



**AAFCO**  
Association of American Feed Control Officials



**Animal Feed Scheme**  
**Dairy Goat Feed**  
**Test Material Code # 202230**

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

**# Labs Reporting: 176**  
**# Methods Reported: 375**  
**Issue Date : 11/30/2022**

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO #fp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.9000							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	44	43	8.845	0.4211	8.895	0.2643	0.0504	2.97%	0.1196	2.88%
001.99	Loss on Drying, Miscellaneous (%)	21	20	8.498	0.7941	8.526	0.8093	0.2262	9.49%	0.0668	2.90%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	6	5	8.869	0.2740	8.869	0.2740	0.1249	3.09%	0.0772	2.88%
001.03	Loss on Drying, Low temp. methods (%)	1	1	8.780							
001.05	Loss on Drying, LECO (%)	1	1	8.948							
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	119	117	17.80	0.3611	17.78	0.2738	0.0316	1.54%	0.1882	2.37%
002.05	Protein, Crude, Copper, Boric Acid (%)	25	24	17.55	0.1337	17.54	0.1243	0.0317	0.71%	0.1480	2.39%
002.01	Protein, Crude, Auto Kjeh-Foss (%)	16	15	17.59	0.1907	17.59	0.2140	0.0691	1.22%	0.0825	2.38%
002.11	Protein, Crude, NIR (%)	5	5	17.91	1.642	17.91	1.642	0.7345	9.17%	0.1880	2.36%
002.00	Protein, Crude, Crude (%)	2	2	17.33	0.5197						
002.08	Protein, Crude, Cu/Ti (%)	2	2	17.53	0.2236						
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	1	1	17.59							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	17.69							
003.14	Fat, Crude, Ankom (%)	57	56	3.268	0.3433	3.271	0.2420	0.0404	7.40%	0.1149	3.35%
003.10	Fat, Crude, Randall, Pet Ether (%)	21	19	3.216	0.1958	3.216	0.2217	0.0636	6.89%	0.0380	3.35%
003.06	Fat, Crude, Pet Ether (%)	17	17	3.592	0.4413	3.565	0.4384	0.1329	12.29%	0.1551	3.30%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	12	12	3.348	0.3238	3.362	0.3336	0.1204	9.92%	0.0817	3.33%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	10	10	3.581	0.1338	3.581	0.1517	0.0600	4.24%	0.0910	3.30%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	7	6	3.369	0.1400	3.369	0.1587	0.0810	4.71%	0.1091	3.33%
003.11	Fat, Crude, NIR (%)	5	5	3.649	0.7729	3.649	0.7729	0.3457	21.18%	0.0460	3.29%
003.12	Fat, Crude, Hexane Ext (%)	4	4	3.623	0.2084	3.623	0.2084	0.1042	5.75%	0.2950	3.30%
003.99	Fat, Crude, Miscellaneous (%)	4	4	3.678	1.205	3.678	1.205	0.6026	32.77%	0.1250	3.29%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	3	3	3.435	0.2955	3.435	0.2955	0.2090	8.60%	0.1285	3.32%
004.07	Fiber, Crude, ANKOM (%)	71	69	15.77	1.849	15.76	1.141	0.1718	7.24%	0.3279	2.52%
004.06	Fiber, Crude, Fibertec (%)	19	19	15.16	1.260	15.27	0.4936	0.1415	3.23%	0.2984	2.56%
004.00	Fiber, Crude, Asbestos Free (%)	13	12	15.66	0.6700	15.62	0.6595	0.2380	4.22%	0.2232	2.53%
004.03	Fiber, Crude, Fritted Glass (%)	4	4	15.70	1.592	15.70	1.592	0.7961	10.14%	0.6651	2.52%
004.11	Fiber, Crude, NIR (%)	4	4	13.37	3.804	13.37	3.804	1.902	28.46%	0.4375	2.71%

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004.99	Fiber, Crude, Miscellaneous (%)	2	2	14.15	0.4759						
005.00	Ash, 2h @ 600°C (%)	92	91	7.380	0.2339	7.372	0.2119	0.0278	2.87%	0.0798	2.96%
005.05	Ash, 3h @ 550°C (%)	24	23	7.566	0.2303	7.567	0.2310	0.0602	3.05%	0.0537	2.95%
005.99	Ash, Miscellaneous (%)	10	10	7.390	0.5211	7.442	0.4594	0.1816	6.17%	0.0454	2.96%
005.11	Ash, NIR (%)	5	5	7.974	0.2990	7.974	0.2990	0.1337	3.75%	0.2540	2.93%
005.03	Ash, Microwave furnace (%)	2	2	7.250	0.2828						
005.02	Ash, LECO (%)	1	1	7.746							
006.99	Total Sugars, Miscellaneous (%)	8	8	4.429	1.040	4.548	0.8838	0.3906	19.43%	0.1438	3.18%
006.00	Total Sugars, As sucrose (%)	5	5	3.952	0.5460	3.952	0.5460	0.2442	13.82%	0.1686	3.25%
006.01	Total Sugars, Mod. Fehling Soln (%)	1	1	4.545							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	44	43	20.46	1.071	20.42	1.051	0.2003	5.15%	0.3032	2.21%
008.02	Fiber, Acid Detergent, Crucible (%)	15	15	20.64	1.369	20.90	0.8213	0.2651	3.93%	0.3188	2.19%
008.99	Fiber, Acid Detergent, Miscellaneous (%)	4	4	21.07	0.9257	21.07	0.9257	0.4628	4.39%	0.5595	2.18%
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	39	38	35.29	1.434	35.20	1.280	0.2596	3.64%	0.4580	1.69%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	15	15	37.24	1.709	37.22	1.597	0.5153	4.29%	0.3984	1.64%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	2	2	37.32	0.2121						
010.99	Moisture, Miscellaneous (%)	14	14	8.952	0.3575	8.972	0.3580	0.1196	3.99%	0.1235	2.87%
010.11	Moisture, NIR (%)	3	3	8.603	0.7725	8.603	0.7725	0.5463	8.98%	0.4200	2.89%
010.03	Moisture, Karl-Fischer (%)	2	2	9.198	0.1874						
011.01	Loss on Drying, HT, 135°C 2hr (%)	71	69	9.608	0.5395	9.662	0.4724	0.0711	4.89%	0.0992	2.84%
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	3	3	9.470	0.0941	9.470	0.0941	0.0543	0.99%	0.2350	2.85%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	2	2	9.428	0.1803						
012.00	Starch, Polarimetric (Ewers) (%)	14	14	16.46	1.112	16.35	0.8239	0.2752	5.04%	0.2487	2.47%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	12	12	14.99	1.197	14.88	1.128	0.4071	7.58%	0.3139	2.59%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	7	7	14.37	0.9961	14.37	1.130	0.5337	7.86%	0.2256	2.64%
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	3	3	14.91	1.157	14.91	1.157	0.6680	7.76%	0.1858	2.59%
012.11	Starch, NIR (%)	2	2	16.63	1.828						
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	15.39							
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	19	19	4.227	0.5648	4.173	0.4860	0.1394	11.65%	0.2016	3.23%
013.02	Fat, Acid Pretreat, Mojonniere, Bak Ext (%)	12	12	4.776	0.5398	4.738	0.5181	0.1870	10.94%	0.0952	3.16%
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	10	10	4.704	1.111	4.571	0.9184	0.3630	20.09%	0.2586	3.18%
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	6	6	3.428	0.8956	3.605	0.5689	0.2903	15.78%	0.2764	3.30%
013.08	Fat, Base Pretreat, Roese-Gottlieb Modified (%)	1	1	2.440							
015.43	Aluminum, ICP, Microwave (ppm)	8	8	106.2	16.92	107.0	17.30	7.646	16.17%	3.389	7.92%
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	99.65	10.14	99.65	10.14	4.535	10.18%	3.668	8.00%
015.53	Aluminum, ICP-MS, Microwave (ppm)	3	3	118.8	6.974	118.8	6.974	4.027	5.87%	8.466	7.79%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	58.21	6.732						
015.99	Aluminum, Miscellaneous (ppm)	1	1	58.60							
017.43	Boron, ICP, Microwave (ppm)	8	7	9.754	1.125	9.754	1.276	0.6026	13.08%	0.4115	11.35%
017.42	Boron, ICP, Open vessel (ppm)	5	5	10.03	1.152	10.03	1.152	0.5150	11.49%	0.2580	11.31%

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017.41	Boron, ICP, Dry ash (ppm)	5	4	9.760	1.378	9.760	1.378	0.7956	14.12%	0.4409	11.35%
017.53	Boron, ICP-MS, Microwave (ppm)	2	2	10.85	1.623						
017.99	Boron, Miscellaneous (ppm)	1	1	10.70							
019.43	Calcium, ICP, Microwave (%)	32	31	1.169	0.0743	<b>1.168</b>	0.0751	0.0169	6.43%	0.0261	3.91%
019.31	Calcium, AAS, Dry ash (%)	20	20	1.159	0.0528	<b>1.157</b>	0.0449	0.0125	3.88%	0.0239	3.91%
019.42	Calcium, ICP, Open vessel (%)	20	20	1.153	0.1511	<b>1.166</b>	0.1146	0.0320	9.82%	0.0399	3.91%
019.41	Calcium, ICP, Dry ash (%)	20	19	1.145	0.0265	<b>1.142</b>	0.0242	0.0069	2.12%	0.0168	3.92%
019.08	Calcium, EDTA (%)	11	11	1.147	0.1109	<b>1.172</b>	0.0481	0.0181	4.11%	0.0115	3.91%
019.99	Calcium, Miscellaneous (%)	6	6	1.393	0.6883	<b>1.156</b>	0.1447	0.0738	12.51%	0.0650	3.91%
019.00	Calcium, Ox-Mn04 Vol. (%)	5	5	1.075	0.1015	1.075	0.1015	0.0454	9.44%	0.0480	3.96%
019.53	Calcium, ICP-MS, Microwave (%)	3	3	1.135	0.0442	1.135	0.0442	0.0313	3.90%	0.0411	3.92%
019.09	Calcium, Ion-selective electrode (%)	2	2	1.038	0.2227						
019.02	Calcium, Hach Method (%)	1	1	1.090							
019.32	Calcium, AAS, Open vessel (%)	1	1	1.010							
019.44	Calcium, ICP, Dry ash (%)	1	1	1.100							
019.51	Calcium, ICP-MS, Dry ash (%)	1	1	1.160							
019.52	Calcium, ICP-MS, Open vessel (%)	1	1	1.140							
021.43	Cobalt, ICP, Microwave (ppm)	10	10	1.911	0.2458	<b>1.922</b>	0.2450	0.0969	12.75%	0.0975	14.50%
021.53	Cobalt, ICP-MS, Microwave (ppm)	6	6	1.922	0.2424	<b>1.922</b>	0.2748	0.1403	14.30%	0.1347	14.50%
021.41	Cobalt, ICP, Dry ash (ppm)	5	5	1.938	0.4081	1.938	0.4081	0.1825	21.06%	0.1022	14.48%
021.31	Cobalt, AAS, Dry ash (ppm)	2	2	2.742	1.333						
021.42	Cobalt, ICP, Open vessel (ppm)	1	1	1.530							
021.52	Cobalt, ICP-MS, Open vessel (ppm)	1	1	1.862							
021.99	Cobalt, Miscellaneous (ppm)	1	1	1.690							
022.43	Copper, ICP, Microwave (ppm)	27	27	35.61	3.017	<b>35.58</b>	3.125	0.7517	8.78%	0.9431	9.34%
022.42	Copper, ICP, Open vessel (ppm)	21	20	35.18	4.499	<b>35.53</b>	3.265	0.9125	9.19%	0.9391	9.35%
022.41	Copper, ICP, Dry ash (ppm)	16	16	32.97	2.330	<b>32.83</b>	2.290	0.7158	6.98%	1.231	9.46%
022.31	Copper, AAS, Dry ash (ppm)	10	10	34.06	2.370	<b>33.86</b>	2.192	0.8665	6.47%	1.001	9.41%
022.53	Copper, ICP-MS, Microwave (ppm)	4	4	32.70	1.008	32.70	1.008	0.5041	3.08%	0.8397	9.46%
022.99	Copper, Miscellaneous (ppm)	4	4	33.46	3.379	33.46	3.379	1.690	10.10%	1.625	9.43%
022.33	Copper, AAS, Microwave (ppm)	2	2	35.34	1.011						
022.44	Copper, ICP, Dry ash (ppm)	2	2	33.37	0.8980						
022.52	Copper, ICP-MS, Open vessel (ppm)	1	1	43.27							
024.52	Iodine, ICP-MS, Open vessel (ppm)	1	1	2.364							
025.43	Iron, ICP, Microwave (ppm)	27	26	293.4	23.15	<b>292.7</b>	24.55	6.018	8.39%	8.556	6.80%
025.42	Iron, ICP, Open vessel (ppm)	19	18	280.3	33.37	<b>281.4</b>	26.86	7.913	9.54%	10.91	6.85%
025.41	Iron, ICP, Dry ash (ppm)	17	16	282.8	17.33	<b>284.4</b>	13.87	4.334	4.88%	5.248	6.83%
025.31	Iron, AAS, Dry ash (ppm)	12	12	281.0	35.74	<b>279.6</b>	37.07	13.38	13.26%	12.01	6.85%
025.53	Iron, ICP-MS, Microwave (ppm)	3	3	281.4	9.864	281.4	9.864	6.975	3.51%	15.45	6.85%
025.99	Iron, Miscellaneous (ppm)	3	3	281.7	21.43	281.7	21.43	12.37	7.61%	8.000	6.84%

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025.33	Iron, AAS, Microwave (ppm)	1	1	291.1							
025.52	Iron, ICP-MS, Open vessel (ppm)	1	1	325.2							
027.43	Magnesium, ICP, Microwave (%)	29	29	0.3712	0.0252	0.3700	0.0258	0.0060	6.96%	0.0060	4.65%
027.42	Magnesium, ICP, Open vessel (%)	21	20	0.3634	0.0390	0.3687	0.0250	0.0070	6.77%	0.0077	4.65%
027.41	Magnesium, ICP, Dry ash (%)	16	16	0.3647	0.0189	0.3666	0.0161	0.0050	4.41%	0.0087	4.65%
027.31	Magnesium, AAS, Dry ash (%)	11	11	0.3628	0.0152	0.3628	0.0172	0.0065	4.75%	0.0077	4.66%
027.99	Magnesium, Miscellaneous (%)	5	4	0.3675	0.0126	0.3675	0.0126			0.0000	4.65%
027.53	Magnesium, ICP-MS, Microwave (%)	3	3	0.3664	0.0089	0.3664	0.0089	0.0052	2.44%	0.0127	4.65%
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.2750							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.3725							
027.44	Magnesium, ICP, Dry ash (%)	1	1	0.3455							
027.51	Magnesium, ICP-MS, Dry ash (%)	1	1	0.3750							
027.52	Magnesium, ICP-MS, Open vessel (%)	1	1	0.4065							
028.43	Manganese, ICP, Microwave (ppm)	28	27	140.9	9.545	140.3	9.231	2.221	6.58%	2.823	7.60%
028.42	Manganese, ICP, Open vessel (ppm)	21	21	141.0	15.77	142.5	12.07	3.292	8.47%	4.664	7.58%
028.41	Manganese, ICP, Dry ash (ppm)	15	15	135.9	9.999	135.9	11.01	3.554	8.10%	2.746	7.64%
028.31	Manganese, AAS, Dry ash (ppm)	10	10	139.7	5.374	140.0	5.265	2.081	3.76%	2.170	7.60%
028.53	Manganese, ICP-MS, Microwave (ppm)	4	4	137.1	11.27	137.1	11.27	5.634	8.22%	7.246	7.63%
028.99	Manganese, Miscellaneous (ppm)	4	4	136.4	7.772	136.4	7.772	3.886	5.70%	4.750	7.63%
028.44	Manganese, ICP, Dry ash (ppm)	2	2	118.8	18.01						
028.00	Manganese, Color (ppm)	1	1	140.3							
028.32	Manganese, AAS, Open vessel (ppm)	1	1	148.0							
028.33	Manganese, AAS, Microwave (ppm)	1	1	272.0							
028.52	Manganese, ICP-MS, Open vessel (ppm)	1	1	212.0							
030.01	Nitrate, Ion-selective electrode (%)	1	1	0.0027							
031.01	Phosphorus, Photometric (%)	35	33	0.7047	0.0331	0.7080	0.0254	0.0055	3.58%	0.0109	4.21%
031.43	Phosphorus, ICP, Microwave (%)	31	31	0.7226	0.0473	0.7267	0.0430	0.0096	5.91%	0.0140	4.20%
031.42	Phosphorus, ICP, Open vessel (%)	21	21	0.7285	0.0733	0.7365	0.0485	0.0132	6.59%	0.0213	4.19%
031.41	Phosphorus, ICP, Dry ash (%)	19	19	0.7165	0.0249	0.7161	0.0257	0.0074	3.59%	0.0168	4.21%
031.53	Phosphorus, ICP-MS, Microwave (%)	3	3	0.7244	0.0249	0.7244	0.0249	0.0176	3.44%	0.0473	4.20%
031.99	Phosphorus, Miscellaneous (%)	3	3	0.7033	0.0104	0.7033	0.0104	0.0060	1.48%	0.0067	4.22%
031.03	Phosphorus, Autoanalyzer (%)	2	2	0.6798	0.0280						
031.44	Phosphorus, ICP, Dry ash (%)	2	2	0.6755	0.0240						
031.06	Phosphorus, Hach Method (%)	1	1	0.7100							
031.51	Phosphorus, ICP-MS, Dry ash (%)	1	1	0.7100							
032.43	Potassium, ICP, Microwave (%)	31	30	1.183	0.1015	1.184	0.0966	0.0220	8.15%	0.0267	3.90%
032.42	Potassium, ICP, Open vessel (%)	19	19	1.192	0.1215	1.199	0.1186	0.0340	9.89%	0.0388	3.89%
032.41	Potassium, ICP, Dry ash (%)	17	17	1.194	0.0709	1.189	0.0570	0.0173	4.79%	0.0248	3.90%
032.31	Potassium, AAS, Dry ash (%)	9	9	1.152	0.0898	1.158	0.0897	0.0374	7.75%	0.0269	3.91%
032.99	Potassium, Miscellaneous (%)	5	5	1.168	0.0523	1.168	0.0523	0.0234	4.48%	0.0134	3.91%

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032.53	Potassium, ICP-MS, Microwave (%)	3	3	1.193	0.0434	1.193	0.0434	0.0251	3.64%	0.0283	3.90%
032.02	Potassium, Flame Emission (%)	1	1	1.225							
032.32	Potassium, AAS, Open vessel (%)	1	1	0.9500							
032.44	Potassium, ICP, Dry ash (%)	1	1	1.135							
032.52	Potassium, ICP-MS, Open vessel (%)	1	1	1.170							
033.01	Salt as chloride, Poten Cl (%)	30	29	1.095	0.0307	1.097	0.0306	0.0071	2.79%	0.0162	3.94%
033.00	Salt as chloride, Sol Cl (%)	15	14	1.018	0.1249	1.033	0.1023	0.0342	9.90%	0.0126	3.98%
033.99	Salt, Miscellaneous (%)	9	9	1.084	0.0223	1.084	0.0246	0.0103	2.27%	0.0125	3.95%
033.03	Salt as chloride, Quantab (%)	5	3	0.9450	0.0087	0.9450	0.0087	0.0061	0.92%	0.0033	4.03%
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	1.088	0.1127	1.088	0.1127	0.0651	10.36%	0.0100	3.95%
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	8	8	1.125	0.1705	1.125	0.1934	0.0854	17.19%	0.0762	15.72%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	3	3	0.8388	0.2231	0.8388	0.2231	0.1288	26.60%	0.0757	16.43%
034.42	Selenium, Total (Se), ICP, Open vessel (ppm)	2	2	1.500	0.4243						
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	3	2	1.435	0.2758	1.435	0.2758			0.0700	15.15%
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	2	2	1.107	0.0609						
034.01	Selenium, Total (Se), Fluor (ppm)	1	1	1.140							
034.41	Selenium, Total (Se), ICP, Dry ash (ppm)	1	1	1.355							
034.99	Selenium, Total (Se), Miscellaneous (ppm)	1	1	1.800							
035.43	Sodium, ICP, Microwave (%)	27	26	0.4173	0.0446	0.4154	0.0395	0.0097	9.51%	0.0052	4.57%
035.41	Sodium, ICP, Dry ash (%)	18	18	0.4028	0.0200	0.4049	0.0175	0.0051	4.31%	0.0108	4.58%
035.42	Sodium, ICP, Open vessel (%)	18	17	0.4079	0.0260	0.4090	0.0269	0.0081	6.57%	0.0121	4.58%
035.31	Sodium, AAS, Dry ash (%)	9	9	0.4122	0.0443	0.4157	0.0419	0.0174	10.07%	0.0098	4.56%
035.53	Sodium, ICP-MS, Microwave (%)	3	3	0.3988	0.0072	0.3988	0.0072	0.0042	1.81%	0.0118	4.59%
035.99	Sodium, Miscellaneous (%)	4	3	0.4183	0.0029	0.4183	0.0029	0.0020	0.69%	0.0033	4.56%
035.05	Sodium, Flame Emission (%)	2	2	0.4650	0.0566						
035.01	Sodium, Ion-selective electrode (%)	1	1	0.5045							
035.32	Sodium, AAS, Open vessel (%)	1	1	0.3350							
036.42	Sulfur, ICP, Open vessel (%)	20	20	0.3193	0.0640	0.3316	0.0277	0.0077	8.34%	0.0113	4.72%
036.43	Sulfur, ICP, Microwave (%)	19	19	0.3430	0.0254	0.3457	0.0220	0.0063	6.35%	0.0090	4.69%
036.04	Sulfur, LECO (%)	6	6	0.3384	0.0307	0.3384	0.0348	0.0177	10.27%	0.0110	4.71%
036.99	Sulfur, Miscellaneous (%)	2	2	0.3525	0.0530						
036.53	Sulfur, ICP-MS, Microwave (%)	1	1	0.3375							
037.43	Zinc, ICP, Microwave (ppm)	29	28	233.8	16.93	233.9	18.85	4.454	8.06%	4.768	7.04%
037.42	Zinc, ICP, Open vessel (ppm)	20	20	229.4	24.83	230.6	20.18	5.639	8.75%	8.122	7.05%
037.41	Zinc, ICP, Dry ash (ppm)	16	16	223.5	13.10	222.2	11.79	3.685	5.31%	6.597	7.09%
037.31	Zinc, AAS, Dry ash (ppm)	9	9	233.6	18.73	231.2	15.03	6.262	6.50%	5.233	7.05%
037.99	Zinc, Miscellaneous (ppm)	4	4	215.1	24.01	215.1	24.01	12.01	11.16%	8.250	7.13%
037.33	Zinc, AAS, Microwave (ppm)	2	2	230.4	8.157						
037.44	Zinc, ICP, Dry ash (ppm)	2	2	191.3	22.27						
037.53	Zinc, ICP-MS, Microwave (ppm)	2	2	224.1	3.353						

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037.32	Zinc, AAS, Open vessel (ppm)	1	1	296.5							
037.34	Zinc, AAS, Dry ash (ppm)	1	1	199.8							
037.52	Zinc, ICP-MS, Open vessel (ppm)	1	1	343.5							
038.43	Molybdenum, ICP, Microwave (ppm)	7	7	2.437	0.4258	<b>2.454</b>	0.4433	0.2095	18.06%	0.1301	13.97%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	5	5	2.436	0.0671	2.436	0.0671	0.0300	2.76%	0.0560	13.99%
038.41	Molybdenum, ICP, Dry ash (ppm)	3	3	2.313	0.1148	2.313	0.1148	0.0663	4.97%	0.1373	14.10%
038.42	Molybdenum, ICP, Open vessel (ppm)	4	3	2.623	0.1814	2.623	0.1814	0.1283	6.92%	0.0843	13.84%
038.99	Molybdenum, Miscellaneous (ppm)	1	1	2.480							
040.53	Barium, ICP-MS, Microwave (ppm)	2	2	17.55	2.935						
040.43	Barium, ICP, Microwave (ppm)	1	1	16.47							
041.53	Vanadium, ICP-MS, Microwave (ppm)	2	2	0.5995	0.0190						
042.00	Chloride, Titrimetric (%)	3	3	0.6533	0.0333	0.6533	0.0333	0.0192	5.10%	0.0067	4.26%
042.99	Chloride, Miscellaneous (%)	1	1	0.7700							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	1,430							
102.01	Niacin, Microbiological (ppm)	1	1	64.95							
102.02	Niacin, LC (ppm)	1	1	15.40							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	8.775							
104.00	Riboflavin, Fluorometric (ppm)	1	1	2.010							
104.03	Riboflavin, LC (ppm)	1	1	0.7250							
105.00	Thiamine, LC (ppm)	1	1	1.125							
105.01	Thiamine, Fluorometer (ppm)	1	1	3.490							
106.02	Vitamin A, LC (KU / kg)	9	9	11.13	3.168	<b>10.63</b>	2.493	1.039	23.46%	1.488	
106.00	Vitamin A, Color (KU / kg)	1	1	13.65							
106.01	Vitamin A, UV (KU / kg)	1	1	15.80							
107.00	Vitamin B12, Microbiological (ppb)	1	1	7.660							
108.02	Vitamin D3, LC (KU / kg)	5	4	1.855	0.1956	1.855	0.1956	0.0978	10.54%	0.3050	
108.99	Vitamin D3, Miscellaneous (KU / kg)	1	1	1.725							
109.02	Vitamin E, LC (IU / kg)	10	10	63.15	11.43	<b>63.93</b>	11.08	4.379	17.33%	4.931	
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
111.98	Vitamin C, Ascorbic Acid, Miscellaneous (ppm)	1		1.000							
112.01	Pyridoxine, LC (µg / g)	2	2	3.105	0.8697						
113.01	Folic Acid, Micro (ppm)	1	1	1.080							
113.02	Folic acid, LC (ppm)	1		0.2500							
114.01	Biotin, Microbiological (ppm)	1	1	0.2410							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	2	2	0.6100	0.6718						
115.99	Non Protein N (NPN), Miscellaneous (%)	1	1	0.5929							
118.99	Peroxide value, Miscellaneous (meq/kg)	1	1	5.430							
120.00	Alanine, Post-col Ninhydrin Der (%)	16	16	0.7525	0.0462	<b>0.7632</b>	0.0279	0.0087	3.66%	0.0106	4.17%
120.05	Alanine, Pre-col AQC Der (%)	9	9	0.7474	0.0501	<b>0.7464</b>	0.0548	0.0228	7.34%	0.0167	4.18%
120.99	Alanine, Miscellaneous (%)	3	3	0.7817	0.0029	0.7817	0.0029	0.0017	0.37%	0.0167	4.15%

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120.02	Alanine, Post-col OPA Der (%)	1	1	0.7885							
121.00	Arginine, Post-col Ninhydrin Der (%)	16	16	1.159	0.0444	1.159	0.0504	0.0157	4.34%	0.0200	3.91%
121.05	Arginine, Pre-col AQC Der (%)	9	9	1.168	0.0779	1.167	0.0883	0.0368	7.57%	0.0256	3.91%
121.99	Arginine, Miscellaneous (%)	3	3	1.087	0.1437	1.087	0.1437	0.0830	13.23%	0.0267	3.95%
121.02	Arginine, Post-col OPA Der (%)	1	1	1.165							
122.00	Aspartic, Post-col Ninhydrin Der (%)	16	15	1.275	0.0468	1.283	0.0313	0.0101	2.44%	0.0092	3.85%
122.05	Aspartic, Pre-col AQC Der (%)	9	9	1.278	0.0628	1.278	0.0712	0.0297	5.58%	0.0102	3.85%
122.99	Aspartic, Miscellaneous (%)	3	3	1.343	0.0813	1.343	0.0813	0.0469	6.05%	0.0267	3.83%
122.02	Aspartic, Post-col OPA Der (%)	1	1	1.337							
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	16	15	0.2987	0.0141	0.2997	0.0136	0.0044	4.52%	0.0037	4.80%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	8	0.2689	0.0399	0.2703	0.0420	0.0186	15.54%	0.0085	4.87%
124.99	Cysteine/Cystine, Miscellaneous (%)	4	4	0.2722	0.0227	0.2722	0.0227	0.0114	8.35%	0.0109	4.86%
124.02	Cysteine/Cystine, PAO Post-col OPA Der (%)	1	1	0.3260							
125.00	Glutamic, Post-col Ninhydrin Der (%)	16	15	2.968	0.1061	2.968	0.1203	0.0388	4.05%	0.0315	3.40%
125.05	Glutamic, Pre-col AQC Der (%)	9	9	3.011	0.1819	2.999	0.1354	0.0564	4.51%	0.0836	3.39%
125.99	Glutamic, Miscellaneous (%)	3	3	2.942	0.1056	2.942	0.1056	0.0610	3.59%	0.0500	3.40%
125.01	Glutamic, Pre-col OPA Der (%)	1	1	0.2635							
125.02	Glutamic, Post-col OPA Der (%)	1	1	2.981							
126.00	Glycine, Post-col Ninhydrin Der (%)	16	16	0.8413	0.0524	0.8386	0.0252	0.0079	3.01%	0.0075	4.11%
126.05	Glycine, Pre-col AQC Der (%)	9	9	0.8624	0.0519	0.8624	0.0588	0.0245	6.82%	0.0152	4.09%
126.99	Glycine, Miscellaneous (%)	3	3	0.6633	0.2852	0.6633	0.2852	0.1647	43.00%	0.0067	4.25%
126.02	Glycine, Post-col OPA Der (%)	1	1	0.8850							
127.00	Histidine, Post-col Ninhydrin Der (%)	16	16	0.4127	0.0247	0.4123	0.0270	0.0084	6.54%	0.0087	4.57%
127.05	Histidine, Pre-col AQC Der (%)	9	9	0.4343	0.0622	0.4287	0.0566	0.0236	13.21%	0.0103	4.54%
127.99	Histidine, Miscellaneous (%)	3	3	0.3883	0.0486	0.3883	0.0486	0.0343	12.50%	0.0033	4.61%
127.02	Histidine, Post-col OPA Der (%)	1	1	0.4065							
128.00	Isoleucine, Post-col Ninhydrin Der (%)	16	15	0.5203	0.0437	0.5245	0.0371	0.0120	7.08%	0.0125	4.41%
128.05	Isoleucine, Pre-col AQC Der (%)	9	9	0.5480	0.0476	0.5532	0.0409	0.0170	7.40%	0.0112	4.37%
128.99	Isoleucine, Miscellaneous (%)	3	3	0.5317	0.0404	0.5317	0.0404	0.0286	7.60%	0.0100	4.40%
128.02	Isoleucine, Post-col OPA Der (%)	1	1	0.5300							
129.00	Leucine, Post-col Ninhydrin Der (%)	16	15	1.071	0.0481	1.077	0.0402	0.0130	3.73%	0.0067	3.96%
129.05	Leucine, Pre-col AQC Der (%)	9	9	1.079	0.0644	1.079	0.0729	0.0304	6.76%	0.0180	3.95%
129.99	Leucine, Miscellaneous (%)	3	3	1.035	0.1790	1.035	0.1790	0.1033	17.29%	0.0300	3.98%
129.02	Leucine, Post-col OPA Der (%)	1	1	1.069							
130.00	L-Lysine, Post-col Ninhydrin Der (%)	16	15	0.6772	0.0271	0.6771	0.0274	0.0088	4.04%	0.0063	4.24%
130.05	L-Lysine, Pre-col AQC Der (%)	9	8	0.6608	0.0293	0.6608	0.0332	0.0147	5.02%	0.0086	4.26%
130.99	L-Lysine, Miscellaneous (%)	4	4	0.7986	0.1121	0.7986	0.1121	0.0560	14.03%	0.0326	4.14%
130.01	L-Lysine, Pre-col OPA Der (%)	1	1	0.7075							
130.02	L-Lysine, Post-col OPA Der (%)	1	1	0.7425							
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	16	16	0.2345	0.0272	0.2376	0.0216	0.0068	9.10%	0.0079	4.97%

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131.05	Methionine, PAO Pre-col AQC Der (%)	9	9	0.2289	0.0437	<b>0.2289</b>	0.0495	0.0206	21.64%	0.0074	4.99%
131.99	Methionine, Miscellaneous (%)	4	4	0.2515	0.0554	0.2515	0.0554	0.0277	22.04%	0.0266	4.92%
131.02	Methionine, PAO Post-col OPA Der (%)	1	1	0.2390							
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	16	16	0.7313	0.0447	<b>0.7364</b>	0.0258	0.0081	3.51%	0.0138	4.19%
132.05	Phenylalanine, Pre-col AQC Der (%)	9	9	0.7417	0.0540	<b>0.7411</b>	0.0600	0.0250	8.10%	0.0090	4.18%
132.99	Phenylalanine, Miscellaneous (%)	3	3	0.7067	0.0945	0.7067	0.0945	0.0546	13.38%	0.0200	4.21%
132.02	Phenylalanine, Post-col OPA Der (%)	1	1	0.7180							
133.00	Proline, Post-col Ninhydrin Der (%)	16	15	0.9685	0.0863	<b>0.9534</b>	0.0470	0.0152	4.93%	0.0183	4.03%
133.05	Proline, Pre-col AQC Der (%)	9	8	0.9454	0.0602	<b>0.9454</b>	0.0682	0.0302	7.22%	0.0107	4.03%
133.99	Proline, Miscellaneous (%)	3	3	1.038	0.1801	1.038	0.1801	0.1040	17.34%	0.0233	3.98%
134.00	Serine, Post-col Ninhydrin Der (%)	16	15	0.7444	0.0451	<b>0.7494</b>	0.0328	0.0106	4.37%	0.0088	4.18%
134.05	Serine, Pre-col AQC Der (%)	9	9	0.7360	0.0852	<b>0.7368</b>	0.0815	0.0339	11.05%	0.0093	4.19%
134.99	Serine, Miscellaneous (%)	3	3	0.7983	0.1021	0.7983	0.1021	0.0590	12.79%	0.0100	4.14%
134.02	Serine, Post-col OPA Der (%)	1	1	0.6715							
135.00	Threonine, Post-col Ninhydrin Der (%)	16	16	0.5433	0.0221	<b>0.5435</b>	0.0244	0.0076	4.50%	0.0071	4.38%
135.05	Threonine, Pre-col AQC Der (%)	9	8	0.5381	0.0560	<b>0.5426</b>	0.0528	0.0233	9.73%	0.0091	4.39%
135.99	Threonine, Miscellaneous (%)	4	4	0.5651	0.0405	0.5651	0.0405	0.0203	7.17%	0.0166	4.36%
135.01	Threonine, Pre-col OPA Der (%)	1	1	0.5665							
135.02	Threonine, Post-col OPA Der (%)	1	1	0.5345							
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	6	6	0.2518	0.1054	<b>0.2325</b>	0.0709	0.0362	30.52%	0.0115	4.98%
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	5	0.2162	0.0097	0.2162	0.0097	0.0043	4.48%	0.0017	5.04%
136.05	Tryptophan, Pre-col AQC Der (%)	4	4	0.1987	0.0228	0.1987	0.0228	0.0114	11.46%	0.0097	5.10%
136.99	Tryptophan, Miscellaneous (%)	3	3	0.2914	0.1233	0.2914	0.1233	0.0712	42.32%	0.0209	4.82%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	1	1	0.2180							
136.02	Tryptophan, Alka-Hydrol Post-col OPA De (%)	1	1	0.2235							
137.00	Tyrosine, Post-col Ninhydrin Der (%)	12	12	0.4942	0.0353	<b>0.4926</b>	0.0363	0.0131	7.38%	0.0162	4.45%
137.05	Tyrosine, Pre-col AQC Der (%)	9	9	0.4964	0.0551	<b>0.4964</b>	0.0625	0.0260	12.59%	0.0162	4.44%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.4633	0.0825	0.4633	0.0825	0.0476	17.81%	0.0133	4.49%
137.02	Tyrosine, Post-col OPA Der (%)	1	1	0.4415							
138.00	Valine, Post-col Ninhydrin Der (%)	16	15	0.7178	0.0381	<b>0.7178</b>	0.0432	0.0139	6.01%	0.0162	4.20%
138.05	Valine, Pre-col AQC Der (%)	9	9	0.7193	0.0293	<b>0.7193</b>	0.0332	0.0138	4.61%	0.0266	4.20%
138.99	Valine, Miscellaneous (%)	3	3	0.7183	0.0815	0.7183	0.0815	0.0470	11.34%	0.0100	4.20%
138.02	Valine, Post-col OPA Der (%)	1	1	0.7815							
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1265	0.1110						
139.05	Taurine, Pre-col AQC Der (%)	1	1	0.0060							
139.99	Taurine, Miscellaneous (%)	3	1								
139.02	Taurine, Post-col OPA Der (%)	1		0.0100							
160.10	Fructose, HPAEC PAD (%)	2	2	0.1625	0.0177						
160.99	Fructose, Miscellaneous (%)	2	1	0.3150							
161.10	Galactose, HPAEC PAD (%)	2		0.0000							



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162.10	Glucose, HPAEC PAD (%)	2	2	0.1225	0.0248						
162.99	Glucose, Miscellaneous (%)	2	1	0.1050							
163.10	Lactose, HPAEC PAD (%)	2		0.0000							
163.99	Lactose, Miscellaneous (%)	1		0.1500							
164.10	Maltose, HPAEC PAD (%)	2	1	0.2650							
164.99	Maltose, Miscellaneous (%)	2	1	0.1050							
165.10	Sucrose, HPAEC PAD (%)	2	2	1.598	0.1520						
165.99	Sucrose, Miscellaneous (%)	2	2	1.688	0.0813						
166.10	Raffinose, HPAEC PAD (%)	1	1	1.040							
166.99	Raffinose, Miscellaneous (%)	1	1	0.6500							
167.10	Stachyose, HPAEC PAD (%)	1	1	0.4850							
167.99	Stachyose, Miscellaneous (%)	1	1	0.2400							
351.03	Chlortetracycline, LC (UV or FL) (ppm)	1		1.000							
354.01	Decoquinatate, LC (UV or FL) (ppm)	1		0.1000							
361.05	Lasalocid Sodium, LC-MS/MS (ppm)	5	5	1.619	0.3005	1.619	0.3005	0.1344	18.56%	0.2260	14.88%
361.03	Lasalocid Sodium, LC (UV or FL) (ppm)	3	3	1.862	0.2679	1.862	0.2679	0.1547	14.39%	0.1373	14.57%
361.02	Lasalocid Sodium, LC (ppm)	2	2	1.775	0.0354						
365.05	Monensin, LC-MS/MS (ppm)	8	8	4.101	0.5777	4.101	0.6551	0.2895	15.97%	0.3838	12.94%
365.03	Monensin, LC-PCD (ppm)	2	2	4.133	0.3217						
365.02	Monensin, LC (ppm)	1	1	4.050							
365.04	Monensin, LC-MS (ppm)	1	1	4.128							
365.99	Monensin, Miscellaneous (ppm)	1	1	3.775							
367.99	Nicarbazin, Miscellaneous (ppm)	1		0.1000							
386.99	Tiamulin, Miscellaneous (ppm)	1		1.000							
388.03	Tylosin, LC (ppm)	1		0.6000							
392.99	Fenbendazole, Miscellaneous (ppm)	1		1.000							
400.01	Water Activity, Aqualab chilled mirror (Units)	12	11	0.5234	0.0363	0.5227	0.0395	0.0149	7.56%	0.0021	
400.99	Water Activity, Miscellaneous (Units)	3	3	0.5200	0.0200	0.5200	0.0200	0.0115	3.84%	0.0040	
413.01	Starch, Resistant, Enzymatic-Colorimetric (%)	1	1	0.4000							
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	4	3	0.0799	0.0144	0.0799	0.0144	0.0101	17.96%	0.0031	22.00%
516.00	Arsenic, Total (As), AA, Hydride (ppm)	1	1	0.0770							
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1		20.00							
518.53	Cadmium, ICP-MS, Microwave (ppm)	4	4	0.1185	0.0086	0.1185	0.0086	0.0043	7.25%	0.0069	22.00%
518.41	Cadmium, ICP, Dry ash (ppm)	2	2	0.5261	0.6066						
518.43	Cadmium, ICP, Microwave (ppm)	3	2	0.1028	0.0138	0.1028	0.0138			0.0198	22.00%
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	6	6	4.504	0.8508	4.504	0.9648	0.4924	21.42%	0.2717	12.75%
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	5	5	4.139	1.049	4.139	1.049	0.4689	25.33%	0.0981	12.92%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	2	2	2.504	0.6211						
520.42	Chromium, Total (Cr), ICP, Open vessel (ppm)	1	1	4.405							
526.53	Lead, ICP-MS, Microwave (ppm)	5	4	0.1104	0.0044	0.1104	0.0044	0.0022	3.98%	0.0133	22.00%

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (R-bar)	Thompson Horwitz %RSD
526.41	Lead, ICP, Dry ash (ppm)	2	2	0.1380	0.0254						
526.43	Lead, ICP, Microwave (ppm)	2	1	0.1938							
529.99	Mercury, Miscellaneous (ppb)	4	1								
539.53	Nickel, ICP-MS, Microwave (ppm)	4	4	2.965	0.3270	2.965	0.3270	0.1635	11.03%	0.0501	13.58%
539.43	Nickel, ICP, Microwave (ppm)	4	3	4.486	2.320	4.486	2.320	1.641	51.73%	0.0143	12.76%
539.41	Nickel, ICP, Dry ash (ppm)	2	2	2.049	0.3911						
706.99	Caprylic acid (8:0), Miscellaneous (% (w/w))	1		0.0020							
710.99	Lauric Acid (12:0), Miscellaneous (% (w/w))	2		0.0020							
714.99	Myristic Acid (14:0 ), Miscellaneous (% (w/w))	1	1	0.0100							
716.99	Palmitic Acid (16:0), Miscellaneous (% (w/w))	1	1	0.7100							
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))	2	1	0.0100							
722.99	Stearic Acid (18:0), Miscellaneous (% (w/w))	1	1	0.1000							
724.99	Oleic Acid (9c-18:1), Miscellaneous (% (w/w))	1	1	0.7000							
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))	1	1	2.005							
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))	1	1	0.1250							
730.99	Arachidic Acid (20:0), Miscellaneous (% (w/w))	1	1	0.0100							
732.99	Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))	1	1	0.0200							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w))	2		0.0020							
742.99	Behenic Acid (22:0), Miscellaneous (% (w/w))	1	1	0.0100							
744.99	Erucic Acid (13c-22:1), Miscellaneous (% (w/w))	1		0.0050							
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (% (w/w))	2		0.0020							
748.99	Lignoceric Acid (24:0), Miscellaneous (% (w/w))	1		0.0050							
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (% (w/w))	1	1	0.0100							
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (% (w/w))	1		0.0050							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (% (w/w))	1	1	3.010							
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	1	1	3.710							

Notes: Robust statistics not used if < 6 labs reporting. In this case Means and SD's may be reported based on Raw Data with obvious blunders removed. Robust Assigned Values indicated in bold font.



**Animal Feed Scheme**

**# Methods Reported: 134**

**Dairy Goat Feed**

**Method Precision Report**

**# Labs Reporting: 176**

**Test Material Code # 202230**

**Issue Date : 11/30/2022**

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	39	8.845	0.4211	0.3097	0.0969	0.3245	3.47%	1.09%	3.64%	3.350
001.99	Loss on Drying, Miscellaneous (%)	21	19	8.498	0.7941	0.8138	0.0551	0.8156	9.57%	0.65%	9.59%	14.79
002.01	Protein, Crude, Auto Kjel-Foss (%)	16	15	17.59	0.1907	0.1812	0.0840	0.1997	1.03%	0.48%	1.13%	2.378
002.05	Protein, Crude, Copper, Boric Acid (%)	25	22	17.55	0.1337	0.0819	0.1151	0.1413	0.47%	0.66%	0.81%	1.227
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	119	109	17.80	0.3611	0.2873	0.1529	0.3254	1.61%	0.86%	1.83%	2.128
002.11	Protein, Crude, NIR (%)	5	5	17.91	1.642	1.637	0.1930	1.648	9.14%	1.08%	9.20%	8.540
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	12	12	3.348	0.3238	0.3193	0.0762	0.3283	9.54%	2.28%	9.81%	4.309
003.06	Fat, Crude, Pet Ether (%)	17	16	3.592	0.4413	0.4412	0.1388	0.4625	12.24%	3.85%	12.83%	3.332
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	10	9	3.581	0.1338	0.1058	0.0673	0.1254	2.97%	1.89%	3.53%	1.864
003.10	Fat, Crude, Randall, Pet Ether (%)	21	18	3.216	0.1958	0.2004	0.0292	0.2025	6.23%	0.91%	6.30%	6.937
003.11	Fat, Crude, NIR (%)	5	5	3.649	0.7729	0.7723	0.0451	0.7736	21.16%	1.23%	21.20%	17.17
003.13	Fat, Crude, Randall, Hexane Ext. (%)	7	6	3.369	0.1400	0.1227	0.0952	0.1553	3.64%	2.83%	4.61%	1.632
003.14	Fat, Crude, Ankom (%)	57	52	3.268	0.3433	0.2447	0.1030	0.2655	7.47%	3.15%	8.11%	2.577
004.00	Fiber, Crude, Asbestos Free (%)	13	11	15.66	0.6700	0.6842	0.1205	0.6947	4.36%	0.77%	4.43%	5.765
004.06	Fiber, Crude, Fibertec (%)	19	18	15.16	1.260	0.8038	0.2635	0.8459	5.22%	1.71%	5.50%	3.210
004.07	Fiber, Crude, ANKOM (%)	71	65	15.77	1.849	1.066	0.2707	1.100	6.77%	1.72%	6.98%	4.063
005.00	Ash, 2h @ 600°C (%)	92	86	7.380	0.2339	0.1913	0.0670	0.2027	2.60%	0.91%	2.75%	3.026
005.05	Ash, 3h @ 550°C (%)	24	22	7.566	0.2303	0.2331	0.0435	0.2372	3.08%	0.58%	3.14%	5.452
005.11	Ash, NIR (%)	5	5	7.974	0.2990	0.2523	0.2270	0.3394	3.16%	2.85%	4.26%	1.495
005.99	Ash, Miscellaneous (%)	10	9	7.390	0.5211	0.3426	0.0505	0.3463	4.56%	0.67%	4.61%	6.854
006.00	Total Sugars, As sucrose (%)	5	5	3.952	0.5460	0.5369	0.1405	0.5550	13.59%	3.56%	14.04%	3.950
006.99	Total Sugars, Miscellaneous (%)	8	7	4.429	1.040	0.6022	0.1498	0.6205	12.71%	3.16%	13.10%	4.142
008.02	Fiber, Acid Detergent, Crucible (%)	15	14	20.64	1.369	0.7530	0.2793	0.8031	3.60%	1.33%	3.84%	2.876
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	44	40	20.46	1.071	0.8943	0.2526	0.9293	4.39%	1.24%	4.56%	3.679
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	15	14	37.24	1.709	1.734	0.3483	1.768	4.66%	0.94%	4.76%	5.077
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	39	36	35.29	1.434	1.160	0.3808	1.221	3.31%	1.08%	3.48%	3.207
010.99	Moisture, Miscellaneous (%)	14	13	8.952	0.3575	0.3638	0.0896	0.3747	4.06%	1.00%	4.18%	4.181
011.01	Loss on Drying, HT, 135°C 2hr (%)	71	66	9.608	0.5395	0.5141	0.0851	0.5211	5.35%	0.88%	5.42%	6.125
012.00	Starch, Polarimetric (Ewers) (%)	14	13	16.46	1.112	0.6938	0.2540	0.7388	4.28%	1.57%	4.55%	2.909
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	12	11	14.99	1.197	1.203	0.2293	1.225	7.98%	1.52%	8.13%	5.341
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	7	7	14.37	0.9961	0.9873	0.1865	1.005	6.87%	1.30%	6.99%	5.389
013.00	Fat, Acid Pretreat, Acid hydrolysis (%)	19	19	4.227	0.5648	0.5454	0.2075	0.5835	12.90%	4.91%	13.81%	2.812
013.02	Fat, Acid Pretreat, Mojonnier, Bak Ext (%)	12	12	4.776	0.5398	0.5365	0.0840	0.5431	11.23%	1.76%	11.37%	6.468
013.10	Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)	6	5	3.428	0.8956	0.2762	0.1992	0.3405	7.32%	5.27%	9.02%	1.710
013.13	Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)	10	8	4.704	1.111	0.4353	0.1520	0.4610	10.27%	3.59%	10.88%	3.033
015.41	Aluminum, ICP, Dry ash (ppm)	5	5	99.65	10.14	9.904	3.077	10.37	9.94%	3.09%	10.41%	3.370

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
015.43	Aluminum, ICP, Microwave (ppm)	8	8	106.2	16.92	16.76	3.356	17.09	15.78%	3.16%	16.10%	5.091
017.42	Boron, ICP, Open vessel (ppm)	5	5	10.03	1.152	1.140	0.2353	1.164	11.37%	2.35%	11.61%	4.945
017.43	Boron, ICP, Microwave (ppm)	8	7	9.754	1.125	1.088	0.4053	1.161	11.15%	4.15%	11.90%	2.864
019.00	Calcium, Ox-Mn04 Vol. (%)	5	5	1.075	0.1015	0.0975	0.0398	0.1053	9.07%	3.70%	9.80%	2.649
019.08	Calcium, EDTA (%)	11	10	1.147	0.1109	0.0364	0.0086	0.0374	3.09%	0.73%	3.17%	4.330
019.31	Calcium, AAS, Dry ash (%)	20	20	1.159	0.0528	0.0506	0.0214	0.0549	4.36%	1.84%	4.74%	2.569
019.41	Calcium, ICP, Dry ash (%)	20	17	1.145	0.0265	0.0202	0.0129	0.0240	1.77%	1.13%	2.10%	1.862
019.42	Calcium, ICP, Open vessel (%)	20	18	1.153	0.1511	0.1006	0.0327	0.1058	8.52%	2.77%	8.96%	3.234
019.43	Calcium, ICP, Microwave (%)	32	28	1.169	0.0743	0.0680	0.0167	0.0700	5.86%	1.44%	6.03%	4.200
019.99	Calcium, Miscellaneous (%)	6	5	1.393	0.6883	0.0761	0.0292	0.0815	6.84%	2.62%	7.32%	2.796
021.41	Cobalt, ICP, Dry ash (ppm)	5	5	1.938	0.4081	0.4024	0.0958	0.4137	20.76%	4.94%	21.34%	4.318
021.43	Cobalt, ICP, Microwave (ppm)	10	9	1.911	0.2458	0.2552	0.0615	0.2625	13.29%	3.20%	13.67%	4.268
021.53	Cobalt, ICP-MS, Microwave (ppm)	6	5	1.922	0.2424	0.1885	0.0732	0.2022	10.17%	3.95%	10.91%	2.763
022.31	Copper, AAS, Dry ash (ppm)	10	9	34.06	2.370	1.570	0.6907	1.715	4.69%	2.06%	5.12%	2.483
022.41	Copper, ICP, Dry ash (ppm)	16	14	32.97	2.330	1.804	0.9677	2.047	5.53%	2.96%	6.27%	2.115
022.42	Copper, ICP, Open vessel (ppm)	21	19	35.18	4.499	2.961	0.9025	3.096	8.24%	2.51%	8.61%	3.430
022.43	Copper, ICP, Microwave (ppm)	27	26	35.61	3.017	2.780	0.9266	2.931	7.76%	2.59%	8.18%	3.163
025.31	Iron, AAS, Dry ash (ppm)	12	12	281.0	35.74	34.41	13.64	37.02	12.25%	4.85%	13.17%	2.714
025.41	Iron, ICP, Dry ash (ppm)	17	16	282.8	17.33	16.92	5.299	17.73	5.98%	1.87%	6.27%	3.346
025.42	Iron, ICP, Open vessel (ppm)	19	16	280.3	33.37	24.93	7.347	25.99	8.79%	2.59%	9.17%	3.537
025.43	Iron, ICP, Microwave (ppm)	27	26	293.4	23.15	22.44	8.057	23.84	7.65%	2.75%	8.13%	2.959
027.31	Magnesium, AAS, Dry ash (%)	11	11	0.3628	0.0152	0.0141	0.0081	0.0162	3.88%	2.22%	4.48%	2.013
027.41	Magnesium, ICP, Dry ash (%)	16	14	0.3647	0.0189	0.0114	0.0076	0.0137	3.09%	2.06%	3.71%	1.807
027.42	Magnesium, ICP, Open vessel (%)	21	18	0.3634	0.0390	0.0207	0.0060	0.0215	5.61%	1.63%	5.84%	3.583
027.43	Magnesium, ICP, Microwave (%)	29	28	0.3712	0.0252	0.0219	0.0063	0.0228	5.94%	1.72%	6.19%	3.605
028.31	Manganese, AAS, Dry ash (ppm)	10	9	139.7	5.374	3.805	1.489	4.086	2.70%	1.06%	2.90%	2.743
028.41	Manganese, ICP, Dry ash (ppm)	15	14	135.9	9.999	9.791	2.112	10.02	7.24%	1.56%	7.41%	4.742
028.42	Manganese, ICP, Open vessel (ppm)	21	19	141.0	15.77	10.30	3.058	10.74	7.15%	2.12%	7.46%	3.514
028.43	Manganese, ICP, Microwave (ppm)	28	26	140.9	9.545	9.133	2.317	9.423	6.46%	1.64%	6.66%	4.067
031.01	Phosphorus, Photometric (%)	35	31	0.7047	0.0331	0.0214	0.0098	0.0235	3.01%	1.38%	3.31%	2.407
031.41	Phosphorus, ICP, Dry ash (%)	19	18	0.7165	0.0249	0.0190	0.0154	0.0245	2.66%	2.16%	3.43%	1.589
031.42	Phosphorus, ICP, Open vessel (%)	21	19	0.7285	0.0733	0.0403	0.0177	0.0440	5.41%	2.38%	5.91%	2.484
031.43	Phosphorus, ICP, Microwave (%)	31	28	0.7226	0.0473	0.0379	0.0107	0.0394	5.24%	1.49%	5.45%	3.663
032.31	Potassium, AAS, Dry ash (%)	9	9	1.152	0.0898	0.0881	0.0248	0.0915	7.64%	2.15%	7.94%	3.688
032.41	Potassium, ICP, Dry ash (%)	17	16	1.194	0.0709	0.0481	0.0241	0.0537	4.07%	2.04%	4.55%	2.233
032.42	Potassium, ICP, Open vessel (%)	19	18	1.192	0.1215	0.1191	0.0336	0.1238	9.94%	2.80%	10.33%	3.689
032.43	Potassium, ICP, Microwave (%)	31	29	1.183	0.1015	0.0992	0.0234	0.1019	8.36%	1.97%	8.59%	4.351
032.99	Potassium, Miscellaneous (%)	5	5	1.168	0.0523	0.0515	0.0129	0.0531	4.41%	1.11%	4.55%	4.112
033.00	Salt as chloride, Sol Cl (%)	15	12	1.018	0.1249	0.0887	0.0100	0.0892	8.50%	0.96%	8.56%	8.901
033.01	Salt as chloride, Poten Cl (%)	30	27	1.095	0.0307	0.0262	0.0128	0.0292	2.39%	1.16%	2.66%	2.281
033.99	Salt, Miscellaneous (%)	9	8	1.084	0.0223	0.0228	0.0095	0.0247	2.11%	0.88%	2.28%	2.603
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	8	8	1.125	0.1705	0.1626	0.0724	0.1780	14.46%	6.44%	15.83%	2.457
035.31	Sodium, AAS, Dry ash (%)	9	9	0.4122	0.0443	0.0436	0.0111	0.0450	10.58%	2.69%	10.92%	4.062
035.41	Sodium, ICP, Dry ash (%)	18	17	0.4028	0.0200	0.0130	0.0119	0.0177	3.21%	2.94%	4.35%	1.482
035.42	Sodium, ICP, Open vessel (%)	18	16	0.4079	0.0260	0.0243	0.0097	0.0262	5.98%	2.40%	6.45%	2.684
035.43	Sodium, ICP, Microwave (%)	27	24	0.4173	0.0446	0.0408	0.0040	0.0410	9.86%	0.96%	9.90%	10.34

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
036.04	Sulfur, LECO (%)	6	6	0.3384	0.0307	0.0298	0.0103	0.0315	8.80%	3.05%	9.31%	3.055
036.42	Sulfur, ICP, Open vessel (%)	20	18	0.3193	0.0640	0.0257	0.0090	0.0272	7.69%	2.70%	8.15%	3.024
036.43	Sulfur, ICP, Microwave (%)	19	18	0.3430	0.0254	0.0196	0.0087	0.0215	5.67%	2.51%	6.19%	2.472
037.31	Zinc, AAS, Dry ash (ppm)	9	7	233.6	18.73	11.49	2.549	11.77	5.04%	1.12%	5.17%	4.617
037.41	Zinc, ICP, Dry ash (ppm)	16	15	223.5	13.10	9.260	6.266	11.18	4.18%	2.83%	5.05%	1.785
037.42	Zinc, ICP, Open vessel (ppm)	20	19	229.4	24.83	18.03	7.703	19.61	7.73%	3.30%	8.41%	2.546
037.43	Zinc, ICP, Microwave (ppm)	29	28	233.8	16.93	16.58	4.801	17.26	7.09%	2.05%	7.38%	3.596
038.43	Molybdenum, ICP, Microwave (ppm)	7	6	2.437	0.4258	0.4201	0.0641	0.4250	17.73%	2.71%	17.94%	6.629
038.53	Molybdenum, ICP-MS, Microwave (ppm)	5	5	2.436	0.0671	0.0564	0.0516	0.0764	2.31%	2.12%	3.14%	1.481
106.02	Vitamin A, LC (KU / kg)	9	9	11.13	3.168	3.022	1.342	3.307	27.16%	12.06%	29.72%	2.465
109.02	Vitamin E, LC (IU / kg)	10	10	63.15	11.43	10.96	4.568	11.88	17.36%	7.23%	18.81%	2.600
120.00	Alanine, Post-col Ninhydrin Der (%)	16	15	0.7525	0.0462	0.0439	0.0077	0.0446	5.81%	1.02%	5.90%	5.782
120.05	Alanine, Pre-col AQC Der (%)	9	9	0.7474	0.0501	0.0485	0.0181	0.0518	6.49%	2.43%	6.92%	2.855
121.00	Arginine, Post-col Ninhydrin Der (%)	16	15	1.159	0.0444	0.0399	0.0140	0.0423	3.43%	1.21%	3.64%	3.016
121.05	Arginine, Pre-col AQC Der (%)	9	9	1.168	0.0779	0.0758	0.0254	0.0799	6.49%	2.18%	6.85%	3.146
122.00	Aspartic, Post-col Ninhydrin Der (%)	16	14	1.275	0.0468	0.0312	0.0085	0.0324	2.43%	0.66%	2.52%	3.801
122.05	Aspartic, Pre-col AQC Der (%)	9	9	1.278	0.0628	0.0623	0.0114	0.0633	4.88%	0.89%	4.96%	5.563
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	16	14	0.2987	0.0141	0.0106	0.0039	0.0113	3.52%	1.29%	3.75%	2.897
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	8	8	0.2689	0.0399	0.0395	0.0080	0.0403	14.69%	2.98%	14.99%	5.029
125.00	Glutamic, Post-col Ninhydrin Der (%)	16	14	2.968	0.1061	0.0991	0.0219	0.1015	3.33%	0.73%	3.41%	4.641
125.05	Glutamic, Pre-col AQC Der (%)	9	8	3.011	0.1819	0.1157	0.0522	0.1269	3.90%	1.76%	4.28%	2.432
126.00	Glycine, Post-col Ninhydrin Der (%)	16	15	0.8413	0.0524	0.0308	0.0074	0.0317	3.71%	0.90%	3.82%	4.259
126.05	Glycine, Pre-col AQC Der (%)	9	9	0.8624	0.0519	0.0507	0.0152	0.0530	5.88%	1.77%	6.14%	3.479
127.00	Histidine, Post-col Ninhydrin Der (%)	16	15	0.4127	0.0247	0.0213	0.0073	0.0225	5.21%	1.79%	5.51%	3.078
127.05	Histidine, Pre-col AQC Der (%)	9	8	0.4343	0.0622	0.0637	0.0065	0.0641	14.49%	1.48%	14.56%	9.823
128.00	Isoleucine, Post-col Ninhydrin Der (%)	16	15	0.5203	0.0437	0.0428	0.0124	0.0446	8.23%	2.39%	8.57%	3.593
128.05	Isoleucine, Pre-col AQC Der (%)	9	8	0.5480	0.0476	0.0291	0.0084	0.0303	5.19%	1.49%	5.40%	3.618
129.00	Leucine, Post-col Ninhydrin Der (%)	16	14	1.071	0.0481	0.0472	0.0060	0.0476	4.43%	0.56%	4.46%	7.953
129.05	Leucine, Pre-col AQC Der (%)	9	8	1.079	0.0644	0.0595	0.0108	0.0605	5.46%	0.99%	5.55%	5.628
130.00	L-Lysine, Post-col Ninhydrin Der (%)	16	15	0.6772	0.0271	0.0268	0.0063	0.0275	3.95%	0.92%	4.06%	4.389
130.05	L-Lysine, Pre-col AQC Der (%)	9	8	0.6608	0.0293	0.0284	0.0099	0.0301	4.30%	1.50%	4.56%	3.046
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	16	15	0.2345	0.0272	0.0172	0.0054	0.0180	7.16%	2.27%	7.51%	3.316
131.05	Methionine, PAO Pre-col AQC Der (%)	9	8	0.2289	0.0437	0.0465	0.0055	0.0468	20.35%	2.40%	20.49%	8.553
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	16	15	0.7313	0.0447	0.0233	0.0122	0.0263	3.14%	1.65%	3.55%	2.153
132.05	Phenylalanine, Pre-col AQC Der (%)	9	8	0.7417	0.0540	0.0568	0.0060	0.0571	7.69%	0.82%	7.73%	9.475
133.00	Proline, Post-col Ninhydrin Der (%)	16	14	0.9685	0.0863	0.0363	0.0156	0.0395	3.82%	1.65%	4.16%	2.528
133.05	Proline, Pre-col AQC Der (%)	9	8	0.9454	0.0602	0.0598	0.0099	0.0606	6.32%	1.05%	6.41%	6.090
134.00	Serine, Post-col Ninhydrin Der (%)	16	14	0.7444	0.0451	0.0315	0.0068	0.0322	4.18%	0.91%	4.28%	4.715
134.05	Serine, Pre-col AQC Der (%)	9	9	0.7360	0.0852	0.0849	0.0101	0.0855	11.53%	1.38%	11.61%	8.427
135.00	Threonine, Post-col Ninhydrin Der (%)	16	16	0.5433	0.0221	0.0217	0.0062	0.0225	3.99%	1.14%	4.15%	3.652
135.05	Threonine, Pre-col AQC Der (%)	9	8	0.5381	0.0560	0.0556	0.0099	0.0565	10.33%	1.83%	10.49%	5.728
136.00	Tryptophan, Alka-Hydrol Post-col Ninhydrin Der (%)	6	5	0.2518	0.1054	0.0383	0.0076	0.0390	18.13%	3.61%	18.49%	5.114
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	5	5	0.2162	0.0097	0.0096	0.0017	0.0098	4.45%	0.77%	4.52%	5.846
137.00	Tyrosine, Post-col Ninhydrin Der (%)	12	12	0.4942	0.0353	0.0337	0.0146	0.0367	6.82%	2.95%	7.43%	2.520
137.05	Tyrosine, Pre-col AQC Der (%)	9	9	0.4964	0.0551	0.0539	0.0159	0.0562	10.87%	3.21%	11.33%	3.531
138.00	Valine, Post-col Ninhydrin Der (%)	16	14	0.7178	0.0381	0.0357	0.0104	0.0372	4.95%	1.43%	5.15%	3.594

Test Material Code # 202230

Issue Date : 11/30/2022

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
138.05	Valine, Pre-col AQC Der (%)	9	8	0.7193	0.0293	0.0290	0.0164	0.0334	4.03%	2.28%	4.64%	2.031
361.05	Lasalocid Sodium, LC-MS/MS (ppm)	5	5	1.619	0.3005	0.2630	0.2056	0.3338	16.25%	12.70%	20.62%	1.624
365.05	Monensin, LC-MS/MS (ppm)	8	8	4.101	0.5777	0.5214	0.3517	0.6289	12.71%	8.58%	15.34%	1.788
400.01	Water Activity, Aqualab chilled mirror (Units)	12	10	0.5234	0.0363	0.0373	0.0011	0.0373	7.09%	0.20%	7.09%	34.68
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	6	5	4.504	0.8508	0.9465	0.1349	0.9560	21.01%	2.99%	21.22%	7.088
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	5	5	4.139	1.049	1.047	0.0797	1.050	25.30%	1.92%	25.37%	13.18

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