	0.0341	0.7413	0.0386	0.0197	5.21%	0.0150	4.18%
031.44	Phosphorus, ICP, Dry ash (%)	3	3	1.903	1.879	1.903	1.879	1.329	98.75%	2.261	3.63%
031.53	Phosphorus, ICP-MS, Microwave (%)	3	3	0.7409	0.0801	0.7409	0.0801	0.0462	10.80%	0.0471	4.18%
031.03	Phosphorus, Autoanalyzer (%)	2	2	0.8040	0.0014						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	0.7603	0.0341						
031.06	Phosphorus, Hach Method (%)	1	1	0.7650							
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	0.7250							
032.43	Potassium, ICP, Microwave (%)	28	28	1.008	0.0472	1.005	0.0425	0.0100	4.23%	0.0251	4.00%
032.41	Potassium, ICP, Dry ash (%)	18	18	0.9796	0.0433	0.9759	0.0399	0.0118	4.09%	0.0259	4.01%
032.42	Potassium, ICP, Open vessel (%)	18	18	1.022	0.0628	1.023	0.0699	0.0206	6.84%	0.0204	3.99%
032.31	Potassium, AAS, Dry ash (%)	7	7	0.9473	0.0833	0.9473	0.0944	0.0446	9.97%	0.0217	4.03%
032.99	Potassium, Miscellaneous (%)	6	6	0.9681	0.0781	0.9683	0.0880	0.0449	9.09%	0.0206	4.02%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	0.9767	0.0695	0.9767	0.0695	0.0401	7.11%	0.0123	4.01%

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032.53	Potassium, ICP-MS, Microwave (%)	3	3	0.9325	0.0837	0.9325	0.0837	0.0483	8.97%	0.0738	4.04%
032.02	Potassium, Flame Emission (%)	2	2	1.005	0.0000						
032.44	Potassium, ICP, Dry ash (%)	2	2	1.045	0.0431						
032.32	Potassium, AAS, Open vessel (%)	1	1	0.9300							
032.51	Potassium, ICP-MS, Dry ash (%)	1	1	0.9250							
033.01	Salt as chloride, Poten Cl (%)	27	25	1.881	0.0346	1.880	0.0331	0.0083	1.76%	0.0189	3.64%
033.00	Salt as chloride, Sol Cl (%)	15	14	1.762	0.2535	1.831	0.0716	0.0239	3.91%	0.0493	3.65%
033.99	Salt, Miscellaneous (%)	13	13	1.412	0.4582	1.436	0.4625	0.1603	32.20%	0.0293	3.79%
033.03	Salt as chloride, Quantab (%)	4	3	1.763	0.3453	1.763	0.3453	0.2442	19.58%		3.67%
033.05	Salt as chloride, Ion Sel Electrode (%)	2	2	1.698	0.2298						
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	7	7	2.303	0.4304	2.303	0.4881	0.2306	21.19%	0.1302	14.11%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	4	4	2.120	0.2638	2.120	0.2638	0.1319	12.45%	0.2385	14.29%
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	6	3	2.535	0.4108	2.535	0.4108	0.2965	16.21%	0.1037	13.91%
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	3	3	2.445	0.1713	2.445	0.1713	0.0989	7.01%	0.2178	13.98%
034.41	Selenium, Total (Se), ICP, Dry ash (ppm)	2	2	2.353	0.2652						
034.01	Selenium, Total (Se), Fluor (ppm)	1	1	2.520							
034.99	Selenium, Total (Se), Miscellaneous (ppm)	1	1	2.317							
035.43	Sodium, ICP, Microwave (%)	25	24	0.4368	0.0202	0.4341	0.0149	0.0038	3.43%	0.0078	4.53%
035.41	Sodium, ICP, Dry ash (%)	20	19	0.4208	0.0208	0.4208	0.0236	0.0068	5.60%	0.0109	4.56%
035.42	Sodium, ICP, Open vessel (%)	17	17	0.4419	0.0255	0.4432	0.0260	0.0079	5.88%	0.0135	4.52%
035.31	Sodium, AAS, Dry ash (%)	7	7	0.4188	0.0357	0.4193	0.0394	0.0186	9.41%	0.0067	4.56%
035.99	Sodium, Miscellaneous (%)	5	5	0.4225	0.0246	0.4225	0.0246	0.0110	5.83%	0.0150	4.55%
035.53	Sodium, ICP-MS, Microwave (%)	3	3	0.3943	0.0502	0.3943	0.0502	0.0355	12.73%	0.0202	4.60%
035.05	Sodium, Flame Emission (%)	2	2	0.4505	0.0205						
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.4264	0.0160						
035.02	Sodium, Em Spect (%)	1	1	0.4200							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.4500							
035.51	Sodium, ICP-MS, Dry ash (%)	1	1	0.4050							
036.43	Sulfur, ICP, Microwave (%)	19	19	0.3064	0.0179	0.3073	0.0184	0.0053	6.00%	0.0085	4.78%
036.42	Sulfur, ICP, Open vessel (%)	17	16	0.2935	0.0233	0.2933	0.0238	0.0074	8.13%	0.0074	4.81%
036.04	Sulfur, LECO (%)	6	5	0.2880	0.0218	0.2880	0.0218	0.0114	7.57%	0.0048	4.82%
036.99	Sulfur, Miscellaneous (%)	2	2	0.2550	0.0212						
036.00	Sulfur, Gravimetric (%)	1	1	0.3265							
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.3016							
037.43	Zinc, ICP, Microwave (ppm)	29	29	459.3	34.37	457.0	31.30	7.265	6.85%	17.04	6.36%
037.42	Zinc, ICP, Open vessel (ppm)	19	18	464.8	62.19	457.3	47.34	13.95	10.35%	22.90	6.36%
037.41	Zinc, ICP, Dry ash (ppm)	17	16	437.5	25.22	439.8	23.28	7.274	5.29%	10.16	6.40%
037.31	Zinc, AAS, Dry ash (ppm)	9	9	428.6	105.6	455.6	37.90	15.79	8.32%	10.05	6.37%
037.53	Zinc, ICP-MS, Microwave (ppm)	4	4	409.1	59.13	409.1	59.13	29.57	14.45%	21.58	6.47%
037.99	Zinc, Miscellaneous (ppm)	4	4	425.9	59.57	425.9	59.57	29.79	13.99%	16.73	6.43%

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037.44	Zinc, ICP, Dry ash (ppm)	3	3	408.6	47.93	408.6	47.93	27.67	11.73%	26.51	6.47%
037.52	Zinc, ICP-MS, Open vessel (ppm)	2	2	515.3	71.38						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	514.5							
037.33	Zinc, AAS, Microwave (ppm)	1	1	446.4							
038.43	Molybdenum, ICP, Microwave (ppm)	10	10	6.248	0.6900	6.190	0.6404	0.2531	10.35%	0.5328	12.16%
038.41	Molybdenum, ICP, Dry ash (ppm)	4	4	6.066	0.4343	6.066	0.4343	0.2171	7.16%	0.2051	12.20%
038.42	Molybdenum, ICP, Open vessel (ppm)	4	4	6.206	0.2224	6.206	0.2224	0.1112	3.58%	0.7840	12.15%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	4	4	6.045	0.6476	6.045	0.6476	0.3238	10.71%	0.2476	12.20%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	2	2	5.728	0.0318						
040.43	Barium, ICP, Microwave (ppm)	1	1	10.59							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	9.158							
041.53	Vanadium, ICP-MS, Microwave (ppm)	1	1	0.7857							
042.00	Chloride, Titrimetric (%)	5	5	1.133	0.0459	1.133	0.0459	0.0205	4.05%	0.0140	3.93%
042.01	Chloride, Ion-selective electrode (%)	1	1	1.172							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	1,320							
102.01	Niacin, Microbiological (ppm)	1	1	55.05							
102.02	Niacin, LC (ppm)	1	1	15.85							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	9.405							
104.03	Riboflavin, LC (ppm)	2	2	0.7700	0.0424						
104.00	Riboflavin, Fluorometric (ppm)	1	1	1.760							
105.00	Thiamine, LC (ppm)	2	2	2.885	0.3748						
105.01	Thiamine, Fluorometer (ppm)	1	1	5.615							
106.02	Vitamin A, LC (KU / kg)	11	11	23.23	5.558	22.92	5.565	2.097	24.28%	2.598	
106.00	Vitamin A, Color (KU / kg)	1	1	19.85							
106.01	Vitamin A, UV (KU / kg)	1	1	25.65							
107.00	Vitamin B12, Microbiological (ppb)	1	1	4.920							
108.02	Vitamin D3, LC (KU / kg)	5	4	2.001	0.1965	2.001	0.1965	0.0982	9.82%	0.7625	
108.99	Vitamin D3, Miscellaneous (KU / kg)	1	1	2.000							
109.02	Vitamin E, LC (IU / kg)	12	12	99.31	17.98	99.31	20.39	7.358	20.53%	8.756	
109.99	Vitamin E, Miscellaneous (IU / kg)	1	1	110.5							
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
111.98	Vitamin C, Ascorbic Acid, Miscellaneous (ppm)	1		1.000							
112.01	Pyridoxine, LC (µg / g)	2	2	3.895	0.8132						
113.01	Folic Acid, Micro (ppm)	1	1	0.9015							
113.02	Folic acid, LC (ppm)	1		0.1300							
114.01	Biotin, Microbiological (ppm)	1	1	0.2430							
114.99	Biotin, Miscellaneous (ppm)	1	1	0.1725							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	2	2	0.8202	0.7422						
115.99	Non Protein N (NPN), Miscellaneous (%)	1	1	0.7600							
120.00	Alanine, Post-col Ninhydrin Der (%)	12	12	0.7583	0.0224	0.7582	0.0249	0.0090	3.28%	0.0100	4.17%

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120.05	Alanine, Pre-col AQC Der (%)	7	7	0.7608	0.0699	0.7624	0.0755	0.0357	9.90%	0.0220	4.17%
120.99	Alanine, Miscellaneous (%)	5	3	0.7617	0.0029	0.7617	0.0029	0.0020	0.38%		4.17%
120.02	Alanine, Post-col OPA Der (%)	1	1	0.7930							
121.00	Arginine, Post-col Ninhydrin Der (%)	12	11	0.9812	0.0553	0.9873	0.0469	0.0177	4.75%	0.0152	4.01%
121.05	Arginine, Pre-col AQC Der (%)	7	6	0.9975	0.0457	0.9975	0.0519	0.0265	5.20%	0.0137	4.00%
121.99	Arginine, Miscellaneous (%)	5	4	0.9913	0.0747	0.9913	0.0747	0.0373	7.53%	0.0133	4.01%
121.02	Arginine, Post-col OPA Der (%)	1	1	1.025							
122.00	Aspartic, Post-col Ninhydrin Der (%)	12	11	1.349	0.0335	1.351	0.0320	0.0121	2.37%	0.0095	3.82%
122.05	Aspartic, Pre-col AQC Der (%)	7	7	1.365	0.1002	1.369	0.1050	0.0496	7.67%	0.0485	3.82%
122.99	Aspartic, Miscellaneous (%)	4	4	1.374	0.0650	1.374	0.0650	0.0325	4.73%	0.0150	3.81%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.485							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	13	13	0.2794	0.0159	0.2794	0.0180	0.0062	6.44%	0.0080	4.85%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	7	6	0.2435	0.0333	0.2463	0.0311	0.0159	12.63%	0.0036	4.94%
124.99	Cysteine/Cystine, Miscellaneous (%)	5	4	0.2538	0.0048	0.2538	0.0048	0.0024	1.89%	0.0150	4.92%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.2940							
125.00	Glutamic, Post-col Ninhydrin Der (%)	12	11	2.730	0.0773	2.730	0.0876	0.0330	3.21%	0.0168	3.44%
125.05	Glutamic, Pre-col AQC Der (%)	7	6	2.801	0.2020	2.801	0.2291	0.1169	8.18%	0.0053	3.43%
125.99	Glutamic, Miscellaneous (%)	4	4	2.516	0.1801	2.516	0.1801	0.0900	7.16%	0.0300	3.48%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.883							
126.00	Glycine, Post-col Ninhydrin Der (%)	12	11	0.6595	0.0484	0.6667	0.0330	0.0124	4.95%	0.0072	4.25%
126.05	Glycine, Pre-col AQC Der (%)	7	6	0.6917	0.0133	0.6917	0.0151	0.0077	2.18%	0.0052	4.23%
126.99	Glycine, Miscellaneous (%)	4	3	0.6800	0.0050	0.6800	0.0050	0.0029	0.74%	0.0100	4.24%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.7060							
127.00	Histidine, Post-col Ninhydrin Der (%)	12	12	0.3885	0.0385	0.3838	0.0295	0.0106	7.68%	0.0121	4.62%
127.05	Histidine, Pre-col AQC Der (%)	6	6	0.3923	0.0273	0.3923	0.0309	0.0158	7.89%	0.0048	4.60%
127.99	Histidine, Miscellaneous (%)	5	4	0.3750	0.0235	0.3750	0.0235	0.0117	6.25%	0.0100	4.64%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.3835							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	12	11	0.5478	0.0351	0.5457	0.0354	0.0133	6.48%	0.0074	4.38%
128.05	Isoleucine, Pre-col AQC Der (%)	7	7	0.5747	0.0508	0.5747	0.0576	0.0272	10.02%	0.0391	4.35%
128.99	Isoleucine, Miscellaneous (%)	5	5	0.5765	0.0099	0.5765	0.0099	0.0044	1.72%	0.0118	4.35%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.5395							
129.00	Leucine, Post-col Ninhydrin Der (%)	12	11	1.156	0.0374	1.156	0.0424	0.0160	3.67%	0.0092	3.91%
129.05	Leucine, Pre-col AQC Der (%)	7	7	1.162	0.0572	1.162	0.0648	0.0306	5.58%	0.0285	3.91%
129.99	Leucine, Miscellaneous (%)	5	5	1.195	0.1697	1.195	0.1697	0.0759	14.20%	0.0345	3.89%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.174							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	12	11	0.7004	0.0339	0.6999	0.0333	0.0126	4.76%	0.0075	4.22%
130.05	L-Lysine, Pre-col AQC Der (%)	7	7	0.6947	0.0647	0.6947	0.0734	0.0347	10.56%	0.0196	4.23%
130.99	L-Lysine, Miscellaneous (%)	6	6	0.6808	0.0663	0.6910	0.0500	0.0255	7.23%	0.0164	4.23%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.7470							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	13	12	0.2142	0.0112	0.2124	0.0076	0.0027	3.58%	0.0059	5.05%

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131.05	Methionine, PAO Pre-col AQC Der (%)	7	7	0.2381	0.0525	0.2244	0.0218	0.0103	9.72%	0.0104	5.01%
131.99	Methionine, Miscellaneous (%)	6	6	0.2487	0.0497	0.2416	0.0388	0.0198	16.08%	0.0134	4.95%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2155							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	12	11	0.6959	0.0217	0.6985	0.0175	0.0066	2.50%	0.0088	4.22%
132.05	Phenylalanine, Pre-col AQC Der (%)	7	6	0.6915	0.0283	0.6915	0.0321	0.0164	4.64%	0.0141	4.23%
132.99	Phenylalanine, Miscellaneous (%)	5	4	0.6731	0.0539	0.6731	0.0539	0.0311	8.01%	0.0083	4.25%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.7050							
133.00	Proline, Post-col Ninhydrin Der (%)	12	12	0.8801	0.0521	0.8806	0.0560	0.0202	6.36%	0.0186	4.08%
133.05	Proline, Pre-col AQC Der (%)	7	7	0.8693	0.0559	0.8698	0.0622	0.0294	7.15%	0.0208	4.08%
133.99	Proline, Miscellaneous (%)	5	5	0.9197	0.1137	0.9197	0.1137	0.0508	12.36%	0.0242	4.05%
134.00	Serine, Post-col Ninhydrin Der (%)	12	12	0.6934	0.0351	0.6994	0.0220	0.0079	3.15%	0.0087	4.22%
134.05	Serine, Pre-col AQC Der (%)	7	7	0.7268	0.0387	0.7268	0.0439	0.0207	6.04%	0.0074	4.20%
134.99	Serine, Miscellaneous (%)	5	3	0.6883	0.0144	0.6883	0.0144	0.0102	2.10%		4.23%
134.02	Serine, Post-col OPA Der (%)	1	1	0.6515							
135.00	Threonine, Post-col Ninhydrin Der (%)	12	11	0.5277	0.0178	0.5303	0.0122	0.0046	2.30%	0.0070	4.40%
135.05	Threonine, Pre-col AQC Der (%)	7	7	0.5511	0.0167	0.5521	0.0166	0.0078	3.00%	0.0178	4.37%
135.99	Threonine, Miscellaneous (%)	7	7	0.5485	0.0338	0.5493	0.0364	0.0172	6.63%	0.0186	4.38%
135.02	Threonine, Post-col OPA Der (%)	1	1	0.5360							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	7	7	0.1913	0.0194	0.1928	0.0134	0.0064	6.98%	0.0051	5.12%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	4	4	0.1925	0.0306	0.1925	0.0306	0.0153	15.91%	0.0140	5.13%
136.05	Tryptophan, Pre-col AQC Der (%)	4	4	0.1779	0.0299	0.1779	0.0299	0.0150	16.82%	0.0075	5.19%
136.99	Tryptophan, Miscellaneous (%)	3	3	0.2730	0.1880	0.2730	0.1880	0.1329	68.85%		4.86%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.1965							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	9	8	0.4444	0.0475	0.4457	0.0509	0.0225	11.42%	0.0061	4.52%
137.05	Tyrosine, Pre-col AQC Der (%)	7	7	0.4771	0.0554	0.4771	0.0629	0.0297	13.18%	0.0316	4.47%
137.99	Tyrosine, Miscellaneous (%)	5	5	0.4573	0.0384	0.4573	0.0384	0.0172	8.39%	0.0130	4.50%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4190							
138.00	Valine, Post-col Ninhydrin Der (%)	12	11	0.6936	0.0408	0.6884	0.0349	0.0131	5.06%	0.0074	4.23%
138.05	Valine, Pre-col AQC Der (%)	7	7	0.6928	0.0242	0.6928	0.0274	0.0130	3.96%	0.0229	4.23%
138.99	Valine, Miscellaneous (%)	5	5	0.7111	0.0461	0.7111	0.0461	0.0206	6.48%	0.0153	4.21%
138.02	Valine, Post-col OPA Der (%)	1	1	0.7410							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1325	0.0672						
139.05	Taurine, Pre-col AQC Der (%)	2	1	0.0915							
139.99	Taurine, Miscellaneous (%)	3	1								
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
160.99	Fructose, Miscellaneous (%)	1	1	0.4500							
162.99	Glucose, Miscellaneous (%)	2	2	2.503	2.966						
163.99	Lactose, Miscellaneous (%)	1	1	3.010							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.99	Sucrose, Miscellaneous (%)	1		0.1500							

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166.99	Raffinose, Miscellaneous (%)	1	1	0.5250							
167.99	Stachyose, Miscellaneous (%)	1	1	1.085							
351.03	Chlortetracycline, LC (UV or FL) (ppm)	7	7	45.02	6.482	45.02	7.351	3.473	16.33%	2.430	9.02%
351.05	Chlortetracycline, LC-MS/MS (ppm)	4	4	50.98	8.078	50.98	8.078	4.039	15.84%	4.712	8.85%
351.00	Chlortetracycline, Plate (ppm)	2	2	52.97	1.511						
357.02	Ethoxyquin, LC (UV or FL) (ppm)	1		0.0000							
361.02	Lasalocid Sodium, LC (ppm)	1		0.3000							
365.02	Monensin, LC (ppm)	1		0.1000							
367.99	Nicarbazin, Miscellaneous (ppm)	1		0.1000							
382.00	Sulfamethazine, Spectrophotometer (ppm)	2	2	104.3	23.45						
382.02	Sulfamethazine, LC-PCD (ppm)	2	2	85.43	2.722						
382.04	Sulfamethazine, LC-MS/MS (ppm)	2	2	88.26	5.850						
386.99	Tiamulin, Miscellaneous (ppm)	1		1.000							
388.03	Tylosin, LC (ppm)	1		0.2000							
392.99	Fenbendazole, Miscellaneous (ppm)	1		1.000							
400.01	Water Activity, Aqualab chilled mirror (Units)	13	13	0.5842	0.0142	0.5848	0.0147	0.0051	2.52%	0.0053	
400.99	Water Activity, Miscellaneous (Units)	2	2	0.5695	0.0085						
413.01	Starch, Resistant, Enzymatic-Colorimetric (%)	1	1	4.300							
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	3	3	0.0527	0.0112	0.0527	0.0112	0.0064	21.17%	0.0046	22.00%
516.52	Arsenic, Total (As), ICP-MS, Open vessel (ppm)	2	2	0.0636	0.0091						
516.00	Arsenic, Total (As), AA, Hydride (ppm)	1	1	0.0515							
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1		20.00							
518.53	Cadmium, ICP-MS, Microwave (ppm)	3	3	0.0813	0.0103	0.0813	0.0103	0.0059	12.61%	0.0019	22.00%
518.52	Cadmium, ICP-MS, Open vessel (ppm)	2	2	0.0919	0.0026						
518.31	Cadmium, AAS, Dry ash (ppm)	1	1	0.2285							
518.41	Cadmium, ICP, Dry ash (ppm)	1	1	0.0744							
518.43	Cadmium, ICP, Microwave (ppm)	2	1	0.0775							
518.99	Cadmium, Miscellaneous (ppm)	1	1	0.0886							
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	7	7	6.664	1.222	6.664	1.385	0.6546	20.79%	0.4507	12.02%
520.42	Chromium, Total (Cr), ICP, Open vessel (ppm)	3	3	6.732	1.158	6.732	1.158	0.6687	17.20%	0.2843	12.01%
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	3	3	5.034	2.222	5.034	2.222	1.283	44.13%	0.0671	12.54%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	1	1	3.761							
520.51	Chromium, Total (Cr), ICP-MS, Dry ash (ppm)	1	1	3.930							
520.52	Chromium, Total (Cr), ICP-MS, Open vessel (ppm)	1	1	4.038							
526.53	Lead, ICP-MS, Microwave (ppm)	3	3	0.1195	0.0275	0.1195	0.0275	0.0195	23.04%	0.0097	22.00%
526.43	Lead, ICP, Microwave (ppm)	3	2	0.2812	0.1921	0.2812	0.1921			0.2428	19.36%
526.52	Lead, ICP-MS, Open vessel (ppm)	2	2	0.1666	0.0093						
526.31	Lead, AAS, Dry ash (ppm)	1	1	0.6142							
526.41	Lead, ICP, Dry ash (ppm)	1	1	0.1644							
529.99	Mercury, Miscellaneous (ppb)	5	2	1.458	1.410	1.458	1.410			0.0262	22.00%

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
539.43	Nickel, ICP, Microwave (ppm)	5	5	3.935	0.8177	3.935	0.8177	0.3657	20.78%	0.1159	13.02%
539.41	Nickel, ICP, Dry ash (ppm)	1	1	2.901							
539.51	Nickel, ICP-MS, Dry ash (ppm)	1	1	2.070							
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	2.230							
539.53	Nickel, ICP-MS, Microwave (ppm)	1	1	3.562							
706.99	Caprylic acid (8:0), Miscellaneous (% (w/w))	1		0.0500							
708.99	Capric acid (10:0), Miscellaneous (% (w/w))	1		0.0500							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	3	1								
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	2	2	0.0753	0.0986						
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	2	2	7.734	10.12						
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	3	3	0.0682	0.1055	0.0682	0.1055			0.0006	5.99%
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	2	2	1.174	1.537						
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	2	2	12.10	15.90						
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	3	3	17.16	26.67	17.16	26.67	18.86	155.43%	0.7770	2.41%
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	3	3	0.9742	1.521	0.9742	1.521	1.075	156.08%	0.0424	4.02%
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	2	2	0.1538	0.1997						
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.0170							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (% (w/w))	1		0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	3	1								
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	2	2	0.1919	0.2590						
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	2	1	0.0750							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (% (w/w))	3									
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	2	2	0.1076	0.1378						
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	3									
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1		0.0050							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (% (w/w))	2	2	0.1275	0.0248						
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% (w/w))	2	2	1.945	0.0283						
758.99	Total Saturated Fatty Acids, Miscellaneous (% (w/w))	1	1	18.56							
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	24.35							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	50.75							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	1	1	3.274							

Notes: Robust statistics not used if < 6 labs reporting. In this case Means and SD's may be reported based on Raw Data with obvious blunders removed. Robust Assigned Values indicated in bold font.



Animal Feed Scheme

Lamb Grower, Medicated

Test Material Code # 202423

Method Precision Report

Methods Reported: 136

Labs Reporting: 157

Issue Date : 04/30/2024

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	39	36	10.98	0.3662	0.2770	0.1061	0.2966	2.51%	0.96%	2.69%	2.796
001.99	Loss on Drying, Miscellaneous (%)	16	13	10.69	0.7370	0.5781	0.0799	0.5836	5.36%	0.74%	5.41%	7.306
002.01	Protein, Crude, Auto Kjeh-Foss (%)	16	14	16.08	0.1658	0.1492	0.1024	0.1810	0.93%	0.64%	1.13%	1.767
002.05	Protein, Crude, Copper, Boric Acid (%)	21	21	16.05	0.2630	0.2547	0.0924	0.2709	1.59%	0.58%	1.69%	2.934
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	103	94	16.19	0.9839	0.4542	0.1405	0.4754	2.79%	0.86%	2.92%	3.384
002.11	Protein, Crude, NIR (%)	6	6	17.86	1.792	1.787	0.1901	1.797	10.01%	1.06%	10.07%	9.453
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	12	11	3.227	0.3206	0.1931	0.0639	0.2034	5.85%	1.93%	6.16%	3.185
003.06	Fat, Crude, Pet Ether (%)	14	12	3.160	0.1675	0.1723	0.0421	0.1773	5.45%	1.33%	5.61%	4.214
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	10	10	3.114	0.2159	0.2060	0.0913	0.2254	6.62%	2.93%	7.24%	2.468
003.10	Fat, Crude, Randall, Pet Ether (%)	27	25	3.046	0.2334	0.2245	0.0674	0.2344	7.34%	2.21%	7.66%	3.475
003.11	Fat, Crude, NIR (%)	5	5	4.534	1.696	1.696	0.0350	1.696	37.41%	0.77%	37.42%	48.52
003.14	Fat, Crude, Ankom (%)	51	48	3.021	0.2719	0.2702	0.0659	0.2781	8.94%	2.18%	9.20%	4.218
004.00	Fiber, Crude, Asbestos Free (%)	9	8	6.797	3.563	0.3613	0.1632	0.3965	6.43%	2.91%	7.06%	2.429
004.06	Fiber, Crude, Fibertec (%)	14	14	5.382	0.2505	0.2333	0.1289	0.2666	4.34%	2.40%	4.95%	2.068
004.07	Fiber, Crude, ANKOM (%)	68	64	5.532	0.7537	0.5885	0.1334	0.6034	10.75%	2.44%	11.03%	4.522
005.00	Ash, 2h @ 600°C (%)	87	80	8.853	0.2560	0.2363	0.0759	0.2482	2.67%	0.86%	2.80%	3.270
005.05	Ash, 3h @ 550°C (%)	23	21	9.124	0.3101	0.2553	0.0673	0.2640	2.81%	0.74%	2.91%	3.924
005.11	Ash, NIR (%)	5	5	7.578	2.195	2.194	0.1180	2.197	28.95%	1.56%	28.99%	18.61
005.99	Ash, Miscellaneous (%)	8	8	9.130	0.4382	0.4282	0.1317	0.4480	4.69%	1.44%	4.91%	3.402
006.99	Total Sugars, Miscellaneous (%)	6	6	5.540	0.7847	0.7421	0.3608	0.8252	13.40%	6.51%	14.89%	2.287
008.02	Fiber, Acid Detergent, Crucible (%)	12	11	6.913	0.5161	0.3387	0.1735	0.3806	4.82%	2.47%	5.42%	2.193
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	44	41	6.961	0.4734	0.4132	0.1200	0.4303	5.90%	1.71%	6.14%	3.587
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	11	10	17.28	1.077	1.099	0.3798	1.163	6.35%	2.20%	6.72%	3.062
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	39	36	17.06	1.102	0.6612	0.3169	0.7332	3.92%	1.88%	4.35%	2.314
010.11	Moisture, NIR (%)	5	5	10.61	0.9499	0.9443	0.1457	0.9555	8.90%	1.37%	9.01%	6.559
010.99	Moisture, Miscellaneous (%)	14	12	11.09	0.4896	0.4617	0.0799	0.4686	4.14%	0.72%	4.21%	5.868
011.01	Loss on Drying, HT, 135°C 2hr (%)	60	54	11.82	0.5474	0.4045	0.0913	0.4147	3.40%	0.77%	3.49%	4.542
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	5	5	11.53	0.5541	0.5027	0.3296	0.6011	4.36%	2.86%	5.21%	1.824
012.00	Starch, Polarimetric (Ewers) (%)	14	13	33.38	0.9595	0.6733	0.4204	0.7937	2.01%	1.25%	2.37%	1.888
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	12	12	32.10	1.551	1.480	0.6515	1.618	4.61%	2.03%	5.04%	2.483
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	9	8	29.86	6.067	1.657	0.6321	1.774	5.21%	1.99%	5.58%	2.806
013.00	Fat, Pretreat, Acid hydrolysis (%)	15	13	4.000	0.5979	0.3704	0.1089	0.3861	9.09%	2.68%	9.48%	3.544
013.02	Fat, Pretreat, Mojonner, Bak Ext, Acid hydrolysis (%)	14	14	4.410	0.3601	0.3415	0.1616	0.3778	7.74%	3.66%	8.57%	2.338
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	6	6	3.908	0.3015	0.2961	0.0802	0.3068	7.58%	2.05%	7.85%	3.827
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	9	9	3.992	0.4354	0.4227	0.1475	0.4477	10.59%	3.69%	11.22%	3.036
015.43	Aluminum, ICP, Microwave (ppm)	7	6	110.2	23.73	12.38	2.711	12.68	10.49%	2.30%	10.74%	4.676

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
017.43	Boron, ICP, Microwave (ppm)	6	6	7.734	0.4390	0.4185	0.1874	0.4585	5.41%	2.42%	5.93%	2.447
019.08	Calcium, EDTA (%)	11	9	1.855	0.0861	0.0394	0.0119	0.0412	2.15%	0.65%	2.25%	3.469
019.31	Calcium, AAS, Dry ash (%)	12	11	1.743	0.2955	0.0847	0.0622	0.1050	4.64%	3.41%	5.76%	1.690
019.41	Calcium, ICP, Dry ash (%)	21	18	1.797	0.1073	0.0756	0.0363	0.0839	4.22%	2.03%	4.68%	2.309
019.42	Calcium, ICP, Open vessel (%)	19	18	1.873	0.1133	0.1103	0.0364	0.1162	5.89%	1.94%	6.20%	3.193
019.43	Calcium, ICP, Microwave (%)	34	32	1.828	0.0903	0.0714	0.0474	0.0857	3.92%	2.61%	4.71%	1.807
019.99	Calcium, Miscellaneous (%)	9	7	1.790	0.2512	0.0939	0.0493	0.1061	5.50%	2.89%	6.21%	2.153
021.41	Cobalt, ICP, Dry ash (ppm)	5	5	2.477	0.6956	0.6889	0.1359	0.7022	27.81%	5.49%	28.35%	5.166
021.43	Cobalt, ICP, Microwave (ppm)	11	9	2.738	0.3954	0.1806	0.1241	0.2192	6.34%	4.36%	7.70%	1.766
022.31	Copper, AAS, Dry ash (ppm)	8	5	8.316	2.293	2.249	0.6356	2.337	27.04%	7.64%	28.10%	3.677
022.41	Copper, ICP, Dry ash (ppm)	17	16	7.342	1.630	1.237	0.5815	1.367	17.45%	8.20%	19.28%	2.351
022.42	Copper, ICP, Open vessel (ppm)	20	17	7.464	1.470	1.458	0.2799	1.485	19.33%	3.71%	19.68%	5.306
022.43	Copper, ICP, Microwave (ppm)	27	23	7.204	0.9354	0.5815	0.4351	0.7262	8.10%	6.06%	10.12%	1.669
025.31	Iron, AAS, Dry ash (ppm)	10	10	252.6	30.73	30.41	6.233	31.04	12.04%	2.47%	12.29%	4.980
025.41	Iron, ICP, Dry ash (ppm)	18	16	238.9	17.92	13.47	5.817	14.68	5.71%	2.46%	6.22%	2.523
025.42	Iron, ICP, Open vessel (ppm)	18	15	237.8	34.18	20.66	9.338	22.67	8.92%	4.03%	9.78%	2.428
025.43	Iron, ICP, Microwave (ppm)	27	25	244.4	18.11	17.26	6.731	18.52	7.09%	2.76%	7.61%	2.752
027.31	Magnesium, AAS, Dry ash (%)	8	8	0.3699	0.0345	0.0343	0.0054	0.0347	9.26%	1.46%	9.37%	6.441
027.41	Magnesium, ICP, Dry ash (%)	17	17	0.3699	0.0132	0.0122	0.0069	0.0140	3.30%	1.86%	3.79%	2.035
027.42	Magnesium, ICP, Open vessel (%)	20	18	0.3854	0.0201	0.0156	0.0077	0.0174	4.08%	2.02%	4.55%	2.250
027.43	Magnesium, ICP, Microwave (%)	28	26	0.3775	0.0185	0.0148	0.0084	0.0170	3.90%	2.22%	4.49%	2.025
028.31	Manganese, AAS, Dry ash (ppm)	7	6	225.1	9.375	9.121	3.062	9.621	4.05%	1.36%	4.28%	3.142
028.41	Manganese, ICP, Dry ash (ppm)	16	14	225.9	20.45	14.94	6.185	16.17	6.52%	2.70%	7.05%	2.614
028.42	Manganese, ICP, Open vessel (ppm)	20	18	240.4	21.13	14.92	11.83	19.04	6.29%	4.98%	8.02%	1.610
028.43	Manganese, ICP, Microwave (ppm)	28	28	234.5	12.57	10.34	10.11	14.46	4.41%	4.31%	6.17%	1.430
031.01	Phosphorus, Photometric (%)	25	22	0.7988	0.0804	0.0280	0.0074	0.0289	3.57%	0.95%	3.69%	3.909
031.41	Phosphorus, ICP, Dry ash (%)	20	19	0.7878	0.0409	0.0412	0.0111	0.0427	5.23%	1.41%	5.42%	3.836
031.42	Phosphorus, ICP, Open vessel (%)	19	18	0.8147	0.0604	0.0482	0.0171	0.0512	5.98%	2.12%	6.35%	2.999
031.43	Phosphorus, ICP, Microwave (%)	30	27	0.8033	0.0367	0.0234	0.0252	0.0344	2.93%	3.16%	4.31%	1.365
031.99	Phosphorus, Miscellaneous (%)	6	6	0.7413	0.0341	0.0333	0.0101	0.0348	4.49%	1.36%	4.69%	3.443
032.31	Potassium, AAS, Dry ash (%)	7	7	0.9473	0.0833	0.0825	0.0156	0.0840	8.71%	1.65%	8.87%	5.383
032.41	Potassium, ICP, Dry ash (%)	18	16	0.9796	0.0433	0.0342	0.0181	0.0387	3.51%	1.86%	3.97%	2.136
032.42	Potassium, ICP, Open vessel (%)	18	18	1.022	0.0628	0.0616	0.0172	0.0640	6.03%	1.68%	6.26%	3.717
032.43	Potassium, ICP, Microwave (%)	28	28	1.008	0.0472	0.0444	0.0228	0.0499	4.41%	2.26%	4.95%	2.189
032.99	Potassium, Miscellaneous (%)	6	6	0.9681	0.0781	0.0774	0.0139	0.0787	8.00%	1.44%	8.13%	5.647
033.00	Salt as chloride, Sol Cl (%)	15	13	1.762	0.2535	0.0951	0.0357	0.1016	5.21%	1.96%	5.57%	2.843
033.01	Salt as chloride, Poten Cl (%)	27	23	1.881	0.0346	0.0300	0.0113	0.0321	1.60%	0.60%	1.71%	2.830
033.99	Salt, Miscellaneous (%)	13	12	1.412	0.4582	0.4689	0.0209	0.4694	32.63%	1.46%	32.66%	22.43
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	7	7	2.303	0.4304	0.4226	0.1158	0.4382	18.35%	5.03%	19.02%	3.784
035.31	Sodium, AAS, Dry ash (%)	7	7	0.4188	0.0357	0.0355	0.0051	0.0359	8.48%	1.22%	8.57%	7.016
035.41	Sodium, ICP, Dry ash (%)	20	19	0.4208	0.0208	0.0198	0.0089	0.0217	4.70%	2.12%	5.16%	2.438
035.42	Sodium, ICP, Open vessel (%)	17	17	0.4419	0.0255	0.0241	0.0118	0.0268	5.46%	2.66%	6.07%	2.281
035.43	Sodium, ICP, Microwave (%)	25	23	0.4368	0.0202	0.0136	0.0065	0.0151	3.13%	1.49%	3.47%	2.323
035.99	Sodium, Miscellaneous (%)	5	5	0.4225	0.0246	0.0233	0.0111	0.0258	5.53%	2.62%	6.12%	2.334
036.42	Sulfur, ICP, Open vessel (%)	17	16	0.2935	0.0233	0.0230	0.0050	0.0235	7.84%	1.69%	8.02%	4.732
036.43	Sulfur, ICP, Microwave (%)	19	18	0.3064	0.0179	0.0172	0.0066	0.0184	5.63%	2.15%	6.03%	2.800

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
037.31	Zinc, AAS, Dry ash (ppm)	9	8	428.6	105.6	26.77	8.964	28.23	5.79%	1.94%	6.10%	3.150
037.41	Zinc, ICP, Dry ash (ppm)	17	15	437.5	25.22	25.03	8.934	26.57	5.73%	2.05%	6.09%	2.974
037.42	Zinc, ICP, Open vessel (ppm)	19	16	464.8	62.19	37.88	18.48	42.14	8.34%	4.07%	9.28%	2.281
037.43	Zinc, ICP, Microwave (ppm)	29	27	459.3	34.37	29.41	14.41	32.75	6.45%	3.16%	7.18%	2.273
038.43	Molybdenum, ICP, Microwave (ppm)	10	10	6.248	0.6900	0.5961	0.4914	0.7725	9.54%	7.86%	12.36%	1.572
042.00	Chloride, Titrimetric (%)	5	5	1.133	0.0459	0.0452	0.0107	0.0465	3.99%	0.94%	4.10%	4.362
106.02	Vitamin A, LC (KU / kg)	11	11	23.23	5.558	5.371	2.020	5.738	23.12%	8.70%	24.70%	2.841
109.02	Vitamin E, LC (IU / kg)	12	11	99.31	17.98	17.44	6.777	18.71	17.82%	6.93%	19.12%	2.760
120.00	Alanine, Post-col Ninhydrin Der (%)	12	12	0.7583	0.0224	0.0216	0.0083	0.0231	2.85%	1.09%	3.05%	2.795
120.05	Alanine, Pre-col AQC Der (%)	7	7	0.7608	0.0699	0.0687	0.0186	0.0711	9.03%	2.44%	9.35%	3.833
121.00	Arginine, Post-col Ninhydrin Der (%)	12	9	0.9812	0.0553	0.0373	0.0099	0.0386	3.75%	1.00%	3.88%	3.895
121.05	Arginine, Pre-col AQC Der (%)	7	6	0.9975	0.0457	0.0449	0.0121	0.0465	4.50%	1.21%	4.66%	3.851
122.00	Aspartic, Post-col Ninhydrin Der (%)	12	11	1.349	0.0335	0.0330	0.0087	0.0341	2.44%	0.64%	2.53%	3.922
122.05	Aspartic, Pre-col AQC Der (%)	7	7	1.365	0.1002	0.0966	0.0372	0.1036	7.08%	2.73%	7.59%	2.781
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	13	13	0.2794	0.0159	0.0153	0.0060	0.0164	5.47%	2.15%	5.88%	2.730
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	7	6	0.2435	0.0333	0.0333	0.0015	0.0333	13.67%	0.61%	13.68%	22.53
125.00	Glutamic, Post-col Ninhydrin Der (%)	12	10	2.730	0.0773	0.0807	0.0125	0.0817	2.95%	0.46%	2.99%	6.514
125.05	Glutamic, Pre-col AQC Der (%)	7	6	2.801	0.2020	0.2020	0.0041	0.2020	7.21%	0.15%	7.21%	49.35
126.00	Glycine, Post-col Ninhydrin Der (%)	12	10	0.6595	0.0484	0.0260	0.0044	0.0263	3.86%	0.65%	3.92%	6.005
126.05	Glycine, Pre-col AQC Der (%)	7	6	0.6917	0.0133	0.0130	0.0042	0.0136	1.87%	0.60%	1.97%	3.276
127.00	Histidine, Post-col Ninhydrin Der (%)	12	11	0.3885	0.0385	0.0227	0.0095	0.0246	5.97%	2.52%	6.48%	2.575
127.05	Histidine, Pre-col AQC Der (%)	6	6	0.3923	0.0273	0.0272	0.0037	0.0274	6.92%	0.95%	6.99%	7.334
128.00	Isoleucine, Post-col Ninhydrin Der (%)	12	11	0.5478	0.0351	0.0348	0.0064	0.0354	6.35%	1.17%	6.46%	5.522
128.05	Isoleucine, Pre-col AQC Der (%)	7	7	0.5747	0.0508	0.0485	0.0213	0.0530	8.43%	3.71%	9.21%	2.483
128.99	Isoleucine, Miscellaneous (%)	5	5	0.5765	0.0099	0.0081	0.0081	0.0115	1.41%	1.40%	1.99%	1.422
129.00	Leucine, Post-col Ninhydrin Der (%)	12	11	1.156	0.0374	0.0370	0.0076	0.0378	3.20%	0.66%	3.27%	4.950
129.05	Leucine, Pre-col AQC Der (%)	7	7	1.162	0.0572	0.0551	0.0217	0.0592	4.74%	1.86%	5.09%	2.732
129.99	Leucine, Miscellaneous (%)	5	5	1.195	0.1697	0.1684	0.0293	0.1710	14.10%	2.46%	14.31%	5.826
130.00	L-Lysine, Post-col Ninhydrin Der (%)	12	11	0.7004	0.0339	0.0335	0.0068	0.0342	4.78%	0.97%	4.88%	5.039
130.05	L-Lysine, Pre-col AQC Der (%)	7	6	0.6947	0.0647	0.0501	0.0061	0.0505	7.04%	0.86%	7.10%	8.250
130.99	L-Lysine, Miscellaneous (%)	6	5	0.6808	0.0663	0.0263	0.0101	0.0282	3.72%	1.44%	3.99%	2.775
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	13	11	0.2142	0.0112	0.0052	0.0040	0.0066	2.47%	1.89%	3.11%	1.642
131.05	Methionine, PAO Pre-col AQC Der (%)	7	6	0.2381	0.0525	0.0142	0.0060	0.0154	6.50%	2.73%	7.05%	2.583
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	12	10	0.6959	0.0217	0.0125	0.0073	0.0144	1.78%	1.04%	2.06%	1.980
132.05	Phenylalanine, Pre-col AQC Der (%)	7	6	0.6915	0.0283	0.0273	0.0104	0.0292	3.95%	1.50%	4.23%	2.812
133.00	Proline, Post-col Ninhydrin Der (%)	12	12	0.8801	0.0521	0.0507	0.0170	0.0535	5.76%	1.93%	6.08%	3.155
133.05	Proline, Pre-col AQC Der (%)	7	7	0.8693	0.0559	0.0549	0.0141	0.0567	6.32%	1.63%	6.53%	4.011
133.99	Proline, Miscellaneous (%)	5	5	0.9197	0.1137	0.1127	0.0211	0.1147	12.26%	2.30%	12.47%	5.430
134.00	Serine, Post-col Ninhydrin Der (%)	12	11	0.6934	0.0351	0.0168	0.0054	0.0176	2.39%	0.77%	2.51%	3.249
134.05	Serine, Pre-col AQC Der (%)	7	7	0.7268	0.0387	0.0384	0.0066	0.0390	5.29%	0.91%	5.37%	5.870
135.00	Threonine, Post-col Ninhydrin Der (%)	12	10	0.5277	0.0178	0.0085	0.0065	0.0107	1.60%	1.22%	2.01%	1.647
135.05	Threonine, Pre-col AQC Der (%)	7	7	0.5511	0.0167	0.0139	0.0131	0.0191	2.52%	2.37%	3.46%	1.458
135.99	Threonine, Miscellaneous (%)	7	6	0.5485	0.0338	0.0228	0.0066	0.0237	4.08%	1.18%	4.25%	3.607
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	7	7	0.1913	0.0194	0.0193	0.0036	0.0196	10.07%	1.87%	10.24%	5.464
137.00	Tyrosine, Post-col Ninhydrin Der (%)	9	8	0.4444	0.0475	0.0474	0.0047	0.0476	10.66%	1.06%	10.71%	10.13
137.05	Tyrosine, Pre-col AQC Der (%)	7	6	0.4771	0.0554	0.0478	0.0179	0.0511	10.28%	3.86%	10.98%	2.849

Test Material Code # 202423

Issue Date : 04/30/2024

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
137.99	Tyrosine, Miscellaneous (%)	5	5	0.4573	0.0384	0.0380	0.0075	0.0388	8.32%	1.64%	8.47%	5.174
138.00	Valine, Post-col Ninhydrin Der (%)	12	11	0.6936	0.0408	0.0407	0.0055	0.0410	5.86%	0.80%	5.92%	7.422
138.05	Valine, Pre-col AQC Der (%)	7	6	0.6928	0.0242	0.0246	0.0107	0.0269	3.54%	1.54%	3.86%	2.507
138.99	Valine, Miscellaneous (%)	5	5	0.7111	0.0461	0.0455	0.0102	0.0467	6.40%	1.43%	6.56%	4.574
351.03	Chlortetracycline, LC (UV or FL) (ppm)	7	7	45.02	6.482	6.247	2.450	6.710	13.88%	5.44%	14.90%	2.739
400.01	Water Activity, Aqualab chilled mirror (Units)	13	13	0.5842	0.0142	0.0137	0.0052	0.0147	2.35%	0.89%	2.51%	2.828
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	7	6	6.664	1.222	1.150	0.1905	1.165	17.87%	2.96%	18.12%	6.118
539.43	Nickel, ICP, Microwave (ppm)	5	5	3.935	0.8177	0.8161	0.0738	0.8194	20.74%	1.88%	20.82%	11.10

Notes: Precision Calculations provided for methods with 5 or more labs contributing to calculations.