AAFCO Proficiency Testing Program

AAFCO PTP Animal Feed Scheme

Animal Feed Scheme
Llama & Alpaca Mineral
Test Material Code # 201796

Method Summary Report

(Precision Report Follows)

 # Methods Reported: 315
 # Labs Reporting: 166
Issue Date : 07/31/2017

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	3.9618	0.25075	3.9618	0.25075	0.11214	6.33%	0.11204	3.25%
001.03	Loss on Drying, Low temp. methods (%)	7	6	3.7815	0.19363	3.7460	0.10728	0.05474	2.86%	0.01428	3.28%
001.05	Loss on Drying, LECO (%)	3	3	5.8083	3.5749	5.8083	3.5749	2.0640	61.55%	0.01667	3.07%
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	25	24	4.0508	0.40499	4.0020	0.25840	0.06593	6.46%	0.14771	3.25%
001.08	Loss on Drying, 102°C 16 hr, in meat (%)	1	1	4.1000							
001.99	Loss on Drying, Miscellaneous (%)	17	17	3.8637	0.43104	3.9012	0.37687	0.11426	9.66%	0.12141	3.26%
002.00	Protein, Crude (%)	1		0.00000							
002.01	Protein, Auto Kjel-Foss (%)	4	4	4.9313	1.0031	4.9313	1.0031	0.57914	20.34%	0.02250	3.15%
002.04	Protein, Copper Catalyst (%)	2	2	9.9350	6.4205						
002.05	Protein, Copper, Boric Acid (%)	8	8	6.8670	3.3715	5.7345	0.27031	0.11946	4.71%	0.17835	3.08%
002.06	Protein, Combustion Nitrogen Analyzer (%)	42	39	5.8443	0.69587	5.9117	0.32126	0.06430	5.43%	0.12827	3.06%
002.08	Protein, Cu/Ti (%)	1	1	5.3659							
002.11	Protein, NIR (%)	2	2	9.4825	8.0858						
002.99	Protein, Miscellaneous (%)	1	1	5.9950							
003.00	Fat, Eth Ext., Direct (%)	3	3	0.62297	0.12148	0.62297	0.12148	0.07014	19.50%	0.01940	4.29%
003.06	Fat, Pet Ether (%)	7	6	0.57533	0.12705	0.57533	0.14407	0.07352	25.04%	0.01477	4.35%
003.09	Fat, Soxtec, Eth Ext (%)	2	2	0.89000	0.05657						
003.10	Fat, Soxtec, Pet Ether (%)	6	6	0.32701	0.15876	0.34733	0.13026	0.06647	37.50%	0.06592	4.69%
003.11	Fat, NIR (%)	1	1	2.5600							
003.13	Fat, Soxtec, Hexane Ext. (%)	2	2	0.72850	0.32032						
003.14	Fat, Ankom (%)	14	12	0.51545	0.14589	0.49223	0.11233	0.04053	22.82%	0.08189	4.45%
003.99	Fat, Miscellaneous (%)	2	1	0.54500							
004.00	Fiber, Crude, Asbestos Free (%)	7	6	8.1087	1.0206	7.8668	0.53634	0.27370	6.82%	0.37703	2.93%
004.03	Fiber, Fritted Glass (%)	2	2	8.2332	1.5107						
004.06	Fiber, Fibertec (%)	4	4	7.1113	0.42423	7.1113	0.42423	0.21212	5.97%	0.17750	2.98%
004.07	Fiber, ANKOM (%)	17	17	9.3400	3.1667	8.7726	1.6173	0.49032	18.44%	0.35558	2.88%
004.11	Fiber, NIR (%)	2	2	9.3450	6.4417						
005.00	Ash, 2h @ 600°C (%)	71	69	57.674	1.9629	57.850	1.3917	0.20943	2.41%	0.41386	1.31%
005.02	Ash, LECO (%)	3	3	59.022	0.56596	59.022	0.56596	0.32676	0.96%	0.26333	1.30%

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005.05	Ash, 3h @ 550°C (%)	28	27	59.627	1.2332	59.537	0.84155	0.20244	1.41%	0.22651	1.30%
005.11	Ash, NIR (%)	1	1	55.385							
005.99	Ash, Miscellaneous (%)	9	8	59.257	0.96407	59.201	0.90542	0.40014	1.53%	0.37338	1.30%
006.01	Total sugars, Mod. Fehling Soln (%)	1	1	5.4285							
006.99	Total sugars, Miscellaneous (%)	1	1	6.1000							
008.02	Fiber, Acid Detergent (%)	3	3	9.6614	0.36420	9.6614	0.36420	0.21027	3.77%	0.14237	2.84%
008.05	Fiber, Acid Detergent-Hach (%)	1	1	11.300							
008.08	Fiber, Acid Detergent, ANKOM (%)	11	11	9.3085	2.7912	10.006	0.60420	0.22772	6.04%	0.33590	2.83%
009.07	Fiber, Neutral Det-ENZ Pretreat (%)	3	3	13.189	0.99412	13.189	0.99412	0.57396	7.54%	0.50497	2.71%
009.09	Fiber, Neutral Detergent, ANKOM (%)	12	12	10.820	3.4602	11.675	0.90996	0.32836	7.79%	0.42084	2.76%
009.99	Fiber, Neutral Det Miscellaneous (%)	1	1	23.595							
010.03	Moisture, Karl-Fischer (%)	2	2	3.6550	0.07778						
010.11	Moisture, NIR (%)	2	2	4.9575	2.3582						
010.99	Moisture, Miscellaneous (%)	19	18	4.4371	1.3470	4.1360	0.51950	0.15306	12.56%	0.12628	3.23%
011.01	Loss on Drying, 135°C 2hr (%)	44	44	5.5198	0.38986	5.5750	0.27348	0.05154	4.91%	0.10834	3.09%
011.02	Loss on Drying, 130°C for 2 hours (%)	3	3	5.2067	0.45316	5.2067	0.45316	0.26163	8.70%	0.30667	3.12%
011.99	Loss on Drying, High Temp. Methods Miscellaneo	2	2	5.8175	0.97934						
012.00	Starch, Polarimetric (Ewers) (%)	3	2	1.0700	0.39598	1.0700	0.39598			0.13000	3.96%
012.01	Starch, Megazyme (%)	6	6	2.6707	1.1838	2.6707	1.3424	0.68504	50.26%	0.26135	3.45%
012.03	Starch, Enzymatic (%)	2	2	1.1075	1.2198						
012.04	Starch, YSI Analyzer (%)	1	1	1.1000							
012.11	Starch, NIR (%)	1	1	0.84000							
013.00	Fat, Acid hydrolysis (%)	7	6	1.1371	0.33955	1.1371	0.38505	0.19650	33.86%	0.07895	3.92%
013.02	Fat, Mojonnier, Bak Ext (%)	7	7	0.95643	0.23423	0.94432	0.23728	0.11210	25.13%	0.13000	4.03%
013.08	Fat, Roese-Gottlieb Modified (%)	1		0.00000							
013.10	Fat, Soxtec-Acid Hydrolysis (%)	2	2	2.1375	0.25809						
013.13	Fat, Ankom- Acid Hydrolysis (%)	2	2	1.8700	1.1738						
015.41	Aluminum, ICP, Dry ash (mg / kg (ppm))	4	4	1,721.5	100.80	1,721.5	100.80	50.400	5.86%	81.190	5.21%
015.42	Aluminum, ICP, Open vessel (mg / kg (ppm))	1	1	1,816.8							
015.43	Aluminum, ICP, Microwave (mg / kg (ppm))	6	6	1,663.3	302.68	1,598.7	178.82	91.255	11.19%	44.461	5.27%
015.52	Aluminum, ICP-MS, Open vessel (mg / kg (ppm))	1	1	2,039.5							
015.53	Aluminum, ICP-MS, Microwave (mg / kg (ppm))	2	2	1,817.0	152.74						
017.41	Boron, ICP, Dry ash (mg / kg (ppm))	3	3	21.317	12.702	21.317	12.702	7.3335	59.59%	1.5800	10.09%
017.42	Boron, ICP, Open vessel (mg / kg (ppm))	4	4	14.612	6.0333	14.612	6.0333	3.4833	41.29%	0.36885	10.68%
017.43	Boron, ICP, Microwave (mg / kg (ppm))	5	5	15.946	5.9702	15.946	5.9702	2.6700	37.44%	0.55600	10.54%
017.53	Boron, ICP-MS, Microwave (mg / kg (ppm))	1	1	9.9500							
019.00	Calcium, Ox-Mn04 Vol. (%)	13	12	14.708	1.1986	14.988	0.27514	0.09928	1.84%	0.10561	2.58%
019.08	Calcium, EDTA (%)	7	7	17.172	4.0928	16.024	1.4612	0.69035	9.12%	0.20864	2.50%

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019.09	Calcium, Ion-selective electrode (%)	1	1	14.228							
019.31	Calcium, AAS, Dry ash (%)	24	23	14.885	0.99918	14.984	0.88900	0.23171	5.93%	0.42090	2.58%
019.32	Calcium, AAS, Open vessel (%)	4	4	16.014	3.2862	16.014	3.2862	1.6431	20.52%	0.48250	2.50%
019.33	Calcium, AAS, Microwave (%)	2	2	15.150	1.6051						
019.41	Calcium, ICP, Dry ash (%)	24	23	15.686	2.0808	15.414	1.0547	0.27490	6.84%	0.30489	2.55%
019.42	Calcium, ICP, Open vessel (%)	19	18	15.460	1.0383	15.533	0.98182	0.28927	6.32%	0.32737	2.54%
019.43	Calcium, ICP, Microwave (%)	22	21	15.177	1.0236	15.249	0.90422	0.24665	5.93%	0.15732	2.56%
019.44	Calcium, ICP, Dry ash (%)	2	2	14.925	0.17678						
019.51	Calcium, ICP-MS, Dry ash (%)	1	1	16.010							
019.52	Calcium, ICP-MS, Open vessel (%)	1	1	15.340							
019.53	Calcium, ICP-MS, Microwave (%)	5	5	15.939	2.4809	15.939	2.4809	1.1095	15.56%	2.0640	2.50%
019.99	Calcium, Miscellaneous (%)	4	4	13.867	2.3726	13.867	2.3726	1.1863	17.11%	0.89223	2.69%
021.31	Cobalt, AAS, Dry ash (mg / kg (ppm))	5	5	24.121	2.8032	24.121	2.8032	1.2536	11.62%	0.94132	9.91%
021.41	Cobalt, ICP, Dry ash (mg / kg (ppm))	5	5	17.969	4.0531	17.969	4.0531	1.8126	22.56%	1.1420	10.36%
021.42	Cobalt, ICP, Open vessel (mg / kg (ppm))	5	5	16.986	5.5906	16.986	5.5906	2.7953	32.91%	0.85300	10.44%
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	8	8	22.206	3.1734	22.206	3.5986	1.5904	16.21%	0.70105	10.03%
021.52	Cobalt, ICP-MS, Open vessel (mg / kg (ppm))	3	3	20.035	3.8852	20.035	3.8852	2.2431	19.39%	1.4967	10.19%
021.53	Cobalt, ICP-MS, Microwave (mg / kg (ppm))	4	4	22.673	4.2708	22.673	4.2708	2.1354	18.84%	1.1569	10.00%
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	18	17	100.63	12.023	99.337	9.6989	2.9404	9.76%	1.6109	8.01%
022.32	Copper, AAS, Open vessel (mg / kg (ppm))	2	2	99.245	1.7607						
022.33	Copper, AAS, Microwave (mg / kg (ppm))	2	2	103.86	6.5605						
022.35	Copper, AAS, Dry ash (mg / kg (ppm))	1	1	85.230							
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	21	21	96.556	11.008	96.343	12.031	3.2818	12.49%	4.7487	8.04%
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	19	18	96.752	14.888	98.141	13.094	3.8578	13.34%	2.9486	8.02%
022.43	Copper, ICP, Microwave (mg / kg (ppm))	20	20	102.40	15.335	100.46	10.682	2.9858	10.63%	5.5423	7.99%
022.51	Copper, ICP-MS, Dry ash (mg / kg (ppm))	1	1	73.550							
022.52	Copper, ICP-MS, Open vessel (mg / kg (ppm))	2	2	104.83	14.743						
022.53	Copper, ICP-MS, Microwave (mg / kg (ppm))	4	4	99.450	1.8766	99.450	1.8766	0.93830	1.89%	8.3500	8.01%
022.99	Copper, Miscellaneous (mg / kg (ppm))	5	5	107.23	21.811	107.23	21.811	9.7542	20.34%	3.8532	7.92%
024.00	Iodine, Knaph-Lamb (mg / kg (ppm))	1	1	524.00							
024.01	Iodine, Elm-Cald (mg / kg (ppm))	1	1	32.150							
024.03	Iodine, Ion-selective electrode (mg / kg (ppm))	1	1	302.50							
024.99	Iodine, Miscellaneous (mg / kg (ppm))	1	1	303.67							
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	18	17	2,535.2	414.98	2,586.9	262.06	79.448	10.13%	70.432	4.90%
025.32	Iron, AAS, Open vessel (mg / kg (ppm))	2	2	2,276.5	741.76						
025.33	Iron, AAS, Microwave (mg / kg (ppm))	2	2	2,817.5	236.95						
025.34	Iron, AAS, Dry ash (mg / kg (ppm))	2	2	2,449.6	410.26						
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	23	23	2,526.1	350.48	2,524.4	281.16	73.281	11.14%	87.774	4.92%

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025.42	Iron, ICP, Open vessel (mg / kg (ppm))	15	14	2,520.4	356.07	2,480.2	275.31	91.975	11.10%	75.203	4.93%
025.43	Iron, ICP, Microwave (mg / kg (ppm))	21	21	2,470.3	162.25	2,473.0	178.19	48.604	7.21%	64.656	4.94%
025.52	Iron, ICP-MS, Open vessel (mg / kg (ppm))	1	1	2,472.1							
025.53	Iron, ICP-MS, Microwave (mg / kg (ppm))	2	2	2,642.0	138.59						
025.99	Iron, Miscellaneous (mg / kg (ppm))	2	2	2,515.5	132.94						
027.31	Magnesium, AAS, Dry ash (%)	20	19	1.1061	0.33112	1.1913	0.10635	0.03050	8.93%	0.03577	3.90%
027.32	Magnesium, AAS, Open vessel (%)	3	3	1.2603	0.05771	1.2603	0.05771	0.03332	4.58%	0.03133	3.86%
027.33	Magnesium, AAS, Microwave (%)	2	2	1.2255	0.02758						
027.34	Magnesium, AAS, Dry ash (%)	2	2	1.2550	0.06364						
027.35	Magnesium, AAS, Open vessel (%)	1	1	1.4200							
027.41	Magnesium, ICP, Dry ash (%)	24	23	1.2601	0.11428	1.2464	0.05310	0.01384	4.26%	0.03181	3.87%
027.42	Magnesium, ICP, Open vessel (%)	18	18	1.2312	0.10025	1.2402	0.09150	0.02696	7.38%	0.03151	3.87%
027.43	Magnesium, ICP, Microwave (%)	22	21	1.2203	0.09021	1.2206	0.09965	0.02718	8.16%	0.02819	3.88%
027.44	Magnesium, ICP, Dry ash (%)	2	2	1.2200	0.05657						
027.52	Magnesium, ICP-MS, Open vessel (%)	1	1	1.2800							
027.53	Magnesium, ICP-MS, Microwave (%)	5	5	1.3162	0.11305	1.3162	0.11305	0.05056	8.59%	0.11234	3.84%
027.99	Magnesium, Miscellaneous (%)	4	4	1.1130	0.33744	1.1130	0.33744	0.19482	30.32%	0.02065	3.94%
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	19	18	1,572.4	106.29	1,582.0	89.101	26.252	5.63%	37.322	5.28%
028.32	Manganese, AAS, Open vessel (mg / kg (ppm))	2	2	1,356.5	586.19						
028.33	Manganese, AAS, Microwave (mg / kg (ppm))	1	1	1,100.1							
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	21	21	1,476.4	175.69	1,494.2	144.08	39.301	9.64%	44.278	5.32%
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	17	16	1,512.8	170.23	1,515.0	176.75	55.235	11.67%	32.228	5.31%
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	23	23	1,531.6	101.31	1,541.8	86.241	22.478	5.59%	54.050	5.30%
028.44	Manganese, ICP, Dry ash (mg / kg (ppm))	2	2	1,443.7	87.292						
028.51	Manganese, ICP-MS, Dry ash (mg / kg (ppm))	1	1	1,624.5							
028.52	Manganese, ICP-MS, Open vessel (mg / kg (ppm)	1	1	1,614.7							
028.53	Manganese, ICP-MS, Microwave (mg / kg (ppm))	3	3	1,712.7	134.77	1,712.7	134.77	77.809	7.87%	171.33	5.22%
028.99	Manganese, Miscellaneous (mg / kg (ppm))	3	3	1,522.2	31.262	1,522.2	31.262	18.049	2.05%	43.667	5.31%
031.00	Phosphorus, Vol (%)	2	2	3.3825	0.22981						
031.01	Phosphorus, Photometric (%)	38	36	3.5652	0.19388	3.5834	0.12760	0.02658	3.56%	0.03182	3.30%
031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%	4	4	3.6813	0.07087	3.6813	0.07087	0.03544	1.93%	0.02250	3.29%
031.03	Phosphorus, Autoanalyzer (%)	3	3	3.6693	0.05662	3.6693	0.05662	0.03269	1.54%	0.02667	3.29%
031.06	Phosphorus, Hach Method (%)	1	1	3.4200							
031.41	Phosphorus, ICP, Dry ash (%)	24	24	3.6667	0.48159	3.6272	0.27511	0.07020	7.58%	0.07351	3.29%
031.42	Phosphorus, ICP, Open vessel (%)	20	20	3.6434	0.24587	3.6508	0.22489	0.06286	6.16%	0.05778	3.29%
031.43	Phosphorus, ICP, Microwave (%)	22	22	3.6694	0.20148	3.6908	0.17557	0.04679	4.76%	0.10725	3.29%
031.44	Phosphorus, ICP, Dry ash (%)	2	2	3.5600	0.03536						
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	3.9435							

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031.53	Phosphorus, ICP-MS, Microwave (%)	5	5	3.8690	0.16629	3.8690	0.16629	0.07437	4.30%	0.19710	3.26%
031.99	Phosphorus, Miscellaneous (%)	5	5	3.4817	0.53133	3.4817	0.53133	0.23762	15.26%	0.12036	3.32%
032.02	Potassium, Flame Emission (%)	1	1	2.5500							
032.31	Potassium, AAS, Dry ash (%)	21	20	2.5324	0.31307	2.4806	0.13530	0.03782	5.45%	0.04573	3.49%
032.32	Potassium, AAS, Open vessel (%)	2	2	2.5300	0.00707						
032.41	Potassium, ICP, Dry ash (%)	23	23	2.5272	0.31431	2.4934	0.16008	0.04172	6.42%	0.07517	3.49%
032.42	Potassium, ICP, Open vessel (%)	19	18	2.6331	0.42403	2.5850	0.30188	0.08894	11.68%	0.04214	3.47%
032.43	Potassium, ICP, Microwave (%)	22	21	2.5552	0.13584	2.5451	0.12603	0.03438	4.95%	0.04850	3.48%
032.44	Potassium, ICP, Dry ash (%)	2	2	2.5200	0.15556						
032.53	Potassium, ICP-MS, Microwave (%)	4	4	2.6504	0.23999	2.6504	0.23999	0.12000	9.05%	0.17945	3.45%
032.99	Potassium, Miscellaneous (%)	4	4	2.3408	0.35691	2.3408	0.35691	0.17846	15.25%	0.09338	3.52%
033.00	Salt as chloride, Sol Cl (%)	21	20	8.2546	0.78607	8.4325	0.37092	0.10368	4.40%	0.09557	2.90%
033.01	Salt as chloride, Poten Cl (%)	24	23	8.7402	0.45156	8.6515	0.18667	0.04865	2.16%	0.11279	2.89%
033.03	Salt as chloride, Quantab (%)	5	5	7.8560	0.86136	7.8560	0.86136	0.38521	10.96%	0.38800	2.93%
033.05	Salt as chloride, Ion Sel Electrode (%)	4	4	8.4975	1.1059	8.4975	1.1059	0.63849	13.01%	0.14500	2.90%
033.99	Salt, Miscellaneous (%)	7	7	8.2042	1.5636	8.2552	1.6555	0.78215	20.05%	0.22643	2.91%
034.04	Selenium, AA, Hydride (mg / kg (ppm))	6	6	5.4551	1.0486	5.5748	0.89769	0.45810	16.10%	0.18995	12.35%
034.31	Selenium, AAS, Dry ash (mg / kg (ppm))	1	1	0.43500							
034.41	Selenium, ICP, Dry ash (mg / kg (ppm))	3	3	5.9217	2.1691	5.9217	2.1691	1.2523	36.63%	0.33667	12.24%
034.42	Selenium, ICP, Open vessel (mg / kg (ppm))	3	3	8.6150	4.1440	8.6150	4.1440	2.9303	48.10%	1.5500	11.57%
034.43	Selenium, ICP, Microwave (mg / kg (ppm))	3	3	97.670	159.03	97.670	159.03	112.45	162.82%	183.43	8.03%
034.52	Selenium, ICP-MS, Open vessel (mg / kg (ppm))	4	4	8.3600	4.5108	8.3600	4.5108	2.6043	53.96%	0.82000	11.62%
034.53	Selenium, ICP-MS, Microwave (mg / kg (ppm))	5	5	8.3222	2.7591	8.3222	2.7591	1.3796	33.15%	1.7903	11.63%
034.99	Selenium, Miscellaneous (mg / kg (ppm))	1	1	5.3550							
035.01	Sodium, Ion-selective electrode (%)	1	1	2.8310							
035.02	Sodium, Em Spect (%)	1	1	2.7750							
035.05	Sodium, Flame Emission (%)	3	3	2.5485	0.42348	2.5485	0.42348	0.24450	16.62%	0.06500	3.47%
035.31	Sodium, AAS, Dry ash (%)	15	15	2.7252	0.13318	2.7172	0.13117	0.04234	4.83%	0.06071	3.44%
035.32	Sodium, AAS, Open vessel (%)	2	1	2.3000							
035.33	Sodium, AAS, Microwave (%)	1	1	2.9050							
035.41	Sodium, ICP, Dry ash (%)	19	18	2.7359	0.48316	2.7192	0.16969	0.05000	6.24%	0.05055	3.44%
035.42	Sodium, ICP, Open vessel (%)	13	13	2.7831	0.12785	2.7619	0.07699	0.02669	2.79%	0.08309	3.43%
035.43	Sodium, ICP, Microwave (%)	16	16	2.7023	0.20490	2.7035	0.22992	0.07185	8.50%	0.08036	3.44%
035.53	Sodium, ICP-MS, Microwave (%)	3	3	2.9167	0.28179	2.9167	0.28179	0.16269	9.66%	0.18000	3.40%
035.99	Sodium, Miscellaneous (%)	5	5	3.1685	0.44548	3.1685	0.44548	0.22274	14.06%	0.08972	3.36%
036.04	Sulfur, LECO (%)	2	2	1.9600	0.01414						
036.42	Sulfur, ICP, Open vessel (%)	17	16	2.3503	0.32601	2.3013	0.23019	0.07194	10.00%	0.03521	3.53%
036.43	Sulfur, ICP, Microwave (%)	11	11	2.1945	0.19723	2.2003	0.21043	0.07931	9.56%	0.07931	3.55%

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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
036.52	Sulfur, ICP-MS, Open vessel (%)	2	2	2.3051	0.35348						
036.53	Sulfur, ICP-MS, Microwave (%)	2	2	2.3925	0.01061						
036.99	Sulfur, Miscellaneous (%)	2	2	1.9878	0.57583						
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	21	20	3,867.6	433.10	3,936.5	293.58	82.058	7.46%	128.16	4.60%
037.32	Zinc, AAS, Open vessel (mg / kg (ppm))	2	2	3,993.5	65.761						
037.33	Zinc, AAS, Microwave (mg / kg (ppm))	2	2	3,754.9	304.23						
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	21	21	3,656.1	629.95	3,761.8	377.44	102.95	10.03%	158.80	4.63%
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	16	16	3,669.2	405.37	3,687.3	418.79	130.87	11.36%	117.17	4.65%
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	23	23	3,860.0	334.12	3,884.5	272.62	71.057	7.02%	85.404	4.61%
037.44	Zinc, ICP, Dry ash (mg / kg (ppm))	2	2	3,658.9	288.32						
037.51	Zinc, ICP-MS, Dry ash (mg / kg (ppm))	1	1	3,696.0							
037.52	Zinc, ICP-MS, Open vessel (mg / kg (ppm))	1	1	4,014.1							
037.53	Zinc, ICP-MS, Microwave (mg / kg (ppm))	4	4	4,105.9	546.12	4,105.9	546.12	273.06	13.30%	46.250	4.57%
037.99	Zinc, Miscellaneous (mg / kg (ppm))	3	3	2,513.4	2,176.5	2,513.4	2,176.5			85.336	4.92%
038.41	Molybdenum, ICP, Dry ash (mg / kg (ppm))	1	1	3.5500							
038.42	Molybdenum, ICP, Open vessel (mg / kg (ppm))	3	3	4.7814	1.0646	4.7814	1.0646	0.61465	22.27%	0.31147	12.64%
038.43	Molybdenum, ICP, Microwave (mg / kg (ppm))	6	6	4.6520	0.38220	4.6520	0.43341	0.22117	9.32%	0.21973	12.69%
038.53	Molybdenum, ICP-MS, Microwave (mg / kg (ppm))	4	4	5.2953	1.0969	5.2953	1.0969	0.63330	20.71%	0.46763	12.45%
040.42	Barium, ICP, Open vessel (mg / kg (ppm))	1	1	15.170							
040.53	Barium, ICP-MS, Microwave (mg / kg (ppm))	1	1	12.059							
041.53	Vanadium, ICP-MS, Microwave (mg / kg (ppm))	1	1	30.000							
042.00	Chloride, Titrimetric (%)	1	1	4.6200							
101.00	Choline Chloride, Microbiological (mg / kg (ppm))	1	1	1,105.0							
101.01	Choline Chloride, Chem (mg / kg (ppm))	1	1	676.50							
101.02	Choline Chloride, LC (mg / kg (ppm))	1	1	1,029.5							
102.01	Niacin, Microbiological (mg / kg (ppm))	1	1	45.250							
102.02	Niacin, LC (mg / kg (ppm))	2	2	131.11	162.49						
103.01	Pantothenic Acid, Microbiological (mg / kg (ppm))	1	1	10.950							
103.02	Pantothenic Acid, LC (mg / kg (ppm))	1	1	116.00							
104.00	Riboflavin, Fluorometric (mg / kg (ppm))	1	1	2.0850							
105.00	Thiamine, LC (mg / kg (ppm))	5	5	82.553	20.977	82.553	20.977	9.3812	25.41%	5.1930	8.23%
105.01	Thiamine, Fluorometer (mg / kg (ppm))	1	1	76.450							
106.00	Vitamin A, Color (KU / kg)	2	2	354.17	69.770						
106.01	Vitamin A, UV (KU / kg)	1	1	419.00							
106.02	Vitamin A, LC (KU / kg)	25	24	340.54	92.564	339.23	84.006	21.435	24.76%	17.050	
107.00	Vitamin B12, Microbiological (µg / kg (ppb))	1	1	5,395.0							
108.01	Vitamin D3, LC, AOAC (KU / kg)	2	2	49.735	6.7387						
108.02	Vitamin D3, LC (KU / kg)	7	7	43.995	3.7287	43.995	4.2283	1.9977	9.61%	3.2889	

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108.99	Vitamin D3, Miscellaneous (KU / kg)	1	1	50.800							
109.02	Vitamin E, LC (IU/kg)	22	21	1,141.7	627.36	1,088.0	369.78	100.87	33.99%	40.807	
109.99	Vitamin E, Miscellaneous (IU/kg)	1	1	1,000.0							
111.00	Vitamin C, phosphorylated, LC (mg / kg (ppm))	1	1	214.00							
111.01	Vitamin C, Ascorbic Acid, LC (mkg/kg (ppm))	3	3	152.88	51.542	152.88	51.542	29.758	33.71%	3.8333	7.50%
111.98	Vitamin C, Ascorbic Acid, Miscellaneous (mkg/kg (	1	1	214.50							
112.01	Pyridoxine, LC (µg / g)	1	1	170.50							
113.01	Folic Acid, Micro (mg / kg (ppm))	1	1	1.4100							
114.01	Biotin, Microbiological (mg / kg (ppm))	2	2	0.31275	0.05339						
120.00	Alanine, Post-col Ninhydrin Der (%)	4	4	0.17845	0.00610	0.17845	0.00610	0.00305	3.42%	0.00145	5.18%
120.01	Alanine, Pre-col OPA Der (%)	1	1	0.17650							
120.05	Alanine, Pre-col AQC Der (%)	1	1	0.18150							
121.00	Arginine, Post-col Ninhydrin Der (%)	5	5	0.28385	0.01881	0.28385	0.01881	0.00841	6.63%	0.01282	4.83%
121.01	Arginine, Pre-col OPA Der (%)	1	1	0.32050							
121.05	Arginine, Pre-col AQC Der (%)	1	1	0.33300							
122.00	Aspartic, Post-col Ninhydrin Der (%)	4	4	0.39786	0.01999	0.39786	0.01999	0.01000	5.02%	0.00888	4.59%
122.01	Aspartic, Pre-col OPA Der (%)	1	1	0.40300							
122.05	Aspartic, Pre-col AQC Der (%)	1	1	0.42950							
124.00	Cysteine/Cystine, PAO Post-col Ninhydri (%)	5	5	0.05487	0.01900	0.05487	0.01900	0.00950	34.63%	0.00178	6.19%
124.01	Cysteine/Cystine, PAO Pre-col OPA Der (%)	1	1	0.06845							
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	1	1	0.05050							
124.99	Cysteine/Cystine, Miscellaneous (%)	1	1	0.34000							
125.00	Glutamic, Post-col Ninhydrin Der (%)	4	4	0.65216	0.00159	0.65216	0.00159	0.00080	0.24%	0.01143	4.27%
125.01	Glutamic, Pre-col OPA Der (%)	1	1	0.65300							
125.05	Glutamic, Pre-col AQC Der (%)	1	1	0.69800							
126.00	Glycine, Post-col Ninhydrin Der (%)	4	4	0.18398	0.00716	0.18398	0.00716	0.00358	3.89%	0.00245	5.16%
126.01	Glycine, Pre-col OPA Der (%)	1	1	0.18350							
126.05	Glycine, Pre-col AQC Der (%)	1	1	0.19450							
127.00	Histidine, Post-col Ninhydrin Der (%)	4	4	0.09416	0.00737	0.09416	0.00737	0.00369	7.83%	0.00393	5.71%
127.01	Histidine, Pre-col OPA Der (%)	1	1	0.08015							
127.05	Histidine, Pre-col AQC Der (%)	1	1	0.09550							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	4	4	0.11974	0.00717	0.11974	0.00717	0.00359	5.99%	0.00478	5.50%
128.01	Isoleucine, Pre-col OPA Der (%)	1	1	0.12700							
128.05	Isoleucine, Pre-col AQC Der (%)	1	1	0.11900							
129.00	Leucine, Post-col Ninhydrin Der (%)	4	4	0.22124	0.00988	0.22124	0.00988	0.00570	4.47%	0.00173	5.02%
129.01	Leucine, Pre-col OPA Der (%)	1	1	0.23200							
129.05	Leucine, Pre-col AQC Der (%)	1	1	0.23150							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	5	5	0.91873	0.40449	0.91873	0.40449	0.20225	44.03%	0.02646	4.05%

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130.01	L-Lysine, Pre-col OPA Der (%)	2	2	0.90975	0.00672						
130.05	L-Lysine, Pre-col AQC Der (%)	3	3	1.0985	0.02382	1.0985	0.02382	0.01375	2.17%	0.08633	3.94%
130.99	L-Lysine, Miscellaneous (%)	2	2	1.2325	0.15910						
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	4	4	0.22608	0.06227	0.22608	0.06227	0.03114	27.54%	0.01205	5.00%
131.01	Methionine, PAO Pre-col OPA Der (%)	1	1	0.45450							
131.05	Methionine, PAO Pre-col AQC Der (%)	1	1	0.28000							
131.99	Methionine, Miscellaneous (%)	1	1	0.66500							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	4	4	0.19096	0.02652	0.19096	0.02652	0.01326	13.89%	0.00188	5.13%
132.01	Phenylalanine, Pre-col OPA Der (%)	1	1	0.17400							
132.05	Phenylalanine, Pre-col AQC Der (%)	1	1	0.18050							
133.00	Proline, Post-col Ninhydrin Der (%)	4	4	0.15979	0.02651	0.15979	0.02651	0.01326	16.59%	0.00878	5.27%
133.04	Proline, Pre-col FMOC Der (%)	1	1	0.17250							
133.05	Proline, Pre-col AQC Der (%)	1	1	0.18850							
134.00	Serine, Post-col Ninhydrin Der (%)	4	4	0.16803	0.00434	0.16803	0.00434	0.00217	2.58%	0.00155	5.23%
134.01	Serine, Pre-col OPA Der (%)	1	1	0.16950							
134.05	Serine, Pre-col AQC Der (%)	1	1	0.19100							
135.00	Threonine, Post-col Ninhydrin Der (%)	4	4	0.12511	0.00328	0.12511	0.00328	0.00232	2.62%	0.00168	5.47%
135.01	Threonine, Pre-col OPA Der (%)	1	1	0.12450							
135.05	Threonine, Pre-col AQC Der (%)	1	1	0.13200							
135.99	Threonine, Miscellaneous (%)	1	1	0.13500							
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	2	2	0.05173	0.00463						
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	1	1	0.04300							
136.03	Tryptophan, Alka-Hydrol + IS RP LC Fl (%)	1	1	0.03750							
136.99	Tryptophan, Miscellaneous (%)	1	1	0.04700							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	4	4	0.11828	0.02624	0.11828	0.02624	0.01312	22.18%	0.00295	5.52%
137.01	Tyrosine, Pre-col OPA Der (%)	1	1	0.13750							
137.05	Tyrosine, Pre-col AQC Der (%)	1	1	0.13100							
138.00	Valine, Post-col Ninhydrin Der (%)	4	4	0.17024	0.01250	0.17024	0.01250	0.00625	7.34%	0.00658	5.22%
138.01	Valine, Pre-col OPA Der (%)	1	1	0.16750							
138.05	Valine, Pre-col AQC Der (%)	1	1	0.17400							
160.99	Fructose, Miscellaneous (%)	1	1	0.42500							
162.99	Glucose, Miscellaneous (%)	1	1	0.28000							
163.99	Lactose, Miscellaneous (%)	1	1	0.33000							
165.99	Sucrose, Miscellaneous (%)	1	1	3.1750							
166.99	Raffinose, Miscellaneous (%)	1	1	0.23500							
400.01	Water activity, Aqualab chilled mirror (Units)	6	6	0.44983	0.00850	0.44983	0.00964	0.00492	2.14%	0.00262	
400.99	Water activity, Miscellaneous (Units)	2	2	0.43425	0.01237						
412.01	#N/A	1	1	1.2450							

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516.34	Arsenic, total, AAS, Graphite furnace (mg / kg (ppı	1	1	2.8750							
516.52	Arsenic, total, ICP-MS, Open vessel (mg / kg (ppn	2	2	3.0925	0.21567						
516.53	Arsenic, total, ICP-MS, Microwave (mg / kg (ppm)	5	5	3.3057	0.25385	3.3057	0.25385	0.11353	7.68%	0.15394	13.36%
518.41	Cadmium, ICP, Dry ash (mg / kg (ppm))	2	2	0.57975	0.06399						
518.43	Cadmium, ICP, Microwave (mg / kg (ppm))	1	1	0.64000							
518.52	Cadmium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	0.71350							
518.53	Cadmium, ICP-MS, Microwave (mg / kg (ppm))	5	5	0.73044	0.05646	0.73044	0.05646	0.02525	7.73%	0.05232	16.77%
520.41	Chromium, ICP, Dry ash (mg / kg (ppm))	2	2	34.400	4.0305						
520.42	Chromium, ICP, Open vessel (mg / kg (ppm))	1	1	37.177							
520.43	Chromium, ICP, Microwave (mg / kg (ppm))	2	2	43.183	6.6786						
520.52	Chromium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	51.500							
520.53	Chromium, ICP-MS, Microwave (mg / kg (ppm))	2	2	46.993	4.3038						
526.41	Lead, ICP, Dry ash (mg / kg (ppm))	2	2	1.1663	0.90333						
526.52	Lead, ICP-MS, Open vessel (mg / kg (ppm))	1	1	1.7200							
526.53	Lead, ICP-MS, Microwave (mg / kg (ppm))	5	5	1.6720	0.20469	1.6720	0.20469	0.09154	12.24%	0.10682	14.81%
539.41	Nickel, ICP, Dry ash (mg / kg (ppm))	1	1	13.500							
539.42	Nickel, ICP, Open vessel (mg / kg (ppm))	1	1	8.5300							
539.52	Nickel, ICP-MS, Open vessel (mg / kg (ppm))	1	1	19.650							
539.53	Nickel, ICP-MS, Microwave (mg / kg (ppm))	2	2	15.934	0.51757						

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.

Animal Feed Scheme
Llama & Alpaca Mineral
Test Material Code # 201796

Method Precision Report

 # Methods Reported: 56
 # Labs Reporting: 166
Issue Date : 07/31/2017

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 (%)	25	22	4.0508	0.40499	0.21850	0.13430	0.25647	5.44%	3.343%	6.38%	1.9097
001.99	Loss on Drying, Miscellaneous (%)	17	16	3.8637	0.43104	0.30311	0.10364	0.32033	7.70%	2.632%	8.13%	3.0908
002.06	Protein, Combustion Nitrogen Analyzer (%)	42	37	5.8443	0.69587	0.32664	0.10348	0.34264	5.51%	1.744%	5.78%	3.3113
003.14	Fat, Ankom (%)	14	11	0.51545	0.14589	0.14596	0.06338	0.15912	28.17%	12.230%	30.71%	2.5107
004.07	Fiber, ANKOM (%)	17	16	9.3400	3.1667	1.3481	0.35163	1.3933	15.60%	4.069%	16.12%	3.9622
005.00	Ash, 2h @ 600°C (%)	71	64	57.674	1.9629	1.5451	0.37231	1.5893	2.68%	0.645%	2.75%	4.2687
005.05	Ash, 3h @ 550°C (%)	28	25	59.627	1.2332	0.88260	0.21162	0.90761	1.48%	0.356%	1.53%	4.2889
005.99	Ash, Miscellaneous (%)	9	8	59.257	0.96407	0.94227	0.28834	0.98540	1.59%	0.487%	1.66%	3.4175
008.08	Fiber, Acid Detergent, ANKOM (%)	11	10	9.3085	2.7912	0.49260	0.34032	0.59873	4.86%	3.358%	5.91%	1.7593
009.09	Fiber, Neutral Detergent, ANKOM (%)	12	10	10.820	3.4602	0.68963	0.33192	0.76534	5.82%	2.801%	6.46%	2.3058
010.99	Moisture, Miscellaneous (%)	19	16	4.4371	1.3470	0.57313	0.10623	0.58289	13.72%	2.543%	13.96%	5.4873
011.01	Loss on Drying, 135°C 2hr (%)	44	42	5.5198	0.38986	0.28345	0.09938	0.30036	5.08%	1.782%	5.39%	3.0223
019.00	Calcium, Ox-Mn04 Vol. (%)	13	11	14.708	1.1986	0.37662	0.09790	0.38914	2.50%	0.651%	2.59%	3.9749
019.31	Calcium, AAS, Dry ash (%)	24	21	14.885	0.99918	0.82980	0.38792	0.91600	5.53%	2.585%	6.10%	2.3613
019.41	Calcium, ICP, Dry ash (%)	24	21	15.686	2.0808	1.4241	0.24100	1.4444	9.26%	1.567%	9.39%	5.9934
019.42	Calcium, ICP, Open vessel (%)	19	17	15.460	1.0383	0.78712	0.26831	0.83160	5.04%	1.718%	5.32%	3.0994
019.43	Calcium, ICP, Microwave (%)	22	20	15.177	1.0236	0.87153	0.14019	0.88273	5.70%	0.916%	5.77%	6.2966
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	8	8	22.206	3.1734	3.1235	0.79217	3.2224	14.07%	3.567%	14.51%	4.0678
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	18	16	100.63	12.023	7.9206	1.4883	8.0592	8.05%	1.512%	8.19%	5.4152
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	21	20	96.556	11.008	10.870	4.0161	11.588	11.23%	4.149%	11.97%	2.8855
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	19	16	96.752	14.888	10.102	2.1992	10.339	10.30%	2.243%	10.54%	4.7010
022.43	Copper, ICP, Microwave (mg / kg (ppm))	20	19	102.40	15.335	9.4017	4.5056	10.426	9.43%	4.517%	10.45%	2.3139
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	18	16	2,535.2	414.98	226.67	69.529	237.09	8.65%	2.654%	9.05%	3.4100
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	23	20	2,526.1	350.48	285.26	58.352	291.17	11.43%	2.339%	11.67%	4.9899
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	15	13	2,520.4	356.07	235.10	68.496	244.87	9.60%	2.798%	10.00%	3.5750
025.43	Iron, ICP, Microwave (mg / kg (ppm))	21	21	2,470.3	162.25	156.56	60.248	167.75	6.34%	2.439%	6.79%	2.7844
027.31	Magnesium, AAS, Dry ash (%)	20	16	1.1061	0.33112	0.08505	0.03097	0.09051	6.99%	2.547%	7.44%	2.9224
027.41	Magnesium, ICP, Dry ash (%)	24	21	1.2601	0.11428	0.05181	0.02600	0.05797	4.18%	2.098%	4.68%	2.2296
027.42	Magnesium, ICP, Open vessel (%)	18	16	1.2312	0.10025	0.07328	0.02752	0.07828	5.85%	2.195%	6.24%	2.8443
027.43	Magnesium, ICP, Microwave (%)	22	20	1.2203	0.09021	0.09132	0.02125	0.09376	7.48%	1.742%	7.68%	4.4113
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	19	17	1,572.4	106.29	75.172	38.238	84.338	4.73%	2.406%	5.31%	2.2056
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	21	19	1,476.4	175.69	108.43	42.417	116.43	7.15%	2.798%	7.68%	2.7450

Test Material Code # 201796 **Issue Date : 07/31/2017**

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
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	17	15	1,512.8	170.23	148.23	24.601	150.26	9.65%	1.602%	9.79%	6.1080
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	23	23	1,531.6	101.31	94.467	51.755	107.72	6.17%	3.379%	7.03%	2.0812
031.01	Phosphorus, Photometric (%)	38	34	3.5652	0.19388	0.16630	0.02751	0.16856	4.64%	0.767%	4.70%	6.1280
031.41	Phosphorus, ICP, Dry ash (%)	24	22	3.6667	0.48159	0.30159	0.06343	0.30819	8.39%	1.764%	8.57%	4.8585
031.42	Phosphorus, ICP, Open vessel (%)	20	20	3.6434	0.24587	0.24319	0.05122	0.24853	6.67%	1.406%	6.82%	4.8519
031.43	Phosphorus, ICP, Microwave (%)	22	20	3.6694	0.20148	0.16444	0.09477	0.18980	4.46%	2.568%	5.14%	2.0027
032.31	Potassium, AAS, Dry ash (%)	21	19	2.5324	0.31307	0.12727	0.03342	0.13158	5.16%	1.354%	5.33%	3.9370
032.41	Potassium, ICP, Dry ash (%)	23	22	2.5272	0.31431	0.15523	0.07183	0.17105	6.28%	2.907%	6.92%	2.3812
032.42	Potassium, ICP, Open vessel (%)	19	17	2.6331	0.42403	0.28398	0.03986	0.28676	11.10%	1.559%	11.21%	7.1947
032.43	Potassium, ICP, Microwave (%)	22	19	2.5552	0.13584	0.10488	0.03291	0.10993	4.13%	1.297%	4.33%	3.3398
033.00	Salt as chloride, Sol Cl (%)	21	18	8.2546	0.78607	0.48969	0.07033	0.49472	5.84%	0.839%	5.90%	7.0344
033.01	Salt as chloride, Poten Cl (%)	24	20	8.7402	0.45156	0.17333	0.06815	0.18625	2.01%	0.791%	2.16%	2.7328
035.31	Sodium, AAS, Dry ash (%)	15	14	2.7252	0.13318	0.10073	0.04631	0.11087	3.73%	1.713%	4.10%	2.3938
035.41	Sodium, ICP, Dry ash (%)	19	16	2.7359	0.48316	0.29767	0.04471	0.30101	11.25%	1.689%	11.37%	6.7326
035.42	Sodium, ICP, Open vessel (%)	13	12	2.7831	0.12785	0.04728	0.05669	0.07382	1.72%	2.060%	2.68%	1.3021
035.43	Sodium, ICP, Microwave (%)	16	16	2.7023	0.20490	0.19712	0.07908	0.21240	7.29%	2.926%	7.86%	2.6858
036.42	Sulfur, ICP, Open vessel (%)	17	14	2.3503	0.32601	0.20739	0.03064	0.20964	9.05%	1.338%	9.15%	6.8415
036.43	Sulfur, ICP, Microwave (%)	11	11	2.1945	0.19723	0.19011	0.07425	0.20409	8.66%	3.383%	9.30%	2.7489
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	21	18	3,867.6	433.10	355.97	101.32	370.11	9.07%	2.581%	9.43%	3.6528
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	21	19	3,656.1	629.95	448.84	118.61	464.25	12.03%	3.179%	12.44%	3.9141
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	16	16	3,669.2	405.37	397.84	109.98	412.76	10.84%	2.997%	11.25%	3.7530
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	23	21	3,860.0	334.12	291.18	63.311	297.98	7.47%	1.624%	7.65%	4.7067
106.02	Vitamin A, LC (KU / kg)	25	23	340.54	92.564	93.023	13.321	93.972	27.55%	3.946%	27.83%	7.0546
109.02	Vitamin E, LC (IU/kg)	22	20	1,141.7	627.36	491.81	40.099	493.45	46.68%	3.806%	46.83%	12.306

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