



AAFCO
Proficiency Testing Program



Animal Feed Scheme

Tortoise Feed

Test Material Code # 202031

Method Summary Report

(Precision Report Follows)

Labs Reporting: 178

Methods Reported: 386

Issue Date : 12/31/2020

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 (R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.3500							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	47	45	8.513	0.2198	8.516	0.1733	0.0323	2.04%	0.1038	2.90%
001.99	Loss on Drying, Miscellaneous (%)	23	23	8.225	0.6831	8.342	0.4899	0.1277	5.87%	0.0676	2.91%
001.03	Loss on Drying, Low temp. methods (%)	7	7	8.556	0.1623	8.556	0.1841	0.0870	2.15%	0.0874	2.90%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	3	3	8.497	0.2273	8.497	0.2273	0.1312	2.68%	0.0303	2.90%
001.05	Loss on Drying, LECO (%)	2	2	8.719	0.2284						
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	115	111	15.50	0.3053	15.51	0.2094	0.0248	1.35%	0.1100	2.54%
002.05	Protein, Crude, Copper, Boric Acid (%)	32	31	15.33	0.1467	15.33	0.1424	0.0320	0.93%	0.1032	2.55%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	14	14	15.33	0.2459	15.32	0.2440	0.0815	1.59%	0.1046	2.56%
002.11	Protein, Crude, NIR (%)	3	3	15.75	0.2401	15.75	0.2401	0.1386	1.52%	0.1100	2.52%
002.00	Protein, Crude, Crude (%)	2	2	15.43	0.0530						
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	2	2	15.18	0.0409						
002.04	Protein, Crude, Copper Catalyst (%)	2	2	15.52	0.0184						
002.08	Protein, Crude, Cu/Ti (%)	2	2	15.53	0.1589						
002.03	Protein, Crude, Hach Method (%)	1	1	15.20							
002.99	Protein, Crude, Miscellaneous (%)	1	1	15.24							
003.14	Fat, Crude, Ankom (%)	55	54	2.359	0.1783	2.365	0.1693	0.0288	7.16%	0.1070	3.51%
003.10	Fat, Crude, Randall, Pet Ether (%)	29	29	2.299	0.1807	2.300	0.1540	0.0357	6.70%	0.0760	3.53%
003.06	Fat, Crude, Pet Ether (%)	17	16	2.372	0.1154	2.372	0.1308	0.0409	5.52%	0.0813	3.51%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	14	14	2.361	0.1001	2.361	0.1123	0.0375	4.75%	0.0590	3.51%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	8	8	2.585	0.6487	2.398	0.1790	0.0791	7.47%	0.0529	3.51%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	8	8	2.404	0.1833	2.380	0.1497	0.0662	6.29%	0.0543	3.51%
003.12	Fat, Crude, Hexane Ext (%)	5	4	2.539	0.2572	2.539	0.2572	0.1286	10.13%	0.0688	3.48%
003.99	Fat, Crude, Miscellaneous (%)	3	3	3.020	0.9712	3.020	0.9712	0.5607	32.16%	0.6933	3.39%
003.11	Fat, Crude, NIR (%)	2	2	4.135	0.4808						
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	1	1	2.500							
004.07	Fiber, Crude, ANKOM (%)	74	73	14.51	0.8526	14.47	0.7161	0.1048	4.95%	0.2957	2.63%
004.06	Fiber, Crude, Fibertec (%)	25	23	14.16	0.5659	14.20	0.4952	0.1291	3.49%	0.2376	2.65%
004.00	Fiber, Crude, Asbestos Free (%)	13	13	14.92	0.6644	14.92	0.7483	0.2594	5.01%	0.3213	2.59%

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004.03	Fiber, Crude, Fritted Glass (%)	5	4	14.78	0.4134	14.78	0.4134	0.2067	2.80%	0.1550	2.60%
004.01	Fiber, Crude, Sing Filt (%)	1	1	13.30							
004.11	Fiber, Crude, NIR (%)	1	1	8.570							
004.99	Fiber, Crude, Miscellaneous (%)	1	1	12.83							
005.00	Ash, 2h @ 600°C (%)	89	87	7.005	0.2877	6.994	0.2613	0.0350	3.74%	0.1013	2.98%
005.05	Ash, 3h @ 550°C (%)	34	33	7.271	0.2184	7.281	0.1419	0.0309	1.95%	0.0421	2.97%
005.99	Ash, Miscellaneous (%)	9	9	7.096	0.4358	7.152	0.3487	0.1453	4.88%	0.0622	2.97%
005.02	Ash, LECO (%)	2	2	7.306	0.2418						
005.11	Ash, NIR (%)	2	2	7.188	0.2864						
005.03	Ash, Microwave furnace (%)	1	1	7.000							
006.00	Total Sugars, As sucrose (%)	4	4	4.680	0.4374	4.680	0.4374	0.2187	9.35%	0.0700	3.17%
006.99	Total Sugars, Miscellaneous (%)	2	2	6.350	2.475						
006.03	Total Sugars, Invert w/o Invrn (%)	1	1	4.300							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	43	42	17.80	0.8815	17.80	0.9830	0.1896	5.52%	0.3681	2.37%
008.02	Fiber, Acid Detergent, Crucible (%)	13	13	17.94	0.6427	17.94	0.7261	0.2517	4.05%	0.2243	2.36%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	3	3	18.21	0.1998	18.21	0.1998	0.1153	1.10%	0.2567	2.34%
008.05	Fiber, Acid Detergent, Acid Detergent-Hach (%)	1	1	18.25							
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	43	41	27.04	1.152	26.85	0.8205	0.1602	3.06%	0.2984	1.93%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	14	13	28.36	1.141	28.40	1.093	0.3788	3.85%	0.4985	1.88%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	1	1	28.18							
010.99	Moisture, Miscellaneous (%)	14	13	8.650	0.3689	8.611	0.3133	0.1086	3.64%	0.1145	2.89%
010.03	Moisture, Karl-Fischer (%)	2	2	7.720	0.3182						
010.11	Moisture, NIR (%)	2	2	9.480	2.277						
011.01	Loss on Drying, 135°C 2hr (%)	66	64	9.107	0.2830	9.124	0.2524	0.0394	2.77%	0.0879	2.87%
011.99	Loss on Drying, High Temp. Methods Miscellaneous (%)	3	3	9.588	1.240	9.588	1.240	0.7161	12.94%	0.3007	2.85%
011.02	Loss on Drying, 130°C for 2 hours (%)	2	2	9.230	0.0919						
012.00	Starch, Polarimetric (Ewers) (%)	12	11	26.86	0.9637	26.94	0.8988	0.3387	3.34%	0.1209	1.93%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	12	11	25.21	2.241	25.21	2.542	0.9579	10.08%	0.4231	1.99%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	5	5	24.05	2.285	24.05	2.285	1.022	9.50%	0.4792	2.04%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	2	2	23.35	1.292						
012.11	Starch, NIR (%)	2	2	28.77	8.029						
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	23.76							
013.02	Fat, Acid Pretreat, Mojonier, Bak Ext (%)	20	19	4.664	0.6203	4.726	0.4720	0.1353	9.99%	0.1738	3.17%
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	17	17	4.227	0.4894	4.261	0.3994	0.1211	9.37%	0.1697	3.22%
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	7	7	4.791	0.6478	4.791	0.7345	0.3470	15.33%	0.3978	3.16%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	5	5	4.161	0.2833	4.161	0.2833	0.1267	6.81%	0.0504	3.23%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	1	1	4.028							
015.43	Aluminum, ICP, Microwave (ppm)	9	9	136.4	47.79	146.6	25.21	10.51	17.20%	2.316	7.55%
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	137.1	12.71	137.1	12.71	5.685	9.27%	3.000	7.63%
015.53	Aluminum, ICP-MS, Microwave (ppm)	3	3	159.3	8.303	159.3	8.303	4.794	5.21%	6.292	7.46%

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015.42	Aluminum, ICP, Open vessel (ppm)	2	2	126.0	7.743						
015.52	Aluminum, ICP-MS, Open vessel (ppm)	1	1	144.3							
017.42	Boron, ICP, Open vessel (ppm)	6	6	14.28	0.5421	14.28	0.6147	0.3137	4.30%	0.5532	10.72%
017.43	Boron, ICP, Microwave (ppm)	7	6	16.29	4.890	15.04	2.315	1.182	15.39%	0.3502	10.64%
017.41	Boron, ICP, Dry ash (ppm)	5	5	14.93	0.7224	14.93	0.7224	0.3231	4.84%	0.3668	10.65%
017.53	Boron, ICP-MS, Microwave (ppm)	3	3	14.32	0.5483	14.32	0.5483	0.3166	3.83%	0.4684	10.72%
017.52	Boron, ICP-MS, Open vessel (ppm)	1	1	19.47							
019.43	Calcium, ICP, Microwave (%)	29	29	1.324	0.0704	1.318	0.0599	0.0139	4.55%	0.0303	3.84%
019.41	Calcium, ICP, Dry ash (%)	27	26	1.280	0.0895	1.289	0.0686	0.0168	5.32%	0.0391	3.85%
019.31	Calcium, AAS, Dry ash (%)	20	20	1.325	0.1011	1.302	0.0411	0.0115	3.16%	0.0364	3.84%
019.42	Calcium, ICP, Open vessel (%)	18	18	1.326	0.0860	1.321	0.0824	0.0243	6.24%	0.0328	3.84%
019.00	Calcium, Ox-Mn04 Vol. (%)	11	11	1.282	0.0569	1.283	0.0609	0.0230	4.75%	0.0471	3.85%
019.08	Calcium, EDTA (%)	11	10	1.336	0.0877	1.318	0.0437	0.0173	3.31%	0.0258	3.84%
019.99	Calcium, Miscellaneous (%)	7	7	1.311	0.1168	1.311	0.1324	0.0626	10.10%	0.0414	3.84%
019.52	Calcium, ICP-MS, Open vessel (%)	4	4	1.348	0.1324	1.348	0.1324	0.0662	9.82%	0.0144	3.82%
019.53	Calcium, ICP-MS, Microwave (%)	4	4	1.313	0.0397	1.313	0.0397	0.0198	3.02%	0.0420	3.84%
019.02	Calcium, Hach Method (%)	1	1	1.280							
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	1.323							
019.09	Calcium, Ion-selective electrode (%)	1	1	1.158							
019.32	Calcium, AAS, Open vessel (%)	1	1	1.280							
019.33	Calcium, AAS, Microwave (%)	1	1	1.325							
019.44	Calcium, ICP, Dry ash (%)	1	1	1.320							
021.43	Cobalt, ICP, Microwave (ppm)	7	5	0.9665	0.2411	0.9665	0.2411	0.1348	24.95%	0.0397	16.08%
021.31	Cobalt, AAS, Dry ash (ppm)	3	3	1.040	0.5285	1.040	0.5285	0.3051	50.82%	0.0533	15.90%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	3	3	0.7383	0.0701	0.7383	0.0701	0.0404	9.49%	0.0700	16.74%
021.53	Cobalt, ICP-MS, Microwave (ppm)	4	3	0.8117	0.0954	0.8117	0.0954	0.0551	11.76%	0.0162	16.51%
021.41	Cobalt, ICP, Dry ash (ppm)	2	2	0.7917	0.2619						
021.42	Cobalt, ICP, Open vessel (ppm)	2	2	0.6595	0.4808						
022.43	Copper, ICP, Microwave (ppm)	26	25	18.36	2.508	17.86	1.289	0.3223	7.22%	0.8362	10.37%
022.41	Copper, ICP, Dry ash (ppm)	19	19	16.77	1.825	16.77	1.556	0.4463	9.28%	0.6150	10.47%
022.42	Copper, ICP, Open vessel (ppm)	18	17	17.57	1.432	17.63	1.475	0.4473	8.37%	0.4728	10.39%
022.31	Copper, AAS, Dry ash (ppm)	10	10	18.26	3.475	18.19	3.785	1.496	20.81%	0.7210	10.34%
022.53	Copper, ICP-MS, Microwave (ppm)	5	5	17.73	1.636	17.73	1.636	0.7315	9.23%	0.6994	10.38%
022.99	Copper, Miscellaneous (ppm)	4	4	17.03	1.198	17.03	1.198	0.5992	7.04%	0.5000	10.44%
022.52	Copper, ICP-MS, Open vessel (ppm)	3	3	19.73	4.045	19.73	4.045	2.335	20.50%	0.6933	10.21%
022.33	Copper, AAS, Microwave (ppm)	2	2	18.77	0.5445						
022.44	Copper, ICP, Dry ash (ppm)	2	2	20.91	0.1237						
022.32	Copper, AAS, Open vessel (ppm)	1	1	29.34							
024.53	Iodine, ICP-MS, Microwave (ppm)	2	2	1.268	0.1025						
024.52	Iodine, ICP-MS, Open vessel (ppm)	1	1	1.261							

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025.43	Iron, ICP, Microwave (ppm)	26	25	415.8	29.42	416.4	31.61	7.903	7.59%	10.29	6.45%
025.41	Iron, ICP, Dry ash (ppm)	22	22	402.9	27.38	405.9	22.34	5.952	5.50%	9.318	6.48%
025.42	Iron, ICP, Open vessel (ppm)	15	15	369.2	72.48	378.5	62.03	20.02	16.39%	15.69	6.55%
025.31	Iron, AAS, Dry ash (ppm)	12	12	376.1	126.2	410.2	40.10	14.47	9.77%	13.82	6.47%
025.53	Iron, ICP-MS, Microwave (ppm)	4	4	422.4	18.01	422.4	18.01	9.007	4.26%	19.75	6.44%
025.99	Iron, Miscellaneous (ppm)	3	3	431.3	34.86	431.3	34.86	20.13	8.08%	11.33	6.42%
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	275.6	146.3						
025.33	Iron, AAS, Microwave (ppm)	1	1	419.3							
027.43	Magnesium, ICP, Microwave (%)	26	25	0.2147	0.0187	0.2169	0.0122	0.0030	5.61%	0.0040	5.03%
027.41	Magnesium, ICP, Dry ash (%)	19	19	0.2141	0.0106	0.2149	0.0098	0.0028	4.54%	0.0079	5.04%
027.42	Magnesium, ICP, Open vessel (%)	19	19	0.2184	0.0141	0.2175	0.0137	0.0039	6.31%	0.0066	5.03%
027.31	Magnesium, AAS, Dry ash (%)	12	12	0.2175	0.0106	0.2183	0.0102	0.0037	4.67%	0.0051	5.03%
027.52	Magnesium, ICP-MS, Open vessel (%)	4	4	0.2192	0.0148	0.2192	0.0148	0.0074	6.74%	0.0032	5.03%
027.53	Magnesium, ICP-MS, Microwave (%)	5	4	0.2146	0.0080	0.2146	0.0080	0.0040	3.72%	0.0153	5.04%
027.99	Magnesium, Miscellaneous (%)	4	4	0.2175	0.0226	0.2175	0.0226	0.0113	10.37%	0.0050	5.03%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.2050							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.2030							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.2260							
028.43	Manganese, ICP, Microwave (ppm)	25	25	131.4	9.644	131.2	10.06	2.516	7.67%	5.453	7.68%
028.41	Manganese, ICP, Dry ash (ppm)	19	19	116.5	18.41	119.1	14.97	4.292	12.57%	4.802	7.79%
028.42	Manganese, ICP, Open vessel (ppm)	18	18	126.6	11.17	127.3	10.95	3.226	8.60%	9.499	7.71%
028.31	Manganese, AAS, Dry ash (ppm)	12	12	128.4	10.65	129.4	4.525	1.633	3.50%	4.752	7.69%
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	124.7	8.897	124.7	8.897	3.979	7.13%	8.575	7.74%
028.99	Manganese, Miscellaneous (ppm)	5	4	125.4	13.69	125.4	13.69	6.845	10.92%	4.250	7.73%
028.52	Manganese, ICP-MS, Open vessel (ppm)	3	3	134.9	5.817	134.9	5.817	3.359	4.31%	3.337	7.65%
028.33	Manganese, AAS, Microwave (ppm)	2	2	119.1	7.251						
028.44	Manganese, ICP, Dry ash (ppm)	2	2	122.6	8.999						
028.32	Manganese, AAS, Open vessel (ppm)	1	1	128.8							
028.34	Manganese, AAS, Dry ash (ppm)	1	1	118.4							
031.01	Phosphorus, Photometric (%)	41	40	0.6836	0.0416	0.6834	0.0244	0.0048	3.57%	0.0146	4.24%
031.43	Phosphorus, ICP, Microwave (%)	29	28	0.6905	0.0387	0.6903	0.0307	0.0072	4.44%	0.0083	4.23%
031.41	Phosphorus, ICP, Dry ash (%)	24	23	0.6746	0.0445	0.6785	0.0296	0.0077	4.36%	0.0130	4.24%
031.42	Phosphorus, ICP, Open vessel (%)	20	20	0.6785	0.0394	0.6809	0.0383	0.0107	5.63%	0.0198	4.24%
031.53	Phosphorus, ICP-MS, Microwave (%)	4	4	0.6739	0.0294	0.6739	0.0294	0.0147	4.36%	0.0449	4.24%
031.99	Phosphorus, Miscellaneous (%)	5	4	0.6450	0.0573	0.6450	0.0573	0.0287	8.88%	0.0050	4.27%
031.03	Phosphorus, Autoanalyzer (%)	3	3	0.6862	0.0038	0.6862	0.0038	0.0022	0.55%	0.0135	4.23%
031.52	Phosphorus, ICP-MS, Open vessel (%)	3	3	0.6785	0.0243	0.6785	0.0243	0.0140	3.58%	0.0070	4.24%
031.06	Phosphorus, Hach Method (%)	1	1	0.7700							
031.44	Phosphorus, ICP, Dry ash (%)	1	1	0.6905							
032.43	Potassium, ICP, Microwave (%)	29	28	1.078	0.0673	1.086	0.0520	0.0123	4.78%	0.0330	3.95%

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032.41	Potassium, ICP, Dry ash (%)	22	21	1.065	0.0725	1.061	0.0675	0.0184	6.37%	0.0238	3.96%
032.42	Potassium, ICP, Open vessel (%)	18	18	1.095	0.0407	1.094	0.0440	0.0130	4.02%	0.0246	3.95%
032.31	Potassium, AAS, Dry ash (%)	9	9	0.9998	0.1148	1.011	0.1016	0.0423	10.04%	0.0179	3.99%
032.99	Potassium, Miscellaneous (%)	5	5	1.076	0.0806	1.076	0.0806	0.0360	7.49%	0.0190	3.96%
032.53	Potassium, ICP-MS, Microwave (%)	4	4	1.073	0.0363	1.073	0.0363	0.0182	3.39%	0.1149	3.96%
032.52	Potassium, ICP-MS, Open vessel (%)	4	3	1.108	0.0250	1.108	0.0250	0.0145	2.26%	0.0062	3.94%
032.32	Potassium, AAS, Open vessel (%)	1	1	0.9350							
032.33	Potassium, AAS, Microwave (%)	1	1	1.025							
032.44	Potassium, ICP, Dry ash (%)	1	1	1.110							
033.01	Salt as chloride, Poten Cl (%)	22	21	1.123	0.0294	1.126	0.0252	0.0069	2.24%	0.0093	3.93%
033.00	Salt as chloride, Sol Cl (%)	19	19	1.025	0.1970	1.073	0.1035	0.0297	9.64%	0.0257	3.96%
033.99	Salt, Miscellaneous (%)	9	9	1.002	0.3059	1.083	0.0967	0.0403	8.93%	0.0368	3.95%
033.03	Salt as chloride, Quantab (%)	3	3	0.7450	0.3493	0.7450	0.3493	0.2017	46.89%	0.0367	4.18%
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	1.077	0.0749	1.077	0.0749	0.0432	6.96%	0.0467	3.96%
034.53	Selenium, ICP-MS, Microwave (ppm)	7	7	0.5441	0.1146	0.5441	0.1300	0.0614	23.89%	0.0394	17.53%
034.04	Selenium, AA, Hydride (ppm)	4	4	0.6513	0.3301	0.6513	0.3301	0.1651	50.69%	0.0445	17.06%
034.52	Selenium, ICP-MS, Open vessel (ppm)	3	3	0.6459	0.0650	0.6459	0.0650	0.0375	10.06%	0.0527	17.08%
034.41	Selenium, ICP, Dry ash (ppm)	1	1	0.3150							
034.43	Selenium, ICP, Microwave (ppm)	2	1	0.4930							
034.42	Selenium, ICP, Open vessel (ppm)	1		0.0000							
035.43	Sodium, ICP, Microwave (%)	25	25	0.3910	0.0225	0.3902	0.0181	0.0045	4.64%	0.0098	4.61%
035.41	Sodium, ICP, Dry ash (%)	24	24	0.3810	0.0228	0.3805	0.0243	0.0062	6.39%	0.0111	4.63%
035.42	Sodium, ICP, Open vessel (%)	17	17	0.3842	0.0278	0.3825	0.0277	0.0084	7.24%	0.0123	4.62%
035.31	Sodium, AAS, Dry ash (%)	14	14	0.3796	0.0551	0.3845	0.0443	0.0148	11.53%	0.0129	4.62%
035.53	Sodium, ICP-MS, Microwave (%)	4	4	0.3875	0.0274	0.3875	0.0274	0.0137	7.08%	0.0224	4.61%
035.99	Sodium, Miscellaneous (%)	4	4	0.3575	0.0640	0.3575	0.0640	0.0320	17.89%	0.0150	4.67%
035.52	Sodium, ICP-MS, Open vessel (%)	3	3	0.3954	0.0300	0.3954	0.0300	0.0173	7.59%	0.0066	4.60%
035.01	Sodium, Ion-selective electrode (%)	2	2	0.3780	0.0339						
035.02	Sodium, Em Spect (%)	1	1	0.1850							
035.05	Sodium, Flame Emission (%)	1	1	0.4650							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.3350							
036.43	Sulfur, ICP, Microwave (%)	25	24	0.2190	0.0229	0.2174	0.0142	0.0036	6.53%	0.0083	5.03%
036.42	Sulfur, ICP, Open vessel (%)	19	18	0.2026	0.0145	0.2026	0.0165	0.0048	8.12%	0.0064	5.09%
036.04	Sulfur, LECO (%)	3	3	0.2058	0.0101	0.2058	0.0101			0.0070	5.07%
036.52	Sulfur, ICP-MS, Open vessel (%)	3	3	0.2253	0.0355	0.2253	0.0355	0.0205	15.75%	0.0016	5.01%
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.2085							
036.99	Sulfur, Miscellaneous (%)	1	1	0.1750							
037.43	Zinc, ICP, Microwave (ppm)	26	26	133.5	15.04	132.3	12.20	2.991	9.22%	5.852	7.67%
037.41	Zinc, ICP, Dry ash (ppm)	20	20	127.2	10.03	128.5	8.057	2.252	6.27%	5.295	7.70%
037.42	Zinc, ICP, Open vessel (ppm)	18	17	128.3	16.33	128.0	15.09	4.574	11.79%	3.142	7.71%

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037.31	Zinc, AAS, Dry ash (ppm)	13	13	124.0	37.27	130.5	21.22	7.356	16.26%	2.907	7.68%
037.53	Zinc, ICP-MS, Microwave (ppm)	4	4	125.2	5.329	125.2	5.329	2.664	4.26%	5.574	7.73%
037.99	Zinc, Miscellaneous (ppm)	4	4	134.1	16.15	134.1	16.15	8.074	12.04%	6.750	7.65%
037.33	Zinc, AAS, Microwave (ppm)	3	3	141.0	12.16	141.0	12.16	8.598	8.62%	17.86	7.60%
037.52	Zinc, ICP-MS, Open vessel (ppm)	3	3	135.7	8.127	135.7	8.127	4.692	5.99%	5.167	7.64%
037.44	Zinc, ICP, Dry ash (ppm)	2	2	120.7	13.13						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	137.1							
038.43	Molybdenum, ICP, Microwave (ppm)	8	7	2.082	0.3459	2.048	0.3103	0.1466	15.15%	0.0665	14.36%
038.42	Molybdenum, ICP, Open vessel (ppm)	4	4	2.054	0.3459	2.054	0.3459	0.1730	16.84%	0.3815	14.35%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	4	4	2.154	0.1818	2.154	0.1818	0.0909	8.44%	0.1111	14.25%
038.41	Molybdenum, ICP, Dry ash (ppm)	3	3	1.896	0.1918	1.896	0.1918	0.1107	10.12%	0.0683	14.53%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	2	2	2.155	0.0495						
040.53	Barium, ICP-MS, Microwave (ppm)	3	3	5.606	1.059	5.606	1.059	0.6112	18.89%	0.2503	12.34%
040.52	Barium, ICP-MS, Open vessel (ppm)	1	1	6.260							
041.53	Vanadium, ICP-MS, Microwave (ppm)	3	3	2.339	0.9142	2.339	0.9142	0.6464	39.08%	0.2332	14.08%
042.00	Chloride, Titrimetric (%)	4	4	0.7040	0.0427	0.7040	0.0427	0.0214	6.07%	0.0095	4.22%
042.99	Chloride, Miscellaneous (%)	2	2	0.7653	0.0781						
042.01	Chloride, Ion-selective electrode (%)	1	1	0.6500							
099.01	Menadione (form), LC (ppm)	1	1	0.6000							
101.99	Choline Chloride, Miscellaneous (ppm)	2	2	2,128	321.7						
102.02	Niacin, LC (ppm)	3	3	68.15	56.49	68.15	56.49	32.62	82.89%	2.167	8.47%
102.01	Niacin, Microbiological (ppm)	1	1	112.0							
103.02	Pantothenic Acid, LC (ppm)	2	2	38.21	1.195						
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	34.30							
103.99	Pantothenic Acid, Miscellaneous (ppm)	1	1	69.65							
104.03	Riboflavin, LC (ppm)	5	5	14.17	2.860	14.17	2.860	1.279	20.18%	0.9440	10.73%
104.00	Riboflavin, Fluorometric (ppm)	2	2	15.13	2.379						
105.00	Thiamine, LC (ppm)	5	4	5.870	1.620	5.870	1.620	0.8102	27.60%	0.3550	12.26%
105.01	Thiamine, Fluorometer (ppm)	1	1	6.400							
106.02	Vitamin A, LC (KU / kg)	16	16	2.810	0.7731	2.709	0.5772	0.1804	21.31%	0.2392	
106.00	Vitamin A, Color (KU / kg)	2	2	3.240	0.7495						
106.01	Vitamin A, UV (KU / kg)	1	1	3.170							
107.00	Vitamin B12, Microbiological (ppb)	1	1	33.35							
107.99	Vitamin B12, Miscellaneous (ppb)	1	1	159.5							
108.02	Vitamin D3, LC (KU / kg)	5	4	2.085	0.3568	2.085	0.3568	0.2060	17.11%	0.1450	
108.99	Vitamin D3, Miscellaneous (KU / kg)	2	2	1.738	0.0106						
109.02	Vitamin E, LC (IU / kg)	18	17	196.0	48.16	197.5	46.46	14.09	23.53%	8.673	
109.99	Vitamin E, Miscellaneous (IU / kg)	1	1	188.0							
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
112.01	Pyridoxine, LC (µg / g)	4	4	8.324	2.090	8.324	2.090	1.045	25.11%	0.2625	11.63%

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113.02	Folic acid, LC (ppm)	2	2	1.783	0.0955						
113.99	Folic acid, Miscellaneous (ppm)	1	1	2.675							
114.99	Biotin, Miscellaneous (ppm)	2	2	0.8400	0.6930						
114.01	Biotin, Microbiological (ppm)	1	1	0.4910							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	1	1	0.2900							
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	5.490							
120.00	Alanine, Post-col Ninhydrin Der (%)	22	22	0.7228	0.0208	0.7231	0.0228	0.0061	3.15%	0.0167	4.20%
120.05	Alanine, Pre-col AQC Der (%)	9	8	0.7077	0.0423	0.7020	0.0334	0.0148	4.76%	0.0094	4.22%
120.99	Alanine, Miscellaneous (%)	3	3	0.7267	0.0058	0.7267	0.0058	0.0041	0.79%	0.0067	4.20%
120.02	Alanine, Post-col OPA Der (%)	1	1	0.7390							
121.00	Arginine, Post-col Ninhydrin Der (%)	23	23	0.9239	0.0357	0.9236	0.0381	0.0099	4.13%	0.0213	4.05%
121.05	Arginine, Pre-col AQC Der (%)	9	8	0.9240	0.0914	0.9358	0.0396	0.0175	4.23%	0.0155	4.04%
121.02	Arginine, Post-col OPA Der (%)	1	1	0.9010							
121.99	Arginine, Miscellaneous (%)	1	1	0.9150							
122.00	Aspartic, Post-col Ninhydrin Der (%)	22	22	1.497	0.0490	1.495	0.0441	0.0118	2.95%	0.0369	3.76%
122.05	Aspartic, Pre-col AQC Der (%)	9	9	1.468	0.1057	1.470	0.1159	0.0483	7.89%	0.0287	3.77%
122.99	Aspartic, Miscellaneous (%)	3	3	1.530	0.1784	1.530	0.1784	0.1030	11.66%	0.0133	3.75%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.489							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	23	22	0.2748	0.0699	0.2614	0.0231	0.0062	8.85%	0.0073	4.89%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	8	0.2993	0.1443	0.2627	0.0465	0.0206	17.70%	0.0056	4.89%
124.99	Cysteine/Cystine, Miscellaneous (%)	3	3	0.2333	0.0729	0.2333	0.0729	0.0421	31.23%	0.0200	4.98%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.2625							
125.00	Glutamic, Post-col Ninhydrin Der (%)	22	22	2.515	0.1095	2.506	0.1009	0.0269	4.03%	0.0615	3.48%
125.05	Glutamic, Pre-col AQC Der (%)	9	9	2.465	0.1445	2.470	0.1518	0.0632	6.14%	0.0279	3.49%
125.99	Glutamic, Miscellaneous (%)	3	3	2.363	0.1221	2.363	0.1221	0.0705	5.17%	0.0067	3.51%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.463							
126.00	Glycine, Post-col Ninhydrin Der (%)	22	22	0.7784	0.0210	0.7785	0.0217	0.0058	2.79%	0.0131	4.15%
126.05	Glycine, Pre-col AQC Der (%)	9	9	0.7379	0.1296	0.7570	0.0967	0.0403	12.78%	0.0233	4.17%
126.99	Glycine, Miscellaneous (%)	3	3	0.7817	0.0153	0.7817	0.0153	0.0088	1.95%	0.0100	4.15%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.7900							
127.00	Histidine, Post-col Ninhydrin Der (%)	23	22	0.3959	0.0335	0.3917	0.0206	0.0055	5.26%	0.0090	4.61%
127.05	Histidine, Pre-col AQC Der (%)	9	9	0.3734	0.0315	0.3782	0.0211	0.0088	5.57%	0.0112	4.63%
127.99	Histidine, Miscellaneous (%)	3	3	0.3783	0.0275	0.3783	0.0275	0.0159	7.28%	0.0100	4.63%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.3845							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	23	22	0.5924	0.0324	0.5927	0.0361	0.0096	6.09%	0.0153	4.33%
128.05	Isoleucine, Pre-col AQC Der (%)	9	9	0.5879	0.0550	0.5879	0.0623	0.0260	10.60%	0.0217	4.33%
128.99	Isoleucine, Miscellaneous (%)	3	3	0.6433	0.0601	0.6433	0.0601	0.0347	9.34%	0.0067	4.27%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.6215							
129.00	Leucine, Post-col Ninhydrin Der (%)	23	23	1.151	0.0462	1.149	0.0413	0.0108	3.60%	0.0273	3.92%
129.05	Leucine, Pre-col AQC Der (%)	9	9	1.131	0.0443	1.134	0.0445	0.0185	3.93%	0.0138	3.92%

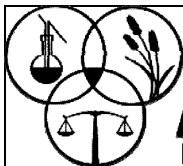
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129.99	Leucine, Miscellaneous (%)	3	3	1.168	0.0153	1.168	0.0153	0.0088	1.31%	0.0100	3.91%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.164							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	24	24	0.8206	0.0422	0.8237	0.0262	0.0067	3.18%	0.0209	4.12%
130.05	L-Lysine, Pre-col AQC Der (%)	10	10	0.8275	0.0340	0.8305	0.0310	0.0122	3.73%	0.0139	4.11%
130.99	L-Lysine, Miscellaneous (%)	3	3	0.8200	0.0608	0.8200	0.0608	0.0351	7.42%	0.0333	4.12%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.9215							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	23	23	0.3237	0.0695	0.3079	0.0241	0.0063	7.82%	0.0095	4.78%
131.05	Methionine, PAO Pre-col AQC Der (%)	10	10	0.3089	0.0754	0.3027	0.0702	0.0278	23.21%	0.0114	4.79%
131.99	Methionine, Miscellaneous (%)	3	3	0.2867	0.0284	0.2867	0.0284	0.0164	9.92%	0.0133	4.83%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2985							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	22	22	0.6972	0.0438	0.6999	0.0342	0.0091	4.89%	0.0177	4.22%
132.05	Phenylalanine, Pre-col AQC Der (%)	9	9	0.6759	0.0385	0.6759	0.0437	0.0182	6.46%	0.0189	4.24%
132.99	Phenylalanine, Miscellaneous (%)	3	3	0.6850	0.0180	0.6850	0.0180	0.0104	2.63%	0.0100	4.23%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.6890							
133.00	Proline, Post-col Ninhydrin Der (%)	22	22	0.8476	0.0857	0.8564	0.0517	0.0138	6.04%	0.0224	4.09%
133.05	Proline, Pre-col AQC Der (%)	9	9	0.8641	0.0612	0.8634	0.0679	0.0283	7.86%	0.0100	4.09%
133.99	Proline, Miscellaneous (%)	3	3	0.8817	0.0551	0.8817	0.0551	0.0318	6.25%	0.0167	4.08%
134.00	Serine, Post-col Ninhydrin Der (%)	22	22	0.7598	0.0344	0.7561	0.0289	0.0077	3.82%	0.0159	4.17%
134.05	Serine, Pre-col AQC Der (%)	9	9	0.7436	0.0935	0.7530	0.0824	0.0343	10.95%	0.0118	4.17%
134.99	Serine, Miscellaneous (%)	3	3	0.7250	0.0397	0.7250	0.0397	0.0281	5.47%	0.0033	4.20%
134.02	Serine, Post-col OPA Der (%)	1	1	0.6780							
135.00	Threonine, Post-col Ninhydrin Der (%)	22	22	0.5610	0.0169	0.5611	0.0128	0.0034	2.28%	0.0137	4.36%
135.05	Threonine, Pre-col AQC Der (%)	9	9	0.5373	0.0525	0.5451	0.0389	0.0162	7.14%	0.0092	4.38%
135.99	Threonine, Miscellaneous (%)	3	3	0.5767	0.0355	0.5767	0.0355	0.0251	6.15%	0.0333	4.35%
135.02	Threonine, Post-col OPA Der (%)	1	1	0.5500							
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	9	9	0.1984	0.0331	0.1983	0.0373	0.0156	18.82%	0.0076	5.10%
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	5	0.1884	0.0077	0.1884	0.0077	0.0012	4.10%	0.0008	5.14%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	4	4	0.1840	0.0186	0.1840	0.0186	0.0093	10.11%	0.0025	5.16%
136.05	Tryptophan, Pre-col AQC Der (%)	3	3	0.1797	0.1198	0.1797	0.1198	0.0692	66.69%	0.0047	5.18%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.1785							
136.99	Tryptophan, Miscellaneous (%)	1	1	0.1900							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	16	16	0.4996	0.0830	0.5020	0.0860	0.0269	17.13%	0.0241	4.44%
137.05	Tyrosine, Pre-col AQC Der (%)	9	9	0.5101	0.1060	0.5192	0.0980	0.0408	18.88%	0.0183	4.41%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.5017	0.0104	0.5017	0.0104	0.0060	2.08%	0.0100	4.44%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4975							
138.00	Valine, Post-col Ninhydrin Der (%)	22	22	0.6865	0.0432	0.6900	0.0404	0.0108	5.85%	0.0155	4.23%
138.05	Valine, Pre-col AQC Der (%)	9	9	0.6865	0.0683	0.6980	0.0465	0.0194	6.67%	0.0183	4.22%
138.99	Valine, Miscellaneous (%)	3	3	0.7067	0.0189	0.7067	0.0189	0.0109	2.68%	0.0067	4.21%
138.02	Valine, Post-col OPA Der (%)	1	1	0.7305							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1228	0.0548						

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139.05	Taurine, Pre-col AQC Der (%)	2	1	0.0095							
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
139.99	Taurine, Miscellaneous (%)	1		0.0100							
160.99	Fructose, Miscellaneous (%)	2	2	0.4633	0.2217						
160.10	Fructose, HPAEC PAD (%)	1	1	0.2660							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							
162.99	Glucose, Miscellaneous (%)	3	3	4.658	7.667	4.658	7.667			0.0037	3.17%
162.10	Glucose, HPAEC PAD (%)	1	1	0.1400							
163.10	Lactose, HPAEC PAD (%)	1		0.0000							
163.99	Lactose, Miscellaneous (%)	2		0.0000							
164.10	Maltose, HPAEC PAD (%)	1	1	0.1050							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.99	Sucrose, Miscellaneous (%)	2	2	2.743	0.0177						
165.10	Sucrose, HPAEC PAD (%)	1	1	2.625							
166.99	Raffinose, Miscellaneous (%)	2	2	0.3925	0.0177						
166.10	Raffinose, HPAEC PAD (%)	1	1	0.4520							
167.99	Stachyose, Miscellaneous (%)	2	2	1.040	0.0781						
167.10	Stachyose, HPAEC PAD (%)	1	1	1.063							
400.01	Water Activity, Aqualab chilled mirror (Units)	11	11	0.5076	0.0249	0.5088	0.0227	0.0085	4.45%	0.0033	
400.99	Water Activity, Miscellaneous (Units)	2	2	0.4990	0.0502						
516.53	Arsenic, Total, ICP-MS, Microwave (ppm)	4	4	0.1684	0.0085	0.1684	0.0085	0.0042	5.03%	0.0055	20.92%
516.00	Arsenic, Total, AA, Hydride (ppm)	2	2	0.1668	0.0124						
516.52	Arsenic, Total, ICP-MS, Open vessel (ppm)	2	2	0.1693	0.0152						
516.43	Arsenic, Total, ICP, Microwave (ppm)	1		10.00							
518.53	Cadmium, ICP-MS, Microwave (ppm)	4	4	0.1231	0.0146	0.1231	0.0146	0.0073	11.86%	0.0074	21.92%
518.41	Cadmium, ICP, Dry ash (ppm)	2	2	0.1013	0.0039						
518.43	Cadmium, ICP, Microwave (ppm)	3	2	0.1391	0.0034	0.1391	0.0034			0.0024	21.53%
518.52	Cadmium, ICP-MS, Open vessel (ppm)	2	2	0.1365	0.0050						
520.43	Chromium, ICP, Microwave (ppm)	4	4	4.093	1.263	4.093	1.263	0.6316	30.86%	0.1010	12.94%
520.53	Chromium, ICP-MS, Microwave (ppm)	4	4	3.416	0.3223	3.416	0.3223	0.1611	9.43%	0.0964	13.30%
520.41	Chromium, ICP, Dry ash (ppm)	2	2	2.750	0.6871						
520.42	Chromium, ICP, Open vessel (ppm)	2	2	3.645	0.3673						
520.52	Chromium, ICP-MS, Open vessel (ppm)	1	1	2.605							
526.53	Lead, ICP-MS, Microwave (ppm)	4	4	0.1094	0.0191	0.1094	0.0191	0.0096	17.49%	0.0030	22.00%
526.41	Lead, ICP, Dry ash (ppm)	2	2	0.1271	0.0835						
526.52	Lead, ICP-MS, Open vessel (ppm)	2	2	0.1370	0.0028						
526.43	Lead, ICP, Microwave (ppm)	2	1	0.1873							
529.99	Mercury, Miscellaneous (ppb)	3	1								
539.53	Nickel, ICP-MS, Microwave (ppm)	3	3	2.383	0.1027	2.383	0.1027	0.0593	4.31%	0.1164	14.04%
539.41	Nickel, ICP, Dry ash (ppm)	2	2	1.787	0.2104						

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 (R-bar)	Thompson Horwitz %RSD
539.43	Nickel, ICP, Microwave (ppm)	2	2	1.924	0.4304						
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	1.930							
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1		0.0200							
704.00	Caproic Acid (6:0) , Miscellaneous GC (%)	1		0.0200							
706.99	Caprylic acid (8:0), Miscellaneous (%) (w/w)	1		0.0200							
708.99	Capric acid (10:0), Miscellaneous (%) (w/w)	1		0.0200							
710.99	Lauric Acid (12:0), Miscellaneous (%) (w/w)	3	1								
714.99	Myristic Acid (14:0) , Miscellaneous (%) (w/w)	2	1	0.0200							
716.99	Palmitic Acid (16:0), Miscellaneous (%) (w/w)	3	3	0.5010	0.1520	0.5010	0.1520	0.0877	30.33%	0.0087	4.44%
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (%) (w/w)	3	2	0.0060	0.0007	0.0060	0.0007			0.0010	8.64%
720.99	Margaric acid (17:0), Miscellaneous (%) (w/w)	1		0.0200							
722.99	Stearic Acid (18:0), Miscellaneous (%) (w/w)	3	3	0.1100	0.0300	0.1100	0.0300	0.0212	27.27%	0.0007	5.58%
724.99	Oleic Acid (9c-18:1), Miscellaneous (%) (w/w)	3	3	0.6822	0.1678	0.6822	0.1678	0.0969	24.59%	0.0243	4.24%
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (%) (w/w)	5	5	1.721	0.3914	1.721	0.3914	0.1750	22.74%	0.0594	3.69%
726.02	Linoleic Acid (9c,12c-18:2), Direct Methylation by Acid-Alkali Hydrolysis & GC	1	1	1.610							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (%) (w/w)	4	3	0.1863	0.0412	0.1863	0.0412			0.0000	5.15%
730.99	Arachidic Acid (20:0), Miscellaneous (%) (w/w)	3	3	0.0158	0.0080	0.0158	0.0080	0.0057	50.79%	0.0037	7.46%
732.99	Gondoic Acid (11c-20:1), Miscellaneous (%) (w/w)	2	1	0.0105							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (%) (w/w)	2		0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (%) (w/w)	3									
742.99	Behenic Acid (22:0), Miscellaneous (%) (w/w)	3	3	0.0132	0.0059	0.0132	0.0059	0.0042	44.95%	0.0003	7.67%
744.99	Erucic Acid (13c-22:1), Miscellaneous (%) (w/w)	2		0.0050							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (%)	3									
748.99	Lignoceric Acid (24:0), Miscellaneous (%) (w/w)	3	2	0.0088	0.0018	0.0088	0.0018			0.0005	8.16%
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (%)	3									
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (%) (w/w)	2		0.0050							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (%) (w/w)	4	3	0.2100	0.0100	0.2100	0.0100			0.0000	5.06%
754.02	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Direct Methylation by Acid-f	1	1	0.2010							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (%) (w/w)	4	3	1.890	0.1326	1.890	0.1326	0.0765	7.01%	0.0067	3.63%
756.01	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Direct Methylation by Alkali	1	1	1.610							
758.99	Total Saturated Fatty Acids, Miscellaneous (%) (w/w)	2	2	0.6925	0.2935						
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	0.5450							
764.99	Total cis Monounsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	0.9450							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	1.330							
768.99	Total cis Polyunsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	1.970							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (%) (w/w)	1	1	4.005							
772.99	Total Fatty Acids, Miscellaneous (%) (w/w)	2	2	3.428	0.5692						

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.

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 (R-bar)	Thompson Horwitz %RSD
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Animal Feed Scheme

Methods Reported: 103

Tortoise Feed

Method Precision Report

Labs Reporting: 178

Test Material Code # 202031

Issue Date : 12/31/2020

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 (%)	47	42	8.513	0.2198	0.1669	0.0792	0.1848	1.96%	0.93%	2.17%	2.332
001.99	Loss on Drying, Miscellaneous (%)	23	20	8.225	0.6831	0.5705	0.0436	0.5722	6.90%	0.53%	6.92%	13.11
002.01	Protein, Crude, Auto Kjel-Foss (%)	14	14	15.33	0.2459	0.2368	0.0938	0.2547	1.54%	0.61%	1.66%	2.715
002.05	Protein, Crude, Copper, Boric Acid (%)	32	30	15.33	0.1467	0.1078	0.0964	0.1446	0.70%	0.63%	0.94%	1.500
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	115	102	15.50	0.3053	0.1947	0.0972	0.2176	1.25%	0.63%	1.40%	2.238
003.06	Fat, Crude, Pet Ether (%)	17	16	2.372	0.1154	0.1019	0.0765	0.1274	4.30%	3.22%	5.37%	1.666
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	14	14	2.361	0.1001	0.0912	0.0583	0.1082	3.86%	2.47%	4.58%	1.857
003.10	Fat, Crude, Randall, Pet Ether (%)	29	27	2.299	0.1807	0.1184	0.0661	0.1356	5.15%	2.87%	5.90%	2.052
003.14	Fat, Crude, Ankom (%)	55	49	2.359	0.1783	0.1382	0.0814	0.1604	5.84%	3.44%	6.77%	1.971
004.00	Fiber, Crude, Asbestos Free (%)	13	13	14.92	0.6644	0.6293	0.3011	0.6976	4.22%	2.02%	4.68%	2.317
004.06	Fiber, Crude, Fibertec (%)	25	21	14.16	0.5659	0.3822	0.1947	0.4289	2.69%	1.37%	3.02%	2.203
004.07	Fiber, Crude, ANKOM (%)	74	68	14.51	0.8526	0.6705	0.2635	0.7204	4.65%	1.83%	5.00%	2.734
005.00	Ash, 2h @ 600°C (%)	89	82	7.005	0.2877	0.2282	0.0779	0.2411	3.27%	1.12%	3.45%	3.094
005.05	Ash, 3h @ 550°C (%)	34	30	7.271	0.2184	0.1791	0.0356	0.1826	2.47%	0.49%	2.52%	5.134
005.99	Ash, Miscellaneous (%)	9	8	7.096	0.4358	0.2496	0.0600	0.2567	3.46%	0.83%	3.56%	4.279
008.02	Fiber, Acid Detergent, Crucible (%)	13	13	17.94	0.6427	0.6277	0.1950	0.6573	3.50%	1.09%	3.66%	3.372
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	43	40	17.80	0.8815	0.8501	0.2865	0.8971	4.78%	1.61%	5.05%	3.131
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	14	13	28.36	1.141	1.095	0.4514	1.185	3.86%	1.59%	4.18%	2.625
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	43	39	27.04	1.152	0.9359	0.2426	0.9669	3.48%	0.90%	3.59%	3.985
010.99	Moisture, Miscellaneous (%)	14	11	8.650	0.3689	0.2525	0.0849	0.2664	2.95%	0.99%	3.11%	3.138
011.01	Loss on Drying, 135°C 2hr (%)	66	60	9.107	0.2830	0.2450	0.0717	0.2553	2.69%	0.79%	2.80%	3.559
012.00	Starch, Polarimetric (Ewers) (%)	12	11	26.86	0.9637	0.9606	0.1096	0.9669	3.58%	0.41%	3.60%	8.824
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	12	10	25.21	2.241	2.262	0.2706	2.279	8.91%	1.07%	8.97%	8.421
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	17	16	4.227	0.4894	0.3688	0.1544	0.3998	8.57%	3.59%	9.29%	2.590
013.02	Fat, Acid Pretreat, Mojonnier, Bak Ext (%)	20	18	4.664	0.6203	0.4284	0.1456	0.4525	8.99%	3.05%	9.49%	3.108
015.43	Aluminum, ICP, Microwave (ppm)	9	8	136.4	47.79	18.21	2.634	18.40	12.04%	1.74%	12.16%	6.987
019.00	Calcium, Ox-Mn04 Vol. (%)	11	10	1.282	0.0569	0.0414	0.0310	0.0517	3.20%	2.40%	4.00%	1.669
019.08	Calcium, EDTA (%)	11	9	1.336	0.0877	0.0282	0.0234	0.0367	2.15%	1.79%	2.80%	1.565
019.31	Calcium, AAS, Dry ash (%)	20	18	1.325	0.1011	0.0414	0.0299	0.0511	3.17%	2.29%	3.91%	1.706
019.41	Calcium, ICP, Dry ash (%)	27	25	1.280	0.0895	0.0658	0.0384	0.0762	5.10%	2.98%	5.90%	1.983
019.42	Calcium, ICP, Open vessel (%)	18	18	1.326	0.0860	0.0827	0.0331	0.0891	6.24%	2.49%	6.72%	2.695
019.43	Calcium, ICP, Microwave (%)	29	27	1.324	0.0704	0.0542	0.0270	0.0606	4.11%	2.05%	4.59%	2.241
022.31	Copper, AAS, Dry ash (ppm)	10	9	18.26	3.475	3.074	0.4842	3.112	16.30%	2.57%	16.50%	6.427
022.41	Copper, ICP, Dry ash (ppm)	19	18	16.77	1.825	1.473	0.5265	1.565	8.92%	3.19%	9.47%	2.972
022.42	Copper, ICP, Open vessel (ppm)	18	17	17.57	1.432	1.397	0.4409	1.465	7.95%	2.51%	8.34%	3.323
022.43	Copper, ICP, Microwave (ppm)	26	23	18.36	2.508	1.319	0.7556	1.521	7.43%	4.26%	8.57%	2.012

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
025.31	Iron, AAS, Dry ash (ppm)	12	11	376.1	126.2	44.66	14.69	47.02	10.89%	3.58%	11.46%	3.201
025.41	Iron, ICP, Dry ash (ppm)	22	21	402.9	27.38	18.27	8.811	20.29	4.49%	2.16%	4.98%	2.303
025.42	Iron, ICP, Open vessel (ppm)	15	15	369.2	72.48	71.57	16.18	73.38	19.38%	4.38%	19.87%	4.535
025.43	Iron, ICP, Microwave (ppm)	26	23	415.8	29.42	29.57	8.003	30.64	7.14%	1.93%	7.40%	3.828
027.31	Magnesium, AAS, Dry ash (%)	12	12	0.2175	0.0106	0.0101	0.0048	0.0111	4.62%	2.19%	5.12%	2.335
027.41	Magnesium, ICP, Dry ash (%)	19	18	0.2141	0.0106	0.0059	0.0079	0.0099	2.74%	3.67%	4.58%	1.247
027.42	Magnesium, ICP, Open vessel (%)	19	18	0.2184	0.0141	0.0104	0.0065	0.0123	4.79%	3.02%	5.66%	1.872
027.43	Magnesium, ICP, Microwave (%)	26	23	0.2147	0.0187	0.0095	0.0032	0.0100	4.38%	1.49%	4.62%	3.104
028.31	Manganese, AAS, Dry ash (ppm)	12	11	128.4	10.65	5.421	3.797	6.619	4.14%	2.90%	5.05%	1.743
028.41	Manganese, ICP, Dry ash (ppm)	19	18	116.5	18.41	18.60	3.643	18.96	16.04%	3.14%	16.35%	5.204
028.42	Manganese, ICP, Open vessel (ppm)	18	17	126.6	11.17	9.749	8.104	12.68	7.73%	6.43%	10.05%	1.564
028.43	Manganese, ICP, Microwave (ppm)	25	24	131.4	9.644	9.352	4.379	10.33	7.12%	3.33%	7.86%	2.358
031.01	Phosphorus, Photometric (%)	41	37	0.6836	0.0416	0.0295	0.0113	0.0316	4.32%	1.65%	4.62%	2.804
031.41	Phosphorus, ICP, Dry ash (%)	24	21	0.6746	0.0445	0.0350	0.0111	0.0367	5.15%	1.63%	5.40%	3.317
031.42	Phosphorus, ICP, Open vessel (%)	20	18	0.6785	0.0394	0.0305	0.0153	0.0341	4.45%	2.23%	4.98%	2.230
031.43	Phosphorus, ICP, Microwave (%)	29	25	0.6905	0.0387	0.0293	0.0084	0.0305	4.24%	1.22%	4.41%	3.610
032.41	Potassium, ICP, Dry ash (%)	22	19	1.065	0.0725	0.0573	0.0197	0.0606	5.42%	1.87%	5.74%	3.067
032.42	Potassium, ICP, Open vessel (%)	18	17	1.095	0.0407	0.0397	0.0188	0.0440	3.63%	1.72%	4.02%	2.340
032.43	Potassium, ICP, Microwave (%)	29	27	1.078	0.0673	0.0461	0.0347	0.0577	4.24%	3.19%	5.31%	1.663
033.00	Salt as chloride, Sol Cl (%)	19	17	1.025	0.1970	0.1514	0.0204	0.1528	14.26%	1.92%	14.38%	7.485
033.01	Salt as chloride, Poten Cl (%)	22	19	1.123	0.0294	0.0227	0.0076	0.0240	2.02%	0.68%	2.13%	3.145
033.99	Salt, Miscellaneous (%)	9	8	1.002	0.3059	0.0656	0.0355	0.0746	5.95%	3.23%	6.77%	2.099
035.31	Sodium, AAS, Dry ash (%)	14	13	0.3796	0.0551	0.0368	0.0110	0.0384	9.43%	2.81%	9.84%	3.503
035.41	Sodium, ICP, Dry ash (%)	24	23	0.3810	0.0228	0.0215	0.0098	0.0236	5.62%	2.57%	6.18%	2.403
035.42	Sodium, ICP, Open vessel (%)	17	17	0.3842	0.0278	0.0265	0.0120	0.0291	6.89%	3.13%	7.57%	2.416
035.43	Sodium, ICP, Microwave (%)	25	23	0.3910	0.0225	0.0162	0.0101	0.0191	4.19%	2.60%	4.93%	1.896
036.42	Sulfur, ICP, Open vessel (%)	19	18	0.2026	0.0145	0.0138	0.0063	0.0152	6.82%	3.13%	7.51%	2.397
036.43	Sulfur, ICP, Microwave (%)	25	23	0.2190	0.0229	0.0147	0.0061	0.0160	6.84%	2.83%	7.40%	2.618
037.31	Zinc, AAS, Dry ash (ppm)	13	11	124.0	37.27	17.15	2.329	17.30	12.99%	1.76%	13.11%	7.429
037.41	Zinc, ICP, Dry ash (ppm)	20	17	127.2	10.03	7.928	3.180	8.542	6.16%	2.47%	6.64%	2.686
037.42	Zinc, ICP, Open vessel (ppm)	18	17	128.3	16.33	16.21	2.706	16.44	12.64%	2.11%	12.81%	6.075
037.43	Zinc, ICP, Microwave (ppm)	26	25	133.5	15.04	10.26	5.117	11.47	7.81%	3.89%	8.72%	2.242
106.02	Vitamin A, LC (KU / kg)	16	15	2.810	0.7731	0.5695	0.2080	0.6063	21.26%	7.77%	22.64%	2.915
109.02	Vitamin E, LC (IU / kg)	18	17	196.0	48.16	47.81	8.219	48.51	24.40%	4.19%	24.76%	5.902
120.00	Alanine, Post-col Ninhydrin Der (%)	22	21	0.7228	0.0208	0.0170	0.0147	0.0225	2.36%	2.03%	3.12%	1.532
121.00	Arginine, Post-col Ninhydrin Der (%)	23	22	0.9239	0.0357	0.0342	0.0181	0.0387	3.70%	1.96%	4.19%	2.136
122.00	Aspartic, Post-col Ninhydrin Der (%)	22	19	1.497	0.0490	0.0336	0.0233	0.0409	2.25%	1.56%	2.74%	1.756
122.05	Aspartic, Pre-col AQC Der (%)	9	9	1.468	0.1057	0.1037	0.0290	0.1077	7.06%	1.98%	7.34%	3.714
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	23	21	0.2748	0.0699	0.0314	0.0070	0.0322	12.02%	2.67%	12.31%	4.608
125.00	Glutamic, Post-col Ninhydrin Der (%)	22	21	2.515	0.1095	0.0798	0.0629	0.1016	3.19%	2.51%	4.06%	1.615
125.05	Glutamic, Pre-col AQC Der (%)	9	8	2.465	0.1445	0.1518	0.0171	0.1528	6.14%	0.69%	6.18%	8.909
126.00	Glycine, Post-col Ninhydrin Der (%)	22	21	0.7784	0.0210	0.0187	0.0107	0.0215	2.39%	1.38%	2.76%	2.007
126.05	Glycine, Pre-col AQC Der (%)	9	8	0.7379	0.1296	0.0693	0.0161	0.0711	8.94%	2.08%	9.18%	4.414
127.00	Histidine, Post-col Ninhydrin Der (%)	23	21	0.3959	0.0335	0.0206	0.0081	0.0222	5.29%	2.06%	5.68%	2.749
127.05	Histidine, Pre-col AQC Der (%)	9	8	0.3734	0.0315	0.0131	0.0137	0.0190	3.41%	3.59%	4.96%	1.380
128.00	Isoleucine, Post-col Ninhydrin Der (%)	23	21	0.5924	0.0324	0.0317	0.0137	0.0346	5.36%	2.31%	5.84%	2.524

Test Material Code # 202031

Issue Date : 12/31/2020

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
128.05	Isoleucine, Pre-col AQC Der (%)	9	8	0.5879	0.0550	0.0443	0.0142	0.0465	7.39%	2.37%	7.76%	3.274
129.00	Leucine, Post-col Ninhydrin Der (%)	23	20	1.151	0.0462	0.0331	0.0202	0.0388	2.89%	1.77%	3.38%	1.916
129.05	Leucine, Pre-col AQC Der (%)	9	9	1.131	0.0443	0.0429	0.0156	0.0456	3.79%	1.38%	4.03%	2.916
130.00	L-Lysine, Post-col Ninhydrin Der (%)	24	21	0.8206	0.0422	0.0241	0.0152	0.0285	2.93%	1.85%	3.47%	1.871
130.05	L-Lysine, Pre-col AQC Der (%)	10	9	0.8275	0.0340	0.0217	0.0118	0.0247	2.59%	1.41%	2.95%	2.093
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	23	22	0.3237	0.0695	0.0308	0.0085	0.0319	9.90%	2.73%	10.27%	3.760
131.05	Methionine, PAO Pre-col AQC Der (%)	10	9	0.3089	0.0754	0.0785	0.0082	0.0789	25.05%	2.63%	25.19%	9.571
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	22	21	0.6972	0.0438	0.0346	0.0142	0.0374	4.92%	2.02%	5.32%	2.633
132.05	Phenylalanine, Pre-col AQC Der (%)	9	9	0.6759	0.0385	0.0355	0.0210	0.0413	5.26%	3.11%	6.10%	1.966
133.00	Proline, Post-col Ninhydrin Der (%)	22	21	0.8476	0.0857	0.0459	0.0215	0.0507	5.32%	2.49%	5.87%	2.362
133.05	Proline, Pre-col AQC Der (%)	9	9	0.8641	0.0612	0.0608	0.0097	0.0616	7.04%	1.13%	7.13%	6.334
134.00	Serine, Post-col Ninhydrin Der (%)	22	21	0.7598	0.0344	0.0231	0.0160	0.0281	3.06%	2.12%	3.72%	1.760
134.05	Serine, Pre-col AQC Der (%)	9	8	0.7436	0.0935	0.0593	0.0113	0.0604	7.72%	1.47%	7.86%	5.342
135.00	Threonine, Post-col Ninhydrin Der (%)	22	19	0.5610	0.0169	0.0062	0.0107	0.0124	1.11%	1.92%	2.21%	1.155
135.05	Threonine, Pre-col AQC Der (%)	9	8	0.5373	0.0525	0.0277	0.0083	0.0289	5.01%	1.50%	5.23%	3.476
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	9	8	0.1984	0.0331	0.0305	0.0058	0.0310	14.96%	2.83%	15.22%	5.382
137.00	Tyrosine, Post-col Ninhydrin Der (%)	16	15	0.4996	0.0830	0.0697	0.0200	0.0725	13.63%	3.91%	14.18%	3.631
137.05	Tyrosine, Pre-col AQC Der (%)	9	9	0.5101	0.1060	0.1054	0.0169	0.1067	20.66%	3.31%	20.92%	6.324
138.00	Valine, Post-col Ninhydrin Der (%)	22	21	0.6865	0.0432	0.0352	0.0142	0.0380	5.09%	2.05%	5.49%	2.672
138.05	Valine, Pre-col AQC Der (%)	9	8	0.6865	0.0683	0.0329	0.0110	0.0347	4.65%	1.55%	4.90%	3.159
400.01	Water Activity, Aqualab chilled mirror (Units)	11	11	0.5076	0.0249	0.0248	0.0031	0.0250	4.88%	0.61%	4.92%	8.101

Notes: Precision Calculations provided for methods with 8 or more labs contributing to calculations.