



AAFCO
Proficiency Testing Program



Animal Feed Scheme
Pig Grower, Medicated
Test Material Code # 202026

Method Summary Report
(Precision Report Follows)

Labs Reporting: 177
Methods Reported: 414
Issue Date : 07/31/2020

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	0.3000							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	43	43	9.440	0.4333	9.480	0.2780	0.0530	2.93%	0.1073	2.85%
001.99	Loss on Drying, Miscellaneous (%)	21	21	9.154	0.6597	9.203	0.4999	0.1364	5.43%	0.1691	2.86%
001.03	Loss on Drying, Low temp. methods (%)	7	6	9.451	0.1625	9.451	0.1843	0.0941	1.95%	0.0350	2.85%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	3	3	9.392	0.2672	9.392	0.2672	0.1543	2.85%	0.0337	2.86%
001.05	Loss on Drying, LECO (%)	2	2	9.748	0.2507						
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	113	112	16.13	0.6048	16.09	0.2481	0.0293	1.54%	0.1405	2.49%
002.05	Protein, Crude, Copper, Boric Acid (%)	30	30	15.93	0.2632	15.96	0.1974	0.0451	1.24%	0.0733	2.50%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	10	9	16.29	0.7055	16.09	0.1897	0.0791	1.18%	0.0442	2.49%
002.11	Protein, Crude, NIR (%)	8	7	16.87	1.150	16.89	1.237	0.5843	7.32%	0.0414	2.43%
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	2	2	15.88	0.0481						
002.08	Protein, Crude, Cu/Ti (%)	2	2	15.79	0.4312						
002.00	Protein, Crude, Crude (%)	1	1	16.11							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	16.01							
002.99	Protein, Crude, Miscellaneous (%)	1	1	16.47							
003.14	Fat, Crude, Ankom (%)	51	49	2.225	0.5007	2.205	0.4147	0.0740	18.81%	0.1050	3.55%
003.10	Fat, Crude, Randall, Pet Ether (%)	25	24	2.527	0.2224	2.542	0.2141	0.0546	8.42%	0.0710	3.48%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	15	15	2.841	0.2289	2.849	0.2411	0.0778	8.46%	0.1006	3.42%
003.06	Fat, Crude, Pet Ether (%)	14	13	2.667	0.2189	2.667	0.2483	0.0861	9.31%	0.0662	3.45%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	11	11	2.820	0.5036	2.752	0.3858	0.1454	14.02%	0.0507	3.43%
003.11	Fat, Crude, NIR (%)	8	7	3.459	1.274	3.135	0.5646	0.2667	18.01%	0.0264	3.37%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	7	7	2.623	0.1960	2.660	0.1249	0.0590	4.69%	0.0984	3.45%
003.99	Fat, Crude, Miscellaneous (%)	4	4	2.594	0.6715	2.594	0.6715	0.3357	25.89%	0.1275	3.47%
003.12	Fat, Crude, Hexane Ext (%)	3	3	2.056	0.3744	2.056	0.3744	0.2648	18.21%	0.0253	3.59%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	2	2	2.498	0.2499						
004.07	Fiber, Crude, ANKOM (%)	68	66	3.780	0.8008	3.695	0.4272	0.0657	11.56%	0.1315	3.29%
004.06	Fiber, Crude, Fibertec (%)	18	18	3.721	0.1843	3.711	0.1832	0.0540	4.94%	0.0960	3.28%
004.00	Fiber, Crude, Asbestos Free (%)	12	12	3.709	0.4967	3.672	0.4040	0.1458	11.00%	0.0912	3.29%
004.11	Fiber, Crude, NIR (%)	6	6	3.979	0.4767	3.979	0.5405	0.2758	13.58%	0.1300	3.25%

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004.03	Fiber, Crude, Fritted Glass (%)	5	5	3.920	0.3536	3.920	0.3536	0.1581	9.02%	0.2496	3.26%
004.01	Fiber, Crude, Sing Filt (%)	1	1	3.480							
004.99	Fiber, Crude, Miscellaneous (%)	1	1	4.225							
005.00	Ash, 2h @ 600°C (%)	72	71	8.749	0.5137	8.760	0.5529	0.0820	6.31%	0.0912	2.89%
005.05	Ash, 3h @ 550°C (%)	25	24	9.175	0.2817	9.204	0.2327	0.0594	2.53%	0.0589	2.86%
005.99	Ash, Miscellaneous (%)	9	8	8.867	0.8057	9.021	0.5034	0.2225	5.58%	0.0472	2.87%
005.11	Ash, NIR (%)	4	4	8.438	2.039	8.438	2.039	1.019	24.16%	0.0900	2.90%
005.02	Ash, LECO (%)	2	2	9.182	0.1584						
006.00	Total Sugars, As sucrose (%)	2	2	3.597	0.0612						
006.99	Total Sugars, Miscellaneous (%)	2	2	3.695	0.2899						
006.03	Total Sugars, Invert w/o Invrns (%)	1	1	3.820							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	39	39	5.042	0.3881	5.041	0.3889	0.0778	7.72%	0.2097	3.14%
008.02	Fiber, Acid Detergent, Crucible (%)	11	11	5.040	0.3976	5.006	0.3654	0.1377	7.30%	0.1419	3.14%
008.05	Fiber, Acid Detergent, Acid Detergent-Hach (%)	1	1	6.225							
008.99	Fiber, Acid Detergent, Miscellaneous (%)	1	1	4.857							
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	39	38	12.84	1.177	12.71	0.8315	0.1686	6.54%	0.3337	2.73%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	10	9	13.16	1.498	13.16	1.699	0.7079	12.91%	0.2389	2.71%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	2	2	13.19	0.8804						
009.04	Fiber, Neutral Detergent, Neutral Det-No ENZ Pretreat (%)	1	1	37.07							
010.99	Moisture, Miscellaneous (%)	14	14	9.424	0.3155	9.424	0.3578	0.1195	3.80%	0.0749	2.85%
010.11	Moisture, NIR (%)	4	3	10.14	0.7769	10.14	0.7769	0.4486	7.66%	0.0433	2.82%
010.03	Moisture, Karl-Fischer (%)	2	2	10.10	0.1556						
011.01	Loss on Drying, 135°C 2hr (%)	59	58	10.45	0.5103	10.46	0.5059	0.0830	4.84%	0.1181	2.81%
011.02	Loss on Drying, 130°C for 2 hours (%)	3	3	10.20	0.4579	10.20	0.4579	0.2644	4.49%	0.0633	2.82%
011.99	Loss on Drying, High Temp. Methods Miscellaneous (%)	3	3	10.19	0.3229	10.19	0.3229	0.1864	3.17%	0.0847	2.82%
012.00	Starch, Polarimetric (Ewers) (%)	12	11	41.08	0.5762	41.08	0.6534	0.2462	1.59%	0.3127	1.56%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	10	38.21	1.753	38.21	1.988	0.7857	5.20%	0.7809	1.62%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	5	5	39.70	2.610	39.70	2.610	1.167	6.57%	0.6761	1.59%
012.11	Starch, NIR (%)	4	4	41.67	4.552	41.67	4.552	2.276	10.92%	0.0825	1.55%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	3	3	40.78	1.003	40.78	1.003	0.5791	2.46%	1.358	1.57%
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	40.21							
013.02	Fat, Acid Pretreat, Mojonier, Bak Ext (%)	17	17	3.925	0.2983	3.914	0.3116	0.0945	7.96%	0.0945	3.26%
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	16	16	3.351	0.6246	3.379	0.6477	0.2024	19.17%	0.1492	3.33%
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	9	9	3.584	0.4984	3.584	0.5652	0.2355	15.77%	0.1940	3.30%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	3	3	3.272	0.2873	3.272	0.2873	0.1659	8.78%	0.1136	3.35%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	1	1	1.166							
015.43	Aluminum, ICP, Microwave (ppm)	9	8	99.86	7.641	98.90	6.255	2.764	6.32%	2.267	8.01%
015.41	Aluminum, ICP, Dry ash (ppm)	4	4	96.46	9.964	96.46	9.964	4.982	10.33%	1.046	8.04%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	80.93	34.47						
015.53	Aluminum, ICP-MS, Microwave (ppm)	2	2	113.7	11.81						

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015.52	Aluminum, ICP-MS, Open vessel (ppm)	1	1	77.40							
017.43	Boron, ICP, Microwave (ppm)	8	7	8.365	1.288	8.365	1.460	0.6900	17.46%	0.1104	11.62%
017.42	Boron, ICP, Open vessel (ppm)	6	6	8.145	0.9448	8.145	1.071	0.5467	13.15%	0.5387	11.67%
017.41	Boron, ICP, Dry ash (ppm)	4	4	7.714	0.9276	7.714	0.9276	0.4638	12.03%	0.1674	11.76%
017.52	Boron, ICP-MS, Open vessel (ppm)	1	1	6.390							
017.53	Boron, ICP-MS, Microwave (ppm)	1	1	6.445							
019.43	Calcium, ICP, Microwave (%)	25	25	2.168	0.1914	2.174	0.1872	0.0468	8.61%	0.0400	3.56%
019.41	Calcium, ICP, Dry ash (%)	24	23	2.236	0.1194	2.232	0.1259	0.0328	5.64%	0.0396	3.54%
019.31	Calcium, AAS, Dry ash (%)	18	18	2.159	0.1317	2.165	0.1354	0.0399	6.25%	0.0656	3.56%
019.42	Calcium, ICP, Open vessel (%)	16	15	2.189	0.1738	2.181	0.1696	0.0547	7.77%	0.0402	3.56%
019.00	Calcium, Ox-Mn04 Vol. (%)	14	14	2.157	0.1174	2.178	0.0761	0.0254	3.50%	0.0427	3.56%
019.08	Calcium, EDTA (%)	6	6	2.177	0.0794	2.177	0.0900	0.0459	4.13%	0.0257	3.56%
019.99	Calcium, Miscellaneous (%)	6	6	2.241	0.1394	2.241	0.1581	0.0807	7.05%	0.0983	3.54%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	2.187	0.0889	2.187	0.0889	0.0513	4.07%	0.1097	3.56%
019.53	Calcium, ICP-MS, Microwave (%)	3	3	2.202	0.0575	2.202	0.0575	0.0332	2.61%	0.0700	3.55%
019.44	Calcium, ICP, Dry ash (%)	2	2	2.255	0.0212						
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	2.205							
019.09	Calcium, Ion-selective electrode (%)	1	1	2.123							
019.32	Calcium, AAS, Open vessel (%)	1	1	2.095							
021.43	Cobalt, ICP, Microwave (ppm)	9	7	1.061	0.2507	1.060	0.2843	0.1343	26.80%	0.0530	15.86%
021.31	Cobalt, AAS, Dry ash (ppm)	3	3	1.018	0.4056	1.018	0.4056	0.2868	39.83%	0.0967	15.95%
021.41	Cobalt, ICP, Dry ash (ppm)	4	3	0.9110	0.3251	0.9110	0.3251	0.1877	35.69%	0.0105	16.22%
021.53	Cobalt, ICP-MS, Microwave (ppm)	3	3	1.012	0.2541	1.012	0.2541	0.1467	25.12%	0.0621	15.97%
021.42	Cobalt, ICP, Open vessel (ppm)	2	2	0.8850	0.4384						
021.52	Cobalt, ICP-MS, Open vessel (ppm)	2	2	0.7800	0.1202						
022.43	Copper, ICP, Microwave (ppm)	23	23	45.62	3.785	46.02	2.429	0.6330	5.28%	2.278	8.99%
022.41	Copper, ICP, Dry ash (ppm)	19	19	42.09	3.380	42.21	3.382	0.9698	8.01%	1.669	9.11%
022.42	Copper, ICP, Open vessel (ppm)	17	17	46.12	2.943	45.91	2.794	0.8472	6.09%	1.673	8.99%
022.31	Copper, AAS, Dry ash (ppm)	9	8	41.73	3.825	41.84	4.099	1.811	9.80%	0.6442	9.12%
022.99	Copper, Miscellaneous (ppm)	4	4	39.25	4.975	39.25	4.975	2.487	12.67%	2.200	9.21%
022.52	Copper, ICP-MS, Open vessel (ppm)	3	3	42.24	3.876	42.24	3.876	2.238	9.18%	2.177	9.11%
022.53	Copper, ICP-MS, Microwave (ppm)	3	3	43.58	2.124	43.58	2.124	1.226	4.87%	1.430	9.06%
022.33	Copper, AAS, Microwave (ppm)	2	2	45.36	2.394						
022.44	Copper, ICP, Dry ash (ppm)	2	2	45.84	2.602						
022.32	Copper, AAS, Open vessel (ppm)	1	1	42.75							
023.01	Fluorine, Ion Sel Elect (ppm)	1	1	23.00							
024.03	Iodine, Ion-selective electrode (ppm)	1	1	3.450							
025.41	Iron, ICP, Dry ash (ppm)	21	21	651.2	44.59	657.2	35.31	9.632	5.37%	14.45	6.03%
025.43	Iron, ICP, Microwave (ppm)	21	20	647.6	62.19	656.1	38.87	10.86	5.92%	17.07	6.03%
025.42	Iron, ICP, Open vessel (ppm)	14	14	556.0	154.0	576.6	127.7	42.66	22.15%	15.22	6.14%

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025.31	Iron, AAS, Dry ash (ppm)	14	13	595.6	177.3	639.9	37.73	13.08	5.90%	7.290	6.05%
025.99	Iron, Miscellaneous (ppm)	4	3	660.5	25.92	660.5	25.92	14.97	3.92%	3.923	6.02%
025.33	Iron, AAS, Microwave (ppm)	2	2	448.8	81.65						
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	454.2	35.53						
025.53	Iron, ICP-MS, Microwave (ppm)	2	2	655.5	43.13						
027.43	Magnesium, ICP, Microwave (%)	19	19	0.2037	0.0112	0.2036	0.0124	0.0035	6.07%	0.0042	5.08%
027.41	Magnesium, ICP, Dry ash (%)	16	16	0.2075	0.0114	0.2080	0.0118	0.0037	5.68%	0.0052	5.07%
027.42	Magnesium, ICP, Open vessel (%)	16	16	0.2096	0.0101	0.2091	0.0098	0.0031	4.67%	0.0061	5.06%
027.31	Magnesium, AAS, Dry ash (%)	8	8	0.2092	0.0067	0.2097	0.0063	0.0028	2.98%	0.0046	5.06%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.1974	0.0023	0.1974	0.0023	0.0016	1.14%	0.0069	5.11%
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.2097	0.0043	0.2097	0.0043	0.0025	2.06%	0.0100	5.06%
027.99	Magnesium, Miscellaneous (%)	4	3	0.2033	0.0153	0.2033	0.0153			0.0000	5.08%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.2050							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.2100							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.2070							
028.43	Manganese, ICP, Microwave (ppm)	22	22	125.7	7.772	125.3	6.367	1.697	5.08%	2.739	7.73%
028.41	Manganese, ICP, Dry ash (ppm)	18	18	120.5	8.517	120.9	8.858	2.610	7.33%	4.228	7.77%
028.42	Manganese, ICP, Open vessel (ppm)	17	17	125.3	9.430	125.5	9.498	2.879	7.57%	2.939	7.73%
028.31	Manganese, AAS, Dry ash (ppm)	13	13	120.3	11.31	119.6	11.24	3.898	9.40%	1.483	7.79%
028.53	Manganese, ICP-MS, Microwave (ppm)	4	4	122.2	2.249	122.2	2.249	1.125	1.84%	4.753	7.76%
028.99	Manganese, Miscellaneous (ppm)	4	4	122.6	4.151	122.6	4.151	2.075	3.38%	6.250	7.76%
028.52	Manganese, ICP-MS, Open vessel (ppm)	3	3	120.7	14.29	120.7	14.29	8.247	11.83%	1.733	7.78%
028.33	Manganese, AAS, Microwave (ppm)	2	2	120.4	3.419						
028.44	Manganese, ICP, Dry ash (ppm)	2	2	119.1	7.712						
028.32	Manganese, AAS, Open vessel (ppm)	1	1	146.5							
031.01	Phosphorus, Photometric (%)	34	32	0.7703	0.0826	0.7572	0.0257	0.0057	3.40%	0.0090	4.17%
031.43	Phosphorus, ICP, Microwave (%)	24	24	0.7759	0.0345	0.7752	0.0339	0.0086	4.37%	0.0185	4.16%
031.41	Phosphorus, ICP, Dry ash (%)	22	21	0.7684	0.0450	0.7668	0.0473	0.0129	6.17%	0.0225	4.16%
031.42	Phosphorus, ICP, Open vessel (%)	18	18	0.7340	0.0487	0.7367	0.0484	0.0143	6.57%	0.0261	4.19%
031.99	Phosphorus, Miscellaneous (%)	4	4	0.7238	0.0269	0.7238	0.0269	0.0134	3.72%	0.0125	4.20%
031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%)	3	3	0.7917	0.0284	0.7917	0.0284	0.0164	3.59%	0.0367	4.14%
031.03	Phosphorus, Autoanalyzer (%)	3	3	0.7569	0.0072	0.7569	0.0072	0.0042	0.96%	0.0082	4.17%
031.44	Phosphorus, ICP, Dry ash (%)	3	3	0.7805	0.0199	0.7805	0.0199	0.0115	2.55%	0.0177	4.15%
031.52	Phosphorus, ICP-MS, Open vessel (%)	3	3	0.7338	0.0655	0.7338	0.0655	0.0378	8.93%	0.0380	4.19%
031.53	Phosphorus, ICP-MS, Microwave (%)	3	3	0.7628	0.0257	0.7628	0.0257	0.0148	3.36%	0.0243	4.17%
031.00	Phosphorus, Vol (%)	1	1	0.7500							
031.06	Phosphorus, Hach Method (%)	1	1	0.7250							
032.43	Potassium, ICP, Microwave (%)	19	19	0.8150	0.0439	0.8139	0.0474	0.0136	5.83%	0.0189	4.13%
032.41	Potassium, ICP, Dry ash (%)	18	18	0.7888	0.0572	0.7909	0.0561	0.0165	7.10%	0.0182	4.14%
032.42	Potassium, ICP, Open vessel (%)	16	16	0.8172	0.0524	0.8122	0.0480	0.0150	5.91%	0.0193	4.13%

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032.31	Potassium, AAS, Dry ash (%)	8	8	0.7811	0.0253	0.7820	0.0181	0.0080	2.31%	0.0146	4.15%
032.99	Potassium, Miscellaneous (%)	4	4	0.7813	0.0144	0.7813	0.0144	0.0072	1.84%	0.0175	4.15%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	0.7839	0.0051	0.7839	0.0051	0.0029	0.65%	0.0363	4.15%
032.53	Potassium, ICP-MS, Microwave (%)	3	3	0.8140	0.0384	0.8140	0.0384	0.0221	4.71%	0.0393	4.13%
032.32	Potassium, AAS, Open vessel (%)	1	1	0.8050							
032.44	Potassium, ICP, Dry ash (%)	1	1	0.8105							
033.01	Salt as chloride, Poten Cl (%)	28	26	1.149	0.0561	1.148	0.0238	0.0058	2.07%	0.0132	3.92%
033.00	Salt as chloride, Sol Cl (%)	23	22	1.092	0.0734	1.097	0.0671	0.0179	6.12%	0.0208	3.94%
033.99	Salt, Miscellaneous (%)	9	8	0.9275	0.1994	0.9355	0.2077	0.0918	22.21%	0.0300	4.04%
033.03	Salt as chloride, Quantab (%)	5	4	1.066	0.1677	1.066	0.1677	0.0839	15.73%	0.0175	3.96%
033.05	Salt as chloride, Ion Sel Electrode (%)	4	3	0.9875	0.2771	0.9875	0.2771	0.1959	28.06%	0.0140	4.01%
034.53	Selenium, ICP-MS, Microwave (ppm)	7	7	1.218	0.1288	1.218	0.1460	0.0690	11.99%	0.0701	15.53%
034.43	Selenium, ICP, Microwave (ppm)	6	6	1.215	0.4916	1.257	0.4561	0.2328	36.29%	0.1278	15.46%
034.04	Selenium, AA, Hydride (ppm)	4	3	1.114	0.1425	1.114	0.1425	0.0823	12.80%	0.0050	15.74%
034.41	Selenium, ICP, Dry ash (ppm)	3	3	1.007	0.0567	1.007	0.0567	0.0328	5.64%	0.0910	15.98%
034.52	Selenium, ICP-MS, Open vessel (ppm)	3	3	1.143	0.0921	1.143	0.0921	0.0532	8.06%	0.0273	15.68%
034.99	Selenium, Miscellaneous (ppm)	2	2	181.8	253.4						
034.42	Selenium, ICP, Open vessel (ppm)	1	1	0.7500							
035.41	Sodium, ICP, Dry ash (%)	20	20	0.4102	0.0286	0.4089	0.0289	0.0081	7.07%	0.0096	4.58%
035.43	Sodium, ICP, Microwave (%)	19	19	0.4209	0.0259	0.4195	0.0226	0.0065	5.38%	0.0090	4.56%
035.42	Sodium, ICP, Open vessel (%)	15	14	0.4079	0.0243	0.4080	0.0273	0.0091	6.68%	0.0074	4.58%
035.31	Sodium, AAS, Dry ash (%)	12	11	0.4034	0.0223	0.4003	0.0162	0.0061	4.06%	0.0045	4.59%
035.99	Sodium, Miscellaneous (%)	4	4	0.3638	0.1038	0.3638	0.1038	0.0519	28.53%	0.0125	4.66%
035.52	Sodium, ICP-MS, Open vessel (%)	3	3	0.4073	0.0102	0.4073	0.0102	0.0072	2.49%	0.0053	4.58%
035.53	Sodium, ICP-MS, Microwave (%)	3	3	0.4155	0.0058	0.4155	0.0058	0.0033	1.39%	0.0303	4.56%
035.01	Sodium, Ion-selective electrode (%)	1	1	0.3995							
035.05	Sodium, Flame Emission (%)	1	1	0.4300							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.4150							
036.42	Sulfur, ICP, Open vessel (%)	20	20	0.2835	0.0206	0.2856	0.0170	0.0048	5.96%	0.0078	4.83%
036.43	Sulfur, ICP, Microwave (%)	14	14	0.2868	0.0260	0.2868	0.0220	0.0073	7.65%	0.0092	4.83%
036.04	Sulfur, LECO (%)	3	3	0.3317	0.1073	0.3317	0.1073	0.0759	32.35%	0.0100	4.72%
036.52	Sulfur, ICP-MS, Open vessel (%)	3	3	0.2905	0.0174	0.2905	0.0174	0.0100	5.99%	0.0224	4.82%
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.2845							
036.99	Sulfur, Miscellaneous (%)	1	1	0.2700							
037.43	Zinc, ICP, Microwave (ppm)	22	21	397.0	25.04	396.7	26.44	7.213	6.67%	9.416	6.50%
037.41	Zinc, ICP, Dry ash (ppm)	19	18	389.3	22.21	390.7	22.11	6.515	5.66%	12.26	6.52%
037.42	Zinc, ICP, Open vessel (ppm)	16	15	383.2	35.35	381.2	34.99	11.29	9.18%	12.33	6.54%
037.31	Zinc, AAS, Dry ash (ppm)	12	12	380.9	15.63	381.1	17.36	6.265	4.56%	4.682	6.54%
037.99	Zinc, Miscellaneous (ppm)	5	5	404.0	32.52	404.0	32.52	14.55	8.05%	8.792	6.48%
037.33	Zinc, AAS, Microwave (ppm)	3	3	407.1	30.87	407.1	30.87	17.82	7.58%	13.41	6.48%

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037.44	Zinc, ICP, Dry ash (ppm)	3	3	373.7	15.16	373.7	15.16	8.753	4.06%	4.463	6.56%
037.52	Zinc, ICP-MS, Open vessel (ppm)	3	3	355.4	69.66	355.4	69.66	40.22	19.60%	24.97	6.61%
037.53	Zinc, ICP-MS, Microwave (ppm)	3	3	397.3	22.89	397.3	22.89	13.22	5.76%	15.33	6.50%
037.32	Zinc, AAS, Open vessel (ppm)	1	1	369.5							
038.43	Molybdenum, ICP, Microwave (ppm)	8	8	1.085	0.2589	1.078	0.2781	0.1229	25.79%	0.0427	15.82%
038.42	Molybdenum, ICP, Open vessel (ppm)	4	4	1.560	0.6782	1.560	0.6782	0.3391	43.47%	0.2353	14.96%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	4	4	1.155	0.0318	1.155	0.0318	0.0159	2.75%	0.0303	15.65%
038.41	Molybdenum, ICP, Dry ash (ppm)	3	3	0.9890	0.1560	0.9890	0.1560	0.0900	15.77%	0.0303	16.02%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	1	1	1.040							
040.52	Barium, ICP-MS, Open vessel (ppm)	1	1	8.445							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	8.020							
041.43	Vanadium, ICP, Microwave (ppm)	1	1	1.455							
041.53	Vanadium, ICP-MS, Microwave (ppm)	1	1	1.310							
042.00	Chloride, Titrimetric (%)	2	2	0.6775	0.0304						
042.99	Chloride, Miscellaneous (%)	1	1	0.7150							
101.01	Choline Chloride, Chem (ppm)	1	1	1,883							
101.02	Choline Chloride, LC (ppm)	1	1	1,589							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	2,630							
102.99	Niacin, Miscellaneous (ppm)	2	2	44.08	13.62						
102.01	Niacin, Microbiological (ppm)	1	1	83.00							
102.02	Niacin, LC (ppm)	1	1	38.90							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	29.85							
103.02	Pantothenic Acid, LC (ppm)	1	1	35.10							
103.99	Pantothenic Acid, Miscellaneous (ppm)	1	1	111.1							
104.03	Riboflavin, LC (ppm)	5	5	9.167	1.770	9.167	1.770	0.7916	19.31%	1.322	11.46%
104.99	Riboflavin, Miscellaneous (ppm)	2	2	7.778	3.673						
104.00	Riboflavin, Fluorometric (ppm)	1	1	10.70							
105.00	Thiamine, LC (ppm)	2	2	2.503	0.5551						
105.01	Thiamine, Fluorometer (ppm)	1	1	2.825							
106.02	Vitamin A, LC (KU / kg)	15	14	3.918	4.674	2.834	2.638	0.8814	93.11%	0.8980	
106.00	Vitamin A, Color (KU / kg)	1	1	1.011							
106.01	Vitamin A, UV (KU / kg)	1	1	3.715							
107.00	Vitamin B12, Microbiological (ppb)	1	1	12.20							
107.99	Vitamin B12, Miscellaneous (ppb)	1	1	40.30							
108.02	Vitamin D3, LC (KU / kg)	4	2	1.253	1.255	1.253	1.255			0.1705	
108.99	Vitamin D3, Miscellaneous (KU / kg)	3	2	0.5835	0.4080	0.5835	0.4080			0.1140	
109.02	Vitamin E, LC (IU / kg)	11	10	45.34	15.44	42.43	9.152	3.618	21.57%	2.248	
109.99	Vitamin E, Miscellaneous (IU / kg)	2	2	36.31	2.394						
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		0.0440							
112.01	Pyridoxine, LC (µg / g)	1	1	2.690							

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113.01	Folic Acid, Micro (ppm)	1	1	0.6835							
114.01	Biotin, Microbiological (ppm)	1	1	0.2460							
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	7.555							
120.00	Alanine, Post-col Ninhydrin Der (%)	19	19	0.7934	0.0270	0.7960	0.0219	0.0063	2.75%	0.0135	4.14%
120.05	Alanine, Pre-col AQC Der (%)	6	6	0.8155	0.0351	0.8155	0.0398	0.0203	4.88%	0.0067	4.12%
120.99	Alanine, Miscellaneous (%)	3	3	0.7717	0.0562	0.7717	0.0562	0.0324	7.28%	0.0100	4.16%
120.02	Alanine, Post-col OPA Der (%)	1	1	0.8115							
121.00	Arginine, Post-col Ninhydrin Der (%)	19	18	1.003	0.0576	0.9974	0.0409	0.0120	4.10%	0.0112	4.00%
121.05	Arginine, Pre-col AQC Der (%)	6	6	1.018	0.0631	1.018	0.0715	0.0365	7.03%	0.0388	3.99%
121.99	Arginine, Miscellaneous (%)	2	2	0.9775	0.0318						
121.02	Arginine, Post-col OPA Der (%)	1	1	1.015							
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	19	1.392	0.0561	1.391	0.0403	0.0116	2.90%	0.0240	3.81%
122.05	Aspartic, Pre-col AQC Der (%)	6	5	1.439	0.0481	1.439	0.0481	0.0269	3.35%	0.0166	3.79%
122.99	Aspartic, Miscellaneous (%)	3	3	1.353	0.1211	1.353	0.1211	0.0699	8.95%	0.0133	3.82%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.434							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	19	19	0.2634	0.0277	0.2631	0.0212	0.0061	8.04%	0.0086	4.89%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	6	5	0.2480	0.0228	0.2480	0.0228	0.0033	9.18%	0.0126	4.93%
124.99	Cysteine/Cystine, Miscellaneous (%)	3	3	0.2383	0.0029	0.2383	0.0029	0.0017	1.21%	0.0100	4.96%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.2905							
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	18	2.770	0.0907	2.760	0.0757	0.0223	2.74%	0.0338	3.43%
125.05	Glutamic, Pre-col AQC Der (%)	6	6	2.922	0.2383	2.922	0.2702	0.1379	9.25%	0.0913	3.40%
125.99	Glutamic, Miscellaneous (%)	3	3	2.698	0.3009	2.698	0.3009	0.1737	11.15%	0.0333	3.44%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.824							
126.00	Glycine, Post-col Ninhydrin Der (%)	19	19	0.7513	0.0282	0.7479	0.0209	0.0060	2.80%	0.0125	4.18%
126.05	Glycine, Pre-col AQC Der (%)	6	5	0.7482	0.0673	0.7482	0.0673	0.0434	8.99%	0.0048	4.18%
126.99	Glycine, Miscellaneous (%)	3	3	0.6358	0.2028	0.6358	0.2028	0.1171	31.90%	0.0117	4.28%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.7725							
127.00	Histidine, Post-col Ninhydrin Der (%)	19	19	0.3978	0.0230	0.3957	0.0189	0.0054	4.79%	0.0080	4.60%
127.05	Histidine, Pre-col AQC Der (%)	6	6	0.3773	0.0452	0.3730	0.0410	0.0209	10.98%	0.0222	4.64%
127.99	Histidine, Miscellaneous (%)	3	3	0.3842	0.0188	0.3842	0.0188	0.0108	4.88%	0.0083	4.62%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.3995							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	18	0.5662	0.0352	0.5694	0.0306	0.0090	5.38%	0.0100	4.35%
128.05	Isoleucine, Pre-col AQC Der (%)	7	5	0.6020	0.0600	0.6020	0.0600	0.0336	9.97%	0.0120	4.32%
128.99	Isoleucine, Miscellaneous (%)	3	3	0.5700	0.0350	0.5700	0.0350	0.0202	6.14%	0.0067	4.35%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.5960							
129.00	Leucine, Post-col Ninhydrin Der (%)	19	19	1.215	0.0421	1.218	0.0354	0.0102	2.91%	0.0143	3.88%
129.05	Leucine, Pre-col AQC Der (%)	7	5	1.218	0.0670	1.218	0.0670	0.0375	5.50%	0.0220	3.88%
129.99	Leucine, Miscellaneous (%)	3	3	1.161	0.1034	1.161	0.1034	0.0597	8.91%	0.0150	3.91%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.243							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	20	20	0.7233	0.0270	0.7234	0.0303	0.0085	4.19%	0.0145	4.20%

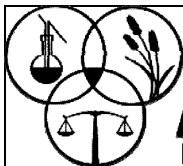
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130.05	L-Lysine, Pre-col AQC Der (%)	7	6	0.7614	0.0357	0.7614	0.0405	0.0207	5.32%	0.0218	4.17%
130.99	L-Lysine, Miscellaneous (%)	5	4	0.7025	0.0514	0.7025	0.0514	0.0257	7.32%	0.0050	4.22%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.7805							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	19	19	0.2413	0.0253	0.2417	0.0154	0.0044	6.39%	0.0061	4.95%
131.05	Methionine, PAO Pre-col AQC Der (%)	7	6	0.2434	0.0338	0.2434	0.0384	0.0196	15.77%	0.0077	4.95%
131.99	Methionine, Miscellaneous (%)	3	3	0.2325	0.0115	0.2325	0.0115	0.0066	4.93%	0.0117	4.98%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2405							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	19	0.7123	0.0420	0.7122	0.0405	0.0116	5.68%	0.0088	4.21%
132.05	Phenylalanine, Pre-col AQC Der (%)	7	5	0.7072	0.0471	0.7072	0.0471	0.0263	6.66%	0.0120	4.21%
132.99	Phenylalanine, Miscellaneous (%)	3	3	0.7033	0.0226	0.7033	0.0226	0.0159	3.21%	0.0033	4.22%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.7225							
133.00	Proline, Post-col Ninhydrin Der (%)	19	18	0.9096	0.1889	0.9517	0.0598	0.0176	6.28%	0.0204	4.03%
133.05	Proline, Pre-col AQC Der (%)	6	5	1.019	0.0733	1.019	0.0733	0.0410	7.19%	0.0060	3.99%
133.99	Proline, Miscellaneous (%)	3	3	0.9033	0.1125	0.9033	0.1125	0.0650	12.46%	0.0233	4.06%
134.00	Serine, Post-col Ninhydrin Der (%)	19	18	0.7161	0.0342	0.7170	0.0292	0.0086	4.07%	0.0128	4.21%
134.05	Serine, Pre-col AQC Der (%)	6	5	0.7529	0.0430	0.7529	0.0430	0.0241	5.72%	0.0042	4.17%
134.99	Serine, Miscellaneous (%)	3	3	0.6767	0.0513	0.6767	0.0513	0.0363	7.58%	0.0067	4.24%
134.02	Serine, Post-col OPA Der (%)	1	1	0.6465							
135.00	Threonine, Post-col Ninhydrin Der (%)	19	19	0.5499	0.0264	0.5533	0.0184	0.0053	3.32%	0.0139	4.37%
135.05	Threonine, Pre-col AQC Der (%)	7	6	0.5525	0.0358	0.5526	0.0403	0.0206	7.29%	0.0223	4.37%
135.99	Threonine, Miscellaneous (%)	3	3	0.5233	0.0729	0.5233	0.0729	0.0421	13.92%	0.0067	4.41%
135.02	Threonine, Post-col OPA Der (%)	1	1	0.5645							
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	7	7	0.2020	0.0240	0.2020	0.0272	0.0128	13.46%	0.0092	5.09%
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	6	0.1948	0.0154	0.1916	0.0092	0.0047	4.80%	0.0046	5.13%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	3	3	0.1880	0.0049	0.1880	0.0049	0.0028	2.62%	0.0047	5.14%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.1905							
136.05	Tryptophan, Pre-col AQC Der (%)	1	1	0.1080							
136.99	Tryptophan, Miscellaneous (%)	1	1	0.4300							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	13	13	0.4776	0.0618	0.4797	0.0654	0.0227	13.64%	0.0175	4.47%
137.05	Tyrosine, Pre-col AQC Der (%)	7	5	0.5387	0.0843	0.5387	0.0843	0.0471	15.64%	0.0058	4.39%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.4433	0.0126	0.4433	0.0126	0.0073	2.84%	0.0067	4.52%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4810							
138.00	Valine, Post-col Ninhydrin Der (%)	19	19	0.6904	0.0370	0.6944	0.0295	0.0085	4.25%	0.0170	4.23%
138.05	Valine, Pre-col AQC Der (%)	7	5	0.7209	0.0400	0.7209	0.0400	0.0249	5.55%	0.0106	4.20%
138.99	Valine, Miscellaneous (%)	3	3	0.7033	0.0530	0.7033	0.0530	0.0375	7.53%	0.0033	4.22%
138.02	Valine, Post-col OPA Der (%)	1	1	0.7420							
139.00	Taurine, Post-col Ninhydrin Der (%)	1	1	0.0900							
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0055							
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
139.99	Taurine, Miscellaneous (%)	1		0.0100							

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150.00	Phytase, Colorimetric (Units / kg)	4	4	953.8	368.9	953.8	368.9	184.5	38.68%	49.00	
150.99	Phytase, Miscellaneous (Units / kg)	1	1	676.5							
160.99	Fructose, Miscellaneous (%)	2	2	0.1940	0.0863						
160.10	Fructose, HPAEC PAD (%)	1	1	0.1385							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							
162.99	Glucose, Miscellaneous (%)	3	3	1.355	1.950	1.355	1.950	1.379	143.90%	0.1333	3.82%
162.10	Glucose, HPAEC PAD (%)	1	1	0.2000							
163.10	Lactose, HPAEC PAD (%)	1		0.0000							
163.99	Lactose, Miscellaneous (%)	2		0.0000							
164.10	Maltose, HPAEC PAD (%)	1	1	0.2675							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.99	Sucrose, Miscellaneous (%)	2	2	1.960	0.1697						
165.10	Sucrose, HPAEC PAD (%)	1	1	1.783							
166.99	Raffinose, Miscellaneous (%)	2	2	0.3648	0.0357						
166.10	Raffinose, HPAEC PAD (%)	1	1	0.3610							
167.99	Stachyose, Miscellaneous (%)	2	2	0.6973	0.0110						
167.10	Stachyose, HPAEC PAD (%)	1	1	0.7150							
351.05	Chlortetracycline, LC-MS/MS (ppm)	5	4	2.511	1.472	2.511	1.472	0.7358	58.60%	0.1337	13.93%
351.00	Chlortetracycline, Plate (ppm)	1	1	2.832							
382.04	Sulfamethazine, LC-MS/MS (ppm)	3	3	3.159	1.189	3.159	1.189	0.6866	37.65%	0.3105	13.45%
386.00	Tiamulin, LC (ppm)	4	4	115.7	9.685	115.7	9.685	4.842	8.37%	6.875	7.83%
386.02	Tiamulin, LC-MS/MS (ppm)	4	3	109.2	45.32	109.2	45.32	26.17	41.52%	1.057	7.89%
388.05	Tylosin, LC-MS/MS (ppm)	5	5	64.24	18.22	64.24	18.22	8.148	28.36%	0.4880	8.55%
388.03	Tylosin, LC (ppm)	4	3	56.22	5.594	56.22	5.594	3.230	9.95%	1.093	8.72%
388.99	Tylosin, Miscellaneous (ppm)	1	1	44.84							
400.01	Water Activity, Aqualab chilled mirror (Units)	9	9	0.5451	0.0229	0.5418	0.0176	0.0073	3.25%	0.0059	
400.99	Water Activity, Miscellaneous (Units)	2	2	0.5355	0.0000						
516.53	Arsenic, Total, ICP-MS, Microwave (ppm)	5	4	0.1450	0.0066	0.1450	0.0066	0.0033	4.57%	0.0045	21.39%
516.52	Arsenic, Total, ICP-MS, Open vessel (ppm)	3	3	0.1495	0.0187	0.1495	0.0187	0.0108	12.48%	0.0043	21.29%
516.00	Arsenic, Total, AA, Hydride (ppm)	2	2	0.1360	0.0057						
516.43	Arsenic, Total, ICP, Microwave (ppm)	2	1	1.057							
516.99	Arsenic, Total, Miscellaneous (ppm)	1		0.0000							
518.53	Cadmium, ICP-MS, Microwave (ppm)	5	5	0.1045	0.0058	0.1045	0.0058	0.0026	5.55%	0.0082	22.00%
518.52	Cadmium, ICP-MS, Open vessel (ppm)	3	3	0.1103	0.0045	0.1103	0.0045	0.0026	4.09%	0.0047	22.00%
518.41	Cadmium, ICP, Dry ash (ppm)	2	2	0.1047	0.0123						
518.43	Cadmium, ICP, Microwave (ppm)	3	2	0.1353	0.0118	0.1353	0.0118			0.0054	21.61%
518.34	Cadmium, AAS, Graphite furnace (ppm)	1	1	0.2300							
518.31	Cadmium, AAS, Dry ash (ppm)	1		0.2000							
518.99	Cadmium, Miscellaneous (ppm)	1		0.0000							
520.43	Chromium, ICP, Microwave (ppm)	4	4	3.831	1.480	3.831	1.480	0.7399	38.62%	0.0501	13.07%

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
520.53	Chromium, ICP-MS, Microwave (ppm)	4	3	4.093	0.1371	4.093	0.1371	0.0792	3.35%	0.1067	12.94%
520.41	Chromium, ICP, Dry ash (ppm)	2	2	2.079	0.2630						
520.42	Chromium, ICP, Open vessel (ppm)	2	2	4.135	0.1138						
520.52	Chromium, ICP-MS, Open vessel (ppm)	1	1	2.235							
526.53	Lead, ICP-MS, Microwave (ppm)	5	5	0.1997	0.0191	0.1997	0.0191	0.0086	9.58%	0.0201	20.39%
526.41	Lead, ICP, Dry ash (ppm)	2	2	0.1419	0.0763						
526.43	Lead, ICP, Microwave (ppm)	3	2	0.2181	0.0539	0.2181	0.0539			0.0144	20.12%
526.52	Lead, ICP-MS, Open vessel (ppm)	2	2	0.1900	0.0141						
526.34	Lead, AAS, Graphite furnace (ppm)	1	1	0.4750							
526.31	Lead, AAS, Dry ash (ppm)	1		0.2000							
526.99	Lead, Miscellaneous (ppm)	1		0.0000							
529.99	Mercury, Miscellaneous (ppb)	3									
539.43	Nickel, ICP, Microwave (ppm)	3	3	2.647	0.4192	2.647	0.4192	0.2420	15.84%	0.0592	13.82%
539.41	Nickel, ICP, Dry ash (ppm)	2	2	1.941	0.1140						
539.53	Nickel, ICP-MS, Microwave (ppm)	2	2	2.795	0.2258						
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	2.065							
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1		0.0000							
704.00	Caproic Acid (6:0) , Miscellaneous GC (%)	1	1	0.0115							
706.01	Caprylic acid (8:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0105							
708.01	Capric acid (10:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0155							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	3	2	0.0070	0.0078	0.0070	0.0078			0.0010	8.44%
710.01	Lauric Acid (12:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0230							
714.99	Myristic Acid (14:0) , Miscellaneous (% (w/w))	2	2	0.0105	0.0078						
714.01	Myristic Acid (14:0) , Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0305							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	2	2	0.6210	0.1428						
716.01	Palmitic Acid (16:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.5075							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	2	2	0.0085	0.0007						
718.01	Palmitoleic Acid (9c-16:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0415							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	2	2	0.1028	0.0202						
722.01	Stearic Acid (18:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0805							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	2	2	0.7683	0.0930						
724.01	Oleic Acid (9c-18:1), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.6170							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	3	3	1.468	0.1113	1.468	0.1113	0.0643	7.58%	0.0327	3.78%
726.01	Linoleic Acid (9c,12c-18:2), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	1.480							
726.02	Linoleic Acid (9c,12c-18:2), Direct Methylation by Acid-Alkali Hydrolysis & GC (% (w/w))	1	1	1.345							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	3	3	0.0692	0.0079	0.0692	0.0079	0.0056	11.35%	0.0010	5.98%
728.01	alpha-Linolenic Acid (9c,12c,15c-18:3), Direct Methylation by Alkali Hydrolysis	1	1	0.0720							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	2	2	0.0125	0.0021						
730.01	Arachidic Acid (20:0), Direct Methylation by Alkali Hydrolysis & GC (% (w/w))	1	1	0.0410							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	2	2	0.0123	0.0011						

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
732.01	Gondoic Acid (11c-20:1), Direct Methylation by Alkali Hydrolysis & GC (% w/w)	1	1	0.0440							
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		0.0000							
738.01	Mead Acid (11c,14c,17c-20:3), Direct Methylation by Alkali Hydrolysis & GC (%)	1		0.0000							
740.01	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Direct Methylation by Al	1		0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% w/w	2		0.0000							
742.99	Behenic Acid (22:0), Miscellaneous (% w/w))	2	2	0.0098	0.0046						
744.01	Erucic Acid (13c-22:1), Direct Methylation by Alkali Hydrolysis & GC (% w/w))	1		0.0000							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% w/w))	1		0.0050							
746.01	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Direct Methylation	1		0.0000							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (%)	2		0.0000							
748.99	Lignoceric Acid (24:0), Miscellaneous (% w/w))	1	1	0.0090							
750.01	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Direct Methylation	1		0.0000							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (%)	2		0.0000							
752.01	Nervonic Acid (24:1) isomers, Direct Methylation by Alkali Hydrolysis & GC (%)	1		0.0000							
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	0.0718	0.0166						
754.02	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Direct Methylation by Acid-f	1	1	0.0748							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% w/w))	2	2	1.495	0.1556						
756.01	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Direct Methylation by Alkali	1	1	1.345							
758.99	Total Saturated Fatty Acids, Miscellaneous (% w/w))	1	1	0.9225							
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (% w/w))	1	1	0.9150							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (% w/w))	1	1	1.696							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (% w/w))	1	1	3.735							
772.99	Total Fatty Acids, Miscellaneous (% w/w))	2	2	3.215	0.5024						

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

Pig Grower, Medicated

Test Material Code # 202026

Method Precision Report

Methods Reported: 87

Labs Reporting: 177

Issue Date : 07/31/2020

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 (%)	43	39	9.440	0.4333	0.2774	0.0852	0.2902	2.93%	0.90%	3.07%	3.406
001.99	Loss on Drying, Miscellaneous (%)	21	20	9.154	0.6597	0.4401	0.1740	0.4732	4.75%	1.88%	5.11%	2.720
002.01	Protein, Crude, Auto Kjel-Foss (%)	10	8	16.29	0.7055	0.1339	0.0455	0.1414	0.83%	0.28%	0.88%	3.111
002.05	Protein, Crude, Copper, Boric Acid (%)	30	29	15.93	0.2632	0.2267	0.0694	0.2371	1.42%	0.44%	1.49%	3.414
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	113	105	16.13	0.6048	0.2565	0.1165	0.2817	1.59%	0.72%	1.75%	2.419
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	11	10	2.820	0.5036	0.2950	0.0358	0.2972	10.95%	1.33%	11.03%	8.292
003.06	Fat, Crude, Pet Ether (%)	14	12	2.667	0.2189	0.2252	0.0535	0.2315	8.44%	2.01%	8.67%	4.324
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	15	14	2.841	0.2289	0.2143	0.0748	0.2270	7.49%	2.61%	7.93%	3.036
003.10	Fat, Crude, Randall, Pet Ether (%)	25	23	2.527	0.2224	0.1821	0.0706	0.1953	7.14%	2.77%	7.65%	2.765
003.14	Fat, Crude, Ankom (%)	51	45	2.225	0.5007	0.3988	0.0855	0.4078	18.03%	3.87%	18.44%	4.768
004.00	Fiber, Crude, Asbestos Free (%)	12	11	3.709	0.4967	0.3414	0.0885	0.3527	9.48%	2.46%	9.79%	3.986
004.06	Fiber, Crude, Fibertec (%)	18	17	3.721	0.1843	0.1355	0.0935	0.1647	3.67%	2.53%	4.46%	1.761
004.07	Fiber, Crude, ANKOM (%)	68	62	3.780	0.8008	0.4255	0.1118	0.4399	11.74%	3.08%	12.14%	3.934
005.00	Ash, 2h @ 600°C (%)	72	67	8.749	0.5137	0.4907	0.0777	0.4968	5.59%	0.88%	5.65%	6.396
005.05	Ash, 3h @ 550°C (%)	25	22	9.175	0.2817	0.2403	0.0433	0.2441	2.61%	0.47%	2.65%	5.637
008.02	Fiber, Acid Detergent, Crucible (%)	11	10	5.040	0.3976	0.2683	0.1152	0.2920	5.42%	2.33%	5.90%	2.536
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	39	37	5.042	0.3881	0.3330	0.1791	0.3781	6.62%	3.56%	7.52%	2.111
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	10	9	13.16	1.498	1.491	0.2035	1.505	11.33%	1.55%	11.44%	7.396
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	39	34	12.84	1.177	0.6728	0.2538	0.7191	5.32%	2.01%	5.69%	2.833
010.99	Moisture, Miscellaneous (%)	14	14	9.424	0.3155	0.3117	0.0690	0.3192	3.31%	0.73%	3.39%	4.629
011.01	Loss on Drying, 135°C 2hr (%)	59	52	10.45	0.5103	0.4400	0.0657	0.4449	4.22%	0.63%	4.27%	6.769
012.00	Starch, Polarimetric (Ewers) (%)	12	11	41.08	0.5762	0.5432	0.2718	0.6074	1.32%	0.66%	1.48%	2.234
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	10	9	38.21	1.753	1.665	0.4841	1.734	4.33%	1.26%	4.51%	3.582
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	16	15	3.351	0.6246	0.6391	0.1199	0.6502	19.14%	3.59%	19.47%	5.423
013.02	Fat, Acid Pretreat, Mojonnier, Bak Ext (%)	17	17	3.925	0.2983	0.2928	0.0807	0.3037	7.46%	2.06%	7.74%	3.764
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	9	9	3.584	0.4984	0.4838	0.1697	0.5127	13.50%	4.73%	14.30%	3.021
019.00	Calcium, Ox-Mn04 Vol. (%)	14	12	2.157	0.1174	0.0662	0.0344	0.0746	3.03%	1.57%	3.41%	2.169
019.31	Calcium, AAS, Dry ash (%)	18	17	2.159	0.1317	0.1092	0.0560	0.1227	5.02%	2.57%	5.64%	2.191
019.41	Calcium, ICP, Dry ash (%)	24	22	2.236	0.1194	0.1188	0.0313	0.1228	5.32%	1.40%	5.50%	3.918
019.42	Calcium, ICP, Open vessel (%)	16	15	2.189	0.1738	0.1721	0.0338	0.1754	7.86%	1.54%	8.01%	5.191
019.43	Calcium, ICP, Microwave (%)	25	22	2.168	0.1914	0.1698	0.0314	0.1726	7.75%	1.43%	7.88%	5.505
022.31	Copper, AAS, Dry ash (ppm)	9	8	41.73	3.825	3.795	0.6751	3.855	9.09%	1.62%	9.24%	5.710
022.41	Copper, ICP, Dry ash (ppm)	19	19	42.09	3.380	3.208	1.509	3.545	7.62%	3.59%	8.42%	2.349
022.42	Copper, ICP, Open vessel (ppm)	17	16	46.12	2.943	2.033	1.484	2.517	4.45%	3.25%	5.51%	1.696
022.43	Copper, ICP, Microwave (ppm)	23	22	45.62	3.785	1.757	1.867	2.564	3.80%	4.04%	5.54%	1.373
025.31	Iron, AAS, Dry ash (ppm)	14	12	595.6	177.3	31.55	7.720	32.48	4.90%	1.20%	5.04%	4.208

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)	21	19	651.2	44.59	25.18	14.06	28.84	3.80%	2.12%	4.35%	2.051
025.42	Iron, ICP, Open vessel (ppm)	14	14	556.0	154.0	153.7	13.27	154.3	27.65%	2.39%	27.75%	11.63
025.43	Iron, ICP, Microwave (ppm)	21	19	647.6	62.19	47.81	17.01	50.75	7.28%	2.59%	7.73%	2.983
027.31	Magnesium, AAS, Dry ash (%)	8	8	0.2092	0.0067	0.0059	0.0045	0.0074	2.82%	2.14%	3.55%	1.654
027.41	Magnesium, ICP, Dry ash (%)	16	16	0.2075	0.0114	0.0106	0.0059	0.0122	5.11%	2.86%	5.86%	2.049
027.42	Magnesium, ICP, Open vessel (%)	16	14	0.2096	0.0101	0.0075	0.0044	0.0087	3.58%	2.09%	4.15%	1.983
027.43	Magnesium, ICP, Microwave (%)	19	18	0.2037	0.0112	0.0109	0.0038	0.0115	5.32%	1.87%	5.64%	3.010
028.31	Manganese, AAS, Dry ash (ppm)	13	13	120.3	11.31	11.27	1.362	11.35	9.37%	1.13%	9.44%	8.334
028.41	Manganese, ICP, Dry ash (ppm)	18	18	120.5	8.517	8.076	3.823	8.936	6.70%	3.17%	7.42%	2.337
028.42	Manganese, ICP, Open vessel (ppm)	17	16	125.3	9.430	9.489	2.376	9.782	7.55%	1.89%	7.79%	4.117
028.43	Manganese, ICP, Microwave (ppm)	22	21	125.7	7.772	7.723	2.262	8.048	6.16%	1.80%	6.42%	3.559
031.01	Phosphorus, Photometric (%)	34	30	0.7703	0.0826	0.0408	0.0087	0.0417	5.38%	1.15%	5.50%	4.776
031.41	Phosphorus, ICP, Dry ash (%)	22	19	0.7684	0.0450	0.0448	0.0146	0.0471	5.80%	1.89%	6.10%	3.231
031.42	Phosphorus, ICP, Open vessel (%)	18	17	0.7340	0.0487	0.0354	0.0258	0.0438	4.78%	3.48%	5.91%	1.699
031.43	Phosphorus, ICP, Microwave (%)	24	23	0.7759	0.0345	0.0315	0.0166	0.0356	4.08%	2.14%	4.60%	2.149
032.41	Potassium, ICP, Dry ash (%)	18	17	0.7888	0.0572	0.0572	0.0145	0.0590	7.23%	1.83%	7.46%	4.068
032.42	Potassium, ICP, Open vessel (%)	16	15	0.8172	0.0524	0.0525	0.0161	0.0549	6.43%	1.97%	6.73%	3.415
032.43	Potassium, ICP, Microwave (%)	19	18	0.8150	0.0439	0.0401	0.0158	0.0431	4.90%	1.92%	5.27%	2.737
033.00	Salt as chloride, Sol Cl (%)	23	20	1.092	0.0734	0.0639	0.0148	0.0656	5.80%	1.34%	5.96%	4.442
033.01	Salt as chloride, Poten Cl (%)	28	23	1.149	0.0561	0.0301	0.0096	0.0316	2.62%	0.83%	2.75%	3.293
033.99	Salt, Miscellaneous (%)	9	8	0.9275	0.1994	0.1983	0.0298	0.2005	21.38%	3.21%	21.62%	6.730
035.31	Sodium, AAS, Dry ash (%)	12	10	0.4034	0.0223	0.0122	0.0045	0.0130	3.07%	1.14%	3.28%	2.872
035.41	Sodium, ICP, Dry ash (%)	20	19	0.4102	0.0286	0.0231	0.0093	0.0249	5.69%	2.29%	6.13%	2.678
035.42	Sodium, ICP, Open vessel (%)	15	14	0.4079	0.0243	0.0238	0.0072	0.0249	5.83%	1.78%	6.10%	3.433
035.43	Sodium, ICP, Microwave (%)	19	18	0.4209	0.0259	0.0192	0.0075	0.0206	4.59%	1.79%	4.93%	2.755
036.42	Sulfur, ICP, Open vessel (%)	20	19	0.2835	0.0206	0.0132	0.0072	0.0150	4.60%	2.52%	5.24%	2.083
036.43	Sulfur, ICP, Microwave (%)	14	14	0.2868	0.0260	0.0254	0.0082	0.0267	8.85%	2.86%	9.30%	3.255
037.31	Zinc, AAS, Dry ash (ppm)	12	11	380.9	15.63	16.18	3.560	16.57	4.25%	0.94%	4.35%	4.654
037.41	Zinc, ICP, Dry ash (ppm)	19	17	389.3	22.21	21.80	9.715	23.87	5.60%	2.49%	6.13%	2.457
037.42	Zinc, ICP, Open vessel (ppm)	16	15	383.2	35.35	34.17	12.78	36.48	8.92%	3.33%	9.52%	2.855
037.43	Zinc, ICP, Microwave (ppm)	22	21	397.0	25.04	24.30	8.575	25.77	6.12%	2.16%	6.49%	3.005
038.43	Molybdenum, ICP, Microwave (ppm)	8	8	1.085	0.2589	0.2577	0.0360	0.2602	23.75%	3.32%	23.98%	7.218
106.02	Vitamin A, LC (KU / kg)	15	13	3.918	4.674	3.247	0.8787	3.364	108.18%	29.28%	112.07%	3.828
109.02	Vitamin E, LC (IU / kg)	11	9	45.34	15.44	6.703	2.083	7.019	16.39%	5.09%	17.16%	3.369
120.00	Alanine, Post-col Ninhydrin Der (%)	19	16	0.7934	0.0270	0.0167	0.0086	0.0188	2.09%	1.07%	2.35%	2.190
121.00	Arginine, Post-col Ninhydrin Der (%)	19	17	1.003	0.0576	0.0357	0.0099	0.0371	3.60%	1.00%	3.73%	3.752
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	17	1.392	0.0561	0.0421	0.0167	0.0453	3.04%	1.21%	3.28%	2.709
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	19	18	0.2634	0.0277	0.0221	0.0079	0.0235	8.29%	2.95%	8.79%	2.984
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	17	2.770	0.0907	0.0673	0.0280	0.0729	2.44%	1.02%	2.64%	2.601
126.00	Glycine, Post-col Ninhydrin Der (%)	19	17	0.7513	0.0282	0.0166	0.0092	0.0190	2.22%	1.24%	2.54%	2.059
127.00	Histidine, Post-col Ninhydrin Der (%)	19	18	0.3978	0.0230	0.0172	0.0074	0.0187	4.36%	1.87%	4.75%	2.535
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	16	0.5662	0.0352	0.0250	0.0069	0.0259	4.36%	1.21%	4.52%	3.745
129.00	Leucine, Post-col Ninhydrin Der (%)	19	18	1.215	0.0421	0.0416	0.0110	0.0430	3.43%	0.91%	3.55%	3.911
130.00	L-Lysine, Post-col Ninhydrin Der (%)	20	19	0.7233	0.0270	0.0257	0.0133	0.0289	3.55%	1.83%	3.99%	2.180
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	19	16	0.2413	0.0253	0.0117	0.0051	0.0128	4.86%	2.10%	5.30%	2.528
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	18	0.7123	0.0420	0.0364	0.0066	0.0370	5.14%	0.93%	5.23%	5.590

Test Material Code # 202026

Issue Date : 07/31/2020

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
133.00	Proline, Post-col Ninhydrin Der (%)	19	16	0.9096	0.1889	0.0634	0.0155	0.0652	6.64%	1.62%	6.83%	4.216
134.00	Serine, Post-col Ninhydrin Der (%)	19	17	0.7161	0.0342	0.0262	0.0116	0.0286	3.63%	1.60%	3.97%	2.479
135.00	Threonine, Post-col Ninhydrin Der (%)	19	18	0.5499	0.0264	0.0130	0.0114	0.0173	2.34%	2.06%	3.12%	1.512
137.00	Tyrosine, Post-col Ninhydrin Der (%)	13	12	0.4776	0.0618	0.0639	0.0127	0.0651	13.38%	2.65%	13.64%	5.149
138.00	Valine, Post-col Ninhydrin Der (%)	19	18	0.6904	0.0370	0.0248	0.0150	0.0290	3.56%	2.16%	4.16%	1.929

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