

**Animal Feed Scheme**  
**Cottonseed Meal**  
**Test Material Code # 201830**

**Method Summary Report**  
(Precision Report Follows)

**# Methods Reported: 365**  
**# Labs Reporting: 195**  
**Issue Date : 11/30/2018**

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO PT #fp - Robust sd	Uncertainty (U) - Robust	% RSD - Robust	Average Range (R-bar)	Hornitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.2000							
001.00	Loss on Drying, Vac 95°C 5 hr (%)	5	4	9.669	0.0579	9.669	0.0579	0.0362	0.60%	0.3093	2.84%
001.02	Loss on Drying, Vac on sand (%)	1	1	9.735							
001.03	Loss on Drying, Low temp. methods (%)	5	5	10.05	0.2330	10.05	0.2330	0.1302	2.32%	0.0369	2.83%
001.05	Loss on Drying, LECO (%)	2	2	9.685	0.2475						
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	44	43	9.814	0.3723	9.811	0.3034	0.0578	3.09%	0.1600	2.84%
001.99	Loss on Drying, Miscellaneous (%)	26	25	9.489	0.6401	9.549	0.5551	0.1388	5.81%	0.1528	2.85%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	19	19	39.82	0.7696	39.79	0.7136	0.2046	1.79%	0.2552	1.59%
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	4	4	40.16	0.7467	40.16	0.7467	0.4667	1.86%	0.5157	1.58%
002.03	Protein, Crude, Hach Method (%)	1	1	36.39							
002.04	Protein, Crude, Copper Catalyst (%)	5	3	40.18	1.376	40.18	1.376	0.9929	3.42%	0.1167	1.58%
002.05	Protein, Crude, Copper, Boric Acid (%)	33	32	39.80	0.7946	39.81	0.7586	0.1676	1.91%	0.1915	1.58%
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	128	125	40.51	1.127	40.52	0.9337	0.1044	2.30%	0.4519	1.57%
002.08	Protein, Crude, Cu/Ti (%)	1	1	39.23							
002.10	Protein, Crude, Block dig/distillation (%)	1	1	39.28							
002.11	Protein, Crude, NIR (%)	4	3	40.23	1.566	40.23	1.566	1.130	3.89%	0.1610	1.58%
002.99	Protein, Crude, Miscellaneous (%)	1	1	0.4129							
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	12	12	2.460	0.3022	2.456	0.3340	0.1205	13.60%	0.0782	3.49%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	1	1	2.115							
003.06	Fat, Crude, Pet Ether (%)	16	16	2.504	0.2351	2.523	0.2218	0.0693	8.79%	0.1221	3.48%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	16	15	2.558	0.2951	2.550	0.2501	0.0807	9.81%	0.1202	3.47%
003.10	Fat, Crude, Randall, Pet Ether (%)	36	36	2.252	0.2536	2.263	0.2540	0.0529	11.23%	0.0695	3.54%
003.11	Fat, Crude, NIR (%)	5	4	2.115	0.1134	2.115	0.1134	0.0708	5.36%	0.0126	3.57%
003.12	Fat, Crude, Hexane Ext (%)	5	5	2.337	0.3320	2.337	0.3320	0.1856	14.20%	0.0540	3.52%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	9	9	2.535	0.3192	2.527	0.3441	0.1434	13.61%	0.0638	3.48%
003.14	Fat, Crude, Ankom (%)	49	49	2.329	0.3184	2.345	0.2601	0.0464	11.09%	0.1409	3.52%
003.99	Fat, Crude, Miscellaneous (%)	4	3	2.662	0.4799	2.662	0.4799	0.3463	18.03%	0.2100	3.45%
004.00	Fiber, Crude, Asbestos Free (%)	17	17	14.75	1.393	14.63	1.258	0.3815	8.60%	0.2212	2.61%
004.03	Fiber, Crude, Fritted Glass (%)	6	6	14.49	2.735	14.34	2.751	1.404	19.19%	0.7470	2.64%
004.06	Fiber, Crude, Fibertec (%)	25	24	13.76	0.7195	13.74	0.7712	0.1968	5.61%	0.1741	2.70%
004.07	Fiber, Crude, ANKOM (%)	65	62	13.73	1.560	13.64	1.268	0.2013	9.29%	0.3945	2.70%
004.11	Fiber, Crude, NIR (%)	5	4	14.61	2.354	14.61	2.354	1.471	16.12%	0.1183	2.62%

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004.99	Fiber, Crude, Miscellaneous (%)	4	3	12.00	0.2427	12.00	0.2427	0.1752	2.02%	0.1300	2.75%
005.00	Ash, 2h @ 600°C (%)	95	90	6.514	0.4737	6.457	0.1367	0.0180	2.12%	0.0659	3.02%
005.02	Ash, LECO (%)	1	1	6.525							
005.03	Ash, Microwave furnace (%)	1	1	6.350							
005.05	Ash, 3h @ 550°C (%)	35	34	6.482	0.1109	6.486	0.1001	0.0215	1.54%	0.0626	3.02%
005.11	Ash, NIR (%)	3	3	7.037	2.978	7.037	2.978	2.149	42.32%	0.0455	2.98%
005.99	Ash, Miscellaneous (%)	12	11	6.559	0.1217	6.559	0.1380	0.0520	2.10%	0.0683	3.01%
006.00	Total Sugars, As sucrose (%)	2	2	7.085	2.362						
006.01	Total Sugars, Mod. Fehling Soln (%)	1	1	7.540							
006.99	Total Sugars, Miscellaneous (%)	5	4	3.559	2.123	3.559	2.123	1.532	59.65%	0.0625	3.30%
008.02	Fiber, Acid Detergent, Crucible (%)	15	15	19.99	2.210	19.82	2.087	0.6735	10.53%	0.2483	2.25%
008.05	Fiber, Acid Detergent, Acid Detergent-Hach (%)	1	1	19.50							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	41	40	20.16	2.076	20.02	2.025	0.4002	10.11%	0.6184	2.23%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	4	4	19.42	0.7339	19.42	0.7339	0.4587	3.78%	0.3875	2.27%
009.04	Fiber, Neutral Detergent, Neutral Det-No ENZ Pretreat (%)	1	1	37.33							
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	15	15	27.47	3.436	27.12	2.957	0.9544	10.91%	0.6983	1.92%
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	42	41	29.56	5.249	28.82	4.044	0.7894	14.03%	1.023	1.86%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	3	3	26.74	4.246	26.74	4.246	3.065	15.88%	0.5667	1.93%
010.03	Moisture, Karl-Fischer (%)	2	2	9.755	0.4101						
010.11	Moisture, NIR (%)	5	4	10.24	0.1148	10.24	0.1148	0.0718	1.12%	0.0688	2.82%
010.99	Moisture, Miscellaneous (%)	19	19	9.761	0.5020	9.779	0.4014	0.1151	4.10%	0.1445	2.84%
011.01	Loss on Drying, 135°C 2hr (%)	66	64	10.42	0.5534	10.48	0.4323	0.0675	4.13%	0.0987	2.81%
011.02	Loss on Drying, 130°C for 2 hours (%)	5	5	10.38	0.5745	10.38	0.5745	0.3211	5.53%	0.1040	2.81%
011.99	Loss on Drying, High Temp. Methods Miscellaneous (%)	2	2	10.59	0.3394						
012.00	Starch, Polarimetric (Ewers) (%)	14	13	2.443	1.163	2.414	1.253	0.4344	51.92%	0.1092	3.50%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	9	9	0.4591	0.3189	0.4474	0.3350	0.1396	74.89%	0.0629	4.51%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	1	1	0.7200							
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	3	3	0.7483	0.8569	0.7483	0.8569	0.6184	114.51%	0.1233	4.18%
012.11	Starch, NIR (%)	3	2	2.364	1.080	2.364	1.080			0.2174	3.51%
012.99	Starch, Miscellaneous (%)	2	2	6.938	7.739						
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	19	18	3.663	1.080	3.586	0.6571	0.1936	18.33%	0.2037	3.30%
013.02	Fat, Acid Pretreat, Mojonier, Bak Ext (%)	17	16	3.707	1.083	3.928	0.5124	0.1601	13.04%	0.1172	3.26%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	7	7	2.768	0.8252	2.845	0.7489	0.3538	26.32%	0.1248	3.42%
013.12	Fat, Acid Pretreat, NIR- Acid Hydrolysis (%)	1	1	2.724							
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	4	4	4.740	1.365	4.740	1.365	0.8533	28.80%	0.3475	3.16%
015.41	Aluminum, ICP, Dry ash (mg / kg (ppm))	3	3	6.357	3.670	6.357	3.670	2.649	57.74%	0.8533	12.11%
015.42	Aluminum, ICP, Open vessel (mg / kg (ppm))	1	1	2.700							
015.43	Aluminum, ICP, Microwave (mg / kg (ppm))	5	5	5.636	1.678	5.636	1.678	0.9381	29.78%	0.8786	12.33%
017.41	Boron, ICP, Dry ash (mg / kg (ppm))	5	5	17.41	1.220	17.41	1.220	0.6818	7.00%	1.028	10.41%
017.42	Boron, ICP, Open vessel (mg / kg (ppm))	6	6	16.86	1.105	16.86	1.252	0.6392	7.43%	1.449	10.46%

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017.43	Boron, ICP, Microwave (mg / kg (ppm))	5	5	16.69	0.8532	16.69	0.8532	0.4769	5.11%	0.7180	10.47%
019.00	Calcium, Ox-Mn04 Vol. (%)	11	11	0.2572	0.0731	0.2492	0.0623	0.0235	24.99%	0.0110	4.93%
019.02	Calcium, Hach Method (%)	1	1	0.5030							
019.03	Calcium, Semiauto (Autoanalyzer) (%)	1	1	0.2934							
019.08	Calcium, EDTA (%)	12	11	0.3366	0.0901	0.3366	0.1021	0.0385	30.34%	0.0207	4.71%
019.09	Calcium, Ion-selective electrode (%)	1	1	0.3055							
019.31	Calcium, AAS, Dry ash (%)	20	19	0.2305	0.0287	0.2309	0.0229	0.0066	9.93%	0.0120	4.99%
019.32	Calcium, AAS, Open vessel (%)	2	2	0.2075	0.0530						
019.33	Calcium, AAS, Microwave (%)	2	2	0.2303	0.0209						
019.41	Calcium, ICP, Dry ash (%)	30	28	0.2273	0.0124	0.2276	0.0133	0.0031	5.85%	0.0075	5.00%
019.42	Calcium, ICP, Open vessel (%)	21	21	0.2446	0.0285	0.2446	0.0301	0.0082	12.31%	0.0137	4.94%
019.43	Calcium, ICP, Microwave (%)	23	21	0.2337	0.0150	0.2323	0.0136	0.0037	5.84%	0.0030	4.98%
019.44	Calcium, ICP, Dry ash (%)	2	2	0.2575	0.0318						
019.52	Calcium, ICP-MS, Open vessel (%)	4	4	0.2316	0.0058	0.2316	0.0058	0.0036	2.50%	0.0068	4.98%
019.53	Calcium, ICP-MS, Microwave (%)	4	4	0.2237	0.0211	0.2237	0.0211	0.0132	9.44%	0.0136	5.01%
019.99	Calcium, Miscellaneous (%)	5	5	0.2290	0.0134	0.2290	0.0134	0.0075	5.86%	0.0060	4.99%
021.31	Cobalt, AAS, Dry ash (mg / kg (ppm))	1	1	0.7500							
021.41	Cobalt, ICP, Dry ash (mg / kg (ppm))	1	1	0.3790							
021.42	Cobalt, ICP, Open vessel (mg / kg (ppm))	3	3	0.8872	0.4676	0.8872	0.4676	0.3374	52.70%	0.1457	16.29%
021.43	Cobalt, ICP, Microwave (mg / kg (ppm))	3	3	0.3583	0.1138	0.3583	0.1138	0.0821	31.77%	0.0467	18.67%
021.52	Cobalt, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.2793	0.0697						
021.53	Cobalt, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.3621	0.0770	0.3621	0.0770	0.0482	21.28%	0.0143	18.64%
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	14	13	13.54	3.689	13.06	2.957	1.025	22.65%	0.5546	10.87%
022.32	Copper, AAS, Open vessel (mg / kg (ppm))	1	1	12.96							
022.33	Copper, AAS, Microwave (mg / kg (ppm))	2	2	11.75	0.5657						
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	25	24	13.87	5.369	12.69	1.645	0.4197	12.96%	1.161	10.91%
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	20	20	12.56	3.831	11.82	1.449	0.4049	12.25%	0.8483	11.03%
022.43	Copper, ICP, Microwave (mg / kg (ppm))	20	20	12.31	4.213	11.72	1.736	0.4852	14.81%	0.5064	11.04%
022.44	Copper, ICP, Dry ash (mg / kg (ppm))	1	1	12.75							
022.52	Copper, ICP-MS, Open vessel (mg / kg (ppm))	3	3	12.80	0.7190	12.80	0.7190	0.5189	5.62%	0.2233	10.90%
022.53	Copper, ICP-MS, Microwave (mg / kg (ppm))	4	4	11.18	0.5607	11.18	0.5607	0.3504	5.01%	0.5075	11.12%
022.99	Copper, Miscellaneous (mg / kg (ppm))	4	3	9.951	0.0855	9.951	0.0855	0.0755	0.86%	0.0107	11.32%
023.01	Fluorine, Ion Sel Elect (mg / kg (ppm))	1	1	2.850							
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	17	16	126.6	16.08	124.8	12.61	3.941	10.10%	6.567	7.74%
025.32	Iron, AAS, Open vessel (mg / kg (ppm))	1	1	337.0							
025.33	Iron, AAS, Microwave (mg / kg (ppm))	1	1	76.90							
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	26	25	121.9	19.94	120.3	16.44	4.110	13.66%	11.06	7.78%
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	15	14	126.7	20.29	125.2	19.70	6.583	15.74%	8.041	7.73%
025.43	Iron, ICP, Microwave (mg / kg (ppm))	18	17	125.2	18.24	126.0	18.97	5.752	15.06%	10.37	7.73%
025.52	Iron, ICP-MS, Open vessel (mg / kg (ppm))	3	3	116.4	2.161	116.4	2.161	1.559	1.86%	9.692	7.82%

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025.53	Iron, ICP-MS, Microwave (mg / kg (ppm))	2	2	128.7	0.2722						
025.99	Iron, Miscellaneous (mg / kg (ppm))	3	3	139.9	23.67	139.9	23.67	17.08	16.91%	23.57	7.60%
027.31	Magnesium, AAS, Dry ash (%)	12	11	0.6371	0.0330	0.6360	0.0350	0.0132	5.51%	0.0133	4.28%
027.32	Magnesium, AAS, Open vessel (%)	2	2	0.5693	0.0060						
027.33	Magnesium, AAS, Microwave (%)	3	3	0.5895	0.0437	0.5895	0.0437	0.0387	7.42%	0.0310	4.33%
027.41	Magnesium, ICP, Dry ash (%)	27	26	0.6402	0.0303	0.6402	0.0343	0.0084	5.36%	0.0150	4.28%
027.42	Magnesium, ICP, Open vessel (%)	20	20	0.6594	0.0563	0.6586	0.0558	0.0156	8.48%	0.0199	4.26%
027.43	Magnesium, ICP, Microwave (%)	20	19	0.6390	0.0369	0.6379	0.0334	0.0096	5.23%	0.0120	4.28%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.7105	0.0842						
027.52	Magnesium, ICP-MS, Open vessel (%)	4	4	0.6635	0.0661	0.6635	0.0661	0.0413	9.96%	0.0315	4.25%
027.53	Magnesium, ICP-MS, Microwave (%)	4	4	0.6431	0.0617	0.6431	0.0617	0.0386	9.60%	0.0313	4.27%
027.99	Magnesium, Miscellaneous (%)	3	3	0.6333	0.0580	0.6333	0.0580	0.0418	9.15%	0.0267	4.28%
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	14	12	19.21	6.202	20.44	2.390	0.8624	11.69%	0.6683	10.16%
028.32	Manganese, AAS, Open vessel (mg / kg (ppm))	1	1	82.68							
028.33	Manganese, AAS, Microwave (mg / kg (ppm))	1	1	19.90							
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	25	24	21.88	2.708	21.95	1.532	0.3908	6.98%	0.7169	10.05%
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	18	23.54	2.326	23.56	2.609	0.7687	11.08%	0.8192	9.94%
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	19	19	22.20	3.054	22.41	2.894	0.8298	12.91%	0.6357	10.02%
028.44	Manganese, ICP, Dry ash (mg / kg (ppm))	2	2	23.98	3.924						
028.52	Manganese, ICP-MS, Open vessel (mg / kg (ppm))	3	3	23.21	2.433	23.21	2.433	1.756	10.48%	0.4500	9.97%
028.53	Manganese, ICP-MS, Microwave (mg / kg (ppm))	5	5	21.36	0.5739	21.36	0.5739	0.3208	2.69%	0.9860	10.09%
028.99	Manganese, Miscellaneous (mg / kg (ppm))	3	3	21.03	2.630	21.03	2.630	1.898	12.51%	0.8100	10.11%
031.00	Phosphorus, Vol (%)	1	1	1.200							
031.01	Phosphorus, Photometric (%)	48	47	1.143	0.0866	1.157	0.0494	0.0090	4.27%	0.0178	3.91%
031.02	Phosphorus, GQMP (AOAC 935.13-Extraction) (%)	2	2	1.170	0.0424						
031.03	Phosphorus, Autoanalyzer (%)	4	4	1.204	0.0290	1.204	0.0290	0.0181	2.41%	0.0222	3.89%
031.06	Phosphorus, Hach Method (%)	1	1	1.175							
031.41	Phosphorus, ICP, Dry ash (%)	28	27	1.169	0.0603	1.168	0.0576	0.0139	4.93%	0.0226	3.91%
031.42	Phosphorus, ICP, Open vessel (%)	21	20	1.170	0.0819	1.173	0.0708	0.0198	6.03%	0.0222	3.90%
031.43	Phosphorus, ICP, Microwave (%)	22	21	1.193	0.0723	1.184	0.0610	0.0166	5.15%	0.0227	3.90%
031.44	Phosphorus, ICP, Dry ash (%)	2	2	1.253	0.1520						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	1.192	0.0259						
031.53	Phosphorus, ICP-MS, Microwave (%)	4	4	1.179	0.0989	1.179	0.0989	0.0618	8.38%	0.0391	3.90%
031.99	Phosphorus, Miscellaneous (%)	5	5	1.079	0.0668	1.079	0.0668	0.0374	6.19%	0.0340	3.95%
032.02	Potassium, Flame Emission (%)	1	1	1.585							
032.08	Potassium, Ion-selective electrode (%)	1	1	1.234							
032.31	Potassium, AAS, Dry ash (%)	14	13	1.597	0.0569	1.593	0.0412	0.0143	2.59%	0.0205	3.73%
032.32	Potassium, AAS, Open vessel (%)	2	2	1.498	0.0813						
032.33	Potassium, AAS, Microwave (%)	1	1	1.835							
032.41	Potassium, ICP, Dry ash (%)	27	26	1.562	0.0715	1.565	0.0744	0.0182	4.76%	0.0336	3.74%

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032.42	Potassium, ICP, Open vessel (%)	21	20	1.604	0.0971	1.604	0.1000	0.0280	6.24%	0.0385	3.73%
032.43	Potassium, ICP, Microwave (%)	22	21	1.561	0.0722	1.563	0.0783	0.0213	5.01%	0.0239	3.74%
032.44	Potassium, ICP, Dry ash (%)	2	2	1.648	0.1096						
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	1.586	0.1027	1.586	0.1027	0.0741	6.47%	0.0567	3.73%
032.53	Potassium, ICP-MS, Microwave (%)	3	3	1.684	0.0786	1.684	0.0786	0.0567	4.66%	0.1122	3.70%
032.99	Potassium, Miscellaneous (%)	5	5	1.561	0.0580	1.561	0.0580	0.0324	3.71%	0.0334	3.74%
033.00	Salt as chloride, Sol Cl (%)	13	11	0.1043	0.0639	0.1000	0.0622	0.0234	62.18%	0.0115	5.66%
033.01	Salt as chloride, Poten Cl (%)	19	17	0.0855	0.0271	0.0826	0.0223	0.0068	27.00%	0.0050	5.82%
033.03	Salt as chloride, Quantab (%)	2	2	0.1050	0.0212						
033.05	Salt as chloride, Ion Sel Electrode (%)	2	2	0.0815	0.0191						
033.99	Salt, Miscellaneous (%)	6	6	0.1128	0.0868	0.0911	0.0423	0.0216	46.39%	0.0033	5.74%
034.04	Selenium, AA, Hydride (mg / kg (ppm))	4	4	0.2280	0.0266	0.2280	0.0266	0.0166	11.65%	0.0044	19.98%
034.42	Selenium, ICP, Open vessel (mg / kg (ppm))	1	1	1.050							
034.43	Selenium, ICP, Microwave (mg / kg (ppm))	1	1	2.083							
034.52	Selenium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	0.2550							
034.53	Selenium, ICP-MS, Microwave (mg / kg (ppm))	5	3	0.3115	0.0112	0.3115	0.0112	0.0081	3.59%	0.0050	19.07%
035.01	Sodium, Ion-selective electrode (%)	2	2	0.1435	0.0474						
035.05	Sodium, Flame Emission (%)	4	3	0.1167	0.0058	0.1167	0.0058			0.0000	5.53%
035.31	Sodium, AAS, Dry ash (%)	15	14	0.1234	0.0169	0.1245	0.0166	0.0055	13.35%	0.0044	5.47%
035.32	Sodium, AAS, Open vessel (%)	2	2	0.2013	0.1184						
035.41	Sodium, ICP, Dry ash (%)	28	27	0.1223	0.0156	0.1198	0.0105	0.0025	8.76%	0.0065	5.50%
035.42	Sodium, ICP, Open vessel (%)	17	17	0.1188	0.0126	0.1181	0.0126	0.0038	10.70%	0.0038	5.52%
035.43	Sodium, ICP, Microwave (%)	19	19	0.1168	0.0127	0.1152	0.0102	0.0029	8.87%	0.0050	5.54%
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.1342	0.0040						
035.53	Sodium, ICP-MS, Microwave (%)	4	3	0.1113	0.0099	0.1113	0.0099	0.0072	8.92%	0.0027	5.57%
035.99	Sodium, Miscellaneous (%)	4	3	0.1122	0.0070	0.1122	0.0070	0.0062	6.25%	0.0003	5.56%
036.04	Sulfur, LECO (%)	3	3	0.4437	0.0451	0.4437	0.0451	0.0325	10.16%	0.0114	4.52%
036.42	Sulfur, ICP, Open vessel (%)	17	16	0.4092	0.0306	0.4094	0.0342	0.0107	8.35%	0.0128	4.58%
036.43	Sulfur, ICP, Microwave (%)	10	10	0.4152	0.0358	0.4152	0.0405	0.0160	9.76%	0.0146	4.57%
036.52	Sulfur, ICP-MS, Open vessel (%)	2	2	1,734	2,451						
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.4560							
036.99	Sulfur, Miscellaneous (%)	2	2	0.2189	0.1713						
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	15	14	60.04	9.539	58.35	4.402	1.470	7.54%	1.994	8.67%
037.32	Zinc, AAS, Open vessel (mg / kg (ppm))	1	1	54.65							
037.33	Zinc, AAS, Microwave (mg / kg (ppm))	2	2	59.39	0.8641						
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	25	24	60.93	5.021	60.88	4.773	1.218	7.84%	2.765	8.62%
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	18	17	60.22	5.468	59.90	5.511	1.671	9.20%	2.004	8.64%
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	21	21	59.17	7.588	59.39	7.061	1.926	11.89%	2.145	8.65%
037.44	Zinc, ICP, Dry ash (mg / kg (ppm))	1	1	67.15							
037.52	Zinc, ICP-MS, Open vessel (mg / kg (ppm))	3	3	58.90	7.613	58.90	7.613	5.494	12.93%	1.803	8.66%

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037.53	Zinc, ICP-MS, Microwave (mg / kg (ppm))	4	4	57.49	4.927	57.49	4.927	3.079	8.57%	2.473	8.69%
037.99	Zinc, Miscellaneous (mg / kg (ppm))	4	4	54.30	5.584	54.30	5.584	3.490	10.28%	2.273	8.77%
038.41	Molybdenum, ICP, Dry ash (mg / kg (ppm))	2	2	0.4135	0.1365						
038.42	Molybdenum, ICP, Open vessel (mg / kg (ppm))	4	4	0.4763	0.3056	0.4763	0.3056	0.1910	64.16%	0.4145	17.89%
038.43	Molybdenum, ICP, Microwave (mg / kg (ppm))	4	4	0.4393	0.1243	0.4393	0.1243	0.0777	28.30%	0.0710	18.10%
038.52	Molybdenum, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.3293	0.0202						
038.53	Molybdenum, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.3540	0.0179	0.3540	0.0179	0.0112	5.06%	0.0102	18.70%
040.42	Barium, ICP, Open vessel (mg / kg (ppm))	1	1	4.840							
040.53	Barium, ICP-MS, Microwave (mg / kg (ppm))	1	1	4.612							
042.00	Chloride, Titrimetric (%)	1		0.0000							
102.01	Niacin, Microbiological (mg / kg (ppm))	1	1	25.55							
103.01	Pantothenic Acid, Microbiological (mg / kg (ppm))	1	1	5.645							
104.00	Riboflavin, Fluorometric (mg / kg (ppm))	1	1	2.175							
104.03	Riboflavin, LC (mg / kg (ppm))	1	1	0.3800							
105.00	Thiamine, LC (mg / kg (ppm))	1	1	4.445							
105.01	Thiamine, Fluorometer (mg / kg (ppm))	1	1	5.750							
106.01	Vitamin A, UV (KU / kg)	1	1	0.8000							
106.02	Vitamin A, LC (KU / kg)	4	3	6.080	5.820	6.080	5.820	5.145	95.73%	0.6600	
108.02	Vitamin D3, LC (KU / kg)	2	2	1.538	2.118						
109.02	Vitamin E, LC (IU / kg)	6	5	22.78	11.35	22.78	11.35	6.347	49.84%	0.5400	
112.01	Pyridoxine, LC (µg / g)	1	1	5.635							
113.01	Folic Acid, Micro (mg / kg (ppm))	1	1	1.680							
114.01	Biotin, Microbiological (mg / kg (ppm))	1	1	0.4305							
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	1.500							
120.00	Alanine, Post-col Ninhydrin Der (%)	24	23	1.515	0.0768	1.514	0.0777	0.0203	5.14%	0.0292	3.76%
120.01	Alanine, Pre-col OPA Der (%)	1	1	1.620							
120.02	Alanine, Post-col OPA Der (%)	1	1	1.567							
120.05	Alanine, Pre-col AQC Der (%)	9	9	1.537	0.1811	1.522	0.1695	0.0706	11.13%	0.0369	3.75%
120.99	Alanine, Miscellaneous (%)	2	2	1.643	0.1945						
121.00	Arginine, Post-col Ninhydrin Der (%)	24	23	4.340	0.2359	4.341	0.1682	0.0439	3.88%	0.0655	3.21%
121.01	Arginine, Pre-col OPA Der (%)	1	1	4.645							
121.02	Arginine, Post-col OPA Der (%)	1	1	4.208							
121.05	Arginine, Pre-col AQC Der (%)	9	9	4.466	0.3287	4.469	0.3672	0.1530	8.22%	0.1417	3.19%
121.99	Arginine, Miscellaneous (%)	1	1	4.315							
122.00	Aspartic, Post-col Ninhydrin Der (%)	24	23	3.570	0.1969	3.560	0.1802	0.0470	5.06%	0.0481	3.30%
122.01	Aspartic, Pre-col OPA Der (%)	1	1	3.695							
122.02	Aspartic, Post-col OPA Der (%)	1	1	3.596							
122.05	Aspartic, Pre-col AQC Der (%)	9	9	3.882	0.7317	3.829	0.7036	0.2932	18.37%	0.1134	3.27%
122.99	Aspartic, Miscellaneous (%)	2	2	3.695	0.0990						
124.00	Cysteine/Cystine, PAO Post-col Ninhydry (%)	24	23	0.6464	0.0667	0.6434	0.0604	0.0157	9.39%	0.0138	4.27%

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124.01	Cysteine/Cystine, PAO Pre-col OPA Der (%)	1	1	0.7750							
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.6395							
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	8	0.6445	0.1438	0.6443	0.1569	0.0693	24.35%	0.0379	4.27%
124.99	Cysteine/Cystine, Miscellaneous (%)	2	2	0.7125	0.1025						
125.00	Glutamic, Post-col Ninhydrin Der (%)	24	24	7.765	0.5575	7.759	0.5716	0.1458	7.37%	0.1488	2.94%
125.01	Glutamic, Pre-col OPA Der (%)	1	1	7.740							
125.02	Glutamic, Post-col OPA Der (%)	1	1	7.518							
125.05	Glutamic, Pre-col AQC Der (%)	9	8	7.705	0.7941	7.763	0.7624	0.3369	9.82%	0.0959	2.94%
125.99	Glutamic, Miscellaneous (%)	2	2	7.863	0.1167						
126.00	Glycine, Post-col Ninhydrin Der (%)	24	23	1.619	0.0921	1.612	0.0848	0.0221	5.26%	0.0249	3.72%
126.01	Glycine, Pre-col OPA Der (%)	1	1	1.725							
126.02	Glycine, Post-col OPA Der (%)	1	1	1.588							
126.05	Glycine, Pre-col AQC Der (%)	9	9	1.644	0.1310	1.643	0.1280	0.0533	7.79%	0.0361	3.71%
126.99	Glycine, Miscellaneous (%)	2	2	1.658	0.0248						
127.00	Histidine, Post-col Ninhydrin Der (%)	24	24	1.087	0.0898	1.080	0.0580	0.0148	5.37%	0.0172	3.95%
127.01	Histidine, Pre-col OPA Der (%)	1	1	1.090							
127.02	Histidine, Post-col OPA Der (%)	1	1	1.066							
127.05	Histidine, Pre-col AQC Der (%)	9	9	1.034	0.1415	1.056	0.1019	0.0425	9.65%	0.0266	3.97%
127.99	Histidine, Miscellaneous (%)	2	2	1.155	0.1202						
128.00	Isoleucine, Post-col Ninhydrin Der (%)	24	23	1.150	0.1482	1.173	0.1069	0.0279	9.11%	0.0205	3.90%
128.01	Isoleucine, Pre-col OPA Der (%)	1	1	1.335							
128.02	Isoleucine, Post-col OPA Der (%)	1	1	1.186							
128.05	Isoleucine, Pre-col AQC Der (%)	9	8	1.258	0.1521	1.264	0.1599	0.0707	12.65%	0.0275	3.86%
128.99	Isoleucine, Miscellaneous (%)	2	2	1.283	0.0884						
129.00	Leucine, Post-col Ninhydrin Der (%)	24	23	2.215	0.1242	2.217	0.0783	0.0204	3.53%	0.0256	3.55%
129.01	Leucine, Pre-col OPA Der (%)	1	1	2.325							
129.02	Leucine, Post-col OPA Der (%)	1	1	2.203							
129.05	Leucine, Pre-col AQC Der (%)	9	9	2.236	0.2003	2.248	0.2008	0.0837	8.93%	0.0499	3.54%
129.99	Leucine, Miscellaneous (%)	2	2	2.268	0.0248						
130.00	L-Lysine, Post-col Ninhydrin Der (%)	24	23	1.660	0.1187	1.672	0.0915	0.0238	5.47%	0.0386	3.70%
130.01	L-Lysine, Pre-col OPA Der (%)	1	1	1.845							
130.02	L-Lysine, Post-col OPA Der (%)	1	1	1.722							
130.05	L-Lysine, Pre-col AQC Der (%)	10	10	1.759	0.1681	1.760	0.1894	0.0748	10.76%	0.0522	3.67%
130.99	L-Lysine, Miscellaneous (%)	5	5	1.706	0.1623	1.706	0.1623	0.0907	9.51%	0.0440	3.69%
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	24	24	0.5557	0.0772	0.5705	0.0378	0.0096	6.63%	0.0120	4.35%
131.01	Methionine, PAO Pre-col OPA Der (%)	1	1	0.5600							
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.5705							
131.05	Methionine, PAO Pre-col AQC Der (%)	10	10	0.5353	0.1799	0.5709	0.0703	0.0278	12.31%	0.0269	4.35%
131.99	Methionine, Miscellaneous (%)	4	4	0.5575	0.0533	0.5575	0.0533	0.0333	9.56%	0.0200	4.37%
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	24	23	2.067	0.1066	2.075	0.0898	0.0234	4.33%	0.0242	3.58%

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132.01	Phenylalanine, Pre-col OPA Der (%)	1	1	2.180							
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	2.030							
132.05	Phenylalanine, Pre-col AQC Der (%)	9	9	2.015	0.1521	2.023	0.1536	0.0640	7.59%	0.0587	3.60%
132.99	Phenylalanine, Miscellaneous (%)	2	2	2.120	0.0778						
133.00	Proline, Post-col Ninhydrin Der (%)	24	24	1.479	0.1499	1.467	0.1245	0.0318	8.49%	0.0547	3.78%
133.05	Proline, Pre-col AQC Der (%)	10	10	1.493	0.1180	1.487	0.0996	0.0394	6.70%	0.0273	3.77%
133.99	Proline, Miscellaneous (%)	2	2	1.438	0.1591						
134.00	Serine, Post-col Ninhydrin Der (%)	24	24	1.684	0.1085	1.678	0.0981	0.0250	5.85%	0.0365	3.70%
134.01	Serine, Pre-col OPA Der (%)	1	1	1.720							
134.02	Serine, Post-col OPA Der (%)	1	1	1.467							
134.05	Serine, Pre-col AQC Der (%)	9	9	1.676	0.1925	1.675	0.2174	0.0906	12.98%	0.0239	3.70%
134.99	Serine, Miscellaneous (%)	2	2	1.713	0.0248						
135.00	Threonine, Post-col Ninhydrin Der (%)	24	23	1.262	0.0773	1.262	0.0850	0.0222	6.74%	0.0194	3.86%
135.01	Threonine, Pre-col OPA Der (%)	1	1	1.325							
135.02	Threonine, Post-col OPA Der (%)	1	1	1.242							
135.05	Threonine, Pre-col AQC Der (%)	9	9	1.260	0.0976	1.257	0.1038	0.0432	8.26%	0.0478	3.86%
135.99	Threonine, Miscellaneous (%)	3	3	1.328	0.0486	1.328	0.0486	0.0350	3.66%	0.0233	3.83%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	8	8	0.4676	0.0759	0.4676	0.0861	0.0380	18.41%	0.0207	4.48%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	4	4	0.4939	0.0521	0.4939	0.0521	0.0326	10.55%	0.0093	4.45%
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.5015							
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	4	0.5144	0.0246	0.5144	0.0246	0.0154	4.78%	0.0085	4.42%
136.05	Tryptophan, Pre-col AQC Der (%)	2	2	0.8068	0.4854						
136.99	Tryptophan, Miscellaneous (%)	3	3	0.3783	0.0580	0.3783	0.0580	0.0418	15.32%	0.0167	4.63%
137.00	Tyrosine, Post-col Ninhydrin Der (%)	18	18	1.088	0.1352	1.083	0.1426	0.0420	13.16%	0.0242	3.95%
137.01	Tyrosine, Pre-col OPA Der (%)	1	1	1.145							
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.9520							
137.05	Tyrosine, Pre-col AQC Der (%)	8	8	1.233	0.1641	1.220	0.1551	0.0685	12.72%	0.0576	3.88%
137.99	Tyrosine, Miscellaneous (%)	2	2	0.9675	0.1379						
138.00	Valine, Post-col Ninhydrin Der (%)	24	23	1.585	0.1978	1.600	0.1893	0.0493	11.83%	0.0269	3.73%
138.01	Valine, Pre-col OPA Der (%)	1	1	1.830							
138.02	Valine, Post-col OPA Der (%)	1	1	1.731							
138.05	Valine, Pre-col AQC Der (%)	9	8	1.734	0.1201	1.743	0.1155	0.0511	6.63%	0.0293	3.68%
138.99	Valine, Miscellaneous (%)	2	2	1.725	0.1414						
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.0770	0.0396						
139.02	Taurine, Post-col OPA Der (%)	1	1	0.0100							
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0140							
160.99	Fructose, Miscellaneous (%)	2	2	0.1250	0.0354						
162.99	Glucose, Miscellaneous (%)	2	2	0.1250	0.0354						
163.99	Lactose, Miscellaneous (%)	2	2	0.1250	0.0354						
164.99	Maltose, Miscellaneous (%)	2	2	0.1250	0.0354						



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165.99	Sucrose, Miscellaneous (%)	3	3	0.9483	0.0852	0.9483	0.0852	0.0615	8.98%	0.0567	4.03%
166.99	Raffinose, Miscellaneous (%)	1	1	4.230							
167.99	Stachyose, Miscellaneous (%)	1	1	0.6800							
400.01	Water Activity, Aqualab chilled mirror (Units)	7	7	0.6679	0.2498	0.5774	0.0154	0.0073	2.67%	0.0029	
400.99	Water Activity, Miscellaneous (Units)	2	2	0.5743	0.0301						
412.01	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	0.3650							
516.00	Arsenic, Total, AA, Hydride (mg / kg (ppm))	1	1	0.0500							
516.42	Arsenic, Total, ICP, Open vessel (mg / kg (ppm))	1	1	0.0040							
516.43	Arsenic, Total, ICP, Microwave (mg / kg (ppm))	1	1	1.044							
516.53	Arsenic, Total, ICP-MS, Microwave (mg / kg (ppm))	4	4	0.0270	0.0184	0.0270	0.0184	0.0115	68.01%	0.0025	22.00%
518.41	Cadmium, ICP, Dry ash (mg / kg (ppm))	1	1	0.1665							
518.42	Cadmium, ICP, Open vessel (mg / kg (ppm))	1	1	0.1300							
518.43	Cadmium, ICP, Microwave (mg / kg (ppm))	1	1	0.2010							
518.52	Cadmium, ICP-MS, Open vessel (mg / kg (ppm))	2	2	0.1705	0.0149						
518.53	Cadmium, ICP-MS, Microwave (mg / kg (ppm))	5	5	0.1811	0.0115	0.1811	0.0115	0.0064	6.34%	0.0035	20.69%
520.41	Chromium, ICP, Dry ash (mg / kg (ppm))	1	1	0.8760							
520.42	Chromium, ICP, Open vessel (mg / kg (ppm))	2	2	1.147	0.1938						
520.43	Chromium, ICP, Microwave (mg / kg (ppm))	2	2	0.3375	0.1308						
520.52	Chromium, ICP-MS, Open vessel (mg / kg (ppm))	1	1	0.1605							
520.53	Chromium, ICP-MS, Microwave (mg / kg (ppm))	3	3	0.6161	0.2494	0.6161	0.2494	0.1800	40.48%	0.2200	17.21%
526.41	Lead, ICP, Dry ash (mg / kg (ppm))	1	1	0.1880							
526.53	Lead, ICP-MS, Microwave (mg / kg (ppm))	4	3	0.0255	0.0020	0.0255	0.0020	0.0015	7.97%	0.0018	22.00%
539.42	Nickel, ICP, Open vessel (mg / kg (ppm))	1	1	6.960							
539.52	Nickel, ICP-MS, Open vessel (mg / kg (ppm))	1	1	7.175							
539.53	Nickel, ICP-MS, Microwave (mg / kg (ppm))	2	2	7.033	0.0096						
710.99	Lauric Acid (12:0), Miscellaneous (%) (w/w)	3	3	0.0075	0.0109	0.0075	0.0109	0.0096	145.65%	0.0001	
714.99	Myristic Acid (14:0), Miscellaneous (%) (w/w)	2	2	0.0198	0.0003						
716.99	Palmitic Acid (16:0), Miscellaneous (%) (w/w)	2	2	0.6694	0.1617						
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (%) (w/w)	3	3	0.0171	0.0029	0.0171	0.0029	0.0021	17.18%	0.0009	
722.99	Stearic Acid (18:0), Miscellaneous (%) (w/w)	1	1	0.1037							
724.99	Oleic Acid (9c-18:1), Miscellaneous (%) (w/w)	2	2	0.4382	0.0822						
726.02	Linoleic Acid (9c,12c-18:2), Direct Methylation by Acid-Alkali Hydrolysis & GC	1	1	1.695							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (%) (w/w)	3	3	1.631	0.4436	1.631	0.4436	0.3201	27.21%	0.0667	
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (%) (w/w)	3	3	0.0175	0.0031	0.0175	0.0031	0.0022	17.51%	0.0006	
730.99	Arachidic Acid (20:0), Miscellaneous (%) (w/w)	1	1	0.0119							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (%) (w/w)	1	1	0.0010							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (%) (w/w)	1	1	0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (%) (w/w)	1	1	0.0050							
742.99	Behenic Acid (22:0), Miscellaneous (%) (w/w)	2	2	0.0156	0.0063						
744.99	Erucic Acid (13c-22:1), Miscellaneous (%) (w/w)	1	1	0.0050							

Test Material Code # 201830

Issue Date : 11/30/2018

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
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (%)	1	1	0.0050							
748.99	Lignoceric Acid (24:0), Miscellaneous (%) (w/w)	1	1	0.0068							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (%)	1	1	0.0050							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (%) (w/w)	1	1	0.0050							
754.02	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Direct Methylation by Acid-#	1	1	0.0200							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (%) (w/w)	2	2	0.0350	0.0212						
756.01	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Direct Methylation by Alkali	1	1	1.695							
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (%) (w/w)	2	2	1.613	0.6258						
758.99	Total Saturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	0.6650							
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	0.4200							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	1.195							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (%) (w/w)	1	1	2.390							
772.99	Total Fatty Acids, Miscellaneous (%) (w/w)	2	2	2.707	0.5972						

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

**Method Precision Report**

# Methods Reported: 103

Cottonseed Meal

# Labs Reporting: 195

Test Material Code # 201830

Issue Date : 11/30/2018

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 (%)	44	41	9.814	0.3723	0.2475	0.1405	0.2846	2.52%	1.43%	2.90%	2.026
001.99	Loss on Drying, Miscellaneous (%)	26	23	9.489	0.6401	0.4831	0.0975	0.4929	5.03%	1.02%	5.14%	5.056
002.01	Protein, Crude, Auto Kjel-Foss (%)	19	18	39.82	0.7696	0.6006	0.2353	0.6450	1.51%	0.59%	1.62%	2.742
002.05	Protein, Crude, Copper, Boric Acid (%)	33	31	39.80	0.7946	0.6746	0.1996	0.7035	1.69%	0.50%	1.76%	3.524
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	128	121	40.51	1.127	0.9426	0.3832	1.018	2.32%	0.95%	2.51%	2.655
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	12	12	2.460	0.3022	0.2975	0.0745	0.3067	12.09%	3.03%	12.47%	4.119
003.06	Fat, Crude, Pet Ether (%)	16	16	2.504	0.2351	0.2218	0.1102	0.2477	8.86%	4.40%	9.89%	2.248
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	16	13	2.558	0.2951	0.2327	0.0954	0.2515	9.30%	3.81%	10.05%	2.636
003.10	Fat, Crude, Randall, Pet Ether (%)	36	34	2.252	0.2536	0.2293	0.0671	0.2389	10.09%	2.96%	10.52%	3.558
003.13	Fat, Crude, Randall, Hexane Ext. (%)	9	9	2.535	0.3192	0.3168	0.0546	0.3215	12.50%	2.15%	12.68%	5.889
003.14	Fat, Crude, Ankom (%)	49	46	2.329	0.3184	0.2321	0.1264	0.2643	9.78%	5.33%	11.14%	2.091
004.00	Fiber, Crude, Asbestos Free (%)	17	16	14.75	1.393	1.018	0.2185	1.042	7.02%	1.51%	7.18%	4.767
004.06	Fiber, Crude, Fibertec (%)	25	23	13.76	0.7195	0.7272	0.1488	0.7422	5.28%	1.08%	5.39%	4.987
004.07	Fiber, Crude, ANKOM (%)	65	60	13.73	1.560	1.240	0.3436	1.287	9.11%	2.52%	9.46%	3.746
005.00	Ash, 2h @ 600°C (%)	95	84	6.514	0.4737	0.1751	0.0495	0.1820	2.71%	0.77%	2.82%	3.680
005.05	Ash, 3h @ 550°C (%)	35	32	6.482	0.1109	0.0938	0.0559	0.1092	1.45%	0.86%	1.68%	1.952
005.99	Ash, Miscellaneous (%)	12	11	6.559	0.1217	0.1152	0.0554	0.1279	1.76%	0.84%	1.95%	2.307
008.02	Fiber, Acid Detergent, Crucible (%)	15	14	19.99	2.210	1.678	0.2162	1.692	8.56%	1.10%	8.63%	7.826
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	41	37	20.16	2.076	1.857	0.5294	1.931	9.32%	2.66%	9.69%	3.647
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	15	14	27.47	3.436	2.379	0.6295	2.461	8.87%	2.35%	9.18%	3.910
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	42	37	29.56	5.249	4.174	0.8746	4.264	14.48%	3.03%	14.80%	4.876
010.99	Moisture, Miscellaneous (%)	19	18	9.761	0.5020	0.4171	0.1357	0.4386	4.25%	1.38%	4.46%	3.233
011.01	Loss on Drying, 135°C 2hr (%)	66	61	10.42	0.5534	0.4249	0.0937	0.4351	4.05%	0.89%	4.15%	4.646
012.00	Starch, Polarimetric (Ewers) (%)	14	13	2.443	1.163	1.161	0.0928	1.165	47.52%	3.80%	47.67%	12.55
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	9	8	0.4591	0.3189	0.3173	0.0446	0.3204	75.30%	10.57%	76.04%	7.191
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	19	17	3.663	1.080	0.7161	0.1548	0.7326	20.64%	4.46%	21.12%	4.733
013.02	Fat, Acid Pretreat, Mojonier, Bak Ext (%)	17	15	3.707	1.083	0.4762	0.1175	0.4905	12.05%	2.97%	12.41%	4.174
019.00	Calcium, Ox-Mn04 Vol. (%)	11	10	0.2572	0.0731	0.0474	0.0088	0.0482	19.75%	3.69%	20.09%	5.451
019.08	Calcium, EDTA (%)	12	10	0.3366	0.0901	0.0854	0.0172	0.0871	26.25%	5.28%	26.78%	5.076
019.31	Calcium, AAS, Dry ash (%)	20	18	0.2305	0.0287	0.0216	0.0106	0.0240	9.19%	4.52%	10.24%	2.266
019.41	Calcium, ICP, Dry ash (%)	30	27	0.2273	0.0124	0.0115	0.0062	0.0131	5.09%	2.73%	5.77%	2.115
019.42	Calcium, ICP, Open vessel (%)	21	21	0.2446	0.0285	0.0269	0.0132	0.0300	11.01%	5.42%	12.27%	2.265
019.43	Calcium, ICP, Microwave (%)	23	20	0.2337	0.0150	0.0125	0.0036	0.0131	5.41%	1.55%	5.63%	3.629
022.31	Copper, AAS, Dry ash (mg / kg (ppm))	14	12	13.54	3.689	3.109	0.3931	3.134	24.03%	3.04%	24.22%	7.972
022.41	Copper, ICP, Dry ash (mg / kg (ppm))	25	22	13.87	5.369	2.188	0.8797	2.359	17.14%	6.89%	18.47%	2.681

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
022.42	Copper, ICP, Open vessel (mg / kg (ppm))	20	18	12.56	3.831	1.394	0.7768	1.596	11.92%	6.64%	13.64%	2.054
022.43	Copper, ICP, Microwave (mg / kg (ppm))	20	18	12.31	4.213	1.804	0.4569	1.861	15.88%	4.02%	16.38%	4.073
025.31	Iron, AAS, Dry ash (mg / kg (ppm))	17	15	126.6	16.08	9.462	6.452	11.45	7.66%	5.23%	9.28%	1.775
025.41	Iron, ICP, Dry ash (mg / kg (ppm))	26	23	121.9	19.94	12.62	8.548	15.24	10.73%	7.26%	12.95%	1.783
025.42	Iron, ICP, Open vessel (mg / kg (ppm))	15	14	126.7	20.29	19.48	8.048	21.08	15.37%	6.35%	16.63%	2.619
025.43	Iron, ICP, Microwave (mg / kg (ppm))	18	16	125.2	18.24	17.84	8.167	19.62	14.29%	6.54%	15.72%	2.403
027.31	Magnesium, AAS, Dry ash (%)	12	11	0.6371	0.0330	0.0317	0.0127	0.0342	4.98%	1.99%	5.36%	2.693
027.41	Magnesium, ICP, Dry ash (%)	27	25	0.6402	0.0303	0.0292	0.0122	0.0316	4.57%	1.91%	4.95%	2.591
027.42	Magnesium, ICP, Open vessel (%)	20	20	0.6594	0.0563	0.0551	0.0167	0.0576	8.35%	2.53%	8.73%	3.453
027.43	Magnesium, ICP, Microwave (%)	20	18	0.6390	0.0369	0.0295	0.0111	0.0315	4.65%	1.75%	4.97%	2.842
028.31	Manganese, AAS, Dry ash (mg / kg (ppm))	14	10	19.21	6.202	2.171	0.4568	2.219	10.47%	2.20%	10.70%	4.857
028.41	Manganese, ICP, Dry ash (mg / kg (ppm))	25	23	21.88	2.708	1.929	0.7444	2.068	8.66%	3.34%	9.29%	2.778
028.42	Manganese, ICP, Open vessel (mg / kg (ppm))	19	18	23.54	2.326	2.266	0.7418	2.384	9.62%	3.15%	10.13%	3.214
028.43	Manganese, ICP, Microwave (mg / kg (ppm))	19	18	22.20	3.054	2.454	0.5561	2.517	10.85%	2.46%	11.12%	4.526
031.01	Phosphorus, Photometric (%)	48	44	1.143	0.0866	0.0639	0.0149	0.0656	5.55%	1.29%	5.70%	4.406
031.41	Phosphorus, ICP, Dry ash (%)	28	24	1.169	0.0603	0.0623	0.0134	0.0637	5.32%	1.15%	5.45%	4.739
031.42	Phosphorus, ICP, Open vessel (%)	21	19	1.170	0.0819	0.0807	0.0174	0.0825	6.92%	1.50%	7.08%	4.734
031.43	Phosphorus, ICP, Microwave (%)	22	21	1.193	0.0723	0.0707	0.0212	0.0738	5.93%	1.78%	6.19%	3.476
032.31	Potassium, AAS, Dry ash (%)	14	11	1.597	0.0569	0.0399	0.0106	0.0412	2.52%	0.67%	2.60%	3.909
032.41	Potassium, ICP, Dry ash (%)	27	26	1.562	0.0715	0.0680	0.0316	0.0749	4.35%	2.02%	4.80%	2.374
032.42	Potassium, ICP, Open vessel (%)	21	19	1.604	0.0971	0.0978	0.0281	0.1017	6.10%	1.75%	6.34%	3.623
032.43	Potassium, ICP, Microwave (%)	22	21	1.561	0.0722	0.0705	0.0223	0.0739	4.52%	1.43%	4.74%	3.313
033.00	Salt as chloride, Sol Cl (%)	13	11	0.1043	0.0639	0.0634	0.0105	0.0643	60.82%	10.10%	61.66%	6.107
033.01	Salt as chloride, Poten Cl (%)	19	16	0.0855	0.0271	0.0176	0.0067	0.0189	21.90%	8.31%	23.43%	2.819
035.31	Sodium, AAS, Dry ash (%)	15	13	0.1234	0.0169	0.0167	0.0038	0.0171	13.63%	3.13%	13.99%	4.465
035.41	Sodium, ICP, Dry ash (%)	28	24	0.1223	0.0156	0.0073	0.0060	0.0095	6.20%	5.06%	8.01%	1.581
035.42	Sodium, ICP, Open vessel (%)	17	17	0.1188	0.0126	0.0123	0.0038	0.0129	10.35%	3.22%	10.84%	3.368
035.43	Sodium, ICP, Microwave (%)	19	18	0.1168	0.0127	0.0084	0.0045	0.0095	7.34%	3.94%	8.33%	2.115
036.42	Sulfur, ICP, Open vessel (%)	17	15	0.4092	0.0306	0.0270	0.0092	0.0285	6.55%	2.22%	6.92%	3.118
036.43	Sulfur, ICP, Microwave (%)	10	10	0.4152	0.0358	0.0345	0.0134	0.0370	8.31%	3.23%	8.91%	2.755
037.31	Zinc, AAS, Dry ash (mg / kg (ppm))	15	13	60.04	9.539	3.647	1.619	3.990	6.32%	2.81%	6.92%	2.465
037.41	Zinc, ICP, Dry ash (mg / kg (ppm))	25	23	60.93	5.021	4.854	2.166	5.316	7.99%	3.56%	8.74%	2.454
037.42	Zinc, ICP, Open vessel (mg / kg (ppm))	18	16	60.22	5.468	5.115	1.570	5.350	8.42%	2.59%	8.81%	3.408
037.43	Zinc, ICP, Microwave (mg / kg (ppm))	21	21	59.17	7.588	7.426	2.205	7.746	12.55%	3.73%	13.09%	3.513
120.00	Alanine, Post-col Ninhydrin Der (%)	24	22	1.515	0.0768	0.0726	0.0230	0.0761	4.77%	1.51%	5.01%	3.309
120.05	Alanine, Pre-col AQC Der (%)	9	9	1.537	0.1811	0.1792	0.0375	0.1831	11.66%	2.44%	11.91%	4.880
121.00	Arginine, Post-col Ninhydrin Der (%)	24	21	4.340	0.2359	0.1808	0.0489	0.1873	4.21%	1.14%	4.36%	3.834
121.05	Arginine, Pre-col AQC Der (%)	9	9	4.466	0.3287	0.3123	0.1454	0.3444	6.99%	3.25%	7.71%	2.369
122.00	Aspartic, Post-col Ninhydrin Der (%)	24	21	3.570	0.1969	0.1586	0.0373	0.1629	4.45%	1.05%	4.58%	4.368
122.05	Aspartic, Pre-col AQC Der (%)	9	8	3.882	0.7317	0.6936	0.0748	0.6976	18.39%	1.98%	18.50%	9.327
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin (%)	24	22	0.6464	0.0667	0.0574	0.0121	0.0587	8.99%	1.89%	9.18%	4.867
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	8	0.6445	0.1438	0.1409	0.0403	0.1466	21.87%	6.25%	22.75%	3.638
125.00	Glutamic, Post-col Ninhydrin Der (%)	24	23	7.765	0.5575	0.5509	0.1249	0.5649	7.12%	1.61%	7.30%	4.521

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Issue Date : 11/30/2018

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
126.00	Glycine, Post-col Ninhydrin Der (%)	24	23	1.619	0.0921	0.0908	0.0211	0.0933	5.61%	1.30%	5.76%	4.429
126.05	Glycine, Pre-col AQC Der (%)	9	9	1.644	0.1310	0.1288	0.0343	0.1333	7.83%	2.09%	8.11%	3.885
127.00	Histidine, Post-col Ninhydrin Der (%)	24	22	1.087	0.0898	0.0572	0.0136	0.0588	5.35%	1.27%	5.50%	4.328
127.05	Histidine, Pre-col AQC Der (%)	9	8	1.034	0.1415	0.0721	0.0232	0.0758	6.71%	2.16%	7.05%	3.261
128.00	Isoleucine, Post-col Ninhydrin Der (%)	24	22	1.150	0.1482	0.1093	0.0180	0.1108	9.33%	1.54%	9.46%	6.155
128.05	Isoleucine, Pre-col AQC Der (%)	9	8	1.258	0.1521	0.1509	0.0273	0.1534	11.99%	2.17%	12.19%	5.607
129.00	Leucine, Post-col Ninhydrin Der (%)	24	21	2.215	0.1242	0.0907	0.0195	0.0928	4.06%	0.87%	4.15%	4.764
129.05	Leucine, Pre-col AQC Der (%)	9	9	2.236	0.2003	0.1969	0.0523	0.2037	8.80%	2.34%	9.11%	3.895
130.00	L-Lysine, Post-col Ninhydrin Der (%)	24	20	1.660	0.1187	0.1030	0.0283	0.1068	6.17%	1.70%	6.40%	3.769
130.05	L-Lysine, Pre-col AQC Der (%)	10	9	1.759	0.1681	0.1664	0.0429	0.1718	9.55%	2.46%	9.86%	4.008
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	24	22	0.5557	0.0772	0.0526	0.0095	0.0534	9.25%	1.67%	9.40%	5.620
131.05	Methionine, PAO Pre-col AQC Der (%)	10	8	0.5353	0.1799	0.0670	0.0153	0.0687	11.26%	2.57%	11.55%	4.491
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	24	21	2.067	0.1066	0.0784	0.0187	0.0806	3.77%	0.90%	3.87%	4.314
132.05	Phenylalanine, Pre-col AQC Der (%)	9	9	2.015	0.1521	0.1464	0.0583	0.1576	7.27%	2.89%	7.82%	2.702
133.00	Proline, Post-col Ninhydrin Der (%)	24	23	1.479	0.1499	0.1036	0.0459	0.1133	7.11%	3.15%	7.78%	2.466
133.05	Proline, Pre-col AQC Der (%)	10	10	1.493	0.1180	0.1167	0.0247	0.1193	7.82%	1.65%	7.99%	4.837
134.00	Serine, Post-col Ninhydrin Der (%)	24	24	1.684	0.1085	0.1062	0.0319	0.1109	6.30%	1.90%	6.58%	3.471
134.05	Serine, Pre-col AQC Der (%)	9	9	1.676	0.1925	0.1918	0.0220	0.1931	11.45%	1.31%	11.52%	8.774
135.00	Threonine, Post-col Ninhydrin Der (%)	24	23	1.262	0.0773	0.0762	0.0182	0.0784	6.04%	1.44%	6.21%	4.311
135.05	Threonine, Pre-col AQC Der (%)	9	9	1.260	0.0976	0.0932	0.0410	0.1018	7.40%	3.25%	8.08%	2.486
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	8	8	0.4676	0.0759	0.0748	0.0187	0.0771	15.99%	4.00%	16.48%	4.121
137.00	Tyrosine, Post-col Ninhydrin Der (%)	18	18	1.088	0.1352	0.1342	0.0223	0.1361	12.34%	2.05%	12.51%	6.110
137.05	Tyrosine, Pre-col AQC Der (%)	8	8	1.233	0.1641	0.1601	0.0514	0.1681	12.98%	4.17%	13.64%	3.272
138.00	Valine, Post-col Ninhydrin Der (%)	24	21	1.585	0.1978	0.1624	0.0208	0.1638	10.18%	1.30%	10.26%	7.874
138.05	Valine, Pre-col AQC Der (%)	9	8	1.734	0.1201	0.1178	0.0328	0.1223	6.80%	1.89%	7.05%	3.725

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