

**AAFCO**  
Proficiency Testing Program



**Animal Feed Scheme**

**Horse Feed**

**Test Material Code # 202022**

**Method Summary Report**

(Precision Report Follows)

**# Labs Reporting: 177**

**# Methods Reported: 428**

**Issue Date : 03/31/2020**

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 (%)	48	47	9.401	0.3589	9.424	0.2185	0.0398	2.32%	0.0839	2.85%
001.99	Loss on Drying, Miscellaneous (%)	18	17	8.597	2.263	9.100	0.6314	0.1914	6.94%	0.0854	2.87%
001.03	Loss on Drying, Low temp. methods (%)	7	7	9.547	0.0852	9.554	0.0800	0.0378	0.84%	0.0164	2.85%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	3	3	9.286	0.0938	9.286	0.0938	0.0541	1.01%	0.0343	2.86%
001.05	Loss on Drying, LECO (%)	2	2	9.722	0.1789						
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	121	119	12.60	0.3659	12.60	0.2380	0.0273	1.89%	0.1466	2.73%
002.05	Protein, Crude, Copper, Boric Acid (%)	31	29	12.42	0.3762	12.37	0.1686	0.0391	1.36%	0.0525	2.74%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	12	11	12.40	0.1343	12.40	0.1523	0.0574	1.23%	0.1200	2.74%
002.11	Protein, Crude, NIR (%)	6	5	15.10	1.570	15.10	1.570	0.2729	10.40%	0.0780	2.57%
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	2	2	12.35	0.0773						
002.08	Protein, Crude, Cu/Ti (%)	2	2	12.34	0.1635						
002.00	Protein, Crude, Crude (%)	1	1	12.29							
002.09	Protein, Crude, Selenium Catalyst (%)	1	1	12.28							
003.14	Fat, Crude, Ankom (%)	50	48	3.833	0.3481	3.802	0.2785	0.0502	7.33%	0.1256	3.27%
003.10	Fat, Crude, Randall, Pet Ether (%)	24	23	3.878	0.2920	3.867	0.2723	0.0710	7.04%	0.0775	3.26%
003.06	Fat, Crude, Pet Ether (%)	17	17	4.144	0.2777	4.165	0.2609	0.0791	6.27%	0.0787	3.23%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	15	15	4.118	0.2292	4.125	0.2462	0.0795	5.97%	0.0975	3.23%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	7	7	4.322	0.2121	4.314	0.2243	0.1060	5.20%	0.0634	3.21%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	7	7	3.913	0.1822	3.913	0.2067	0.0976	5.28%	0.0473	3.26%
003.11	Fat, Crude, NIR (%)	6	6	5.476	1.491	5.139	0.8296	0.4233	16.14%	0.0422	3.13%
003.12	Fat, Crude, Hexane Ext (%)	6	6	4.043	0.8115	3.945	0.6807	0.3474	17.25%	0.0972	3.25%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	1	1	4.260							
003.99	Fat, Crude, Miscellaneous (%)	1	1	3.165							
004.07	Fiber, Crude, ANKOM (%)	64	63	13.19	0.8403	13.20	0.7848	0.1236	5.94%	0.2771	2.71%
004.06	Fiber, Crude, Fibertec (%)	23	23	13.10	1.123	13.15	0.7894	0.2057	6.00%	0.2226	2.71%
004.00	Fiber, Crude, Asbestos Free (%)	13	12	13.19	0.6267	13.18	0.6868	0.2478	5.21%	0.2693	2.71%
004.11	Fiber, Crude, NIR (%)	5	4	13.08	0.1349	13.08	0.1349	0.0675	1.03%	0.1213	2.72%
004.03	Fiber, Crude, Fritted Glass (%)	4	3	13.10	1.196	13.10	1.196	0.6906	9.13%	0.0500	2.72%

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004.99	Fiber, Crude, Miscellaneous (%)	2	2	8.133	4.415						
004.01	Fiber, Crude, Sing Filt (%)	1	1	12.20							
005.00	Ash, 2h @ 600°C (%)	88	87	13.68	0.3442	13.66	0.2436	0.0327	1.78%	0.1342	2.70%
005.05	Ash, 3h @ 550°C (%)	34	32	13.90	0.3515	13.87	0.2734	0.0604	1.97%	0.0925	2.68%
005.99	Ash, Miscellaneous (%)	7	7	13.77	0.8276	13.94	0.4884	0.2307	3.50%	0.3300	2.68%
005.11	Ash, NIR (%)	3	3	8.058	1.692	8.058	1.692	0.9771	21.00%	0.1133	2.92%
005.02	Ash, LECO (%)	2	2	13.72	0.0127						
005.03	Ash, Microwave furnace (%)	2	2	13.61	0.0601						
006.00	Total Sugars, As sucrose (%)	3	3	4.894	0.4629	4.894	0.4629	0.2672	9.46%	0.1057	3.15%
006.99	Total Sugars, Miscellaneous (%)	1	1	5.500							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	43	42	17.73	2.925	18.11	2.000	0.3858	11.05%	0.3268	2.35%
008.02	Fiber, Acid Detergent, Crucible (%)	11	11	18.20	1.689	18.20	1.915	0.7218	10.52%	0.2893	2.34%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	3	3	16.64	1.458	16.64	1.458	0.8419	8.76%	0.4487	2.45%
008.05	Fiber, Acid Detergent, Acid Detergent-Hach (%)	1	1	19.25							
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	43	41	30.15	1.709	29.89	1.261	0.2461	4.22%	0.4161	1.83%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	11	11	30.99	1.244	31.02	1.209	0.4557	3.90%	0.5264	1.80%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	2	2	31.29	0.8309						
010.99	Moisture, Miscellaneous (%)	14	12	9.572	0.5858	9.530	0.4722	0.1704	4.95%	0.0851	2.85%
010.11	Moisture, NIR (%)	3	3	37.47	47.16	37.47	47.16	33.35	125.88%	0.1740	1.63%
010.03	Moisture, Karl-Fischer (%)	2	2	9.128	0.1379						
011.01	Loss on Drying, 135°C 2hr (%)	63	61	10.22	0.5801	10.24	0.4746	0.0760	4.64%	0.0947	2.82%
011.02	Loss on Drying, 130°C for 2 hours (%)	2	2	10.28	0.4172						
011.99	Loss on Drying, High Temp. Methods Miscellaneous (%)	2	2	9.840	0.7213						
012.00	Starch, Polarimetric (Ewers) (%)	15	15	19.10	0.8826	18.96	0.4835	0.1560	2.55%	0.2931	2.30%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	10	18.20	2.829	18.17	3.095	1.224	17.04%	0.5153	2.35%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	5	5	19.42	4.187	19.42	4.187	1.872	21.56%	0.3702	2.27%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	4	4	21.72	8.685	21.72	8.685	4.343	39.98%	0.9890	2.15%
012.11	Starch, NIR (%)	4	3	22.03	1.618	22.03	1.618	0.9339	7.34%	0.1533	2.13%
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	18.40							
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	18	18	4.757	0.6596	4.754	0.7411	0.2184	15.59%	0.2038	3.16%
013.02	Fat, Acid Pretreat, Mojonniier, Bak Ext (%)	18	17	5.246	0.3743	5.263	0.3839	0.1164	7.29%	0.1661	3.12%
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	6	6	5.362	0.8667	5.362	0.9828	0.5015	18.33%	0.5181	3.11%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	4	4	4.453	0.2636	4.453	0.2636	0.1318	5.92%	0.1064	3.19%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	1	1	3.695							
013.99	Fat, Acid Pretreat, Pretreatment, Misc (%)	1	1	5.055							
015.43	Aluminum, ICP, Microwave (ppm)	8	7	175.7	21.16	175.7	24.00	11.34	13.66%	8.005	7.35%
015.41	Aluminum, ICP, Dry ash (ppm)	6	6	174.1	29.09	174.1	32.98	16.83	18.95%	12.06	7.36%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	92.97	61.99						
015.53	Aluminum, ICP-MS, Microwave (ppm)	2	2	184.5	4.243						
015.52	Aluminum, ICP-MS, Open vessel (ppm)	1	1	149.4							

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017.41	Boron, ICP, Dry ash (ppm)	6	6	3.550	1.718	3.638	1.738	0.8871	47.78%	0.7027	13.17%
017.43	Boron, ICP, Microwave (ppm)	7	6	4.945	1.148	4.874	1.133	0.5783	23.25%	1.185	12.60%
017.42	Boron, ICP, Open vessel (ppm)	5	5	5.619	2.844	5.619	2.844	1.272	50.61%	0.1728	12.34%
017.52	Boron, ICP-MS, Open vessel (ppm)	1	1	3.775							
017.53	Boron, ICP-MS, Microwave (ppm)	1	1	3.230							
019.43	Calcium, ICP, Microwave (%)	31	30	2.204	0.1648	2.208	0.1434	0.0327	6.49%	0.0468	3.55%
019.41	Calcium, ICP, Dry ash (%)	29	28	2.183	0.2047	2.156	0.1186	0.0280	5.50%	0.0580	3.56%
019.31	Calcium, AAS, Dry ash (%)	19	19	2.160	0.1143	2.155	0.1182	0.0339	5.49%	0.0658	3.56%
019.42	Calcium, ICP, Open vessel (%)	17	17	2.174	0.3143	2.222	0.1788	0.0542	8.05%	0.0952	3.55%
019.00	Calcium, Ox-Mn04 Vol. (%)	12	12	2.159	0.0723	2.153	0.0682	0.0246	3.17%	0.0302	3.56%
019.08	Calcium, EDTA (%)	8	8	2.112	0.1621	2.123	0.1588	0.0702	7.48%	0.0644	3.57%
019.99	Calcium, Miscellaneous (%)	5	5	2.069	0.2047	2.069	0.2047	0.0916	9.90%	0.0740	3.59%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	2.214	0.2495	2.214	0.2495	0.1441	11.27%	0.1538	3.55%
019.53	Calcium, ICP-MS, Microwave (%)	4	3	2.192	0.0029	2.192	0.0029	0.0017	0.13%	0.0967	3.55%
019.44	Calcium, ICP, Dry ash (%)	2	2	2.235	0.0707						
019.02	Calcium, Hach Method (%)	1	1	2.060							
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	2.359							
019.09	Calcium, Ion-selective electrode (%)	1	1	2.137							
019.32	Calcium, AAS, Open vessel (%)	1	1	2.180							
019.51	Calcium, ICP-MS, Dry ash (%)	1	1	2.210							
021.43	Cobalt, ICP, Microwave (ppm)	11	11	4.708	0.7187	4.714	0.7567	0.2852	16.05%	0.2291	12.67%
021.41	Cobalt, ICP, Dry ash (ppm)	4	4	3.904	1.073	3.904	1.073	0.5365	27.48%	0.1442	13.03%
021.53	Cobalt, ICP-MS, Microwave (ppm)	4	4	4.434	0.6679	4.434	0.6679	0.3339	15.06%	0.1290	12.78%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	3	3	7.137	3.309	7.137	3.309	1.910	46.36%	0.5533	11.90%
021.31	Cobalt, AAS, Dry ash (ppm)	2	2	5.403	0.0743						
021.42	Cobalt, ICP, Open vessel (ppm)	1	1	3.654							
022.43	Copper, ICP, Microwave (ppm)	27	27	139.8	11.10	138.8	9.300	2.237	6.70%	5.010	7.61%
022.41	Copper, ICP, Dry ash (ppm)	21	21	93.48	23.10	94.40	23.54	6.420	24.93%	5.594	8.07%
022.42	Copper, ICP, Open vessel (ppm)	19	17	139.8	9.738	140.4	9.604	2.912	6.84%	4.650	7.60%
022.31	Copper, AAS, Dry ash (ppm)	11	10	91.94	31.92	93.06	33.65	13.30	36.16%	1.609	8.09%
022.53	Copper, ICP-MS, Microwave (ppm)	5	5	125.8	13.41	125.8	13.41	5.998	10.66%	9.175	7.73%
022.33	Copper, AAS, Microwave (ppm)	3	3	116.1	29.87	116.1	29.87	17.25	25.73%	3.223	7.82%
022.99	Copper, Miscellaneous (ppm)	3	3	109.5	44.75	109.5	44.75	25.83	40.85%	3.733	7.89%
022.52	Copper, ICP-MS, Open vessel (ppm)	2	2	134.4	3.924						
022.32	Copper, AAS, Open vessel (ppm)	1	1	113.9							
022.44	Copper, ICP, Dry ash (ppm)	1	1	84.00							
024.52	Iodine, ICP-MS, Open vessel (ppm)	1	1	4.915							
024.53	Iodine, ICP-MS, Microwave (ppm)	1	1	5.100							
024.99	Iodine, Miscellaneous (ppm)	1	1	5.515							
025.43	Iron, ICP, Microwave (ppm)	27	27	692.2	114.0	689.0	90.12	21.68	13.08%	30.59	5.98%

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025.41	Iron, ICP, Dry ash (ppm)	22	21	656.6	75.02	656.1	75.43	20.58	11.50%	19.46	6.03%
025.42	Iron, ICP, Open vessel (ppm)	15	15	500.2	198.0	500.2	224.5	72.47	44.89%	22.67	6.28%
025.31	Iron, AAS, Dry ash (ppm)	13	13	678.0	90.76	691.8	68.11	23.61	9.85%	15.20	5.98%
025.53	Iron, ICP-MS, Microwave (ppm)	3	3	622.3	190.6	622.3	190.6	110.1	30.63%	8.000	6.07%
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	341.5	215.5						
025.99	Iron, Miscellaneous (ppm)	2	2	734.3	39.95						
025.33	Iron, AAS, Microwave (ppm)	1	1	679.3							
027.43	Magnesium, ICP, Microwave (%)	30	30	0.3740	0.0227	0.3738	0.0206	0.0047	5.52%	0.0083	4.64%
027.41	Magnesium, ICP, Dry ash (%)	22	20	0.3739	0.0148	0.3746	0.0153	0.0043	4.07%	0.0095	4.64%
027.42	Magnesium, ICP, Open vessel (%)	17	17	0.3610	0.0662	0.3726	0.0193	0.0059	5.19%	0.0114	4.64%
027.31	Magnesium, AAS, Dry ash (%)	15	14	0.3661	0.0151	0.3652	0.0131	0.0044	3.58%	0.0076	4.65%
027.99	Magnesium, Miscellaneous (%)	5	5	0.3688	0.0322	0.3688	0.0322	0.0144	8.74%	0.0076	4.65%
027.53	Magnesium, ICP-MS, Microwave (%)	4	4	0.3845	0.0031	0.3845	0.0031	0.0016	0.81%	0.0130	4.62%
027.33	Magnesium, AAS, Microwave (%)	3	3	0.3811	0.0081	0.3811	0.0081	0.0047	2.13%	0.0064	4.62%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.3925	0.0154	0.3925	0.0154	0.0089	3.92%	0.0271	4.60%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.3600							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.3715							
027.51	Magnesium, ICP-MS, Dry ash (%)	1	1	0.3950							
028.43	Manganese, ICP, Microwave (ppm)	28	28	418.6	28.10	417.4	26.28	6.209	6.30%	10.08	6.45%
028.41	Manganese, ICP, Dry ash (ppm)	20	20	382.8	35.88	380.9	35.91	10.04	9.43%	13.34	6.54%
028.42	Manganese, ICP, Open vessel (ppm)	19	17	420.9	25.56	422.5	25.43	7.709	6.02%	9.227	6.44%
028.31	Manganese, AAS, Dry ash (ppm)	11	11	402.7	29.80	397.8	18.46	6.958	4.64%	7.866	6.50%
028.53	Manganese, ICP-MS, Microwave (ppm)	4	3	398.3	3.884	398.3	3.884	2.242	0.97%	6.667	6.50%
028.99	Manganese, Miscellaneous (ppm)	4	3	414.3	41.92	414.3	41.92	24.20	10.12%	5.707	6.46%
028.52	Manganese, ICP-MS, Open vessel (ppm)	2	2	454.0	0.9192						
028.32	Manganese, AAS, Open vessel (ppm)	1	1	405.1							
028.33	Manganese, AAS, Microwave (ppm)	1	1	378.9							
028.44	Manganese, ICP, Dry ash (ppm)	1	1	371.5							
031.01	Phosphorus, Photometric (%)	34	33	1.169	0.0413	1.169	0.0376	0.0082	3.22%	0.0181	3.91%
031.43	Phosphorus, ICP, Microwave (%)	32	32	1.181	0.0532	1.179	0.0564	0.0125	4.78%	0.0427	3.90%
031.41	Phosphorus, ICP, Dry ash (%)	27	26	1.153	0.1237	1.155	0.0724	0.0177	6.27%	0.0320	3.91%
031.42	Phosphorus, ICP, Open vessel (%)	18	17	1.140	0.0672	1.140	0.0761	0.0231	6.67%	0.0339	3.92%
031.99	Phosphorus, Miscellaneous (%)	5	5	1.026	0.1847	1.026	0.1847	0.0826	18.01%	0.0260	3.98%
031.53	Phosphorus, ICP-MS, Microwave (%)	4	4	1.140	0.0554	1.140	0.0554	0.0277	4.86%	0.0538	3.92%
031.03	Phosphorus, Autoanalyzer (%)	3	3	1.164	0.0426	1.164	0.0426	0.0246	3.66%	0.0198	3.91%
031.00	Phosphorus, Vol (%)	2	2	1.115	0.0707						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	1.037	0.0815						
031.06	Phosphorus, Hach Method (%)	1	1	1.040							
031.44	Phosphorus, ICP, Dry ash (%)	1	1	1.190							
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	1.195							

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032.43	Potassium, ICP, Microwave (%)	30	30	0.8775	0.0453	0.8796	0.0442	0.0101	5.02%	0.0203	4.08%
032.41	Potassium, ICP, Dry ash (%)	24	24	0.8339	0.1005	0.8213	0.0568	0.0145	6.91%	0.0278	4.12%
032.42	Potassium, ICP, Open vessel (%)	17	16	0.8778	0.0770	0.8809	0.0722	0.0226	8.19%	0.0155	4.08%
032.31	Potassium, AAS, Dry ash (%)	11	11	0.8093	0.0368	0.8096	0.0412	0.0155	5.09%	0.0241	4.13%
032.99	Potassium, Miscellaneous (%)	5	5	0.8172	0.0347	0.8172	0.0347	0.0155	4.25%	0.0124	4.12%
032.53	Potassium, ICP-MS, Microwave (%)	4	4	0.8396	0.0471	0.8396	0.0471	0.0236	5.61%	0.0188	4.11%
032.52	Potassium, ICP-MS, Open vessel (%)	2	2	0.8213	0.1008						
032.02	Potassium, Flame Emission (%)	1	1	0.8600							
032.32	Potassium, AAS, Open vessel (%)	1	1	0.8500							
032.33	Potassium, AAS, Microwave (%)	1	1	0.8447							
032.44	Potassium, ICP, Dry ash (%)	1	1	0.8180							
032.51	Potassium, ICP-MS, Dry ash (%)	1	1	0.8750							
033.00	Salt as chloride, Sol Cl (%)	25	25	2.042	0.1467	2.065	0.0949	0.0237	4.60%	0.0179	3.59%
033.01	Salt as chloride, Poten Cl (%)	25	25	2.127	0.0802	2.122	0.0396	0.0099	1.87%	0.0186	3.57%
033.99	Salt, Miscellaneous (%)	11	11	1.752	0.3516	1.771	0.3529	0.1330	19.93%	0.0577	3.67%
033.03	Salt as chloride, Quantab (%)	5	4	1.975	0.0854	1.975	0.0854			0.0000	3.61%
033.05	Salt as chloride, Ion Sel Electrode (%)	2	2	2.118	0.0248						
034.53	Selenium, ICP-MS, Microwave (ppm)	11	11	1.993	0.3373	1.974	0.3193	0.1203	16.17%	0.1042	14.44%
034.04	Selenium, AA, Hydride (ppm)	4	4	1.610	0.3358	1.610	0.3358	0.1679	20.86%	0.2914	14.89%
034.41	Selenium, ICP, Dry ash (ppm)	3	3	2.001	0.7036	2.001	0.7036	0.4975	35.17%	0.1973	14.41%
034.43	Selenium, ICP, Microwave (ppm)	4	3	2.275	0.9041	2.275	0.9041	0.6393	39.74%	0.1597	14.14%
034.52	Selenium, ICP-MS, Open vessel (ppm)	2	2	2.173	0.1945						
034.01	Selenium, Fluor (ppm)	1	1	2.023							
034.42	Selenium, ICP, Open vessel (ppm)	1	1	1.850							
034.99	Selenium, Miscellaneous (ppm)	2	1	3.470							
035.43	Sodium, ICP, Microwave (%)	25	25	0.7350	0.0610	0.7238	0.0311	0.0078	4.30%	0.0237	4.20%
035.41	Sodium, ICP, Dry ash (%)	24	23	0.6891	0.0478	0.6868	0.0423	0.0110	6.16%	0.0199	4.23%
035.42	Sodium, ICP, Open vessel (%)	13	13	0.7057	0.0619	0.7141	0.0458	0.0159	6.41%	0.0160	4.21%
035.31	Sodium, AAS, Dry ash (%)	11	11	0.6883	0.0528	0.6812	0.0408	0.0154	5.98%	0.0143	4.24%
035.53	Sodium, ICP-MS, Microwave (%)	4	4	0.6925	0.0408	0.6925	0.0408	0.0204	5.89%	0.0120	4.23%
035.99	Sodium, Miscellaneous (%)	4	3	0.7150	0.0328	0.7150	0.0328	0.0189	4.59%	0.0100	4.21%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.7554	0.0724						
035.01	Sodium, Ion-selective electrode (%)	1	1	0.6635							
035.02	Sodium, Em Spect (%)	1	1	0.6750							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.7350							
035.33	Sodium, AAS, Microwave (%)	1	1	0.7318							
035.51	Sodium, ICP-MS, Dry ash (%)	1	1	0.7250							
036.42	Sulfur, ICP, Open vessel (%)	16	16	0.3797	0.0235	0.3786	0.0224	0.0070	5.92%	0.0156	4.63%
036.43	Sulfur, ICP, Microwave (%)	15	15	0.3909	0.0277	0.3909	0.0314	0.0101	8.03%	0.0132	4.61%
036.04	Sulfur, LECO (%)	3	3	0.3880	0.0187	0.3880	0.0187	0.0108	4.81%	0.0093	4.61%

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036.52	Sulfur, ICP-MS, Open vessel (%)	2	2	0.4047	0.0189						
036.99	Sulfur, Miscellaneous (%)	2	2	0.3300	0.0566						
036.00	Sulfur, Gravimetric (%)	1	1	0.3762							
036.01	Sulfur, Analyzer (%)	1	1	0.3750							
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.3940							
037.43	Zinc, ICP, Microwave (ppm)	29	<b>29</b>	533.5	43.32	<b>532.4</b>	44.42	10.31	8.34%	15.67	6.22%
037.41	Zinc, ICP, Dry ash (ppm)	21	<b>21</b>	444.3	57.30	<b>443.1</b>	60.98	16.63	13.76%	25.45	6.39%
037.42	Zinc, ICP, Open vessel (ppm)	18	<b>17</b>	514.8	103.8	<b>530.0</b>	52.05	15.78	9.82%	15.39	6.22%
037.31	Zinc, AAS, Dry ash (ppm)	11	<b>11</b>	452.6	51.58	<b>452.6</b>	58.49	22.05	12.92%	16.84	6.37%
037.99	Zinc, Miscellaneous (ppm)	5	5	472.6	80.82	472.6	80.82	36.14	17.10%	13.07	6.33%
037.53	Zinc, ICP-MS, Microwave (ppm)	4	4	459.8	87.14	459.8	87.14	43.57	18.95%	13.58	6.36%
037.33	Zinc, AAS, Microwave (ppm)	2	2	3,245	3,797						
037.52	Zinc, ICP-MS, Open vessel (ppm)	2	2	520.2	114.8						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	474.8							
037.44	Zinc, ICP, Dry ash (ppm)	1	1	409.5							
038.43	Molybdenum, ICP, Microwave (ppm)	8	<b>8</b>	1.600	0.2771	<b>1.611</b>	0.2588	0.1144	16.07%	0.0811	14.89%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	4	4	1.591	0.4142	1.591	0.4142	0.2071	26.03%	0.0337	14.92%
038.41	Molybdenum, ICP, Dry ash (ppm)	3	3	1.373	0.2445	1.373	0.2445	0.1412	17.81%	0.0714	15.25%
038.42	Molybdenum, ICP, Open vessel (ppm)	3	3	1.809	0.1065	1.809	0.1065	0.0753	5.88%	0.2501	14.63%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	1	1	1.050							
040.52	Barium, ICP-MS, Open vessel (ppm)	1	1	10.41							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	9.481							
041.53	Vanadium, ICP-MS, Microwave (ppm)	1	1	1.640							
042.00	Chloride, Titrimetric (%)	1	1	1.294							
042.99	Chloride, Miscellaneous (%)	1	1	1.415							
101.02	Choline Chloride, LC (ppm)	1	1	522.0							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	1,230							
102.01	Niacin, Microbiological (ppm)	1	1	63.80							
102.02	Niacin, LC (ppm)	1	1	13.45							
102.99	Niacin, Miscellaneous (ppm)	1	1	20.15							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	16.60							
103.02	Pantothenic Acid, LC (ppm)	1	1	18.61							
103.99	Pantothenic Acid, Miscellaneous (ppm)	1	1	57.70							
104.00	Riboflavin, Fluorometric (ppm)	2	2	6.595	1.329						
104.03	Riboflavin, LC (ppm)	2	2	3.930	0.6788						
104.99	Riboflavin, Miscellaneous (ppm)	1	1	1.770							
105.00	Thiamine, LC (ppm)	2	2	11.43	3.009						
105.01	Thiamine, Fluorometer (ppm)	1	1	12.45							
106.02	Vitamin A, LC (KU / kg)	18	<b>18</b>	32.34	9.181	<b>31.61</b>	8.386	2.471	26.53%	4.780	
106.00	Vitamin A, Color (KU / kg)	2	2	40.72	7.609						

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106.01	Vitamin A, UV (KU / kg)	1	1	19.65							
106.99	Vitamin A, Miscellaneous (KU / kg)	1	1	49.12							
107.00	Vitamin B12, Microbiological (ppb)	1	1	13.35							
107.99	Vitamin B12, Miscellaneous (ppb)	1	1	40.00							
108.02	Vitamin D3, LC (KU / kg)	3	3	4.247	1.180	4.247	1.180	0.6813	27.79%	0.1333	
108.99	Vitamin D3, Miscellaneous (KU / kg)	3	3	3.463	2.068	3.463	2.068	1.194	59.71%	0.2000	
108.01	Vitamin D3, LC, AOAC (KU / kg)	1	1	6.500							
109.02	Vitamin E, LC (IU / kg)	18	17	269.3	50.78	262.7	41.73	12.65	15.88%	9.547	
109.99	Vitamin E, Miscellaneous (IU / kg)	3	3	262.5	13.22	262.5	13.22	7.633	5.04%	7.115	
111.98	Vitamin C, Ascorbic Acid, Miscellaneous (ppm)	1		0.6000							
112.01	Pyridoxine, LC (µg / g)	1	1	3.385							
112.99	Pyridoxine, Miscellaneous (µg / g)	1	1	0.8350							
113.99	Folic acid, Miscellaneous (ppm)	2	2	1.523	0.2440						
113.02	Folic acid, LC (ppm)	1	1	1.020							
114.01	Biotin, Microbiological (ppm)	2	2	9.492	1.820						
114.99	Biotin, Miscellaneous (ppm)	2	2	11.78	7.955						
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	1	1	0.5500							
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	4.845							
120.00	Alanine, Post-col Ninhydrin Der (%)	21	21	0.6715	0.0279	0.6717	0.0309	0.0084	4.60%	0.0156	4.25%
120.05	Alanine, Pre-col AQC Der (%)	6	5	0.6361	0.0664	0.6361	0.0664	0.0371	10.44%	0.0079	4.28%
120.99	Alanine, Miscellaneous (%)	2	2	0.6788	0.0018						
120.02	Alanine, Post-col OPA Der (%)	1	1	0.6740							
121.00	Arginine, Post-col Ninhydrin Der (%)	21	20	0.6644	0.0361	0.6669	0.0327	0.0091	4.91%	0.0155	4.25%
121.05	Arginine, Pre-col AQC Der (%)	6	6	0.6090	0.1651	0.6386	0.1130	0.0577	17.70%	0.0338	4.28%
121.99	Arginine, Miscellaneous (%)	2	2	0.6750	0.0495						
121.02	Arginine, Post-col OPA Der (%)	1	1	0.6505							
122.00	Aspartic, Post-col Ninhydrin Der (%)	21	21	0.9062	0.0410	0.9050	0.0337	0.0092	3.72%	0.0169	4.06%
122.05	Aspartic, Pre-col AQC Der (%)	5	5	0.9157	0.0314	0.9157	0.0314	0.0140	3.42%	0.0178	4.05%
122.99	Aspartic, Miscellaneous (%)	2	2	1.053	0.2086						
122.02	Aspartic, Post-col OPA Der (%)	1	1	0.9040							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	22	22	0.2324	0.0255	0.2299	0.0203	0.0054	8.82%	0.0092	4.99%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	6	6	0.2022	0.0886	0.2022	0.1004	0.0512	49.66%	0.0121	5.09%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.2395							
124.99	Cysteine/Cystine, Miscellaneous (%)	1	1	0.1675							
125.00	Glutamic, Post-col Ninhydrin Der (%)	21	20	2.151	0.1411	2.133	0.0916	0.0256	4.30%	0.0487	3.57%
125.05	Glutamic, Pre-col AQC Der (%)	6	5	1.910	0.5266	1.910	0.5266	0.0463	27.57%	0.0163	3.63%
125.99	Glutamic, Miscellaneous (%)	2	2	1.966	0.1679						
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.092							
126.00	Glycine, Post-col Ninhydrin Der (%)	21	20	0.5385	0.0316	0.5356	0.0282	0.0079	5.26%	0.0124	4.39%
126.05	Glycine, Pre-col AQC Der (%)	6	5	0.5625	0.0217	0.5625	0.0217	0.0121	3.86%	0.0067	4.36%

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126.99	Glycine, Miscellaneous (%)	2	2	0.4363	0.1397						
126.02	Glycine, Post-col OPA Der (%)	1	1	0.5425							
127.00	Histidine, Post-col Ninhydrin Der (%)	21	21	0.3019	0.0289	0.2980	0.0172	0.0047	5.76%	0.0065	4.80%
127.05	Histidine, Pre-col AQC Der (%)	6	6	0.2697	0.0568	0.2749	0.0519	0.0265	18.89%	0.0201	4.86%
127.99	Histidine, Miscellaneous (%)	2	2	0.3288	0.0124						
127.02	Histidine, Post-col OPA Der (%)	1	1	0.2955							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	21	20	0.3825	0.0313	0.3839	0.0287	0.0080	7.49%	0.0090	4.62%
128.05	Isoleucine, Pre-col AQC Der (%)	6	6	0.3743	0.0816	0.3870	0.0611	0.0312	15.78%	0.0218	4.61%
128.99	Isoleucine, Miscellaneous (%)	2	2	0.3825	0.0177						
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.3875							
129.00	Leucine, Post-col Ninhydrin Der (%)	21	20	0.9775	0.0467	0.9758	0.0313	0.0088	3.21%	0.0154	4.01%
129.05	Leucine, Pre-col AQC Der (%)	6	6	0.8863	0.1723	0.9021	0.1574	0.0803	17.44%	0.0343	4.06%
129.99	Leucine, Miscellaneous (%)	2	2	0.8750	0.1414						
129.02	Leucine, Post-col OPA Der (%)	1	1	0.9775							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	24	23	0.5423	0.0242	0.5420	0.0233	0.0061	4.30%	0.0126	4.39%
130.05	L-Lysine, Pre-col AQC Der (%)	8	7	0.4279	0.2107	0.4411	0.2076	0.0981	47.07%	0.0057	4.52%
130.99	L-Lysine, Miscellaneous (%)	4	4	0.5311	0.1038	0.5311	0.1038	0.0519	19.55%	0.0188	4.40%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.6190							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	22	22	0.2073	0.0177	0.2078	0.0157	0.0042	7.57%	0.0066	5.07%
131.05	Methionine, PAO Pre-col AQC Der (%)	6	5	0.1643	0.0534	0.1643	0.0534	0.0298	32.49%	0.0180	5.25%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2015							
131.99	Methionine, Miscellaneous (%)	1	1	0.1625							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	21	21	0.5290	0.0821	0.5169	0.0215	0.0059	4.16%	0.0140	4.42%
132.05	Phenylalanine, Pre-col AQC Der (%)	6	6	0.4447	0.1344	0.4447	0.1523	0.0777	34.26%	0.0197	4.52%
132.99	Phenylalanine, Miscellaneous (%)	2	2	0.5225	0.0248						
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.5150							
133.00	Proline, Post-col Ninhydrin Der (%)	21	21	0.8173	0.0944	0.8228	0.0620	0.0169	7.53%	0.0214	4.12%
133.05	Proline, Pre-col AQC Der (%)	6	6	0.7606	0.1280	0.7774	0.1040	0.0531	13.38%	0.0365	4.15%
133.99	Proline, Miscellaneous (%)	2	2	0.7675	0.0177						
134.00	Serine, Post-col Ninhydrin Der (%)	21	21	0.5442	0.0314	0.5429	0.0323	0.0088	5.95%	0.0131	4.38%
134.05	Serine, Pre-col AQC Der (%)	6	6	0.4862	0.0762	0.4862	0.0864	0.0441	17.76%	0.0131	4.46%
134.99	Serine, Miscellaneous (%)	2	2	0.6225	0.1379						
134.02	Serine, Post-col OPA Der (%)	1	1	0.4655							
135.00	Threonine, Post-col Ninhydrin Der (%)	21	20	0.4056	0.0271	0.4076	0.0195	0.0055	4.79%	0.0112	4.58%
135.05	Threonine, Pre-col AQC Der (%)	6	6	0.3763	0.0694	0.3763	0.0787	0.0402	20.92%	0.0142	4.63%
135.99	Threonine, Miscellaneous (%)	2	2	0.4588	0.0689						
135.02	Threonine, Post-col OPA Der (%)	1	1	0.4010							
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	8	8	0.1364	0.0331	0.1394	0.0302	0.0134	21.69%	0.0058	5.38%
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	4	0.1368	0.0045	0.1368	0.0045	0.0023	3.31%	0.0032	5.40%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	3	3	0.1390	0.0048	0.1390	0.0048	0.0028	3.43%	0.0020	5.38%



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136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.1325							
136.05	Tryptophan, Pre-col AQC Der (%)	1	1	0.1250							
136.99	Tryptophan, Miscellaneous (%)	1	1	0.2725							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	15	14	0.3511	0.0524	0.3468	0.0345	0.0115	9.95%	0.0111	4.69%
137.05	Tyrosine, Pre-col AQC Der (%)	5	4	0.3040	0.1327	0.3040	0.1327	0.0766	43.66%	0.0053	4.78%
137.99	Tyrosine, Miscellaneous (%)	2	2	0.2863	0.0195						
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.2850							
138.00	Valine, Post-col Ninhydrin Der (%)	21	20	0.5355	0.0304	0.5359	0.0302	0.0084	5.64%	0.0162	4.39%
138.05	Valine, Pre-col AQC Der (%)	6	5	0.5265	0.1135	0.5265	0.1135	0.0635	21.56%	0.0149	4.41%
138.99	Valine, Miscellaneous (%)	2	2	0.6100	0.0354						
138.02	Valine, Post-col OPA Der (%)	1	1	0.5630							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.0970	0.0523						
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0011							
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
160.99	Fructose, Miscellaneous (%)	3	2	0.4313	0.0301	0.4313	0.0301			0.0155	4.54%
160.10	Fructose, HPAEC PAD (%)	1	1	0.4340							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							
162.99	Glucose, Miscellaneous (%)	3	2	0.2735	0.0304	0.2735	0.0304			0.0060	4.86%
162.10	Glucose, HPAEC PAD (%)	1	1	0.3005							
163.10	Lactose, HPAEC PAD (%)	1	1	0.0855							
163.99	Lactose, Miscellaneous (%)	2		0.0000							
164.10	Maltose, HPAEC PAD (%)	1	1	0.2435							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.99	Sucrose, Miscellaneous (%)	3	2	2.420	0.0849	2.420	0.0849			0.0500	3.50%
165.10	Sucrose, HPAEC PAD (%)	1	1	2.195							
166.99	Raffinose, Miscellaneous (%)	2	2	0.2948	0.0633						
166.10	Raffinose, HPAEC PAD (%)	1	1	0.2185							
167.10	Stachyose, HPAEC PAD (%)	1	1	0.0615							
167.99	Stachyose, Miscellaneous (%)	2	1	0.1890							
314.04	Semduramicin Sodium, LC-MS/MS (ppm)	1		0.1000							
317.05	Maduramicin, LC-MS/MS (ppm)	1		0.1000							
351.05	Chlortetracycline, LC-MS/MS (ppm)	4	4	2.573	0.9882	2.573	0.9882	0.4941	38.41%	0.1785	13.88%
351.00	Chlortetracycline, Plate (ppm)	1	1	1.672							
355.03	Erythromycin, LC-MS/MS (ppm)	1		0.1000							
361.05	Lasalocid Sodium, LC-MS/MS (ppm)	1		0.1000							
363.03	Lincomycin, LC-MS/MS (ppm)	1		0.1000							
365.05	Monensin, LC-MS/MS (ppm)	7	7	2.043	0.2525	2.043	0.2863	0.1353	14.01%	0.2187	14.37%
365.02	Monensin, LC (ppm)	3	3	2.078	0.1190	2.078	0.1190	0.0687	5.73%	0.0767	14.33%
365.03	Monensin, LC-PCD (ppm)	4	3	2.118	0.0351	2.118	0.0351	0.0203	1.66%	0.1652	14.29%
365.04	Monensin, LC-MS (ppm)	1	1	2.362							

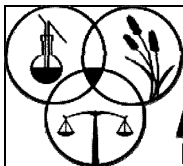
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365.99	Monensin, Miscellaneous (ppm)	1	1	2.065							
370.03	Novobiocin, LC-MS/MS (ppm)	1		0.3000							
373.06	Oxytetracycline, LC-MS/MS (ppm)	4	4	3.191	2.726	3.191	2.726	1.363	85.43%	0.4348	13.43%
373.03	Oxytetracycline, LC (ppm)	1		2.000							
379.05	Salinomycin, LC-MS/MS (ppm)	1		0.1000							
382.02	Sulfamethazine, LC-PCD (ppm)	1	1	1.955							
382.04	Sulfamethazine, LC-MS/MS (ppm)	1	1	2.066							
382.03	Sulfamethazine, LC-MS (ppm)	1		1.000							
388.05	Tylosin, LC-MS/MS (ppm)	5	3	0.3583	0.1304	0.3583	0.1304	0.0753	36.40%	0.0680	18.67%
389.03	Virginiamycin, LC-MS/MS (ppm)	1		0.1000							
391.03	Narasin, LC-MS/MS (ppm)	1		0.1000							
400.01	Water Activity, Aqualab chilled mirror (Units)	8	7	0.5368	0.0129	<b>0.5368</b>	0.0147	0.0069	2.73%	0.0063	
400.99	Water Activity, Miscellaneous (Units)	3	3	0.5400	0.0236	0.5400	0.0236	0.0136	4.36%	0.0040	
516.53	Arsenic, Total, ICP-MS, Microwave (ppm)	7	7	0.3676	0.0798	<b>0.3676</b>	0.0905	0.0427	24.61%	0.0190	18.60%
516.00	Arsenic, Total, AA, Hydride (ppm)	1	1	0.3235							
516.43	Arsenic, Total, ICP, Microwave (ppm)	2	1	1.145							
516.52	Arsenic, Total, ICP-MS, Open vessel (ppm)	1	1	0.4100							
518.53	Cadmium, ICP-MS, Microwave (ppm)	6	6	0.1045	0.0110	<b>0.1045</b>	0.0124	0.0063	11.88%	0.0069	22.00%
518.43	Cadmium, ICP, Microwave (ppm)	3	3	0.1878	0.1245	0.1878	0.1245	0.0719	66.30%	0.0031	20.58%
518.41	Cadmium, ICP, Dry ash (ppm)	2	2	0.1075	0.0283						
518.52	Cadmium, ICP-MS, Open vessel (ppm)	1	1	0.1300							
520.43	Chromium, ICP, Microwave (ppm)	4	4	9.947	8.205	9.947	8.205	4.103	82.49%	0.0195	11.32%
520.53	Chromium, ICP-MS, Microwave (ppm)	4	4	11.90	5.227	11.90	5.227	2.613	43.93%	0.4900	11.02%
520.41	Chromium, ICP, Dry ash (ppm)	2	2	5.341	1.215						
520.42	Chromium, ICP, Open vessel (ppm)	1	1	13.47							
526.53	Lead, ICP-MS, Microwave (ppm)	7	7	0.2766	0.0300	<b>0.2766</b>	0.0341	0.0161	12.31%	0.0192	19.41%
526.41	Lead, ICP, Dry ash (ppm)	2	2	0.2404	0.1143						
526.43	Lead, ICP, Microwave (ppm)	3	2	0.2940	0.0092	0.2940	0.0092			0.0454	19.23%
526.52	Lead, ICP-MS, Open vessel (ppm)	1	1	0.3100							
529.99	Mercury, Miscellaneous (ppb)	5	3	7.886	7.922	7.886	7.922	5.601	100.45%	2.050	22.00%
539.53	Nickel, ICP-MS, Microwave (ppm)	3	3	5.577	2.581	5.577	2.581	1.490	46.27%	0.2004	12.35%
539.41	Nickel, ICP, Dry ash (ppm)	2	2	5.165	1.113						
539.43	Nickel, ICP, Microwave (ppm)	2	2	6.604	0.8142						
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1		0.0000							
704.00	Caproic Acid (6:0) , Miscellaneous GC (%)	1		0.0000							
706.01	Caprylic acid (8:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1		0.0000							
708.01	Capric acid (10:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1		0.0000							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	3	1								
710.01	Lauric Acid (12:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1		0.0000							
714.01	Myristic Acid (14:0) , Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0240							

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
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	2	1	0.0130							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	2	2	0.7413	0.0619						
716.01	Palmitic Acid (16:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.7940							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	3	2	0.0218	0.0025	0.0218	0.0025			0.0015	7.12%
718.01	Palmitoleic Acid (9c-16:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0315							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	2	2	0.1568	0.0046						
722.01	Stearic Acid (18:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.1215							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	2	2	1.115	0.0074						
724.01	Oleic Acid (9c-18:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	1.205							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	3	3	1.897	0.0584	1.897	0.0584	0.0337	3.08%	0.0077	3.63%
726.01	Linoleic Acid (9c,12c-18:2), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	2.725							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	3	3	0.1257	0.0045	0.1257	0.0045			0.0000	5.47%
728.01	alpha-Linolenic Acid (9c,12c,15c-18:3), Direct Methylation by Alkali Hydrolysis	1	1	0.0985							
730.01	Arachidic Acid (20:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0270							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	2	1	0.0125							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	2	2	0.0250	0.0071						
732.01	Gondoic Acid (11c-20:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (% (w/w))	1	1	0.0020							
736.01	Arachidonic Acid (5c,8c,11c,14c-20:4), Direct Methylation by Alkali Hydrolysis	1	1	0.0000							
738.01	Mead Acid (11c,14c,17c-20:3), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
740.01	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Direct Methylation by Alkali Hydrolysis	1	1	0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	2	2	0.0000							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	2	1	0.0085							
744.01	Erucic Acid (13c-22:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1	1	0.0050							
746.01	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Direct Methylation by Alkali Hydrolysis	1	1	0.0000							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (% (w/w))	2	2	0.0000							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	1	1	0.0115							
750.01	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Direct Methylation by Alkali Hydrolysis	1	1	0.0000							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	2	2	0.0000							
752.01	Nervonic Acid (24:1) isomers, Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0000							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1	1	0.0000							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (% (w/w))	2	2	0.1325	0.0035						
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% (w/w))	2	2	1.938	0.0177						
758.99	Total Saturated Fatty Acids, Miscellaneous (% (w/w))	1	1	1.025							
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	1.180							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	2.065							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (% (w/w))	1	1	4.490							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	2	2	4.148	0.2086						

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

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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indicated in bold font.



**Animal Feed Scheme**

**Horse Feed**

**Test Material Code # 202022**

**Method Precision Report**

**# Methods Reported: 90**

**# Labs Reporting: 177**

**Issue Date : 03/31/2020**

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 (%)	48	45	9.401	0.3589	0.2069	0.0810	0.2222	2.20%	0.86%	2.36%	2.743
001.99	Loss on Drying, Miscellaneous (%)	18	16	8.597	2.263	0.5886	0.0902	0.5955	6.45%	0.99%	6.52%	6.600
002.01	Protein, Crude, Auto Kjel-Foss (%)	12	11	12.40	0.1343	0.1057	0.1170	0.1577	0.85%	0.94%	1.27%	1.348
002.05	Protein, Crude, Copper, Boric Acid (%)	31	27	12.42	0.3762	0.2365	0.0429	0.2404	1.91%	0.35%	1.94%	5.599
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	121	114	12.60	0.3659	0.2367	0.1348	0.2724	1.88%	1.07%	2.16%	2.021
003.06	Fat, Crude, Pet Ether (%)	17	16	4.144	0.2777	0.2072	0.0732	0.2198	4.95%	1.75%	5.25%	3.000
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	15	14	4.118	0.2292	0.2299	0.0723	0.2410	5.59%	1.76%	5.86%	3.335
003.10	Fat, Crude, Randall, Pet Ether (%)	24	21	3.878	0.2920	0.2478	0.0628	0.2556	6.45%	1.63%	6.65%	4.072
003.14	Fat, Crude, Ankom (%)	50	44	3.833	0.3481	0.2802	0.1025	0.2984	7.37%	2.69%	7.84%	2.911
004.00	Fiber, Crude, Asbestos Free (%)	13	12	13.19	0.6267	0.6032	0.2407	0.6494	4.57%	1.82%	4.92%	2.698
004.06	Fiber, Crude, Fibertec (%)	23	22	13.10	1.123	0.9222	0.2088	0.9455	6.97%	1.58%	7.14%	4.528
004.07	Fiber, Crude, ANKOM (%)	64	61	13.19	0.8403	0.7600	0.2524	0.8008	5.74%	1.91%	6.05%	3.173
005.00	Ash, 2h @ 600°C (%)	88	82	13.68	0.3442	0.2503	0.1172	0.2764	1.83%	0.86%	2.02%	2.358
005.05	Ash, 3h @ 550°C (%)	34	28	13.90	0.3515	0.2009	0.0628	0.2105	1.45%	0.45%	1.52%	3.350
008.02	Fiber, Acid Detergent, Crucible (%)	11	11	18.20	1.689	1.679	0.2581	1.699	9.23%	1.42%	9.33%	6.581
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	43	39	17.73	2.925	1.673	0.2649	1.694	9.12%	1.44%	9.23%	6.394
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	11	11	30.99	1.244	1.208	0.4185	1.278	3.90%	1.35%	4.12%	3.055
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	43	37	30.15	1.709	1.265	0.3173	1.304	4.24%	1.06%	4.37%	4.110
010.99	Moisture, Miscellaneous (%)	14	11	9.572	0.5858	0.4040	0.0915	0.4143	4.28%	0.97%	4.39%	4.527
011.01	Loss on Drying, 135°C 2hr (%)	63	57	10.22	0.5801	0.5103	0.0778	0.5162	5.01%	0.76%	5.07%	6.635
012.00	Starch, Polarimetric (Ewers) (%)	15	14	19.10	0.8826	0.3638	0.2684	0.4521	1.93%	1.42%	2.39%	1.684
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	10	18.20	2.829	2.807	0.4941	2.850	15.42%	2.71%	15.66%	5.769
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	18	18	4.757	0.6596	0.6475	0.1785	0.6716	13.61%	3.75%	14.12%	3.764
013.02	Fat, Acid Pretreat, Mojonnier, Bak Ext (%)	18	16	5.246	0.3743	0.3764	0.1158	0.3938	7.18%	2.21%	7.52%	3.402
019.00	Calcium, Ox-Mn04 Vol. (%)	12	11	2.159	0.0723	0.0501	0.0256	0.0562	2.34%	1.19%	2.62%	2.201
019.08	Calcium, EDTA (%)	8	8	2.112	0.1621	0.1545	0.0692	0.1693	7.32%	3.27%	8.02%	2.448
019.31	Calcium, AAS, Dry ash (%)	19	19	2.160	0.1143	0.1059	0.0608	0.1221	4.90%	2.81%	5.65%	2.009
019.41	Calcium, ICP, Dry ash (%)	29	26	2.183	0.2047	0.1021	0.0464	0.1122	4.74%	2.16%	5.21%	2.417
019.42	Calcium, ICP, Open vessel (%)	17	16	2.174	0.3143	0.1296	0.1083	0.1689	5.78%	4.83%	7.54%	1.559
019.43	Calcium, ICP, Microwave (%)	31	26	2.204	0.1648	0.1182	0.0349	0.1232	5.35%	1.58%	5.58%	3.534
021.43	Cobalt, ICP, Microwave (ppm)	11	10	4.708	0.7187	0.5935	0.1571	0.6140	12.27%	3.25%	12.69%	3.908
022.31	Copper, AAS, Dry ash (ppm)	11	9	91.94	31.92	33.70	0.8054	33.71	37.04%	0.89%	37.05%	41.85
022.41	Copper, ICP, Dry ash (ppm)	21	20	93.48	23.10	21.97	4.258	22.38	23.96%	4.64%	24.41%	5.257
022.42	Copper, ICP, Open vessel (ppm)	19	15	139.8	9.738	7.722	3.479	8.469	5.47%	2.46%	6.00%	2.435
022.43	Copper, ICP, Microwave (ppm)	27	25	139.8	11.10	9.319	3.796	10.06	6.72%	2.74%	7.26%	2.651
025.31	Iron, AAS, Dry ash (ppm)	13	12	678.0	90.76	60.71	15.40	62.63	8.71%	2.21%	8.98%	4.068

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
025.41	Iron, ICP, Dry ash (ppm)	22	20	656.6	75.02	75.43	17.45	77.42	11.52%	2.67%	11.83%	4.437
025.42	Iron, ICP, Open vessel (ppm)	15	15	500.2	198.0	197.4	21.71	198.6	39.47%	4.34%	39.70%	9.150
025.43	Iron, ICP, Microwave (ppm)	27	24	692.2	114.0	66.80	25.96	71.67	9.62%	3.74%	10.32%	2.761
027.31	Magnesium, AAS, Dry ash (%)	15	13	0.3661	0.0151	0.0105	0.0058	0.0120	2.90%	1.61%	3.31%	2.062
027.41	Magnesium, ICP, Dry ash (%)	22	20	0.3739	0.0148	0.0134	0.0089	0.0161	3.59%	2.39%	4.31%	1.804
027.42	Magnesium, ICP, Open vessel (%)	17	15	0.3610	0.0662	0.0186	0.0094	0.0209	4.94%	2.49%	5.53%	2.223
027.43	Magnesium, ICP, Microwave (%)	30	29	0.3740	0.0227	0.0186	0.0074	0.0200	5.00%	2.00%	5.39%	2.690
028.31	Manganese, AAS, Dry ash (ppm)	11	10	402.7	29.80	13.99	6.649	15.49	3.54%	1.68%	3.92%	2.329
028.41	Manganese, ICP, Dry ash (ppm)	20	18	382.8	35.88	29.79	10.33	31.53	7.88%	2.73%	8.34%	3.053
028.42	Manganese, ICP, Open vessel (ppm)	19	17	420.9	25.56	24.62	9.719	26.47	5.85%	2.31%	6.29%	2.723
028.43	Manganese, ICP, Microwave (ppm)	28	27	418.6	28.10	23.08	8.391	24.56	5.55%	2.02%	5.91%	2.927
031.01	Phosphorus, Photometric (%)	34	31	1.169	0.0413	0.0335	0.0157	0.0369	2.85%	1.33%	3.15%	2.360
031.41	Phosphorus, ICP, Dry ash (%)	27	23	1.153	0.1237	0.0630	0.0264	0.0683	5.45%	2.28%	5.91%	2.590
031.42	Phosphorus, ICP, Open vessel (%)	18	16	1.140	0.0672	0.0595	0.0259	0.0649	5.19%	2.25%	5.66%	2.509
031.43	Phosphorus, ICP, Microwave (%)	32	31	1.181	0.0532	0.0468	0.0359	0.0590	3.97%	3.05%	5.01%	1.642
032.31	Potassium, AAS, Dry ash (%)	11	11	0.8093	0.0368	0.0342	0.0195	0.0393	4.22%	2.41%	4.86%	2.019
032.41	Potassium, ICP, Dry ash (%)	24	22	0.8339	0.1005	0.0620	0.0251	0.0668	7.56%	3.06%	8.16%	2.668
032.42	Potassium, ICP, Open vessel (%)	17	14	0.8778	0.0770	0.0596	0.0126	0.0609	6.74%	1.42%	6.89%	4.844
032.43	Potassium, ICP, Microwave (%)	30	28	0.8775	0.0453	0.0368	0.0180	0.0410	4.17%	2.04%	4.64%	2.276
033.00	Salt as chloride, Sol Cl (%)	25	23	2.042	0.1467	0.0972	0.0149	0.0984	4.71%	0.72%	4.77%	6.584
033.01	Salt as chloride, Poten Cl (%)	25	24	2.127	0.0802	0.0461	0.0167	0.0490	2.18%	0.79%	2.32%	2.941
033.99	Salt, Miscellaneous (%)	11	11	1.752	0.3516	0.3493	0.0564	0.3538	19.94%	3.22%	20.20%	6.271
034.53	Selenium, ICP-MS, Microwave (ppm)	11	10	1.993	0.3373	0.3512	0.0751	0.3591	17.66%	3.78%	18.06%	4.781
035.31	Sodium, AAS, Dry ash (%)	11	10	0.6883	0.0528	0.0298	0.0136	0.0327	4.41%	2.01%	4.85%	2.410
035.41	Sodium, ICP, Dry ash (%)	24	22	0.6891	0.0478	0.0355	0.0191	0.0403	5.20%	2.79%	5.91%	2.115
035.42	Sodium, ICP, Open vessel (%)	13	11	0.7057	0.0619	0.0336	0.0135	0.0362	4.64%	1.87%	5.00%	2.682
035.43	Sodium, ICP, Microwave (%)	25	23	0.7350	0.0610	0.0224	0.0239	0.0328	3.11%	3.32%	4.55%	1.371
036.42	Sulfur, ICP, Open vessel (%)	16	14	0.3797	0.0235	0.0175	0.0123	0.0214	4.66%	3.27%	5.70%	1.741
036.43	Sulfur, ICP, Microwave (%)	15	15	0.3909	0.0277	0.0263	0.0121	0.0290	6.74%	3.09%	7.41%	2.398
037.31	Zinc, AAS, Dry ash (ppm)	11	11	452.6	51.58	50.32	16.04	52.81	11.12%	3.54%	11.67%	3.292
037.41	Zinc, ICP, Dry ash (ppm)	21	21	444.3	57.30	54.67	24.26	59.81	12.30%	5.46%	13.46%	2.465
037.42	Zinc, ICP, Open vessel (ppm)	18	15	514.8	103.8	46.87	12.74	48.58	8.68%	2.36%	8.99%	3.812
037.43	Zinc, ICP, Microwave (ppm)	29	29	533.5	43.32	42.09	14.49	44.52	7.89%	2.72%	8.34%	3.072
038.43	Molybdenum, ICP, Microwave (ppm)	8	8	1.600	0.2771	0.2729	0.0675	0.2812	17.06%	4.22%	17.57%	4.163
106.02	Vitamin A, LC (KU / kg)	18	18	32.34	9.181	8.585	4.602	9.741	26.54%	14.23%	30.12%	2.117
109.02	Vitamin E, LC (IU / kg)	18	15	269.3	50.78	29.77	7.375	30.67	11.70%	2.90%	12.06%	4.159
120.00	Alanine, Post-col Ninhydrin Der (%)	21	20	0.6715	0.0279	0.0260	0.0141	0.0296	3.87%	2.10%	4.40%	2.096
121.00	Arginine, Post-col Ninhydrin Der (%)	21	19	0.6644	0.0361	0.0298	0.0120	0.0321	4.46%	1.79%	4.80%	2.678
122.00	Aspartic, Post-col Ninhydrin Der (%)	21	21	0.9062	0.0410	0.0390	0.0178	0.0428	4.30%	1.96%	4.73%	2.413
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	22	20	0.2324	0.0255	0.0199	0.0076	0.0213	8.70%	3.32%	9.31%	2.807
125.00	Glutamic, Post-col Ninhydrin Der (%)	21	18	2.151	0.1411	0.1097	0.0424	0.1176	5.16%	1.99%	5.53%	2.771
126.00	Glycine, Post-col Ninhydrin Der (%)	21	20	0.5385	0.0316	0.0304	0.0123	0.0327	5.64%	2.28%	6.08%	2.668
127.00	Histidine, Post-col Ninhydrin Der (%)	21	20	0.3019	0.0289	0.0140	0.0069	0.0156	4.73%	2.33%	5.27%	2.263
128.00	Isoleucine, Post-col Ninhydrin Der (%)	21	18	0.3825	0.0313	0.0241	0.0081	0.0254	6.25%	2.11%	6.60%	3.130
129.00	Leucine, Post-col Ninhydrin Der (%)	21	18	0.9775	0.0467	0.0384	0.0115	0.0401	3.91%	1.17%	4.08%	3.476
130.00	L-Lysine, Post-col Ninhydrin Der (%)	24	22	0.5423	0.0242	0.0229	0.0104	0.0252	4.24%	1.91%	4.65%	2.431

Test Material Code # 202022

Issue Date : 03/31/2020

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
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	22	20	0.2073	0.0177	0.0145	0.0051	0.0154	6.91%	2.45%	7.33%	2.993
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	21	19	0.5290	0.0821	0.0370	0.0105	0.0385	7.24%	2.06%	7.53%	3.654
133.00	Proline, Post-col Ninhydrin Der (%)	21	19	0.8173	0.0944	0.0611	0.0183	0.0638	7.30%	2.18%	7.62%	3.495
134.00	Serine, Post-col Ninhydrin Der (%)	21	20	0.5442	0.0314	0.0256	0.0117	0.0282	4.74%	2.16%	5.21%	2.409
135.00	Threonine, Post-col Ninhydrin Der (%)	21	19	0.4056	0.0271	0.0167	0.0108	0.0199	4.08%	2.63%	4.86%	1.845
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	8	8	0.1364	0.0331	0.0328	0.0065	0.0334	24.02%	4.75%	24.49%	5.156
137.00	Tyrosine, Post-col Ninhydrin Der (%)	15	12	0.3511	0.0524	0.0335	0.0088	0.0346	9.90%	2.60%	10.24%	3.933
138.00	Valine, Post-col Ninhydrin Der (%)	21	20	0.5355	0.0304	0.0281	0.0163	0.0325	5.24%	3.04%	6.06%	1.992

Notes: Precision Calculations provided for methods with 8 or more labs used in calculations.