



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme
Swine Feed, Medicated
Test Material Code # 202325

Method Summary Report
(Precision Report Follows)

Labs Reporting: 169
Methods Reported: 385
Issue Date : 06/30/2023

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO #fp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.1000							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	47	46	10.61	0.5488	10.65	0.3395	0.0626	3.19%	0.1565	2.80%
001.99	Loss on Drying, Miscellaneous (%)	21	19	10.42	0.6996	10.42	0.6602	0.1893	6.34%	0.0727	2.81%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	4	4	10.41	0.6699	10.41	0.6699	0.3349	6.43%	0.0370	2.81%
001.03	Loss on Drying, Low temp. methods (%)	2	2	10.80	0.2121						
001.05	Loss on Drying, LECO (%)	1	1	10.78							
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	115	113	15.78	0.3113	15.78	0.2895	0.0340	1.83%	0.1714	2.52%
002.05	Protein, Crude, Copper, Boric Acid (%)	24	24	15.81	0.4609	15.73	0.3178	0.0811	2.02%	0.1096	2.52%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	22	22	15.75	0.3795	15.68	0.1940	0.0517	1.24%	0.0947	2.53%
002.11	Protein, Crude, NIR (%)	4	4	15.57	1.021	15.57	1.021	0.5107	6.56%	0.1200	2.53%
002.00	Protein, Crude, Crude (%)	2	2	16.02	0.1697						
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	1	1	15.61							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	15.37							
002.08	Protein, Crude, Cu/Ti (%)	1	1	15.68							
002.10	Protein, Crude, Block dig/distillation (%)	1	1	16.34							
003.14	Fat, Crude, Ankom (%)	50	49	4.447	0.5255	4.505	0.3377	0.0603	7.49%	0.1213	3.19%
003.10	Fat, Crude, Randall, Pet Ether (%)	32	31	4.620	0.2762	4.601	0.1755	0.0394	3.81%	0.1322	3.18%
003.06	Fat, Crude, Pet Ether (%)	18	17	4.766	0.2114	4.765	0.1981	0.0601	4.16%	0.0867	3.16%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	13	13	4.725	0.4512	4.771	0.3217	0.1115	6.74%	0.0692	3.16%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	11	11	4.658	0.4086	4.758	0.1313	0.0495	2.76%	0.1181	3.16%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	6	6	4.801	0.1399	4.801	0.1586	0.0809	3.30%	0.1634	3.16%
003.11	Fat, Crude, NIR (%)	4	4	4.911	0.4912	4.911	0.4912	0.2456	10.00%	0.0225	3.15%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	2	2	4.498	0.7248						
003.12	Fat, Crude, Hexane Ext (%)	2	2	4.523	0.0813						
003.99	Fat, Crude, Miscellaneous (%)	2	2	5.293	0.7177						
004.07	Fiber, Crude, ANKOM (%)	78	74	4.363	0.4917	4.337	0.3040	0.0442	7.01%	0.1318	3.21%
004.06	Fiber, Crude, Fibertec (%)	20	20	4.469	0.2319	4.459	0.2400	0.0671	5.38%	0.1610	3.19%
004.00	Fiber, Crude, Asbestos Free (%)	10	9	4.433	0.3004	4.433	0.3406	0.1419	7.68%	0.1413	3.20%
004.03	Fiber, Crude, Fritted Glass (%)	4	4	4.674	0.7313	4.674	0.7313	0.3656	15.65%	0.4125	3.17%

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004.11	Fiber, Crude, NIR (%)	3	3	4.145	0.6596	4.145	0.6596	0.3808	15.91%	0.0433	3.23%
004.99	Fiber, Crude, Miscellaneous (%)	3	3	4.362	0.3904	4.362	0.3904	0.2254	8.95%	0.1703	3.20%
005.00	Ash, 2h @ 600°C (%)	93	92	5.209	0.2263	5.203	0.2237	0.0292	4.30%	0.0624	3.12%
005.05	Ash, 3h @ 550°C (%)	28	27	5.368	0.1707	5.388	0.1509	0.0363	2.80%	0.0588	3.10%
005.99	Ash, Miscellaneous (%)	9	9	5.445	0.2456	5.484	0.0837	0.0349	1.53%	0.1011	3.10%
005.11	Ash, NIR (%)	4	3	5.740	1.885	5.740	1.885	1.088	32.84%	0.0600	3.07%
005.02	Ash, LECO (%)	1	1	5.035							
005.03	Ash, Microwave furnace (%)	1	1	4.950							
006.99	Total Sugars, Miscellaneous (%)	4	4	4.413	1.024	4.413	1.024	0.5122	23.22%	0.1533	3.20%
006.00	Total Sugars, As sucrose (%)	3	3	3.837	0.4498	3.837	0.4498	0.2597	11.72%	0.3403	3.27%
006.03	Total Sugars, Invert w/o Invrns (%)	1	1	4.415							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	52	51	6.155	0.6016	6.152	0.4074	0.0713	6.62%	0.1928	3.04%
008.02	Fiber, Acid Detergent, Crucible (%)	12	12	6.215	0.3954	6.210	0.4183	0.1509	6.73%	0.2373	3.04%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	3	3	6.568	0.3336	6.568	0.3336	0.1926	5.08%	0.2767	3.01%
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	48	46	17.08	0.7724	17.14	0.7171	0.1322	4.18%	0.2341	2.42%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	13	13	18.39	1.399	18.42	1.219	0.4226	6.62%	0.3719	2.33%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	3	3	18.62	1.955	18.62	1.955	1.129	10.50%	0.0900	2.32%
010.99	Moisture, Miscellaneous (%)	17	17	10.76	0.3970	10.75	0.4228	0.1282	3.93%	0.0864	2.80%
010.11	Moisture, NIR (%)	3	3	10.78	0.3627	10.78	0.3627	0.2094	3.37%	0.0567	2.80%
010.03	Moisture, Karl-Fischer (%)	2	2	11.51	0.5834						
011.01	Loss on Drying, HT, 135°C 2hr (%)	64	64	11.44	0.5401	11.49	0.4458	0.0697	3.88%	0.1485	2.77%
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	3	3	11.34	0.0822	11.34	0.0822	0.0475	0.73%	0.0873	2.78%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	2	2	11.61	0.2192						
012.00	Starch, Polarimetric (Ewers) (%)	14	14	37.08	0.6269	37.08	0.7061	0.2359	1.90%	0.1430	1.64%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	11	11	35.71	2.132	35.49	1.934	0.7290	5.45%	0.9189	1.68%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	6	6	34.77	1.793	34.77	2.033	1.037	5.85%	0.8000	1.70%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	3	3	32.84	0.4840	32.84	0.4840	0.2794	1.47%	2.325	1.74%
012.11	Starch, NIR (%)	3	3	37.78	2.966	37.78	2.966	1.713	7.85%	0.3700	1.63%
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	35.56							
012.99	Starch, Miscellaneous (%)	1	1	37.25							
013.00	Fat, Pretreat, Acid hydrolysis (%)	20	19	5.351	0.4016	5.345	0.3536	0.1014	6.62%	0.2073	3.11%
013.02	Fat, Pretreat, Mojonnier, Bak Ext, Acid hydrolysis (%)	13	13	5.799	0.5578	5.794	0.5119	0.1775	8.84%	0.1533	3.07%
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	9	9	5.489	0.5565	5.489	0.6311	0.2629	11.50%	0.2581	3.10%
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	7	6	5.269	0.5570	5.269	0.6316	0.3223	11.99%	0.0334	3.11%
013.08	Fat, Pretreat, Roese-Gottlieb Modified, Alkaline Hydrolysis (%)	1	1	4.960							
015.43	Aluminum, ICP, Microwave (ppm)	7	6	37.96	7.161	37.96	8.120	4.144	21.39%	1.142	9.25%
015.41	Aluminum, ICP, Dry ash (ppm)	3	3	35.75	7.699	35.75	7.699	4.445	21.53%	1.369	9.34%
015.42	Aluminum, ICP, Open vessel (ppm)	3	3	18.04	4.549	18.04	4.549	2.626	25.22%	1.747	10.35%
015.53	Aluminum, ICP-MS, Microwave (ppm)	1	1	42.06							
015.99	Aluminum, Miscellaneous (ppm)	1	1	20.20							

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017.43	Boron, ICP, Microwave (ppm)	8	7	5.894	1.938	5.535	1.272	0.6010	22.98%	1.123	12.36%
017.41	Boron, ICP, Dry ash (ppm)	5	5	5.331	0.8975	5.331	0.8975	0.4014	16.84%	0.1431	12.44%
017.42	Boron, ICP, Open vessel (ppm)	5	5	4.817	0.1397	4.817	0.1397	0.0625	2.90%	0.4144	12.63%
017.53	Boron, ICP-MS, Microwave (ppm)	1	1	4.521							
019.43	Calcium, ICP, Microwave (%)	31	30	0.9566	0.0499	0.9553	0.0479	0.0109	5.01%	0.0289	4.03%
019.41	Calcium, ICP, Dry ash (%)	19	19	0.9682	0.0658	0.9574	0.0416	0.0119	4.35%	0.0196	4.03%
019.31	Calcium, AAS, Dry ash (%)	19	18	0.9462	0.0847	0.9457	0.0596	0.0176	6.30%	0.0139	4.03%
019.42	Calcium, ICP, Open vessel (%)	19	18	0.9733	0.0752	0.9688	0.0750	0.0221	7.75%	0.0340	4.02%
019.08	Calcium, EDTA (%)	11	11	0.9628	0.0738	0.9712	0.0521	0.0196	5.37%	0.0228	4.02%
019.00	Calcium, Ox-Mn04 Vol. (%)	10	10	0.9283	0.0807	0.9283	0.0915	0.0362	9.86%	0.0173	4.04%
019.99	Calcium, Miscellaneous (%)	7	7	0.8936	0.0552	0.8954	0.0584	0.0276	6.52%	0.0100	4.07%
019.53	Calcium, ICP-MS, Microwave (%)	4	4	0.9086	0.0631	0.9086	0.0631	0.0315	6.94%	0.0398	4.06%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	0.9205	0.0260	0.9205	0.0260	0.0150	2.83%	0.0117	4.05%
019.44	Calcium, ICP, Dry ash (%)	2	2	0.9218	0.0378						
019.02	Calcium, Hach Method (%)	1	1	0.8100							
019.09	Calcium, Ion-selective electrode (%)	1	1	0.8065							
019.32	Calcium, AAS, Open vessel (%)	1	1	0.9350							
019.51	Calcium, ICP-MS, Dry ash (%)	1	1	0.8700							
021.43	Cobalt, ICP, Microwave (ppm)	8	6	0.4218	0.1190	0.4218	0.1349	0.0688	31.99%	0.0324	18.22%
021.41	Cobalt, ICP, Dry ash (ppm)	5	4	0.4973	0.3675	0.4973	0.3675	0.1837	73.89%	0.0312	17.77%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	3	3	0.1810	0.0403	0.1810	0.0403	0.0233	22.25%	0.0136	20.69%
021.53	Cobalt, ICP-MS, Microwave (ppm)	3	3	0.2881	0.1144	0.2881	0.1144	0.0809	39.71%	0.0434	19.29%
021.42	Cobalt, ICP, Open vessel (ppm)	2	1	0.2950							
022.43	Copper, ICP, Microwave (ppm)	29	29	93.76	5.091	93.55	5.261	1.221	5.62%	3.626	8.08%
022.42	Copper, ICP, Open vessel (ppm)	19	19	94.39	9.523	94.77	9.737	2.792	10.27%	5.516	8.06%
022.41	Copper, ICP, Dry ash (ppm)	16	16	86.98	5.818	86.95	6.522	2.038	7.50%	3.240	8.17%
022.31	Copper, AAS, Dry ash (ppm)	13	12	81.33	16.76	84.86	7.384	2.664	8.70%	1.341	8.20%
022.53	Copper, ICP-MS, Microwave (ppm)	4	4	96.11	4.564	96.11	4.564	2.282	4.75%	8.911	8.05%
022.99	Copper, Miscellaneous (ppm)	4	4	90.10	6.389	90.10	6.389	3.195	7.09%	4.350	8.13%
022.33	Copper, AAS, Microwave (ppm)	2	2	93.97	7.403						
022.44	Copper, ICP, Dry ash (ppm)	2	2	90.21	2.415						
022.52	Copper, ICP-MS, Open vessel (ppm)	2	2	85.05	2.546						
022.32	Copper, AAS, Open vessel (ppm)	1	1	90.85							
025.43	Iron, ICP, Microwave (ppm)	26	26	203.0	16.89	201.0	13.18	3.232	6.56%	5.708	7.20%
025.42	Iron, ICP, Open vessel (ppm)	18	18	195.9	23.31	196.3	21.05	6.203	10.72%	12.77	7.23%
025.41	Iron, ICP, Dry ash (ppm)	17	17	199.5	14.82	200.3	13.72	4.160	6.85%	5.631	7.20%
025.31	Iron, AAS, Dry ash (ppm)	11	10	206.6	24.25	205.2	24.21	9.571	11.80%	5.046	7.18%
025.53	Iron, ICP-MS, Microwave (ppm)	4	4	186.4	14.56	186.4	14.56	7.278	7.81%	7.880	7.28%
025.99	Iron, Miscellaneous (ppm)	3	3	186.8	8.607	186.8	8.607	4.969	4.61%	9.000	7.28%
025.33	Iron, AAS, Microwave (ppm)	1	1	209.6							

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025.52	Iron, ICP-MS, Open vessel (ppm)	1	1	217.7							
027.43	Magnesium, ICP, Microwave (%)	28	28	0.1934	0.0132	0.1938	0.0115	0.0027	5.94%	0.0102	5.12%
027.42	Magnesium, ICP, Open vessel (%)	19	19	0.1983	0.0176	0.2002	0.0139	0.0040	6.96%	0.0111	5.10%
027.41	Magnesium, ICP, Dry ash (%)	16	16	0.1979	0.0171	0.1948	0.0095	0.0030	4.90%	0.0062	5.12%
027.31	Magnesium, AAS, Dry ash (%)	10	10	0.1955	0.0106	0.1955	0.0121	0.0048	6.17%	0.0062	5.11%
027.99	Magnesium, Miscellaneous (%)	5	5	0.1960	0.0055	0.1960	0.0055				5.11%
027.53	Magnesium, ICP-MS, Microwave (%)	4	4	0.1903	0.0060	0.1903	0.0060	0.0030	3.16%	0.0079	5.13%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.1936	0.0088	0.1936	0.0088	0.0051	4.54%	0.0051	5.12%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.1950							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.2015							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.1975							
028.43	Manganese, ICP, Microwave (ppm)	27	27	107.6	6.301	107.4	6.666	1.604	6.21%	3.232	7.91%
028.42	Manganese, ICP, Open vessel (ppm)	19	19	107.6	8.962	108.1	7.867	2.256	7.28%	5.410	7.91%
028.41	Manganese, ICP, Dry ash (ppm)	15	15	106.1	6.893	105.8	5.482	1.769	5.18%	2.217	7.93%
028.31	Manganese, AAS, Dry ash (ppm)	12	11	131.1	102.4	103.2	17.12	6.453	16.60%	3.408	7.96%
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	105.2	4.039	105.2	4.039	1.806	3.84%	2.096	7.94%
028.99	Manganese, Miscellaneous (ppm)	4	4	104.1	7.598	104.1	7.598	3.799	7.30%	5.533	7.95%
028.44	Manganese, ICP, Dry ash (ppm)	2	2	94.76	14.48						
028.52	Manganese, ICP-MS, Open vessel (ppm)	2	2	102.5	7.046						
028.32	Manganese, AAS, Open vessel (ppm)	1	1	115.5							
028.33	Manganese, AAS, Microwave (ppm)	1	1	107.1							
030.01	Nitrate, Ion-selective electrode (%)	1	1	0.0007							
031.01	Phosphorus, Photometric (%)	37	36	0.5487	0.0279	0.5519	0.0199	0.0041	3.60%	0.0146	4.37%
031.43	Phosphorus, ICP, Microwave (%)	31	31	0.5673	0.0358	0.5668	0.0322	0.0072	5.68%	0.0146	4.36%
031.42	Phosphorus, ICP, Open vessel (%)	20	20	0.5675	0.0440	0.5718	0.0374	0.0105	6.55%	0.0243	4.35%
031.41	Phosphorus, ICP, Dry ash (%)	17	16	0.5751	0.0504	0.5661	0.0163	0.0051	2.88%	0.0126	4.36%
031.44	Phosphorus, ICP, Dry ash (%)	4	4	0.5435	0.0248	0.5435	0.0248	0.0124	4.56%	0.0114	4.38%
031.53	Phosphorus, ICP-MS, Microwave (%)	4	4	0.5560	0.0261	0.5560	0.0261	0.0131	4.70%	0.0233	4.37%
031.99	Phosphorus, Miscellaneous (%)	4	4	0.5313	0.0450	0.5313	0.0450	0.0225	8.47%	0.0125	4.40%
031.03	Phosphorus, Autoanalyzer (%)	2	2	0.5578	0.0102						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	0.5634	0.0256						
031.06	Phosphorus, Hach Method (%)	1	1	0.5150							
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	0.5500							
032.43	Potassium, ICP, Microwave (%)	30	30	0.7462	0.0509	0.7499	0.0325	0.0074	4.33%	0.0193	4.18%
032.42	Potassium, ICP, Open vessel (%)	19	18	0.7655	0.0607	0.7626	0.0562	0.0166	7.37%	0.0239	4.17%
032.41	Potassium, ICP, Dry ash (%)	17	16	0.7405	0.0525	0.7359	0.0303	0.0095	4.12%	0.0108	4.19%
032.31	Potassium, AAS, Dry ash (%)	8	8	0.7361	0.0599	0.7356	0.0667	0.0295	9.07%	0.0212	4.19%
032.99	Potassium, Miscellaneous (%)	5	5	0.7350	0.0380	0.7350	0.0380	0.0170	5.16%	0.0230	4.19%
032.53	Potassium, ICP-MS, Microwave (%)	4	4	0.7397	0.0300	0.7397	0.0300	0.0150	4.06%	0.0110	4.19%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	0.6916	0.0475	0.6916	0.0475	0.0274	6.87%	0.0170	4.23%

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032.08	Potassium, Ion-selective electrode (%)	1	1	0.6160							
032.32	Potassium, AAS, Open vessel (%)	1	1	0.7750							
032.44	Potassium, ICP, Dry ash (%)	1	1	0.7565							
033.01	Salt as chloride, Poten Cl (%)	30	29	0.7682	0.0256	0.7710	0.0205	0.0048	2.66%	0.0107	4.16%
033.00	Salt as chloride, Sol Cl (%)	19	19	0.6866	0.1616	0.6849	0.1267	0.0363	18.50%	0.0237	4.23%
033.99	Salt, Miscellaneous (%)	9	9	0.7704	0.1105	0.7700	0.1245	0.0519	16.16%	0.0360	4.16%
033.03	Salt as chloride, Quantab (%)	4	4	0.7100	0.1369	0.7100	0.1369				4.21%
033.05	Salt as chloride, Ion Sel Electrode (%)	4	3	0.7282	0.0603	0.7282	0.0603	0.0427	8.28%		4.20%
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	9	8	0.7942	0.9826	0.4873	0.1782	0.0788	36.57%	0.0547	17.82%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	2	2	0.3635	0.0728						
034.41	Selenium, Total (Se), ICP, Dry ash (ppm)	2	2	0.3945	0.0007						
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	4	2	0.3400	0.1371	0.3400	0.1371			0.0145	18.82%
034.01	Selenium, Total (Se), Fluor (ppm)	1	1	0.5100							
034.42	Selenium, Total (Se), ICP, Open vessel (ppm)	1	1	0.9250							
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	1	1	0.4650							
034.99	Selenium, Total (Se), Miscellaneous (ppm)	1	1	1.050							
035.43	Sodium, ICP, Microwave (%)	28	27	0.2442	0.0142	0.2430	0.0124	0.0030	5.12%	0.0093	4.95%
035.41	Sodium, ICP, Dry ash (%)	18	18	0.2443	0.0214	0.2415	0.0124	0.0037	5.14%	0.0090	4.95%
035.42	Sodium, ICP, Open vessel (%)	18	18	0.2490	0.0186	0.2480	0.0186	0.0055	7.52%	0.0114	4.93%
035.31	Sodium, AAS, Dry ash (%)	10	10	0.2579	0.0850	0.2392	0.0398	0.0157	16.64%	0.0091	4.96%
035.53	Sodium, ICP-MS, Microwave (%)	4	4	0.2370	0.0087	0.2370	0.0087	0.0044	3.67%	0.0120	4.97%
035.99	Sodium, Miscellaneous (%)	4	4	0.2376	0.0145	0.2376	0.0145	0.0072	6.09%	0.0083	4.97%
035.01	Sodium, Ion-selective electrode (%)	2	2	0.2784	0.0303						
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.2322	0.0020						
035.02	Sodium, Em Spect (%)	1	1	0.1850							
035.05	Sodium, Flame Emission (%)	1	1	0.2200							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.2450							
036.42	Sulfur, ICP, Open vessel (%)	19	19	0.2340	0.0743	0.2275	0.0194	0.0056	8.52%	0.0096	5.00%
036.43	Sulfur, ICP, Microwave (%)	19	19	0.2311	0.0135	0.2314	0.0125	0.0036	5.39%	0.0091	4.99%
036.04	Sulfur, LECO (%)	6	6	0.2276	0.0189	0.2324	0.0089	0.0045	3.82%	0.0159	4.98%
036.00	Sulfur, Gravimetric (%)	1	1	0.2470							
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.2087							
036.99	Sulfur, Miscellaneous (%)	1	1	0.1800							
037.43	Zinc, ICP, Microwave (ppm)	30	30	162.5	13.47	162.2	14.09	3.216	8.69%	4.898	7.44%
037.42	Zinc, ICP, Open vessel (ppm)	19	18	165.4	13.71	165.4	15.55	4.582	9.40%	5.998	7.42%
037.41	Zinc, ICP, Dry ash (ppm)	15	14	162.4	21.10	162.8	17.22	5.754	10.58%	3.566	7.43%
037.31	Zinc, AAS, Dry ash (ppm)	12	10	159.9	7.429	159.9	8.425	3.330	5.27%	1.340	7.45%
037.53	Zinc, ICP-MS, Microwave (ppm)	4	4	155.2	2.924	155.2	2.924	1.462	1.88%	5.282	7.49%
037.99	Zinc, Miscellaneous (ppm)	4	4	156.3	15.92	156.3	15.92	7.962	10.19%	3.500	7.48%
037.44	Zinc, ICP, Dry ash (ppm)	3	3	148.3	18.99	148.3	18.99	10.96	12.81%	3.067	7.54%

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037.33	Zinc, AAS, Microwave (ppm)	2	2	168.2	12.42						
037.52	Zinc, ICP-MS, Open vessel (ppm)	2	2	138.7	18.57						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	173.5							
037.34	Zinc, AAS, Dry ash (ppm)	1	1	174.0							
038.43	Molybdenum, ICP, Microwave (ppm)	11	11	1.276	0.1807	1.276	0.2049	0.0772	16.05%	0.0726	15.42%
038.42	Molybdenum, ICP, Open vessel (ppm)	5	5	1.407	0.2569	1.407	0.2569	0.1149	18.26%	0.3540	15.20%
038.41	Molybdenum, ICP, Dry ash (ppm)	3	3	1.402	0.1178	1.402	0.1178	0.0680	8.40%	0.0617	15.20%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	2	2	1.109	0.0725						
038.53	Molybdenum, ICP-MS, Microwave (ppm)	2	2	1.324	0.0690						
040.43	Barium, ICP, Microwave (ppm)	1	1	12.32							
040.53	Barium, ICP-MS, Microwave (ppm)	1	1	11.93							
041.53	Vanadium, ICP-MS, Microwave (ppm)	1	1	0.2449							
042.00	Chloride, Titrimetric (%)	4	4	0.4750	0.0123	0.4750	0.0123	0.0061	2.58%	0.0200	4.47%
042.01	Chloride, Ion-selective electrode (%)	1	1	0.4694							
042.99	Chloride, Miscellaneous (%)	1	1	0.4900							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	2,185							
102.01	Niacin, Microbiological (ppm)	1	1	97.90							
102.02	Niacin, LC (ppm)	1	1	3.650							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	34.70							
103.02	Pantothenic Acid, LC (ppm)	1	1	32.25							
104.00	Riboflavin, Fluorometric (ppm)	1	1	9.655							
104.03	Riboflavin, LC (ppm)	1	1	11.15							
105.00	Thiamine, LC (ppm)	1	1	7.400							
105.01	Thiamine, Fluorometer (ppm)	1	1	10.04							
106.02	Vitamin A, LC (KU / kg)	6	5	6.474	1.163	6.474	1.163	0.6499	17.96%	0.7313	
106.00	Vitamin A, Color (KU / kg)	1	1	5,080							
106.01	Vitamin A, UV (KU / kg)	1	1	5.545							
106.99	Vitamin A, Miscellaneous (KU / kg)	1	1	3.575							
107.00	Vitamin B12, Microbiological (ppb)	1	1	16.25							
108.02	Vitamin D3, LC (KU / kg)	3	3	3.182	2.188	3.182	2.188	1.263	68.76%	1.443	
109.02	Vitamin E, LC (IU / kg)	8	7	67.36	10.58	68.13	10.18	4.812	14.95%	1.432	
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
112.01	Pyridoxine, LC (µg / g)	2	2	4.953	2.973						
113.01	Folic Acid, Micro (ppm)	1	1	1.900							
114.99	Biotin, Miscellaneous (ppm)	2	2	0.2480	0.1039						
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	2	2	0.2250	0.1485						
115.99	Non Protein N (NPN), Miscellaneous (%)	1	1	0.5634							
120.00	Alanine, Post-col Ninhydrin Der (%)	19	18	0.8502	0.0317	0.8514	0.0331	0.0098	3.89%	0.0134	4.10%
120.05	Alanine, Pre-col AQC Der (%)	11	10	0.8385	0.0410	0.8423	0.0293	0.0116	3.48%	0.0110	4.10%
120.99	Alanine, Miscellaneous (%)	3	3	0.8333	0.0306	0.8333	0.0306				4.11%

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120.02	Alanine, Post-col OPA Der (%)	1	1	0.8445							
121.00	Arginine, Post-col Ninhydrin Der (%)	19	18	0.9300	0.0452	0.9323	0.0445	0.0131	4.77%	0.0175	4.04%
121.05	Arginine, Pre-col AQC Der (%)	11	10	0.8512	0.3011	0.9238	0.1147	0.0453	12.42%	0.0169	4.05%
121.99	Arginine, Miscellaneous (%)	3	3	0.9217	0.0375	0.9217	0.0375	0.0217	4.07%	0.0250	4.05%
121.02	Arginine, Post-col OPA Der (%)	1	1	0.9025							
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	18	1.216	0.0522	1.221	0.0400	0.0118	3.28%	0.0203	3.88%
122.05	Aspartic, Pre-col AQC Der (%)	11	10	1.207	0.0797	1.205	0.0337	0.0133	2.80%	0.0221	3.89%
122.99	Aspartic, Miscellaneous (%)	3	3	1.218	0.0355	1.218	0.0355	0.0205	2.91%	0.0250	3.88%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.226							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	20	19	0.2824	0.0216	0.2854	0.0136	0.0039	4.75%	0.0064	4.83%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	10	9	0.2720	0.0226	0.2735	0.0220	0.0092	8.04%	0.0096	4.86%
124.99	Cysteine/Cystine, Miscellaneous (%)	4	4	0.2784	0.0520	0.2784	0.0520	0.0260	18.67%	0.0133	4.85%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.2915							
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	18	2.791	0.1508	2.791	0.1137	0.0335	4.07%	0.0378	3.43%
125.05	Glutamic, Pre-col AQC Der (%)	11	10	2.807	0.2174	2.801	0.2332	0.0922	8.32%	0.0397	3.43%
125.99	Glutamic, Miscellaneous (%)	3	3	2.760	0.0132	2.760	0.0132	0.0076	0.48%	0.0200	3.43%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.770							
126.00	Glycine, Post-col Ninhydrin Der (%)	19	18	0.6975	0.0646	0.6920	0.0332	0.0098	4.80%	0.0151	4.23%
126.05	Glycine, Pre-col AQC Der (%)	11	11	0.7333	0.0732	0.7328	0.0819	0.0309	11.17%	0.0228	4.19%
126.99	Glycine, Miscellaneous (%)	3	3	0.5767	0.1739	0.5767	0.1739				4.35%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.6920							
127.00	Histidine, Post-col Ninhydrin Der (%)	19	18	0.4044	0.0275	0.4028	0.0233	0.0069	5.80%	0.0101	4.59%
127.05	Histidine, Pre-col AQC Der (%)	11	11	0.4075	0.0443	0.4057	0.0445	0.0168	10.98%	0.0134	4.58%
127.99	Histidine, Miscellaneous (%)	3	3	0.3967	0.0153	0.3967	0.0153				4.60%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.3805							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	18	0.5374	0.0423	0.5397	0.0423	0.0125	7.83%	0.0149	4.39%
128.05	Isoleucine, Pre-col AQC Der (%)	11	11	0.5672	0.0520	0.5673	0.0587	0.0221	10.35%	0.0163	4.36%
128.99	Isoleucine, Miscellaneous (%)	3	3	0.5558	0.0218	0.5558	0.0218	0.0154	3.93%		4.37%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.5185							
129.00	Leucine, Post-col Ninhydrin Der (%)	20	19	1.271	0.0639	1.280	0.0479	0.0137	3.75%	0.0169	3.85%
129.05	Leucine, Pre-col AQC Der (%)	11	11	1.296	0.0784	1.303	0.0710	0.0267	5.45%	0.0300	3.84%
129.99	Leucine, Miscellaneous (%)	3	3	1.178	0.2237	1.178	0.2237	0.1292	18.99%	0.0200	3.90%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.247							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	22	21	0.8625	0.0982	0.8567	0.0461	0.0126	5.38%	0.0169	4.09%
130.05	L-Lysine, Pre-col AQC Der (%)	11	11	0.8432	0.0721	0.8432	0.0817	0.0308	9.69%	0.0233	4.10%
130.99	L-Lysine, Miscellaneous (%)	4	3	0.8027	0.0734	0.8027	0.0734	0.0519	9.15%		4.13%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.8705							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	20	18	0.2456	0.0155	0.2436	0.0085	0.0025	3.48%	0.0057	4.95%
131.05	Methionine, PAO Pre-col AQC Der (%)	10	9	0.2428	0.0222	0.2422	0.0238	0.0099	9.81%	0.0082	4.95%
131.99	Methionine, Miscellaneous (%)	4	4	0.2527	0.0508	0.2527	0.0508	0.0254	20.11%	0.0147	4.92%

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131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2365							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	18	0.6882	0.0230	0.6895	0.0233	0.0069	3.39%	0.0194	4.23%
132.05	Phenylalanine, Pre-col AQC Der (%)	11	11	0.7198	0.0849	0.7196	0.0738	0.0278	10.25%	0.0231	4.20%
132.99	Phenylalanine, Miscellaneous (%)	3	3	0.7000	0.0278	0.7000	0.0278	0.0161	3.98%	0.0100	4.22%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.6655							
133.00	Proline, Post-col Ninhydrin Der (%)	19	18	1.001	0.0583	1.001	0.0648	0.0191	6.47%	0.0199	4.00%
133.05	Proline, Pre-col AQC Der (%)	11	11	1.047	0.0663	1.054	0.0539	0.0203	5.11%	0.0233	3.97%
133.99	Proline, Miscellaneous (%)	3	3	1.092	0.0369	1.092	0.0369	0.0213	3.38%	0.0500	3.95%
134.00	Serine, Post-col Ninhydrin Der (%)	19	18	0.7119	0.0386	0.7190	0.0250	0.0074	3.48%	0.0152	4.20%
134.05	Serine, Pre-col AQC Der (%)	11	11	0.7155	0.0855	0.7203	0.0855	0.0322	11.87%	0.0175	4.20%
134.99	Serine, Miscellaneous (%)	4	3	0.7642	0.1488	0.7642	0.1488	0.1052	19.48%		4.16%
134.02	Serine, Post-col OPA Der (%)	1	1	0.5955							
135.00	Threonine, Post-col Ninhydrin Der (%)	19	18	0.5586	0.0228	0.5600	0.0187	0.0055	3.34%	0.0138	4.36%
135.05	Threonine, Pre-col AQC Der (%)	11	11	0.5728	0.0706	0.5794	0.0557	0.0210	9.62%	0.0134	4.34%
135.99	Threonine, Miscellaneous (%)	4	4	0.5747	0.0236	0.5747	0.0236	0.0118	4.11%	0.0094	4.35%
135.02	Threonine, Post-col OPA Der (%)	1	1	0.5370							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	8	8	0.1808	0.0092	0.1810	0.0100	0.0044	5.55%	0.0050	5.17%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	6	6	0.2016	0.0343	0.2016	0.0389	0.0198	19.28%	0.0090	5.09%
136.05	Tryptophan, Pre-col AQC Der (%)	4	4	0.1730	0.0327	0.1730	0.0327	0.0164	18.92%	0.0134	5.21%
136.99	Tryptophan, Miscellaneous (%)	3	3	0.2571	0.1285	0.2571	0.1285	0.0742	49.97%	0.0288	4.91%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	2	2	0.1865	0.0057						
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.1765							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	15	14	0.4701	0.0609	0.4768	0.0448	0.0150	9.39%	0.0115	4.47%
137.05	Tyrosine, Pre-col AQC Der (%)	11	11	0.5024	0.0705	0.5018	0.0747	0.0282	14.89%	0.0250	4.44%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.4525	0.0488	0.4525	0.0488	0.0282	10.78%	0.0075	4.51%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4215							
138.00	Valine, Post-col Ninhydrin Der (%)	19	18	0.7039	0.0515	0.7072	0.0484	0.0143	6.84%	0.0171	4.21%
138.05	Valine, Pre-col AQC Der (%)	11	11	0.7168	0.0539	0.7154	0.0497	0.0187	6.94%	0.0230	4.21%
138.99	Valine, Miscellaneous (%)	4	4	0.7088	0.0423	0.7088	0.0423	0.0212	5.97%	0.0200	4.21%
138.02	Valine, Post-col OPA Der (%)	1	1	0.7365							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1510	0.1188						
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0070							
139.99	Taurine, Miscellaneous (%)	2	1	0.0150							
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
150.00	Phytase, Colorimetric (Units / kg)	2	2	1,757	102.2						
150.99	Phytase, Miscellaneous (Units / kg)	1	1	3,598							
160.99	Fructose, Miscellaneous (%)	3	3	0.2213	0.0505	0.2213	0.0505	0.0357	22.83%	0.0300	5.02%
160.10	Fructose, HPAEC PAD (%)	1	1	0.1550							
161.10	Galactose, HPAEC PAD (%)	1		0.0000							
162.99	Glucose, Miscellaneous (%)	3	3	0.2898	0.1138	0.2898	0.1138	0.0657	39.25%	0.0223	4.82%

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162.10	Glucose, HPAEC PAD (%)	1	1	0.2400							
163.10	Lactose, HPAEC PAD (%)	1		0.0000							
163.99	Lactose, Miscellaneous (%)	3									
164.99	Maltose, Miscellaneous (%)	2	2	0.2165	0.0403						
164.10	Maltose, HPAEC PAD (%)	1	1	0.1800							
165.99	Sucrose, Miscellaneous (%)	3	3	2.138	0.0967	2.138	0.0967	0.0684	4.52%	0.0950	3.57%
165.10	Sucrose, HPAEC PAD (%)	1	1	2.070							
166.10	Raffinose, HPAEC PAD (%)	1	1	0.7950							
166.99	Raffinose, Miscellaneous (%)	1	1	0.6300							
167.10	Stachyose, HPAEC PAD (%)	1	1	0.5600							
167.99	Stachyose, Miscellaneous (%)	1		0.0500							
351.03	Chlortetracycline, LC (UV or FL) (ppm)	7	7	51.25	6.603	51.25	7.488	3.538	14.61%	2.370	8.85%
351.05	Chlortetracycline, LC-MS/MS (ppm)	4	4	71.00	15.54	71.00	15.54	7.771	21.89%	6.995	8.42%
351.00	Chlortetracycline, Plate (ppm)	2	2	50.43	7.934						
382.04	Sulfamethazine, LC-MS/MS (ppm)	3	3	108.0	44.31	108.0	44.31	25.58	41.05%	6.900	7.91%
382.00	Sulfamethazine, Spectrophotometer (ppm)	2	2	117.5	12.64						
382.01	Sulfamethazine, LC (ppm)	2	2	77.90	17.54						
382.02	Sulfamethazine, LC-PCD (ppm)	2	2	112.0	21.21						
388.00	Tylosin, Plate (ppm)	2	2	125.9	0.4999						
388.05	Tylosin, LC-MS/MS (ppm)	2	2	126.9	21.74						
388.03	Tylosin, LC (ppm)	1	1	161.0							
400.01	Water Activity, Aqualab chilled mirror (Units)	13	12	0.6081	0.0260	0.6073	0.0261	0.0094	4.30%	0.0043	
413.01	Starch, Resistant, Enzymatic-Colorimetric (%)	1	1	34.50							
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	3	3	0.0367	0.0059	0.0367	0.0059	0.0034	15.98%	0.0056	22.00%
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1		20.00							
516.52	Arsenic, Total (As), ICP-MS, Open vessel (ppm)	1		0.0500							
518.43	Cadmium, ICP, Microwave (ppm)	4	3	0.0652	0.0081	0.0652	0.0081	0.0047	12.40%	0.0148	22.00%
518.53	Cadmium, ICP-MS, Microwave (ppm)	3	3	0.0592	0.0028	0.0592	0.0028	0.0016	4.80%	0.0061	22.00%
518.41	Cadmium, ICP, Dry ash (ppm)	1	1	0.0554							
518.52	Cadmium, ICP-MS, Open vessel (ppm)	1	1	0.0607							
518.99	Cadmium, Miscellaneous (ppm)	1	1	0.0714							
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	7	5	1.556	0.3622	1.556	0.3622	0.0554	23.29%	0.0253	14.97%
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	4	4	1.302	0.4702	1.302	0.4702	0.2351	36.12%	0.0819	15.37%
520.42	Chromium, Total (Cr), ICP, Open vessel (ppm)	2	2	1.703	0.2157						
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	1	1	1.228							
520.52	Chromium, Total (Cr), ICP-MS, Open vessel (ppm)	1	1	0.5419							
520.31	Chromium, Total (Cr), AAS, Dry ash (ppm)	1		0.1565							
526.53	Lead, ICP-MS, Microwave (ppm)	5	4	0.0624	0.0131	0.0624	0.0131	0.0076	20.97%	0.0089	22.00%
526.41	Lead, ICP, Dry ash (ppm)	1	1	0.0652							
526.43	Lead, ICP, Microwave (ppm)	2	1	0.1867							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
526.52	Lead, ICP-MS, Open vessel (ppm)	1	1	0.0563							
529.99	Mercury, Miscellaneous (ppb)	4	1								
539.43	Nickel, ICP, Microwave (ppm)	3	2	1.549	0.1153	1.549	0.1153				14.98%
539.41	Nickel, ICP, Dry ash (ppm)	1	1	1.327							
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	0.8986							
539.53	Nickel, ICP-MS, Microwave (ppm)	1	1	1.385							
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))	2		0.0200							
708.99	Capric acid (10:0), Miscellaneous (% (w/w))	2		0.0200							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	4									
714.99	Myristic Acid (14:0) , Miscellaneous (% (w/w))	2		0.0050							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	2	2	0.7731	0.0260						
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	3	2	0.0073	0.0005	0.0073	0.0005				8.38%
720.99	Margaric acid (17:0), Miscellaneous (% (w/w))	1		0.0200							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	2	2	0.1075	0.0036						
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	2	2	0.9883	0.0088						
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	3	3	2.619	0.0953	2.619	0.0953	0.0550	3.64%	0.0360	3.46%
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	3	3	0.1932	0.0065	0.1932	0.0065	0.0038	3.38%	0.0037	5.12%
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	2	1	0.0140							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	2	2	0.0209	0.0012						
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))	2	1	0.0118							
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 (% (w/w))	4									
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	2	1	0.0114							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	4									
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))	2	1	0.1900							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% (w/w))	2	2	2.580	0.0774						
758.99	Total Saturated Fatty Acids, Miscellaneous (% (w/w))	1	1	0.9695							
764.99	Total cis Monounsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	1.086							
768.99	Total cis Polyunsaturated Fatty Acids, Miscellaneous (% (w/w))	1	1	2.725							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (% (w/w))	1	1	5.012							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	2	2	4.806	0.0198						

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

Methods Reported: 125

Swine Feed, Medicated

Method Precision Report

Labs Reporting: 169

Test Material Code # 202325

Issue Date : 06/30/2023

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	43	10.61	0.5488	0.3376	0.1488	0.3689	3.17%	1.40%	3.46%	2.480
001.99	Loss on Drying, Miscellaneous (%)	21	19	10.42	0.6996	0.6983	0.0597	0.7009	6.70%	0.57%	6.72%	11.74
002.01	Protein, Crude, Auto Kjeld-Foss (%)	22	21	15.75	0.3795	0.2537	0.0658	0.2621	1.62%	0.42%	1.67%	3.984
002.05	Protein, Crude, Copper, Boric Acid (%)	24	22	15.81	0.4609	0.2683	0.0979	0.2856	1.71%	0.62%	1.82%	2.918
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	115	106	15.78	0.3113	0.2624	0.1412	0.2980	1.66%	0.89%	1.89%	2.110
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	13	12	4.725	0.4512	0.2770	0.0746	0.2869	5.74%	1.55%	5.95%	3.848
003.06	Fat, Crude, Pet Ether (%)	18	16	4.766	0.2114	0.2144	0.0585	0.2222	4.50%	1.23%	4.66%	3.801
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	11	10	4.658	0.4086	0.0713	0.1007	0.1234	1.49%	2.11%	2.58%	1.225
003.10	Fat, Crude, Randall, Pet Ether (%)	32	29	4.620	0.2762	0.1195	0.1215	0.1704	2.60%	2.64%	3.70%	1.403
003.13	Fat, Crude, Randall, Hexane Ext. (%)	6	6	4.801	0.1399	0.0942	0.1462	0.1739	1.96%	3.04%	3.62%	1.190
003.14	Fat, Crude, Ankom (%)	50	45	4.447	0.5255	0.3909	0.1031	0.4042	8.71%	2.30%	9.00%	3.922
004.00	Fiber, Crude, Asbestos Free (%)	10	9	4.433	0.3004	0.2894	0.1140	0.3110	6.53%	2.57%	7.02%	2.728
004.06	Fiber, Crude, Fibertec (%)	20	19	4.469	0.2319	0.2192	0.1235	0.2516	4.91%	2.77%	5.64%	2.037
004.07	Fiber, Crude, ANKOM (%)	78	72	4.363	0.4917	0.3252	0.1171	0.3456	7.53%	2.71%	8.00%	2.952
005.00	Ash, 2h @ 600°C (%)	93	87	5.209	0.2263	0.1924	0.0622	0.2022	3.70%	1.20%	3.89%	3.253
005.05	Ash, 3h @ 550°C (%)	28	27	5.368	0.1707	0.1638	0.0677	0.1773	3.05%	1.26%	3.30%	2.619
005.99	Ash, Miscellaneous (%)	9	8	5.445	0.2456	0.0967	0.0726	0.1209	1.75%	1.31%	2.19%	1.667
008.02	Fiber, Acid Detergent, Crucible (%)	12	12	6.215	0.3954	0.3723	0.1882	0.4172	5.99%	3.03%	6.71%	2.217
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	52	47	6.155	0.6016	0.4644	0.1701	0.4946	7.57%	2.77%	8.07%	2.908
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	13	13	18.39	1.399	1.375	0.3607	1.422	7.48%	1.96%	7.73%	3.942
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	48	44	17.08	0.7724	0.6755	0.1983	0.7040	3.95%	1.16%	4.12%	3.551
010.99	Moisture, Miscellaneous (%)	17	17	10.76	0.3970	0.3917	0.0912	0.4022	3.64%	0.85%	3.74%	4.409
011.01	Loss on Drying, HT, 135°C 2hr (%)	64	60	11.44	0.5401	0.4511	0.1384	0.4719	3.93%	1.20%	4.11%	3.409
012.00	Starch, Polarimetric (Ewers) (%)	14	14	37.08	0.6269	0.6212	0.1190	0.6325	1.68%	0.32%	1.71%	5.313
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	11	11	35.71	2.132	2.064	0.7534	2.197	5.78%	2.11%	6.15%	2.916
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	6	5	34.77	1.793	1.915	0.4821	1.975	5.54%	1.39%	5.71%	4.096
013.00	Fat, Pretreat, Acid hydrolysis (%)	20	18	5.351	0.4016	0.3912	0.1809	0.4310	7.32%	3.39%	8.07%	2.383
013.02	Fat, Pretreat, Mojonier, Bak Ext, Acid hydrolysis (%)	13	13	5.799	0.5578	0.5482	0.1453	0.5671	9.45%	2.51%	9.78%	3.902
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	7	6	5.269	0.5570	0.5567	0.0221	0.5572	10.57%	0.42%	10.58%	25.16
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	9	9	5.489	0.5565	0.5225	0.2706	0.5885	9.52%	4.93%	10.72%	2.174
015.43	Aluminum, ICP, Microwave (ppm)	7	5	37.96	7.161	7.945	0.4239	7.956	21.12%	1.13%	21.15%	18.77
017.41	Boron, ICP, Dry ash (ppm)	5	5	5.331	0.8975	0.8932	0.1232	0.9017	16.76%	2.31%	16.91%	7.321
017.42	Boron, ICP, Open vessel (ppm)	5	5	4.817	0.1397		0.3152			6.54%		
017.43	Boron, ICP, Microwave (ppm)	8	6	5.894	1.938	0.7242	0.5218	0.8926	13.88%	10.00%	17.11%	1.711
019.00	Calcium, Ox-Mn04 Vol. (%)	10	10	0.9283	0.0807	0.0799	0.0162	0.0815	8.60%	1.74%	8.78%	5.031
019.08	Calcium, EDTA (%)	11	9	0.9628	0.0738	0.0441	0.0113	0.0455	4.51%	1.16%	4.66%	4.029

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
019.31	Calcium, AAS, Dry ash (%)	19	16	0.9462	0.0847	0.0669	0.0107	0.0677	7.18%	1.15%	7.27%	6.340
019.41	Calcium, ICP, Dry ash (%)	19	18	0.9682	0.0658	0.0376	0.0149	0.0405	3.94%	1.56%	4.23%	2.713
019.42	Calcium, ICP, Open vessel (%)	19	17	0.9733	0.0752	0.0733	0.0348	0.0811	7.54%	3.58%	8.35%	2.331
019.43	Calcium, ICP, Microwave (%)	31	28	0.9566	0.0499	0.0458	0.0210	0.0504	4.81%	2.21%	5.29%	2.398
019.99	Calcium, Miscellaneous (%)	7	7	0.8936	0.0552	0.0545	0.0128	0.0559	6.09%	1.43%	6.26%	4.365
021.43	Cobalt, ICP, Microwave (ppm)	8	6	0.4218	0.1190	0.1172	0.0289	0.1207	27.79%	6.85%	28.62%	4.178
022.31	Copper, AAS, Dry ash (ppm)	13	10	81.33	16.76	5.898	0.8522	5.959	6.90%	1.00%	6.97%	6.993
022.41	Copper, ICP, Dry ash (ppm)	16	15	86.98	5.818	5.155	2.773	5.854	5.97%	3.21%	6.78%	2.111
022.42	Copper, ICP, Open vessel (ppm)	19	18	94.39	9.523	7.307	4.991	8.849	7.64%	5.22%	9.25%	1.773
022.43	Copper, ICP, Microwave (ppm)	29	28	93.76	5.091	3.952	3.174	5.069	4.24%	3.40%	5.43%	1.597
025.31	Iron, AAS, Dry ash (ppm)	11	9	206.6	24.25	17.98	3.530	18.33	8.94%	1.75%	9.11%	5.192
025.41	Iron, ICP, Dry ash (ppm)	17	17	199.5	14.82	14.43	4.757	15.19	7.23%	2.38%	7.61%	3.194
025.42	Iron, ICP, Open vessel (ppm)	18	17	195.9	23.31	20.54	13.26	24.45	10.39%	6.71%	12.36%	1.844
025.43	Iron, ICP, Microwave (ppm)	26	24	203.0	16.89	13.24	4.507	13.98	6.59%	2.24%	6.96%	3.103
027.31	Magnesium, AAS, Dry ash (%)	10	10	0.1955	0.0106	0.0103	0.0035	0.0109	5.29%	1.80%	5.59%	3.104
027.41	Magnesium, ICP, Dry ash (%)	16	15	0.1979	0.0171	0.0083	0.0034	0.0090	4.29%	1.77%	4.64%	2.623
027.42	Magnesium, ICP, Open vessel (%)	19	18	0.1983	0.0176	0.0100	0.0082	0.0129	4.94%	4.06%	6.40%	1.575
027.43	Magnesium, ICP, Microwave (%)	28	26	0.1934	0.0132	0.0107	0.0059	0.0122	5.52%	3.03%	6.29%	2.077
028.31	Manganese, AAS, Dry ash (ppm)	12	9	131.1	102.4	12.45	1.834	12.59	12.65%	1.86%	12.79%	6.864
028.41	Manganese, ICP, Dry ash (ppm)	15	13	106.1	6.893	5.178	1.457	5.379	4.95%	1.39%	5.14%	3.691
028.42	Manganese, ICP, Open vessel (ppm)	19	18	107.6	8.962	6.180	4.472	7.628	5.67%	4.11%	7.00%	1.706
028.43	Manganese, ICP, Microwave (ppm)	27	27	107.6	6.301	5.964	2.873	6.620	5.54%	2.67%	6.15%	2.304
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	105.2	4.039	3.876	1.607	4.195	3.69%	1.53%	3.99%	2.611
031.01	Phosphorus, Photometric (%)	37	33	0.5487	0.0279	0.0163	0.0091	0.0187	2.93%	1.65%	3.36%	2.042
031.41	Phosphorus, ICP, Dry ash (%)	17	15	0.5751	0.0504	0.0159	0.0091	0.0183	2.82%	1.61%	3.25%	2.015
031.42	Phosphorus, ICP, Open vessel (%)	20	19	0.5675	0.0440	0.0270	0.0228	0.0354	4.70%	3.97%	6.16%	1.550
031.43	Phosphorus, ICP, Microwave (%)	31	30	0.5673	0.0358	0.0306	0.0123	0.0329	5.42%	2.19%	5.84%	2.672
032.31	Potassium, AAS, Dry ash (%)	8	8	0.7361	0.0599	0.0591	0.0133	0.0606	8.03%	1.81%	8.24%	4.542
032.41	Potassium, ICP, Dry ash (%)	17	15	0.7405	0.0525	0.0315	0.0077	0.0324	4.31%	1.05%	4.44%	4.233
032.42	Potassium, ICP, Open vessel (%)	19	18	0.7655	0.0607	0.0579	0.0261	0.0635	7.56%	3.41%	8.29%	2.432
032.43	Potassium, ICP, Microwave (%)	30	29	0.7462	0.0509	0.0346	0.0166	0.0383	4.59%	2.20%	5.09%	2.312
032.99	Potassium, Miscellaneous (%)	5	5	0.7350	0.0380	0.0355	0.0190	0.0403	4.83%	2.59%	5.48%	2.114
033.00	Salt as chloride, Sol Cl (%)	19	18	0.6866	0.1616	0.1283	0.0200	0.1298	19.34%	3.02%	19.57%	6.490
033.01	Salt as chloride, Poten Cl (%)	30	26	0.7682	0.0256	0.0167	0.0071	0.0182	2.16%	0.92%	2.35%	2.545
033.99	Salt, Miscellaneous (%)	9	9	0.7704	0.1105	0.1087	0.0274	0.1122	14.12%	3.56%	14.56%	4.088
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	9	7	0.7942	0.9826	0.1217	0.0281	0.1249	27.10%	6.25%	27.81%	4.449
035.31	Sodium, AAS, Dry ash (%)	10	9	0.2579	0.0850	0.0296	0.0051	0.0301	12.75%	2.18%	12.93%	5.933
035.41	Sodium, ICP, Dry ash (%)	18	16	0.2443	0.0214	0.0119	0.0048	0.0129	4.97%	2.00%	5.36%	2.674
035.42	Sodium, ICP, Open vessel (%)	18	18	0.2490	0.0186	0.0175	0.0088	0.0196	7.03%	3.54%	7.87%	2.223
035.43	Sodium, ICP, Microwave (%)	28	26	0.2442	0.0142	0.0108	0.0069	0.0128	4.46%	2.86%	5.30%	1.851
036.04	Sulfur, LECO (%)	6	5	0.2276	0.0189		0.0150			6.40%		
036.42	Sulfur, ICP, Open vessel (%)	19	17	0.2340	0.0743	0.0301	0.0077	0.0311	12.95%	3.31%	13.36%	4.039
036.43	Sulfur, ICP, Microwave (%)	19	19	0.2311	0.0135	0.0127	0.0067	0.0143	5.49%	2.88%	6.20%	2.151
037.31	Zinc, AAS, Dry ash (ppm)	12	9	159.9	7.429	7.408	0.7932	7.450	4.66%	0.50%	4.68%	9.393
037.41	Zinc, ICP, Dry ash (ppm)	15	13	162.4	21.10	21.15	2.839	21.34	13.14%	1.76%	13.26%	7.518
037.42	Zinc, ICP, Open vessel (ppm)	19	17	165.4	13.71	13.46	5.466	14.53	8.12%	3.30%	8.76%	2.658

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 %srd	Reproducibility %RSD	sR/sr
037.43	Zinc, ICP, Microwave (ppm)	30	29	162.5	13.47	11.72	4.501	12.56	7.26%	2.79%	7.78%	2.789
038.42	Molybdenum, ICP, Open vessel (ppm)	5	5	1.407	0.2569		0.3701			26.31%		
038.43	Molybdenum, ICP, Microwave (ppm)	11	10	1.276	0.1807	0.1813	0.0753	0.1963	14.28%	5.93%	15.46%	2.608
106.02	Vitamin A, LC (KU / kg)	6	5	6.474	1.163	1.095	0.5529	1.227	16.91%	8.54%	18.95%	2.218
109.02	Vitamin E, LC (IU / kg)	8	6	67.36	10.58	11.50	0.8106	11.53	16.96%	1.20%	17.01%	14.23
120.00	Alanine, Post-col Ninhydrin Der (%)	19	17	0.8502	0.0317	0.0303	0.0094	0.0317	3.57%	1.10%	3.74%	3.386
120.05	Alanine, Pre-col AQC Der (%)	11	9	0.8385	0.0410	0.0253	0.0076	0.0264	2.98%	0.89%	3.11%	3.476
121.00	Arginine, Post-col Ninhydrin Der (%)	19	17	0.9300	0.0452	0.0356	0.0147	0.0385	3.80%	1.56%	4.11%	2.627
121.05	Arginine, Pre-col AQC Der (%)	11	9	0.8512	0.3011	0.0858	0.0094	0.0863	9.10%	1.00%	9.15%	9.141
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	17	1.216	0.0522	0.0357	0.0147	0.0386	2.92%	1.20%	3.15%	2.629
122.05	Aspartic, Pre-col AQC Der (%)	11	10	1.207	0.0797	0.0791	0.0137	0.0803	6.55%	1.13%	6.65%	5.864
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	20	16	0.2824	0.0216	0.0123	0.0028	0.0126	4.31%	0.99%	4.42%	4.465
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	10	9	0.2720	0.0226	0.0222	0.0061	0.0230	8.16%	2.25%	8.46%	3.755
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	17	2.791	0.1508	1.252	0.0471	0.1338	4.52%	1.70%	4.83%	2.839
125.05	Glutamic, Pre-col AQC Der (%)	11	9	2.807	0.2174	0.2137	0.0238	0.2151	7.68%	0.86%	7.73%	9.023
126.00	Glycine, Post-col Ninhydrin Der (%)	19	17	0.6975	0.0646	0.0354	0.0122	0.0374	5.17%	1.78%	5.46%	3.073
126.05	Glycine, Pre-col AQC Der (%)	11	11	0.7333	0.0732	0.0720	0.0189	0.0744	9.82%	2.58%	10.15%	3.932
127.00	Histidine, Post-col Ninhydrin Der (%)	19	16	0.4044	0.0275	0.0187	0.0067	0.0199	4.71%	1.67%	5.00%	2.985
127.05	Histidine, Pre-col AQC Der (%)	11	11	0.4075	0.0443	0.0436	0.0110	0.0450	10.69%	2.71%	11.03%	4.077
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	17	0.5374	0.0423	0.0341	0.0098	0.0355	6.27%	1.80%	6.53%	3.633
128.05	Isoleucine, Pre-col AQC Der (%)	11	11	0.5672	0.0520	0.0514	0.0107	0.0525	9.07%	1.89%	9.26%	4.907
129.00	Leucine, Post-col Ninhydrin Der (%)	20	18	1.271	0.0639	0.0385	0.0253	0.0461	3.00%	1.97%	3.59%	1.821
129.05	Leucine, Pre-col AQC Der (%)	11	10	1.296	0.0784	0.0515	0.0251	0.0573	3.92%	1.91%	4.36%	2.279
130.00	L-Lysine, Post-col Ninhydrin Der (%)	22	19	0.8625	0.0982	0.0534	0.0127	0.0549	6.28%	1.50%	6.46%	4.317
130.05	L-Lysine, Pre-col AQC Der (%)	11	10	0.8432	0.0721	0.0703	0.0147	0.0718	8.41%	1.76%	8.60%	4.880
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	20	17	0.2456	0.0155	0.0073	0.0039	0.0083	3.01%	1.59%	3.41%	2.139
131.05	Methionine, PAO Pre-col AQC Der (%)	10	9	0.2428	0.0222	0.0219	0.0049	0.0225	9.03%	2.02%	9.26%	4.587
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	17	0.6882	0.0230	0.0208	0.0141	0.0251	3.02%	2.05%	3.65%	1.784
132.05	Phenylalanine, Pre-col AQC Der (%)	11	10	0.7198	0.0849	0.0886	0.0145	0.0897	12.34%	2.02%	12.50%	6.188
133.00	Proline, Post-col Ninhydrin Der (%)	19	17	1.001	0.0583	0.0535	0.0165	0.0560	5.32%	1.64%	5.57%	3.389
133.05	Proline, Pre-col AQC Der (%)	11	10	1.047	0.0663	0.0420	0.0165	0.0451	3.95%	1.55%	4.24%	2.731
134.00	Serine, Post-col Ninhydrin Der (%)	19	16	0.7119	0.0386	0.0289	0.0091	0.0304	4.03%	1.27%	4.23%	3.318
134.05	Serine, Pre-col AQC Der (%)	11	10	0.7155	0.0855	0.0838	0.0103	0.0844	11.86%	1.45%	11.95%	8.225
135.00	Threonine, Post-col Ninhydrin Der (%)	19	17	0.5586	0.0228	0.0152	0.0105	0.0184	2.70%	1.86%	3.28%	1.759
135.05	Threonine, Pre-col AQC Der (%)	11	9	0.5728	0.0706	0.0470	0.0054	0.0473	8.02%	0.92%	8.07%	8.802
136.00	Tryptophan, Alka-Hydrol Post-col Ninhydrin Der (%)	6	5	0.2016	0.0343	0.0380	0.0022	0.0381	19.01%	1.11%	19.04%	17.20
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	8	8	0.1808	0.0092	0.0090	0.0031	0.0095	4.96%	1.73%	5.26%	3.032
137.00	Tyrosine, Post-col Ninhydrin Der (%)	15	12	0.4701	0.0609	0.0366	0.0071	0.0373	7.51%	1.46%	7.65%	5.244
137.05	Tyrosine, Pre-col AQC Der (%)	11	11	0.5024	0.0705	0.0693	0.0181	0.0716	13.79%	3.60%	14.26%	3.963
138.00	Valine, Post-col Ninhydrin Der (%)	19	16	0.7039	0.0515	0.0385	0.0135	0.0408	5.43%	1.91%	5.76%	3.021
138.05	Valine, Pre-col AQC Der (%)	11	11	0.7168	0.0539	0.0524	0.0178	0.0553	7.31%	2.48%	7.72%	3.108
351.03	Chlortetracycline, LC (UV or FL) (ppm)	7	7	51.25	6.603	6.470	1.868	6.734	12.62%	3.64%	13.14%	3.605
400.01	Water Activity, Aqualab chilled mirror (Units)	13	11	0.6081	0.0260	0.0267	0.0033	0.0269	4.40%	0.55%	4.43%	8.079

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