



AAFCO
Proficiency Testing Program



Animal Feed Scheme

Equine Feed

Test Material Code # 201821

Method Summary Report

(Precision Report Follows)

Methods Reported: 332

Labs Reporting: 178

Issue Date : 02/28/2018

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value - Robust Mean	AAFCO PT ffp - Robust sd	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.10000							
001.00	Loss on Drying, Vac 95°C 5 hr (%)	5	5	7.3314	0.16081	7.3314	0.16081	0.08990	2.19%	0.06280	2.96%
001.03	Loss on Drying, Low temp. methods (%)	5	4	7.3938	0.08712	7.3938	0.08712	0.05445	1.18%	0.02250	2.96%
001.05	Loss on Drying, LECO (%)	2	2	7.3250	0.22627						
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	42	40	7.3277	0.51993	7.3400	0.26286	0.05195	3.58%	0.07647	2.96%
001.99	Loss on Drying, Miscellaneous (%)	19	19	7.1284	0.50288	7.1760	0.39559	0.11344	5.51%	0.10982	2.97%
002.00	Protein, Crude (%)	1	1	17.770							
002.01	Protein, Auto Kjel-Foss (%)	13	12	18.336	0.33694	18.330	0.37043	0.13367	2.02%	0.11758	2.34%
002.02	Protein, Semiauto Autoanalyzer (%)	3	3	18.541	0.20533	18.541	0.20533	0.14818	1.11%	0.20000	2.32%
002.03	Protein, Hach Method (%)	1	1	15.715							
002.04	Protein, Copper Catalyst (%)	5	3	18.248	0.37797	18.248	0.37797	0.27278	2.07%	0.05667	2.34%
002.05	Protein, Copper, Boric Acid (%)	28	27	18.220	0.37939	18.282	0.17267	0.04154	0.94%	0.09607	2.34%
002.06	Protein, Combustion Nitrogen Analyzer (%)	116	114	18.668	0.43531	18.617	0.27772	0.03251	1.49%	0.15014	2.32%
002.08	Protein, Cu/Ti (%)	1	1	18.430							
002.10	Protein, Block dig/distillation (%)	1	1	18.640							
002.11	Protein, NIR (%)	7	7	20.263	1.3249	20.263	1.5024	0.70983	7.41%	0.21714	2.22%
002.99	Protein, Miscellaneous (%)	1	1	18.850							
003.00	Fat, Eth Ext., Direct (%)	14	14	3.3157	0.78835	3.3157	0.89399	0.29866	26.96%	0.07396	3.34%
003.06	Fat, Pet Ether (%)	14	14	4.0020	0.81038	4.0457	0.81384	0.27188	20.12%	0.17764	3.24%
003.09	Fat, Soxtec, Eth Ext (%)	18	18	3.5736	0.83576	3.5736	0.94776	0.27924	26.52%	0.12458	3.30%
003.10	Fat, Soxtec, Pet Ether (%)	26	26	3.0857	0.69398	3.0391	0.68169	0.16711	22.43%	0.11480	3.38%
003.11	Fat, NIR (%)	5	5	3.9770	0.92183	3.9770	0.92183	0.51532	23.18%	0.32200	3.25%
003.12	Fat, Hexane Ext (%)	3	3	3.5383	0.90783	3.5383	0.90783	0.65517	25.66%	0.05000	3.31%
003.13	Fat, Soxtec, Hexane Ext. (%)	8	7	3.3286	0.46964	3.2270	0.23683	0.11189	7.34%	0.17714	3.35%
003.14	Fat, Ankom (%)	41	40	3.0162	0.44230	3.0106	0.48037	0.09494	15.96%	0.17916	3.39%
003.99	Fat, Miscellaneous (%)	6	6	3.5208	0.45159	3.5208	0.51210	0.26133	14.54%	0.21833	3.31%
004.00	Fiber, Crude, Asbestos Free (%)	14	14	10.954	0.59259	10.943	0.56911	0.19013	5.20%	0.19992	2.79%
004.03	Fiber, Fritted Glass (%)	6	6	11.111	1.8071	11.111	2.0492	1.0457	18.44%	0.17467	2.78%
004.06	Fiber, Fibertec (%)	25	24	11.170	0.63552	11.139	0.62351	0.15909	5.60%	0.11625	2.78%
004.07	Fiber, ANKOM (%)	57	55	11.352	1.0087	11.290	0.97130	0.16371	8.60%	0.26433	2.78%

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004.11	Fiber, NIR (%)	4	3	9.3433	0.80905	9.3433	0.80905	0.58388	8.66%	0.00667	2.86%
004.99	Fiber, Miscellaneous (%)	1	1	10.750							
005.00	Ash, 2h @ 600°C (%)	81	79	11.831	0.39401	11.834	0.37383	0.05257	3.16%	0.10643	2.76%
005.02	Ash, LECO (%)	1	1	12.395							
005.05	Ash, 3h @ 550°C (%)	31	31	12.148	0.30571	12.176	0.26861	0.06030	2.21%	0.08437	2.75%
005.11	Ash, NIR (%)	5	5	15.125	4.0061	15.125	4.0061	2.2395	26.49%	0.50120	2.57%
005.99	Ash, Miscellaneous (%)	9	9	12.169	0.30659	12.201	0.27058	0.11274	2.22%	0.06111	2.74%
006.00	Total sugars, As sucrose (%)	2	2	3.3300	0.79196						
006.01	Total sugars, Mod. Fehling Soln (%)	1	1	6.3950							
006.99	Total sugars, Miscellaneous (%)	1	1	5.4500							
008.02	Fiber, Acid Detergent (%)	15	14	13.954	0.80079	13.984	0.83755	0.27980	5.99%	0.29292	2.67%
008.08	Fiber, Acid Detergent, ANKOM (%)	37	37	13.800	1.0095	13.787	0.96116	0.19752	6.97%	0.28044	2.69%
008.99	Fiber, Acid Detergent Miscellaneous (%)	1	1	14.805							
009.04	Fiber, Neutral Det-No ENZ Pretreat (%)	1	1	23.170							
009.07	Fiber, Neutral Det-ENZ Pretreat (%)	13	13	26.086	7.5423	24.356	2.3963	0.83077	9.84%	0.29677	2.03%
009.09	Fiber, Neutral Detergent, ANKOM (%)	37	37	23.630	1.6501	23.589	1.7875	0.36733	7.58%	0.46046	2.06%
010.03	Moisture, Karl-Fischer (%)	1	1	7.3050							
010.11	Moisture, NIR (%)	5	5	7.6720	0.33308	7.6720	0.33308	0.18620	4.34%	0.07600	2.94%
010.99	Moisture, Miscellaneous (%)	18	17	7.7474	0.54781	7.6471	0.36397	0.11034	4.76%	0.08294	2.94%
011.01	Loss on Drying, 135°C 2hr (%)	54	53	8.1548	0.45002	8.2102	0.31364	0.05385	3.82%	0.05909	2.91%
011.02	Loss on Drying, 130°C for 2 hours (%)	2	2	8.1875	0.09546						
011.99	Loss on Drying, High Temp. Methods Miscellaneous	2	2	8.0900	0.19799						
012.00	Starch, Polarimetric (Ewers) (%)	16	15	17.475	0.84802	17.537	0.81949	0.26449	4.67%	0.12349	2.39%
012.01	Starch, Megazyme (%)	6	6	14.839	1.8969	14.984	1.8046	0.92090	12.04%	0.78528	2.58%
012.03	Starch, Enzymatic (%)	4	4	16.577	1.7585	16.577	1.7585	1.0991	10.61%	0.08815	2.46%
012.04	Starch, YSI Analyzer (%)	7	7	16.436	0.96633	16.436	1.0958	0.51773	6.67%	0.28143	2.47%
012.11	Starch, NIR (%)	2	2	15.948	0.60458						
012.99	Starch, Miscellaneous (%)	1	1	28.460							
013.00	Fat, Acid hydrolysis (%)	18	18	4.7922	1.1662	4.7967	1.3130	0.38684	27.37%	0.25810	3.16%
013.02	Fat, Mojonnier, Bak Ext (%)	16	16	5.9775	0.89412	6.0851	0.76115	0.23786	12.51%	0.18672	3.05%
013.08	Fat, Roese-Gottlieb Modified (%)	1	1	3.7518							
013.10	Fat, Soxtec-Acid Hydrolysis (%)	5	5	4.0863	1.9731	4.0863	1.9731	1.1030	48.29%	0.27514	3.24%
013.13	Fat, Ankom- Acid Hydrolysis (%)	5	5	5.2865	1.3590	5.2865	1.3590	0.75970	25.71%	0.29248	3.11%
015.41	Aluminum, ICP, Dry ash (mg / kg (ppm))	3	3	352.92	34.743	352.92	34.743	25.074	9.84%	16.963	6.62%
015.42	Aluminum, ICP, Open vessel (mg / kg (ppm))	1	1	335.55							
015.43	Aluminum, ICP, Microwave (mg / kg (ppm))	6	6	308.38	48.121	308.38	54.569	27.847	17.70%	18.630	6.75%
015.52	Aluminum, ICP-MS, Open vessel (mg / kg (ppm))	1	1	207.00							
017.41	Boron, ICP, Dry ash (mg / kg (ppm))	3	3	20.302	0.63264	20.302	0.63264	0.55918	3.12%	0.88333	10.17%

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017.42	Boron, ICP, Open vessel (mg / kg (ppm))	5	5	19.979	2.4103	19.979	2.4103	1.3474	12.06%	1.4806	10.19%
017.43	Boron, ICP, Microwave (mg / kg (ppm))	5	4	18.553	0.43783	18.553	0.43783	0.27364	2.36%	0.42500	10.31%
019.00	Calcium, Ox-Mn04 Vol. (%)	9	9	2.1998	0.08785	2.2055	0.08613	0.03589	3.91%	0.02267	3.55%
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	2.2636							
019.08	Calcium, EDTA (%)	9	9	2.1393	0.17001	2.1779	0.08042	0.03351	3.69%	0.02530	3.56%
019.09	Calcium, Ion-selective electrode (%)	1	1	2.3525							
019.31	Calcium, AAS, Dry ash (%)	18	18	2.1668	0.12017	2.1677	0.13439	0.03959	6.20%	0.05929	3.56%
019.32	Calcium, AAS, Open vessel (%)	2	2	38.053	50.894						
019.33	Calcium, AAS, Microwave (%)	2	2	2.3200	0.12728						
019.41	Calcium, ICP, Dry ash (%)	23	23	2.2047	0.18469	2.1775	0.12283	0.03201	5.64%	0.05592	3.56%
019.42	Calcium, ICP, Open vessel (%)	18	18	2.1941	0.15897	2.1748	0.13350	0.03933	6.14%	0.05731	3.56%
019.43	Calcium, ICP, Microwave (%)	27	27	2.2028	0.14123	2.1964	0.12540	0.03017	5.71%	0.04660	3.55%
019.44	Calcium, ICP, Dry ash (%)	2	2	2.2592	0.10493						
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	2.1520	0.12894	2.1520	0.12894	0.09305	5.99%	0.04520	3.56%
019.53	Calcium, ICP-MS, Microwave (%)	2	2	2.0150	0.33234						
019.99	Calcium, Miscellaneous (%)	6	6	2.0508	0.28309	2.0508	0.32102	0.16382	15.65%	0.03672	3.59%
021.31	Cobalt, AAS, Dry ash (mg / kg (ppm))	3	3	4.9450	0.47358	4.9450	0.47358	0.34178	9.58%	0.23667	12.58%
021.41	Cobalt, ICP, Dry ash (mg / kg (ppm))	3	3	3.5868	0.58822	3.5868	0.58822	0.42451	16.40%	0.12300	13.20%
021.42	Cobalt, ICP, Open vessel (mg / kg (ppm))	4	4	3.9236	0.86852	3.9236	0.86852	0.54283	22.14%	0.30775	13.02%
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	5	5	4.1096	0.91858	4.1096	0.91858	0.51350	22.35%	0.12282	12.93%
021.52	Cobalt, ICP-MS, Open vessel (mg / kg (ppm))	3	3	7.4850	7.8098	7.4850	7.8098	6.9030	104.34%	9.1300	11.82%
021.53	Cobalt, ICP-MS, Microwave (mg / kg (ppm))	3	3	4.5449	1.5706	4.5449	1.5706	1.1335	34.56%	0.35563	12.74%
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	14	14	122.48	9.5851	121.15	7.3618	2.4594	6.08%	2.0557	7.77%
022.32	Copper, AAS, Open vessel (mg / kg (ppm))	1	1	165.00							
022.33	Copper, AAS, Microwave (mg / kg (ppm))	3	3	147.76	37.900	147.76	37.900	33.499	25.65%	21.896	7.54%
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	20	20	117.18	7.9218	117.27	4.9189	1.3749	4.19%	3.5851	7.81%
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	20	19	124.77	10.572	124.50	11.299	3.2402	9.08%	4.3408	7.74%
022.43	Copper, ICP, Microwave (mg / kg (ppm))	22	22	119.10	10.722	119.78	7.2543	1.9333	6.06%	5.7231	7.78%
022.52	Copper, ICP-MS, Open vessel (mg / kg (ppm))	3	3	109.33	24.458	109.33	24.458	17.651	22.37%	6.1333	7.89%
022.53	Copper, ICP-MS, Microwave (mg / kg (ppm))	2	2	106.55	19.728						
022.99	Copper, Miscellaneous (mg / kg (ppm))	3	3	122.33	2.7538	122.33	2.7538	1.9874	2.25%	4.0000	7.76%
023.01	Fluorine, Ion Sel Elect (mg / kg (ppm))	1	1	28.900							
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	13	13	760.39	224.51	813.83	60.865	21.101	7.48%	8.5862	5.83%
025.32	Iron, AAS, Open vessel (mg / kg (ppm))	1	1	627.00							
025.33	Iron, AAS, Microwave (mg / kg (ppm))	2	2	998.56	123.83						
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	20	19	795.87	71.814	792.63	33.739	9.6753	4.26%	9.5082	5.86%
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	14	13	650.95	171.75	669.65	152.02	52.704	22.70%	21.707	6.01%
025.43	Iron, ICP, Microwave (mg / kg (ppm))	19	18	763.72	80.914	772.16	66.516	19.598	8.61%	25.029	5.88%

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025.51	Iron, ICP-MS, Dry ash (mg / kg (ppm))	1	1	640.00							
025.52	Iron, ICP-MS, Open vessel (mg / kg (ppm))	2	2	642.74	117.09						
025.53	Iron, ICP-MS, Microwave (mg / kg (ppm))	1	1	449.50							
025.99	Iron, Miscellaneous (mg / kg (ppm))	2	2	804.00	32.527						
027.31	Magnesium, AAS, Dry ash (%)	14	13	0.89262	0.18286	0.91010	0.08535	0.02959	9.38%	0.01370	4.06%
027.32	Magnesium, AAS, Open vessel (%)	2	2	0.98750	0.06010						
027.33	Magnesium, AAS, Microwave (%)	3	3	0.96683	0.04533	0.96683	0.04533	0.03271	4.69%	0.00967	4.02%
027.41	Magnesium, ICP, Dry ash (%)	20	20	0.94056	0.05499	0.93774	0.05584	0.01561	5.96%	0.02355	4.04%
027.42	Magnesium, ICP, Open vessel (%)	17	16	0.93225	0.06138	0.92507	0.05246	0.01640	5.67%	0.02537	4.05%
027.43	Magnesium, ICP, Microwave (%)	24	23	0.93939	0.05175	0.93619	0.05135	0.01338	5.48%	0.01390	4.04%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.95940	0.03875						
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.94257	0.03132	0.94257	0.03132	0.02768	3.32%	0.01513	4.04%
027.53	Magnesium, ICP-MS, Microwave (%)	2	2	0.85850	0.18173						
027.99	Magnesium, Miscellaneous (%)	4	4	0.87846	0.13117	0.87846	0.13117	0.08198	14.93%	0.03888	4.08%
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	14	14	294.56	15.031	295.76	14.073	4.7013	4.76%	7.2321	6.79%
028.32	Manganese, AAS, Open vessel (mg / kg (ppm))	1	1	340.00							
028.33	Manganese, AAS, Microwave (mg / kg (ppm))	2	2	241.26	45.599						
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	19	18	286.46	16.510	286.55	18.545	5.4639	6.47%	6.6324	6.83%
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	19	292.62	28.219	292.27	28.007	8.0315	9.58%	5.6716	6.81%
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	22	22	297.07	25.093	295.50	21.864	5.8269	7.40%	7.8770	6.80%
028.52	Manganese, ICP-MS, Open vessel (mg / kg (ppm))	2	2	312.13	5.4801						
028.53	Manganese, ICP-MS, Microwave (mg / kg (ppm))	3	3	264.86	32.506	264.86	32.506	23.459	12.27%	22.280	6.91%
028.99	Manganese, Miscellaneous (mg / kg (ppm))	3	3	302.00	4.3301	302.00	4.3301	3.8273	1.43%	8.6667	6.77%
031.00	Phosphorus, Vol (%)	1	1	0.91500							
031.01	Phosphorus, Photometric (%)	38	38	0.86187	0.04753	0.86491	0.03732	0.00757	4.31%	0.01956	4.09%
031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%)	3	3	0.89767	0.01124	0.89767	0.01124	0.00811	1.25%	0.01200	4.07%
031.03	Phosphorus, Autoanalyzer (%)	3	3	0.88503	0.00953	0.88503	0.00953	0.00688	1.08%	0.02360	4.07%
031.06	Phosphorus, Hach Method (%)	1	1	0.81000							
031.41	Phosphorus, ICP, Dry ash (%)	22	22	0.90583	0.08622	0.89712	0.07710	0.02055	8.59%	0.02292	4.07%
031.42	Phosphorus, ICP, Open vessel (%)	19	19	0.85830	0.03317	0.85843	0.03736	0.01071	4.35%	0.02281	4.09%
031.43	Phosphorus, ICP, Microwave (%)	25	25	0.87166	0.05128	0.86723	0.04508	0.01127	5.20%	0.02435	4.09%
031.44	Phosphorus, ICP, Dry ash (%)	2	2	0.88328	0.03150						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	0.82250	0.04172						
031.53	Phosphorus, ICP-MS, Microwave (%)	2	2	0.79050	0.17041						
031.99	Phosphorus, Miscellaneous (%)	4	4	0.78520	0.08378	0.78520	0.08378	0.05236	10.67%	0.00760	4.15%
032.08	Potassium, Ion-selective electrode (%)	1	1	1.2550							
032.31	Potassium, AAS, Dry ash (%)	13	12	1.1629	0.31485	1.2450	0.07660	0.02764	6.15%	0.02917	3.87%
032.32	Potassium, AAS, Open vessel (%)	2	2	1.1375	0.13081						

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032.33	Potassium, AAS, Microwave (%)	1	1	1.3650							
032.41	Potassium, ICP, Dry ash (%)	20	20	1.2774	0.06610	1.2746	0.06317	0.01766	4.96%	0.04126	3.86%
032.42	Potassium, ICP, Open vessel (%)	18	18	1.2920	0.05416	1.2920	0.06141	0.01809	4.75%	0.04118	3.85%
032.43	Potassium, ICP, Microwave (%)	25	24	1.2887	0.06999	1.2811	0.06071	0.01549	4.74%	0.02878	3.85%
032.44	Potassium, ICP, Dry ash (%)	2	2	1.2880	0.03956						
032.52	Potassium, ICP-MS, Open vessel (%)	2	2	1.2710	0.03401						
032.53	Potassium, ICP-MS, Microwave (%)	2	2	1.1925	0.26517						
032.99	Potassium, Miscellaneous (%)	4	4	1.1853	0.16881	1.1853	0.16881	0.10551	14.24%	0.01618	3.90%
033.00	Salt as chloride, Sol Cl (%)	14	13	1.1003	0.24944	1.1544	0.09672	0.03353	8.38%	0.01783	3.91%
033.01	Salt as chloride, Poten Cl (%)	23	23	1.2088	0.19991	1.1990	0.03260	0.00850	2.72%	0.01325	3.89%
033.03	Salt as chloride, Quantab (%)	2	2	0.94750	0.13789						
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	1.1367	0.59035	1.1367	0.59035	0.52180	51.94%	0.05733	3.92%
033.99	Salt, Miscellaneous (%)	6	6	1.2767	0.35986	1.1936	0.19547	0.09975	16.38%	0.03000	3.89%
034.04	Selenium, AA, Hydride (mg / kg (ppm))	4	4	1.5850	0.32529	1.5850	0.32529	0.20331	20.52%	0.11500	14.93%
034.31	Selenium, AAS, Dry ash (mg / kg (ppm))	1	1	0.68200							
034.42	Selenium, ICP, Open vessel (mg / kg (ppm))	1	1	3.0000							
034.43	Selenium, ICP, Microwave (mg / kg (ppm))	3	3	2.0650	0.64185	2.0650	0.64185	0.46322	31.08%	0.24333	14.34%
034.52	Selenium, ICP-MS, Open vessel (mg / kg (ppm))	5	4	2.3100	0.35686	2.3100	0.35686	0.22304	15.45%	0.04500	14.10%
034.53	Selenium, ICP-MS, Microwave (mg / kg (ppm))	5	4	2.2732	0.42874	2.2732	0.42874	0.26796	18.86%	0.04665	14.14%
034.99	Selenium, Miscellaneous (mg / kg (ppm))	2	2	2.0553	0.25420						
035.01	Sodium, Ion-selective electrode (%)	3	3	0.78650	0.34515	0.78650	0.34515	0.30507	43.88%	0.00367	4.15%
035.05	Sodium, Flame Emission (%)	3	3	0.64167	0.05033	0.64167	0.05033	0.03632	7.84%	0.01667	4.28%
035.31	Sodium, AAS, Dry ash (%)	16	15	0.61259	0.03476	0.61259	0.03942	0.01272	6.43%	0.01027	4.31%
035.32	Sodium, AAS, Open vessel (%)	2	2	0.62750	0.01061						
035.33	Sodium, AAS, Microwave (%)	1	1	0.58000							
035.41	Sodium, ICP, Dry ash (%)	19	19	0.65587	0.09929	0.63163	0.03901	0.01119	6.18%	0.02306	4.29%
035.42	Sodium, ICP, Open vessel (%)	15	14	0.62171	0.03226	0.61735	0.02632	0.00879	4.26%	0.01426	4.30%
035.43	Sodium, ICP, Microwave (%)	21	21	0.60873	0.05069	0.60887	0.05423	0.01479	8.91%	0.01340	4.31%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.63383	0.05469						
035.53	Sodium, ICP-MS, Microwave (%)	1	1	0.64450							
035.99	Sodium, Miscellaneous (%)	4	3	0.63833	0.01443	0.63833	0.01443	0.01275	2.26%	0.01667	4.28%
036.04	Sulfur, LECO (%)	3	3	0.38233	0.12805	0.38233	0.12805	0.09241	33.49%	0.01933	4.62%
036.42	Sulfur, ICP, Open vessel (%)	15	15	0.31200	0.02745	0.31056	0.02682	0.00866	8.64%	0.01135	4.77%
036.43	Sulfur, ICP, Microwave (%)	13	13	0.31377	0.01895	0.31394	0.02111	0.00732	6.72%	0.01219	4.76%
036.52	Sulfur, ICP-MS, Open vessel (%)	2	2	0.28898	0.05165						
036.99	Sulfur, Miscellaneous (%)	2	2	0.31410	0.00834						
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	15	15	426.03	22.815	428.20	16.972	5.4777	3.96%	9.6567	6.43%
037.32	Zinc, AAS, Open vessel (mg / kg (ppm))	1	1	477.50							

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037.33	Zinc, AAS, Microwave (mg / kg (ppm))	3	3	431.54	5.7880	431.54	5.7880	4.1771	1.34%	8.3920	6.42%
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	19	19	425.79	34.561	421.18	22.133	6.3471	5.25%	11.401	6.44%
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	17	17	414.14	27.730	414.14	31.445	9.5333	7.59%	10.590	6.46%
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	22	22	413.06	34.762	413.92	35.203	9.3817	8.50%	10.557	6.46%
037.52	Zinc, ICP-MS, Open vessel (mg / kg (ppm))	2	2	393.05	65.690						
037.53	Zinc, ICP-MS, Microwave (mg / kg (ppm))	2	2	380.75	84.499						
037.99	Zinc, Miscellaneous (mg / kg (ppm))	4	4	430.42	27.895	430.42	27.895	17.434	6.48%	11.962	6.42%
038.41	Molybdenum, ICP, Dry ash (mg / kg (ppm))	2	2	2.5725	0.03182						
038.42	Molybdenum, ICP, Open vessel (mg / kg (ppm))	3	3	2.9478	0.36421	2.9478	0.36421	0.26285	12.36%	0.31300	13.59%
038.43	Molybdenum, ICP, Microwave (mg / kg (ppm))	6	6	2.8062	0.27385	2.8062	0.31054	0.15847	11.07%	0.23203	13.70%
038.52	Molybdenum, ICP-MS, Open vessel (mg / kg (ppm))	2	2	2.8850	0.16263						
038.53	Molybdenum, ICP-MS, Microwave (mg / kg (ppm))	2	2	2.7139	0.11579						
040.42	Barium, ICP, Open vessel (mg / kg (ppm))	1	1	23.615							
040.43	Barium, ICP, Microwave (mg / kg (ppm))	1	1	23.783							
040.53	Barium, ICP-MS, Microwave (mg / kg (ppm))	1	1	21.796							
041.43	Vanadium, ICP, Microwave (mg / kg (ppm))	1	1	2.6696							
042.00	Chloride, Titrimetric (%)	3	3	0.75483	0.02319	0.75483	0.02319	0.02050	3.07%	0.01033	4.17%
042.01	Chloride, Ion-selective electrode (%)	1	1	0.74000							
101.01	Choline Chloride, Chem (mg / kg (ppm))	1	1	1,429.0							
103.02	Pantothenic Acid, LC (mg / kg (ppm))	1	1	24.450							
104.00	Riboflavin, Fluorometric (mg / kg (ppm))	1	1	20.500							
104.03	Riboflavin, LC (mg / kg (ppm))	2	2	14.478	2.0824						
105.00	Thiamine, LC (mg / kg (ppm))	2	2	14.400	8.9873						
106.00	Vitamin A, Color (KU / kg)	1	1	9.5750							
106.01	Vitamin A, UV (KU / kg)	1	1	10.395							
106.02	Vitamin A, LC (KU / kg)	17	16	13.663	11.214	11.295	5.5546	1.7358	49.18%	0.76225	
108.01	Vitamin D3, LC, AOAC (KU / kg)	1	1	7.0000							
108.02	Vitamin D3, LC (KU / kg)	4	4	1.9320	2.0887	1.9320	2.0887	1.3054	108.11%	0.32500	
109.02	Vitamin E, LC (IU/kg)	18	18	582.40	75.024	574.88	67.283	19.823	11.70%	26.071	
109.99	Vitamin E, Miscellaneous (IU/kg)	1	1	559.50							
111.00	Vitamin C, phosphorylated, LC (mg / kg (ppm))	1	1	197.00							
111.01	Vitamin C, Ascorbic Acid, LC (mkg/kg (ppm))	2	2	93.600	63.498						
120.00	Alanine, Post-col Ninhydrin Der (%)	19	18	0.85578	0.05024	0.84829	0.02259	0.00666	2.66%	0.00644	4.10%
120.02	Alanine, Post-col OPA Der (%)	1	1	0.85650							
120.05	Alanine, Pre-col AQC Der (%)	3	3	0.82333	0.09828	0.82333	0.09828	0.07093	11.94%	0.00667	4.12%
121.00	Arginine, Post-col Ninhydrin Der (%)	19	19	1.1052	0.03782	1.1057	0.04094	0.01174	3.70%	0.01801	3.94%
121.02	Arginine, Post-col OPA Der (%)	1	1	1.0990							
121.05	Arginine, Pre-col AQC Der (%)	3	3	1.1050	0.09539	1.1050	0.09539	0.06884	8.63%	0.06333	3.94%

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122.00	Aspartic, Post-col Ninhydrin Der (%)	19	18	1.7803	0.05278	1.7825	0.05114	0.01507	2.87%	0.01889	3.67%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.8120							
122.05	Aspartic, Pre-col AQC Der (%)	3	3	1.7867	0.12003	1.7867	0.12003	0.08662	6.72%	0.08667	3.67%
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	19	18	0.30006	0.02124	0.29946	0.01776	0.00523	5.93%	0.00376	4.80%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.31400							
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	4	3	0.34587	0.03638	0.34587	0.03638			0.00000	4.69%
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	19	2.9757	0.11966	2.9794	0.09086	0.02606	3.05%	0.03392	3.39%
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.9930							
125.05	Glutamic, Pre-col AQC Der (%)	3	3	3.0517	0.03753	3.0517	0.03753	0.02708	1.23%	0.11000	3.38%
126.00	Glycine, Post-col Ninhydrin Der (%)	19	18	0.84493	0.03220	0.84493	0.03651	0.01076	4.32%	0.00505	4.10%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.86500							
126.05	Glycine, Pre-col AQC Der (%)	3	3	0.83167	0.07751	0.83167	0.07751	0.05594	9.32%	0.03667	4.11%
127.00	Histidine, Post-col Ninhydrin Der (%)	19	18	0.42352	0.02287	0.42332	0.02147	0.00633	5.07%	0.00585	4.55%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.41550							
127.05	Histidine, Pre-col AQC Der (%)	3	3	0.39333	0.02466	0.39333	0.02466	0.01780	6.27%	0.01333	4.60%
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	19	0.71951	0.03677	0.71862	0.03971	0.01139	5.53%	0.01053	4.20%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.72950							
128.05	Isoleucine, Pre-col AQC Der (%)	3	3	0.69833	0.06526	0.69833	0.06526	0.04710	9.35%	0.02333	4.22%
129.00	Leucine, Post-col Ninhydrin Der (%)	19	17	1.2567	0.03920	1.2551	0.04084	0.01238	3.25%	0.00796	3.87%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.2950							
129.05	Leucine, Pre-col AQC Der (%)	3	3	22.502	36.939	22.502	36.939	32.650	164.16%	42.617	2.11%
130.00	L-Lysine, Post-col Ninhydrin Der (%)	21	20	0.98203	0.05698	0.98639	0.04026	0.01125	4.08%	0.01258	4.01%
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.99850							
130.05	L-Lysine, Pre-col AQC Der (%)	7	6	0.97267	0.05046	0.97267	0.05723	0.02920	5.88%	0.01833	4.02%
130.99	L-Lysine, Miscellaneous (%)	1	1	0.81950							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	20	20	0.30535	0.02316	0.30770	0.01996	0.00558	6.49%	0.00486	4.78%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.29650							
131.05	Methionine, PAO Pre-col AQC Der (%)	5	5	0.29656	0.04744	0.29656	0.04744	0.02652	16.00%	0.00760	4.80%
131.99	Methionine, Miscellaneous (%)	1	1	0.23200							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	18	0.85189	0.02844	0.85156	0.02852	0.00840	3.35%	0.00896	4.10%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.84150							
132.05	Phenylalanine, Pre-col AQC Der (%)	3	3	0.78167	0.05965	0.78167	0.05965	0.04305	7.63%	0.03000	4.15%
133.00	Proline, Post-col Ninhydrin Der (%)	19	19	1.0353	0.08714	1.0369	0.07387	0.02118	7.12%	0.01735	3.98%
133.05	Proline, Pre-col AQC Der (%)	3	3	1.1350	0.11269	1.1350	0.11269	0.08133	9.93%	0.01667	3.92%
134.00	Serine, Post-col Ninhydrin Der (%)	19	18	0.84919	0.03301	0.84830	0.03488	0.01028	4.11%	0.01249	4.10%
134.02	Serine, Post-col OPA Der (%)	1	1	0.80450							
134.05	Serine, Pre-col AQC Der (%)	3	3	0.83667	0.09074	0.83667	0.09074	0.06549	10.85%	0.04000	4.11%
135.00	Threonine, Post-col Ninhydrin Der (%)	19	18	0.68775	0.03020	0.68789	0.02950	0.00869	4.29%	0.00542	4.23%

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135.02	Threonine, Post-col OPA Der (%)	1	1	0.69100							
135.05	Threonine, Pre-col AQC Der (%)	4	4	0.71125	0.04090	0.71125	0.04090	0.02556	5.75%	0.00750	4.21%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	4	4	0.23180	0.04015	0.23180	0.04015	0.02509	17.32%	0.00665	4.98%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	3	3	0.25917	0.02510	0.25917	0.02510	0.01811	9.68%	0.00433	4.90%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.24650							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	4	4	0.26714	0.00512	0.26714	0.00512	0.00320	1.92%	0.00338	4.88%
136.99	Tryptophan, Miscellaneous (%)	1	1	0.22000							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	4	4	0.54450	0.04756	0.54450	0.04756	0.02973	8.73%	0.02100	4.38%
137.02	Tyrosine, Post-col OPA Der (%)	5	4	0.53200	0.06035	0.53200	0.06035	0.03772	11.34%	0.00505	4.40%
137.05	Tyrosine, Pre-col AQC Der (%)	3	3	0.55667	0.11846	0.55667	0.11846	0.08549	21.28%	0.01333	4.37%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.52300	0.03643	0.52300	0.03643	0.02629	6.97%	0.00400	4.41%
138.00	Valine, Post-col Ninhydrin Der (%)	19	19	0.88353	0.04006	0.88584	0.03232	0.00927	3.65%	0.01519	4.07%
138.02	Valine, Post-col OPA Der (%)	1	1	0.91500							
138.05	Valine, Pre-col AQC Der (%)	3	3	0.88667	0.04726	0.88667	0.04726	0.03411	5.33%	0.01333	4.07%
139.00	Taurine, Post-col Ninhydrin Der (%)	1	1	0.16000							
139.02	Taurine, Post-col OPA Der (%)	1		0.00000							
351.00	Chlortetracycline, Plate (mg/kg (ppm))	1	1	3.3753							
351.05	Chlortetracycline, LC-MS/MS (mg/kg (ppm))	1	1	7.6000							
354.04	Decoquinatone, LC-MS/MS (mg/kg (ppm))	1	1	0.13000							
361.03	Lasalocid sodium, LC (UV or FL) (mg/kg (ppm))	2	2	0.61388	0.23034						
361.05	Lasalocid sodium, LC-MS/MS (mg/kg (ppm))	4	3	33.108	56.271	33.108	56.271	49.737	169.96%	65.285	9.45%
365.02	Monensin, LC (mg/kg (ppm))	2	2	1.2250	1.0960						
365.03	Monensin, LC-PCD (mg/kg (ppm))	1	1	0.91595							
365.04	Monensin, LC-MS (mg/kg (ppm))	1	1	0.79950							
365.05	Monensin, LC-MS/MS (mg/kg (ppm))	4	3	131.20	226.13	131.20	226.13	199.87	172.36%	261.14	7.68%
365.99	Monensin, Miscellaneous (mg/kg (ppm))	1	1	0.43500							
377.02	Pyrantel Tartrate, LC-MS (mg/kg (ppm))	1	1	212.00							
392.01	Fenbendazole, LC-MS (mg/kg (ppm))	1	1	96.850							
400.01	Water activity, Aqualab chilled mirror (Units)	6	6	0.40395	0.03778	0.40395	0.04284	0.02186	10.61%	0.00357	
400.99	Water activity, Miscellaneous (Units)	1	1	0.35850							
412.01	Dietary Starch, Enzymatic-Colorimetric (%)	2	2	15.873	0.28638						
516.00	Arsenic, total, AA, Hydride (mg / kg (ppm))	2	2	0.39750	0.00354						
516.52	Arsenic, total, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.45725	0.00318						
516.53	Arsenic, total, ICP-MS, Microwave (mg / kg (ppm))	2	2	0.54058	0.01849						
518.41	Cadmium, ICP, Dry ash (mg / kg (ppm))	1	1	0.22500							
518.43	Cadmium, ICP, Microwave (mg / kg (ppm))	1	1	0.22965							
518.52	Cadmium, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.22375	0.00884						
518.53	Cadmium, ICP-MS, Microwave (mg / kg (ppm))	2	2	0.21625	0.01167						

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520.41	Chromium, ICP, Dry ash (mg / kg (ppm))	1	1	6.8850							
520.42	Chromium, ICP, Open vessel (mg / kg (ppm))	3	3	10.189	1.3411	10.189	1.3411	0.96786	13.16%	0.91267	11.28%
520.43	Chromium, ICP, Microwave (mg / kg (ppm))	3	3	11.439	0.36471	11.439	0.36471	0.26321	3.19%	0.53467	11.09%
520.52	Chromium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	4.8600							
520.53	Chromium, ICP-MS, Microwave (mg / kg (ppm))	2	2	9.1591	4.8450						
526.41	Lead, ICP, Dry ash (mg / kg (ppm))	1	1	0.71000							
526.52	Lead, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.39675	0.01874						
526.53	Lead, ICP-MS, Microwave (mg / kg (ppm))	2	2	0.34983	0.01722						
539.41	Nickel, ICP, Dry ash (mg / kg (ppm))	1	1	5.5000							
539.42	Nickel, ICP, Open vessel (mg / kg (ppm))	1	1	7.2000							
539.43	Nickel, ICP, Microwave (mg / kg (ppm))	1	1	6.3255							
539.52	Nickel, ICP-MS, Open vessel (mg / kg (ppm))	1	1	4.4100							
539.53	Nickel, ICP-MS, Microwave (mg / kg (ppm))	1	1	4.4736							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	2	2	0.00418	0.00187						
714.99	Myristic Acid (14:0), Miscellaneous (% (w/w))	1	1	0.00940							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	0.64735							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	2	2	0.03543	0.04020						
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	1	1	0.14070							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	1	1	0.78495							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	3	3	0.59375	0.10370	0.59375	0.10370	0.07484	17.47%	0.05017	
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous	2	2	0.22928	0.03002						
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	1	1	0.01335							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.02200							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous	1	1	0.00650							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5)	2	1	0.00200							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	1	1	0.01890							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1	1	0.00110							
746.99	Docosapentaenoic Acid n-3 DPA (DHA)7c,10c,13c,16c,19c	2		0.00000							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	1	1	0.01210							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c,22c)	2		0.00000							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1	1	0.01885							
754.02	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, (17:3-24:1)	1	1	0.34000							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, (17:3-24:1)	2	2	0.27625	0.03359						
756.02	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, (18:2-24:2)	1	1	1.0950							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, (18:2-24:2)	2	2	0.63600	0.09051						
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	1	1	2.5254							

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.

Test Material Code # 201821

Issue Date : 02/28/2018

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value - Robust Mean	AAFCO PT ffp - Robust sd	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Horwitz %RSD
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AAFCO
Proficiency Testing Program



Animal Feed Scheme

Equine Feed

Test Material Code # 201821

Method Precision Report

Methods Reported: 85

Labs Reporting: 178

Issue Date : 02/28/2018

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 (%)	42	39	7.3277	0.51993	0.34371	0.07528	0.35185	4.65%	1.019%	4.76%	4.6738
001.99	Loss on Drying, Miscellaneous (%)	19	17	7.1284	0.50288	0.41519	0.07728	0.42232	5.77%	1.075%	5.87%	5.4651
002.01	Protein, Auto Kjel-Foss (%)	13	12	18.336	0.33694	0.32638	0.11838	0.34718	1.78%	0.646%	1.89%	2.9328
002.05	Protein, Copper, Boric Acid (%)	28	26	18.220	0.37939	0.16133	0.09327	0.18635	0.88%	0.510%	1.02%	1.9980
002.06	Protein, Combustion Nitrogen Analyzer (%)	116	107	18.668	0.43531	0.24540	0.12036	0.27333	1.32%	0.647%	1.47%	2.2709
003.00	Fat, Eth Ext., Direct (%)	14	14	3.3157	0.78835	0.78704	0.06422	0.78966	23.74%	1.937%	23.82%	12.296
003.06	Fat, Pet Ether (%)	14	14	4.0020	0.81038	0.79720	0.20589	0.82336	19.92%	5.145%	20.57%	3.9989
003.09	Fat, Soxtec, Eth Ext (%)	18	17	3.5736	0.83576	0.84764	0.10652	0.85431	23.92%	3.007%	24.11%	8.0200
003.10	Fat, Soxtec, Pet Ether (%)	26	25	3.0857	0.69398	0.67977	0.10421	0.68772	21.78%	3.339%	22.03%	6.5992
003.14	Fat, Ankom (%)	41	39	3.0162	0.44230	0.43022	0.16599	0.46113	14.23%	5.491%	15.25%	2.7781
004.00	Fiber, Crude, Asbestos Free (%)	14	14	10.954	0.59259	0.57893	0.17886	0.60593	5.29%	1.633%	5.53%	3.3877
004.06	Fiber, Fibertec (%)	25	22	11.170	0.63552	0.52866	0.10013	0.53806	4.77%	0.904%	4.86%	5.3737
004.07	Fiber, ANKOM (%)	57	53	11.352	1.0087	0.86821	0.24671	0.90258	7.71%	2.191%	8.01%	3.6585
005.00	Ash, 2h @ 600°C (%)	81	75	11.831	0.39401	0.35146	0.09342	0.36366	2.97%	0.790%	3.07%	3.8927
005.05	Ash, 3h @ 550°C (%)	31	30	12.148	0.30571	0.30182	0.07252	0.31041	2.48%	0.597%	2.55%	4.2801
005.99	Ash, Miscellaneous (%)	9	8	12.169	0.30659	0.19108	0.06452	0.20167	1.56%	0.527%	1.65%	3.1259
008.02	Fiber, Acid Detergent (%)	15	13	13.954	0.80079	0.81430	0.19791	0.83800	5.85%	1.421%	6.02%	4.2342
008.08	Fiber, Acid Detergent, ANKOM (%)	37	36	13.800	1.0095	0.93164	0.24849	0.96421	6.72%	1.793%	6.96%	3.8803
009.07	Fiber, Neutral Det-ENZ Pretreat (%)	13	11	26.086	7.5423	1.9774	0.24808	1.9929	8.21%	1.030%	8.27%	8.0332
009.09	Fiber, Neutral Detergent, ANKOM (%)	37	36	23.630	1.6501	1.5565	0.42440	1.6133	6.61%	1.803%	6.85%	3.8014
010.99	Moisture, Miscellaneous (%)	18	14	7.7474	0.54781	0.45458	0.04053	0.45638	5.90%	0.526%	5.92%	11.260
011.01	Loss on Drying, 135°C 2hr (%)	54	49	8.1548	0.45002	0.30513	0.04796	0.30888	3.71%	0.583%	3.75%	6.4397
012.00	Starch, Polarimetric (Ewers) (%)	16	15	17.475	0.84802	0.84162	0.14715	0.85438	4.82%	0.842%	4.89%	5.8062
013.00	Fat, Acid hydrolysis (%)	18	18	4.7922	1.1662	1.1560	0.21775	1.1763	24.12%	4.544%	24.55%	5.4020
013.02	Fat, Mojonier, Bak Ext (%)	16	16	5.9775	0.89412	0.88633	0.16658	0.90184	14.83%	2.787%	15.09%	5.4138
019.00	Calcium, Ox-MnO4 Vol. (%)	9	9	2.1998	0.08785	0.08640	0.02246	0.08927	3.93%	1.021%	4.06%	3.9751
019.08	Calcium, EDTA (%)	9	8	2.1393	0.17001	0.05566	0.02493	0.06099	2.54%	1.137%	2.78%	2.4469
019.31	Calcium, AAS, Dry ash (%)	18	17	2.1668	0.12017	0.10511	0.04867	0.11583	4.82%	2.233%	5.31%	2.3799
019.41	Calcium, ICP, Dry ash (%)	23	21	2.2047	0.18469	0.10913	0.04949	0.11983	5.00%	2.268%	5.49%	2.4210
019.42	Calcium, ICP, Open vessel (%)	18	16	2.1941	0.15897	0.12806	0.04403	0.13542	5.92%	2.034%	6.26%	3.0753
019.43	Calcium, ICP, Microwave (%)	27	26	2.2028	0.14123	0.12454	0.03822	0.13028	5.69%	1.745%	5.95%	3.4083
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	14	13	122.48	9.5851	6.1800	2.0903	6.5239	5.13%	1.735%	5.41%	3.1211

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
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	20	18	117.18	7.9218	3.9334	3.3896	5.1924	3.35%	2.890%	4.43%	1.5319
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	20	19	124.77	10.572	10.230	3.7683	10.902	8.20%	3.020%	8.74%	2.8931
022.43	Copper, ICP, Microwave (mg / kg (ppm))	22	21	119.10	10.722	6.1085	5.3274	8.1052	5.06%	4.409%	6.71%	1.5214
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	13	11	760.39	224.51	50.594	6.9617	51.071	6.16%	0.848%	6.22%	7.3360
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	20	17	795.87	71.814	45.462	7.6464	46.101	5.82%	0.979%	5.90%	6.0291
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	14	13	650.95	171.75	171.13	20.630	172.37	26.29%	3.169%	26.48%	8.3554
025.43	Iron, ICP, Microwave (mg / kg (ppm))	19	16	763.72	80.914	51.966	17.888	54.958	6.72%	2.312%	7.10%	3.0724
027.31	Magnesium, AAS, Dry ash (%)	14	11	0.89262	0.18286	0.11710	0.01000	0.11753	12.64%	1.079%	12.69%	11.756
027.41	Magnesium, ICP, Dry ash (%)	20	19	0.94056	0.05499	0.05354	0.02018	0.05722	5.68%	2.140%	6.07%	2.8358
027.42	Magnesium, ICP, Open vessel (%)	17	14	0.93225	0.06138	0.04706	0.01930	0.05087	5.08%	2.084%	5.49%	2.6359
027.43	Magnesium, ICP, Microwave (%)	24	23	0.93939	0.05175	0.05100	0.01241	0.05249	5.43%	1.321%	5.59%	4.2301
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	14	13	294.56	15.031	10.309	7.0735	12.502	3.47%	2.379%	4.21%	1.7675
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	19	18	286.46	16.510	15.908	6.2476	17.091	5.55%	2.181%	5.97%	2.7355
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	19	292.62	28.219	27.982	5.1616	28.454	9.56%	1.764%	9.72%	5.5127
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	22	20	297.07	25.093	19.470	5.2765	20.173	6.64%	1.799%	6.88%	3.8231
031.01	Phosphorus, Photometric (%)	38	36	0.86187	0.04753	0.04060	0.01788	0.04436	4.71%	2.073%	5.14%	2.4811
031.41	Phosphorus, ICP, Dry ash (%)	22	20	0.90583	0.08622	0.07261	0.01943	0.07516	8.13%	2.176%	8.41%	3.8678
031.42	Phosphorus, ICP, Open vessel (%)	19	19	0.85830	0.03317	0.02937	0.02182	0.03659	3.42%	2.543%	4.26%	1.6765
031.43	Phosphorus, ICP, Microwave (%)	25	23	0.87166	0.05128	0.04305	0.01851	0.04686	4.96%	2.133%	5.40%	2.5316
032.31	Potassium, AAS, Dry ash (%)	13	10	1.1629	0.31485	0.06850	0.02361	0.07245	5.49%	1.894%	5.81%	3.0685
032.41	Potassium, ICP, Dry ash (%)	20	19	1.2774	0.06610	0.04644	0.04029	0.06148	3.66%	3.176%	4.85%	1.5260
032.42	Potassium, ICP, Open vessel (%)	18	17	1.2920	0.05416	0.05083	0.03049	0.05927	3.93%	2.357%	4.58%	1.9439
032.43	Potassium, ICP, Microwave (%)	25	23	1.2887	0.06999	0.05485	0.02742	0.06132	4.28%	2.142%	4.79%	2.2362
033.00	Salt as chloride, Sol Cl (%)	14	11	1.1003	0.24944	0.06344	0.01300	0.06476	5.38%	1.102%	5.49%	4.9829
033.01	Salt as chloride, Poten Cl (%)	23	21	1.2088	0.19991	0.03814	0.01276	0.04022	3.19%	1.068%	3.37%	3.1530
035.31	Sodium, AAS, Dry ash (%)	16	14	0.61259	0.03476	0.03396	0.00632	0.03454	5.57%	1.036%	5.66%	5.4665
035.41	Sodium, ICP, Dry ash (%)	19	18	0.65587	0.09929	0.04911	0.02188	0.05376	7.72%	3.439%	8.45%	2.4569
035.42	Sodium, ICP, Open vessel (%)	15	13	0.62171	0.03226	0.03272	0.00992	0.03419	5.26%	1.594%	5.49%	3.4460
035.43	Sodium, ICP, Microwave (%)	21	19	0.60873	0.05069	0.05057	0.00863	0.05130	8.37%	1.428%	8.49%	5.9460
036.42	Sulfur, ICP, Open vessel (%)	15	14	0.31200	0.02745	0.02768	0.00817	0.02886	8.85%	2.610%	9.23%	3.5343
036.43	Sulfur, ICP, Microwave (%)	13	12	0.31377	0.01895	0.01668	0.00972	0.01931	5.35%	3.118%	6.20%	1.9872
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	15	13	426.03	22.815	14.622	7.3220	16.353	3.39%	1.700%	3.80%	2.2334
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	19	18	425.79	34.561	17.187	10.889	20.346	4.10%	2.599%	4.86%	1.8684
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	17	17	414.14	27.730	26.950	9.2368	28.489	6.51%	2.230%	6.88%	3.0842
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	22	22	413.06	34.762	34.177	8.9804	35.337	8.27%	2.174%	8.56%	3.9349
106.02	Vitamin A, LC (KU / kg)	17	14	13.663	11.214	4.1028	0.60246	4.1468	40.32%	5.921%	40.75%	6.8830
109.02	Vitamin E, LC (IU/kg)	18	18	582.40	75.024	72.646	26.500	77.329	12.47%	4.550%	13.28%	2.9181
120.00	Alanine, Post-col Ninhydrin Der (%)	19	17	0.85578	0.05024	0.02179	0.00659	0.02277	2.58%	0.779%	2.69%	3.4571
121.00	Arginine, Post-col Ninhydrin Der (%)	19	18	1.1052	0.03782	0.03675	0.01588	0.04003	3.33%	1.439%	3.63%	2.5210
122.00	Aspartic, Post-col Ninhydrin Der (%)	19	17	1.7803	0.05278	0.04170	0.01754	0.04524	2.33%	0.981%	2.53%	2.5791

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124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	19	17	0.30006	0.02124	0.01655	0.00340	0.01689	5.57%	1.146%	5.69%	4.9660
125.00	Glutamic, Post-col Ninhydrin Der (%)	19	17	2.9757	0.11966	0.09085	0.02826	0.09515	3.04%	0.944%	3.18%	3.3663
126.00	Glycine, Post-col Ninhydrin Der (%)	19	17	0.84493	0.03220	0.03134	0.00444	0.03165	3.72%	0.527%	3.76%	7.1301
127.00	Histidine, Post-col Ninhydrin Der (%)	19	17	0.42352	0.02287	0.02336	0.00439	0.02376	5.51%	1.035%	5.61%	5.4185
128.00	Isoleucine, Post-col Ninhydrin Der (%)	19	19	0.71951	0.03677	0.03610	0.00991	0.03743	5.02%	1.377%	5.20%	3.7773
129.00	Leucine, Post-col Ninhydrin Der (%)	19	16	1.2567	0.03920	0.04016	0.00726	0.04081	3.20%	0.577%	3.25%	5.6232
130.00	L-Lysine, Post-col Ninhydrin Der (%)	21	18	0.98203	0.05698	0.04173	0.01101	0.04316	4.21%	1.112%	4.36%	3.9192
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	20	18	0.30535	0.02316	0.01695	0.00393	0.01740	5.51%	1.278%	5.66%	4.4254
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	19	17	0.85189	0.02844	0.02879	0.00739	0.02973	3.38%	0.867%	3.49%	4.0225
133.00	Proline, Post-col Ninhydrin Der (%)	19	18	1.0353	0.08714	0.07053	0.01579	0.07228	6.73%	1.508%	6.90%	4.5767
134.00	Serine, Post-col Ninhydrin Der (%)	19	18	0.84919	0.03301	0.03193	0.01182	0.03405	3.76%	1.392%	4.01%	2.8807
135.00	Threonine, Post-col Ninhydrin Der (%)	19	18	0.68775	0.03020	0.02999	0.00502	0.03040	4.36%	0.731%	4.42%	6.0515
138.00	Valine, Post-col Ninhydrin Der (%)	19	17	0.88353	0.04006	0.02712	0.01176	0.02956	3.04%	1.316%	3.31%	2.5139

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