



AAFCO
Association of American Feed Control Officials



Animal Feed Scheme
Swine Finisher
Test Material Code # 202332

Method Summary Report
(Precision Report Follows)

Labs Reporting: 152
Methods Reported: 350
Issue Date : 01/31/2024

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO #fp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
000.02	Urea, As protein, Colorimetric (%)	1	1	0.2250							
001.07	Loss on Drying, 104°C 3 hr, in malt (%)	44	43	10.03	0.5750	10.10	0.3185	0.0607	3.15%	0.1561	2.82%
001.99	Loss on Drying, Miscellaneous (%)	17	16	9.808	0.5736	9.880	0.4769	0.1490	4.83%	0.0868	2.83%
001.00	Loss on Drying, Vac 95°C 5 hr (%)	5	3	10.26	0.0059	10.26	0.0059	0.0034	0.06%	0.0279	2.82%
001.03	Loss on Drying, Low temp. methods (%)	3	3	10.26	0.1970	10.26	0.1970	0.1137	1.92%	0.2000	2.82%
001.05	Loss on Drying, LECO (%)	1	1	10.02							
001.08	Loss on Drying, 102°C 16 hr, in meat (%)	1	1	10.58							
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	101	99	15.40	0.9811	15.39	0.2983	0.0375	1.94%	0.1361	2.55%
002.05	Protein, Crude, Copper, Boric Acid (%)	25	24	15.23	0.2881	15.22	0.2573	0.0656	1.69%	0.1099	2.56%
002.01	Protein, Crude, Auto Kjel-Foss (%)	14	13	15.19	0.2769	15.20	0.2859	0.0991	1.88%	0.1528	2.56%
002.11	Protein, Crude, NIR (%)	3	3	18.26	4.972	18.26	4.972	2.870	27.23%	0.0767	2.34%
002.00	Protein, Crude, Crude (%)	2	2	15.90	0.8485						
002.08	Protein, Crude, Cu/Ti (%)	2	2	15.25	0.2191						
002.02	Protein, Crude, Semiauto Autoanalyzer (%)	1	1	15.18							
002.04	Protein, Crude, Copper Catalyst (%)	1	1	14.80							
003.14	Fat, Crude, Ankom (%)	53	51	2.148	0.2612	2.156	0.2290	0.0401	10.62%	0.0871	3.56%
003.10	Fat, Crude, Randall, Pet Ether (%)	26	25	2.194	0.1720	2.189	0.1593	0.0398	7.27%	0.0743	3.55%
003.06	Fat, Crude, Pet Ether (%)	14	13	2.392	0.2601	2.351	0.1725	0.0598	7.34%	0.1553	3.52%
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	9	9	2.302	0.3714	2.278	0.1974	0.0822	8.66%	0.0756	3.53%
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	8	8	2.324	0.2483	2.324	0.2816	0.1244	12.12%	0.0770	3.52%
003.13	Fat, Crude, Randall, Hexane Ext. (%)	5	5	2.290	0.1751	2.290	0.1751	0.0783	7.65%	0.0426	3.53%
003.01	Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%)	3	3	2.105	0.3989	2.105	0.3989	0.2303	18.95%	0.0527	3.58%
003.11	Fat, Crude, NIR (%)	3	3	3.458	1.390	3.458	1.390	0.8026	40.20%	0.1033	3.32%
003.12	Fat, Crude, Hexane Ext (%)	4	3	2.052	0.3317	2.052	0.3317	0.1915	16.17%	0.1033	3.59%
003.99	Fat, Crude, Miscellaneous (%)	1	1	3.645							
004.07	Fiber, Crude, ANKOM (%)	68	66	2.878	0.4146	2.847	0.3252	0.0500	11.42%	0.1369	3.42%
004.06	Fiber, Crude, Fibertec (%)	15	15	2.911	0.1871	2.894	0.1310	0.0423	4.53%	0.1420	3.41%
004.00	Fiber, Crude, Asbestos Free (%)	9	9	3.142	0.3295	3.141	0.3716	0.1548	11.83%	0.1328	3.37%
004.03	Fiber, Crude, Fritted Glass (%)	4	4	3.041	0.6191	3.041	0.6191	0.3096	20.36%	0.1825	3.38%

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004.11	Fiber, Crude, NIR (%)	2	2	3.131	1.200						
004.99	Fiber, Crude, Miscellaneous (%)	2	2	2.996	0.1142						
005.00	Ash, 2h @ 600°C (%)	87	85	4.382	0.5446	4.331	0.1739	0.0236	4.02%	0.0689	3.21%
005.05	Ash, 3h @ 550°C (%)	21	21	4.497	0.1609	4.510	0.1481	0.0404	3.28%	0.0618	3.19%
005.99	Ash, Miscellaneous (%)	9	9	4.399	0.2273	4.402	0.2518	0.1049	5.72%	0.0854	3.20%
005.11	Ash, NIR (%)	3	3	5.423	2.643	5.423	2.643	1.526	48.73%	0.0317	3.10%
005.02	Ash, LECO (%)	1	1	4.129							
005.03	Ash, Microwave furnace (%)	1	1	3.850							
006.99	Total Sugars, Miscellaneous (%)	8	8	5.053	3.447	4.114	1.170	0.5169	28.43%	0.2450	3.23%
006.00	Total Sugars, As sucrose (%)	4	4	4.497	0.5146	4.497	0.5146	0.2573	11.44%	0.3717	3.19%
006.01	Total Sugars, Mod. Fehling Soln (%)	1	1	5.925							
006.03	Total Sugars, Invert w/o Invrns (%)	1	1	4.270							
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	40	38	4.221	0.9764	4.084	0.3978	0.0807	9.74%	0.1451	3.24%
008.02	Fiber, Acid Detergent, Crucible (%)	11	11	3.987	0.4197	4.031	0.3608	0.1360	8.95%	0.1601	3.24%
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	36	35	10.94	1.047	10.87	0.7456	0.1575	6.86%	0.2457	2.79%
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	10	9	11.43	1.215	11.43	1.378	0.5741	12.06%	0.3300	2.77%
009.99	Fiber, Neutral Detergent, Miscellaneous (%)	1	1	10.69							
010.99	Moisture, Miscellaneous (%)	12	12	10.14	0.5029	10.16	0.3739	0.1349	3.68%	0.1850	2.82%
010.11	Moisture, NIR (%)	3	3	10.66	0.5532	10.66	0.5532	0.3194	5.19%	0.0450	2.80%
010.03	Moisture, Karl-Fischer (%)	2	2	10.18	0.3606						
011.01	Loss on Drying, HT, 135°C 2hr (%)	65	62	10.76	0.4338	10.79	0.3866	0.0614	3.58%	0.1136	2.80%
011.02	Loss on Drying, HT, 130°C for 2 hours (%)	3	3	11.02	0.3563	11.02	0.3563	0.2519	3.23%	0.1133	2.79%
011.99	Loss on Drying, HT, High Temp. Methods Miscellaneous (%)	2	2	10.40	0.2595						
012.00	Starch, Polarimetric (Ewers) (%)	13	13	46.85	0.9555	46.88	1.033	0.3580	2.20%	0.4359	1.46%
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	11	11	44.49	2.811	44.33	2.039	0.7683	4.60%	1.564	1.50%
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	7	7	44.75	1.199	44.75	1.360	0.6425	3.04%	0.6202	1.49%
012.11	Starch, NIR (%)	2	2	44.28	0.6364						
012.99	Starch, Miscellaneous (%)	2	2	46.01	2.959						
012.03	Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)	1	1	40.65							
012.20	Starch, Dietary, Enzymatic-Colorimetric (%)	1	1	43.87							
013.00	Fat, Pretreat, Acid hydrolysis (%)	15	15	3.011	0.4466	3.020	0.4865	0.1570	16.11%	0.1435	3.39%
013.02	Fat, Pretreat, Mojonnier, Bak Ext, Acid hydrolysis (%)	14	14	3.414	0.4622	3.412	0.5199	0.1737	15.24%	0.0891	3.33%
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	9	9	2.819	0.5570	2.819	0.6316	0.2632	22.40%	0.1309	3.42%
013.10	Fat, Pretreat, Soxtec-Acid Hydrolysis (%)	4	4	2.808	0.2411	2.808	0.2411	0.1206	8.59%	0.0488	3.42%
013.08	Fat, Pretreat, Roese-Gottlieb Modified, Alkaline Hydrolysis (%)	1	1	1.495							
015.43	Aluminum, ICP, Microwave (ppm)	6	6	38.34	13.10	38.34	14.85	7.579	38.73%	2.155	9.24%
015.41	Aluminum, ICP, Dry ash (ppm)	4	4	33.38	3.955	33.38	3.955	1.977	11.85%	2.055	9.43%
015.53	Aluminum, ICP-MS, Microwave (ppm)	3	3	48.23	11.61	48.23	11.61	8.210	24.07%	9.393	8.93%
015.42	Aluminum, ICP, Open vessel (ppm)	2	2	14.50	2.832						
017.43	Boron, ICP, Microwave (ppm)	6	6	6.999	0.9056	6.999	1.027	0.5240	14.67%	0.2031	11.94%

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017.41	Boron, ICP, Dry ash (ppm)	5	4	7.262	0.3774	7.262	0.3774	0.1887	5.20%	0.0825	11.87%
017.42	Boron, ICP, Open vessel (ppm)	4	4	7.506	0.8993	7.506	0.8993	0.4497	11.98%	0.6420	11.81%
017.53	Boron, ICP-MS, Microwave (ppm)	2	2	8.395	1.603						
019.43	Calcium, ICP, Microwave (%)	22	22	0.7051	0.0392	0.7026	0.0351	0.0094	4.99%	0.0145	4.22%
019.41	Calcium, ICP, Dry ash (%)	21	20	0.7025	0.0291	0.7020	0.0318	0.0089	4.53%	0.0182	4.22%
019.42	Calcium, ICP, Open vessel (%)	18	18	0.7243	0.0449	0.7234	0.0437	0.0129	6.05%	0.0221	4.20%
019.31	Calcium, AAS, Dry ash (%)	17	16	0.7041	0.0441	0.7017	0.0389	0.0121	5.54%	0.0168	4.22%
019.08	Calcium, EDTA (%)	11	11	0.8404	0.3523	0.7534	0.1099	0.0414	14.58%	0.0218	4.17%
019.00	Calcium, Ox-Mn04 Vol. (%)	5	5	0.7209	0.0725	0.7209	0.0725	0.0324	10.06%	0.0316	4.20%
019.99	Calcium, Miscellaneous (%)	5	5	0.6710	0.0893	0.6710	0.0893	0.0399	13.30%	0.0180	4.25%
019.53	Calcium, ICP-MS, Microwave (%)	4	4	0.7015	0.0195	0.7015	0.0195	0.0098	2.78%	0.0125	4.22%
019.52	Calcium, ICP-MS, Open vessel (%)	3	3	0.7301	0.0181	0.7301	0.0181	0.0104	2.47%	0.0139	4.19%
019.44	Calcium, ICP, Dry ash (%)	2	2	0.7066	0.0065						
019.09	Calcium, Ion-selective electrode (%)	1	1	0.6855							
019.32	Calcium, AAS, Open vessel (%)	1	1	0.7100							
021.41	Cobalt, ICP, Dry ash (ppm)	5	4	0.6429	0.3113	0.6429	0.3113	0.1556	48.42%	0.0188	17.10%
021.43	Cobalt, ICP, Microwave (ppm)	6	3	0.6099	0.0567	0.6099	0.0567	0.0409	9.30%	0.0810	17.23%
021.52	Cobalt, ICP-MS, Open vessel (ppm)	3	3	0.2664	0.0360	0.2664	0.0360	0.0208	13.49%	0.0199	19.52%
021.53	Cobalt, ICP-MS, Microwave (ppm)	4	3	0.4771	0.0613	0.4771	0.0613	0.0354	12.85%	0.0297	17.88%
021.42	Cobalt, ICP, Open vessel (ppm)	3	2	0.3908	0.2252	0.3908	0.2252			0.1525	18.43%
021.31	Cobalt, AAS, Dry ash (ppm)	1	1	0.4004							
022.43	Copper, ICP, Microwave (ppm)	24	23	13.41	1.300	13.42	1.452	0.3784	10.82%	0.5300	10.82%
022.42	Copper, ICP, Open vessel (ppm)	20	19	14.82	0.9079	14.76	0.8739	0.2506	5.92%	0.8337	10.67%
022.41	Copper, ICP, Dry ash (ppm)	16	16	13.09	1.289	13.14	1.359	0.4248	10.35%	1.089	10.86%
022.31	Copper, AAS, Dry ash (ppm)	7	6	15.40	2.132	15.40	2.418	1.234	15.70%	1.604	10.60%
022.53	Copper, ICP-MS, Microwave (ppm)	5	4	12.66	1.366	12.66	1.366	0.6831	10.79%	0.7698	10.92%
022.44	Copper, ICP, Dry ash (ppm)	3	3	13.69	0.2861	13.69	0.2861	0.1652	2.09%	0.1860	10.79%
022.35	Copper, AAS, Dry ash (ppm)	2	2	11.50	5.689						
022.52	Copper, ICP-MS, Open vessel (ppm)	2	2	15.01	0.0884						
022.99	Copper, Miscellaneous (ppm)	2	2	12.50	1.414						
022.32	Copper, AAS, Open vessel (ppm)	1	1	11.70							
022.33	Copper, AAS, Microwave (ppm)	1	1	14.81							
024.52	Iodine, ICP-MS, Open vessel (ppm)	1	1	0.7065							
025.43	Iron, ICP, Microwave (ppm)	22	22	182.1	10.55	182.3	11.53	3.073	6.33%	7.096	7.31%
025.41	Iron, ICP, Dry ash (ppm)	19	19	178.2	14.91	179.0	15.06	4.319	8.41%	9.127	7.33%
025.42	Iron, ICP, Open vessel (ppm)	18	18	179.7	11.59	179.1	11.80	3.477	6.59%	9.353	7.33%
025.31	Iron, AAS, Dry ash (ppm)	9	9	207.0	33.23	202.5	26.10	10.87	12.89%	12.72	7.19%
025.53	Iron, ICP-MS, Microwave (ppm)	4	4	180.4	11.31	180.4	11.31	5.653	6.27%	11.40	7.32%
025.52	Iron, ICP-MS, Open vessel (ppm)	2	2	159.1	11.05						
025.99	Iron, Miscellaneous (ppm)	2	2	176.0	3.536						

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025.33	Iron, AAS, Microwave (ppm)	1	1	152.8							
027.43	Magnesium, ICP, Microwave (%)	19	19	0.1783	0.0126	0.1790	0.0116	0.0033	6.50%	0.0053	5.18%
027.42	Magnesium, ICP, Open vessel (%)	19	18	0.1832	0.0125	0.1823	0.0117	0.0035	6.42%	0.0068	5.17%
027.41	Magnesium, ICP, Dry ash (%)	18	17	0.1770	0.0100	0.1770	0.0111	0.0034	6.30%	0.0052	5.19%
027.31	Magnesium, AAS, Dry ash (%)	8	7	0.1760	0.0090	0.1760	0.0102	0.0048	5.78%	0.0051	5.19%
027.52	Magnesium, ICP-MS, Open vessel (%)	3	3	0.1990	0.0091	0.1990	0.0091	0.0053	4.59%	0.0041	5.10%
027.53	Magnesium, ICP-MS, Microwave (%)	4	3	0.1740	0.0078	0.1740	0.0078	0.0045	4.47%	0.0060	5.20%
027.99	Magnesium, Miscellaneous (%)	3	3	0.1833	0.0029	0.1833	0.0029	0.0017	1.58%	0.0100	5.16%
027.44	Magnesium, ICP, Dry ash (%)	2	2	0.1787	0.0012						
027.32	Magnesium, AAS, Open vessel (%)	1	1	0.1750							
027.33	Magnesium, AAS, Microwave (%)	1	1	0.1925							
028.43	Manganese, ICP, Microwave (ppm)	22	22	57.38	2.969	57.54	2.932	0.7813	5.09%	2.199	8.69%
028.42	Manganese, ICP, Open vessel (ppm)	20	19	58.78	3.632	58.76	3.990	1.144	6.79%	2.524	8.67%
028.41	Manganese, ICP, Dry ash (ppm)	16	16	56.82	4.846	56.96	4.244	1.326	7.45%	2.373	8.71%
028.31	Manganese, AAS, Dry ash (ppm)	9	9	57.92	3.361	58.08	3.436	1.432	5.92%	1.072	8.68%
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	58.34	1.613	58.34	1.613	0.7214	2.77%	2.320	8.67%
028.44	Manganese, ICP, Dry ash (ppm)	3	3	53.24	6.648	53.24	6.648	3.838	12.49%	2.320	8.79%
028.52	Manganese, ICP-MS, Open vessel (ppm)	2	2	63.69	4.610						
028.99	Manganese, Miscellaneous (ppm)	2	2	55.25	3.889						
028.00	Manganese, Color (ppm)	1	1	397.0							
028.32	Manganese, AAS, Open vessel (ppm)	1	1	65.50							
028.33	Manganese, AAS, Microwave (ppm)	1	1	56.12							
030.01	Nitrate, Ion-selective electrode (%)	1	1	0.0005							
031.01	Phosphorus, Photometric (%)	31	29	0.4370	0.0195	0.4367	0.0209	0.0048	4.78%	0.0109	4.53%
031.43	Phosphorus, ICP, Microwave (%)	23	22	0.4418	0.0228	0.4411	0.0244	0.0065	5.53%	0.0090	4.52%
031.41	Phosphorus, ICP, Dry ash (%)	20	20	0.4422	0.0206	0.4427	0.0208	0.0058	4.69%	0.0122	4.52%
031.42	Phosphorus, ICP, Open vessel (%)	19	18	0.4517	0.0234	0.4508	0.0239	0.0070	5.29%	0.0139	4.51%
031.99	Phosphorus, Miscellaneous (%)	5	5	0.3960	0.0386	0.3960	0.0386	0.0173	9.76%	0.0100	4.60%
031.44	Phosphorus, ICP, Dry ash (%)	3	3	0.4444	0.0142	0.4444	0.0142	0.0082	3.20%	0.0109	4.52%
031.53	Phosphorus, ICP-MS, Microwave (%)	4	3	0.4313	0.0078	0.4313	0.0078	0.0045	1.80%	0.0092	4.54%
031.03	Phosphorus, Autoanalyzer (%)	2	2	0.4433	0.0096						
031.52	Phosphorus, ICP-MS, Open vessel (%)	2	2	0.5106	0.0845						
031.06	Phosphorus, Hach Method (%)	1	1	0.4800							
032.43	Potassium, ICP, Microwave (%)	21	21	0.7377	0.0443	0.7382	0.0301	0.0082	4.08%	0.0100	4.19%
032.41	Potassium, ICP, Dry ash (%)	19	19	0.7174	0.0402	0.7205	0.0379	0.0109	5.26%	0.0212	4.20%
032.42	Potassium, ICP, Open vessel (%)	18	17	0.7519	0.0715	0.7550	0.0714	0.0216	9.46%	0.0225	4.17%
032.31	Potassium, AAS, Dry ash (%)	7	7	0.7116	0.0478	0.7116	0.0542	0.0256	7.62%	0.0061	4.21%
032.99	Potassium, Miscellaneous (%)	4	4	0.7027	0.0468	0.7027	0.0468	0.0234	6.66%	0.0142	4.22%
032.52	Potassium, ICP-MS, Open vessel (%)	3	3	0.7431	0.0204	0.7431	0.0204	0.0118	2.74%	0.0169	4.18%
032.53	Potassium, ICP-MS, Microwave (%)	4	3	0.7597	0.0306	0.7597	0.0306	0.0177	4.03%	0.0228	4.17%

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032.44	Potassium, ICP, Dry ash (%)	2	2	0.7649	0.0197						
032.32	Potassium, AAS, Open vessel (%)	1	1	0.7350							
033.01	Salt as chloride, Poten Cl (%)	24	23	0.4863	0.0227	0.4839	0.0107	0.0028	2.22%	0.0080	4.46%
033.00	Salt as chloride, Sol Cl (%)	14	14	0.4862	0.0677	0.4767	0.0513	0.0171	10.77%	0.0354	4.47%
033.99	Salt, Miscellaneous (%)	8	8	0.5064	0.0749	0.5064	0.0850	0.0375	16.78%	0.0315	4.43%
033.03	Salt as chloride, Quantab (%)	4	4	0.4325	0.0263	0.4325	0.0263	0.0132	6.08%	0.0467	4.54%
033.05	Salt as chloride, Ion Sel Electrode (%)	3	3	0.5017	0.0881	0.5017	0.0881	0.0623	17.56%		4.44%
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	7	7	0.3595	0.0472	0.3719	0.0196	0.0092	5.26%	0.0459	18.56%
034.04	Selenium, Total (Se), AA, Hydride (ppm)	3	3	0.3041	0.0242	0.3041	0.0242	0.0140	7.96%	0.0383	19.14%
034.52	Selenium, Total (Se), ICP-MS, Open vessel (ppm)	3	3	0.5023	0.2861	0.5023	0.2861	0.1652	56.95%	0.0795	17.74%
034.41	Selenium, Total (Se), ICP, Dry ash (ppm)	2	2	0.3710	0.0417						
034.01	Selenium, Total (Se), Fluor (ppm)	1	1	0.3565							
034.42	Selenium, Total (Se), ICP, Open vessel (ppm)	1	1	0.5100							
034.43	Selenium, Total (Se), ICP, Microwave (ppm)	2	1	0.3745							
034.99	Selenium, Total (Se), Miscellaneous (ppm)	1	1	1.065							
035.41	Sodium, ICP, Dry ash (%)	21	21	0.2453	0.0111	0.2454	0.0118	0.0032	4.81%	0.0103	4.94%
035.43	Sodium, ICP, Microwave (%)	19	18	0.2470	0.0126	0.2467	0.0138	0.0041	5.58%	0.0053	4.94%
035.42	Sodium, ICP, Open vessel (%)	17	17	0.2466	0.0210	0.2478	0.0202	0.0061	8.15%	0.0076	4.93%
035.31	Sodium, AAS, Dry ash (%)	9	9	0.2497	0.0243	0.2477	0.0226	0.0094	9.11%	0.0151	4.93%
035.53	Sodium, ICP-MS, Microwave (%)	4	3	0.2453	0.0081	0.2453	0.0081				4.94%
035.99	Sodium, Miscellaneous (%)	3	3	0.2008	0.0508	0.2008	0.0508	0.0293	25.28%	0.0083	5.09%
035.05	Sodium, Flame Emission (%)	2	2	0.2403	0.0279						
035.52	Sodium, ICP-MS, Open vessel (%)	2	2	0.2597	0.0089						
035.32	Sodium, AAS, Open vessel (%)	1	1	0.2450							
036.42	Sulfur, ICP, Open vessel (%)	18	18	0.3077	0.0181	0.3083	0.0192	0.0057	6.24%	0.0135	4.77%
036.43	Sulfur, ICP, Microwave (%)	18	17	0.3269	0.0295	0.3267	0.0330	0.0100	10.10%	0.0072	4.73%
036.04	Sulfur, LECO (%)	5	5	0.3198	0.0129	0.3198	0.0129	0.0058	4.04%	0.0183	4.75%
036.99	Sulfur, Miscellaneous (%)	2	2	0.2275	0.0460						
036.00	Sulfur, Gravimetric (%)	1	1	0.2980							
036.52	Sulfur, ICP-MS, Open vessel (%)	1	1	0.3324							
037.43	Zinc, ICP, Microwave (ppm)	24	23	120.3	13.35	119.7	13.15	3.429	10.99%	3.160	7.79%
037.42	Zinc, ICP, Open vessel (ppm)	19	19	118.1	9.556	118.8	9.261	2.656	7.80%	7.146	7.79%
037.41	Zinc, ICP, Dry ash (ppm)	17	17	120.5	9.252	120.9	9.447	2.864	7.81%	3.843	7.77%
037.31	Zinc, AAS, Dry ash (ppm)	9	9	115.2	13.78	117.5	9.333	3.889	7.94%	2.100	7.81%
037.53	Zinc, ICP-MS, Microwave (ppm)	5	5	114.4	6.413	114.4	6.413	2.868	5.61%	6.278	7.84%
037.44	Zinc, ICP, Dry ash (ppm)	3	3	109.6	15.86	109.6	15.86	11.21	14.47%	1.375	7.89%
037.99	Zinc, Miscellaneous (ppm)	3	3	159.4	79.65	159.4	79.65	45.99	49.97%	2.000	7.46%
037.52	Zinc, ICP-MS, Open vessel (ppm)	2	2	114.7	21.68						
037.32	Zinc, AAS, Open vessel (ppm)	1	1	124.5							
037.33	Zinc, AAS, Microwave (ppm)	1	1	119.1							

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037.34	Zinc, AAS, Dry ash (ppm)	1	1	129.0							
038.43	Molybdenum, ICP, Microwave (ppm)	7	7	1.041	0.4138	1.035	0.4560	0.2154	44.05%	0.0890	15.91%
038.42	Molybdenum, ICP, Open vessel (ppm)	6	6	1.249	0.1011	1.249	0.1147	0.0585	9.18%	0.1208	15.47%
038.53	Molybdenum, ICP-MS, Microwave (ppm)	5	5	1.123	0.0496	1.123	0.0496	0.0222	4.41%	0.0439	15.72%
038.41	Molybdenum, ICP, Dry ash (ppm)	4	3	1.205	0.1439	1.205	0.1439	0.0831	11.94%	0.1305	15.55%
038.52	Molybdenum, ICP-MS, Open vessel (ppm)	3	3	1.036	0.0263	1.036	0.0263	0.0152	2.54%	0.0343	15.91%
040.53	Barium, ICP-MS, Microwave (ppm)	2	2	6.700	0.1631						
041.53	Vanadium, ICP-MS, Microwave (ppm)	2	2	0.1650	0.0056						
042.00	Chloride, Titrimetric (%)	6	6	0.3683	0.0718	0.3683	0.0814	0.0416	22.11%	0.0200	4.65%
042.01	Chloride, Ion-selective electrode (%)	1	1	0.3041							
042.99	Chloride, Miscellaneous (%)	1	1	0.3060							
101.99	Choline Chloride, Miscellaneous (ppm)	1	1	145.0							
102.01	Niacin, Microbiological (ppm)	1	1	60.10							
102.02	Niacin, LC (ppm)	1	1	26.05							
103.01	Pantothenic Acid, Microbiological (ppm)	1	1	16.70							
104.00	Riboflavin, Fluorometric (ppm)	1	1	4.615							
104.03	Riboflavin, LC (ppm)	1	1	3.580							
105.00	Thiamine, LC (ppm)	1	1	1.875							
105.01	Thiamine, Fluorometer (ppm)	1	1	4.500							
106.02	Vitamin A, LC (KU / kg)	4	2	1.112	0.1164	1.112	0.1164				
106.00	Vitamin A, Color (KU / kg)	1	1	0.9195							
106.01	Vitamin A, UV (KU / kg)	1	1	1.470							
107.00	Vitamin B12, Microbiological (ppb)	1	1	5.460							
108.02	Vitamin D3, LC (KU / kg)	3	2	0.4595	0.0050	0.4595	0.0050			0.0720	
109.02	Vitamin E, LC (IU / kg)	6	4	24.61	6.609	24.61	6.609	4.131	26.85%	0.8802	
111.00	Vitamin C, Phosphorylated, LC (ppm)	1		4.400							
112.01	Pyridoxine, LC (µg / g)	2	2	2.723	1.623						
113.01	Folic Acid, Micro (ppm)	1	1	0.8205							
113.02	Folic acid, LC (ppm)	1		0.1500							
114.01	Biotin, Microbiological (ppm)	1	1	0.1635							
114.99	Biotin, Miscellaneous (ppm)	1	1	0.1210							
115.00	Non Protein N (NPN), Urea + Am, Urease method (%)	1	1	0.1533							
120.00	Alanine, Post-col Ninhydrin Der (%)	13	13	0.7079	0.0265	0.7106	0.0157	0.0054	2.21%	0.0108	4.21%
120.05	Alanine, Pre-col AQC Der (%)	7	7	0.6494	0.1243	0.6646	0.1033	0.0488	15.55%	0.0292	4.25%
120.99	Alanine, Miscellaneous (%)	3	3	0.7133	0.0126	0.7133	0.0126	0.0073	1.76%	0.0350	4.21%
121.00	Arginine, Post-col Ninhydrin Der (%)	13	13	0.9067	0.0348	0.9095	0.0325	0.0113	3.57%	0.0132	4.06%
121.05	Arginine, Pre-col AQC Der (%)	7	7	0.9338	0.0399	0.9338	0.0453	0.0214	4.85%	0.0229	4.04%
121.99	Arginine, Miscellaneous (%)	3	3	0.8483	0.0722	0.8483	0.0722	0.0510	8.51%	0.0300	4.10%
122.00	Aspartic, Post-col Ninhydrin Der (%)	13	13	1.264	0.0493	1.269	0.0447	0.0155	3.52%	0.0105	3.86%
122.05	Aspartic, Pre-col AQC Der (%)	7	7	1.248	0.0951	1.265	0.0645	0.0305	5.10%	0.0715	3.86%

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122.99	Aspartic, Miscellaneous (%)	3	3	1.272	0.0388	1.272	0.0388	0.0224	3.05%	0.0450	3.86%
124.00	Cysteine/Cystine, PAO Post-col Ninhydry (%)	13	13	0.2670	0.0333	0.2713	0.0257	0.0089	9.46%	0.0067	4.87%
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	7	7	0.2615	0.0323	0.2616	0.0364	0.0172	13.92%	0.0103	4.89%
124.99	Cysteine/Cystine, Miscellaneous (%)	4	4	0.3109	0.0498	0.3109	0.0498	0.0249	16.03%	0.0124	4.77%
125.00	Glutamic, Post-col Ninhydry Der (%)	13	13	2.982	0.0860	2.974	0.0775	0.0269	2.60%	0.0201	3.39%
125.05	Glutamic, Pre-col AQC Der (%)	7	7	3.040	0.2565	2.992	0.1535	0.0725	5.13%	0.1323	3.39%
125.99	Glutamic, Miscellaneous (%)	3	3	2.802	0.1674	2.802	0.1674	0.0966	5.97%	0.0733	3.43%
126.00	Glycine, Post-col Ninhydry Der (%)	13	13	0.6331	0.0437	0.6438	0.0193	0.0067	3.00%	0.0093	4.27%
126.05	Glycine, Pre-col AQC Der (%)	7	7	0.6649	0.0531	0.6577	0.0424	0.0200	6.44%	0.0203	4.26%
126.99	Glycine, Miscellaneous (%)	3	3	0.5533	0.1631	0.5533	0.1631	0.1153	29.48%		4.37%
127.00	Histidine, Post-col Ninhydry Der (%)	13	13	0.3867	0.0187	0.3866	0.0119	0.0041	3.08%	0.0087	4.61%
127.05	Histidine, Pre-col AQC Der (%)	7	7	0.3900	0.0297	0.3900	0.0337	0.0159	8.63%	0.0207	4.61%
127.99	Histidine, Miscellaneous (%)	3	3	0.3850	0.0229	0.3850	0.0229	0.0162	5.95%		4.62%
128.00	Isoleucine, Post-col Ninhydry Der (%)	13	13	0.5624	0.0368	0.5636	0.0330	0.0114	5.85%	0.0115	4.36%
128.05	Isoleucine, Pre-col AQC Der (%)	7	7	0.5542	0.0423	0.5571	0.0410	0.0194	7.36%	0.0210	4.37%
128.99	Isoleucine, Miscellaneous (%)	3	3	0.5892	0.0184	0.5892	0.0184	0.0106	3.13%	0.0183	4.33%
129.00	Leucine, Post-col Ninhydry Der (%)	13	13	1.147	0.0370	1.152	0.0274	0.0095	2.38%	0.0168	3.92%
129.05	Leucine, Pre-col AQC Der (%)	7	7	1.146	0.0490	1.148	0.0488	0.0230	4.25%	0.0332	3.92%
129.99	Leucine, Miscellaneous (%)	3	3	1.241	0.1270	1.241	0.1270			0.0475	3.87%
130.00	L-Lysine, Post-col Ninhydry Der (%)	15	14	0.6798	0.0305	0.6808	0.0255	0.0085	3.74%	0.0103	4.24%
130.05	L-Lysine, Pre-col AQC Der (%)	7	7	0.6962	0.0561	0.6962	0.0636	0.0301	9.14%	0.0319	4.22%
130.99	L-Lysine, Miscellaneous (%)	4	4	0.7882	0.1210	0.7882	0.1210	0.0605	15.35%	0.0509	4.15%
131.00	Methionine, PAO Post-col Ninhydry Der (%)	13	13	0.2217	0.0180	0.2242	0.0145	0.0050	6.47%	0.0098	5.01%
131.05	Methionine, PAO Pre-col AQC Der (%)	7	7	0.2379	0.0238	0.2354	0.0211	0.0099	8.94%	0.0092	4.97%
131.99	Methionine, Miscellaneous (%)	4	4	0.2237	0.0202	0.2237	0.0202	0.0101	9.01%	0.0200	5.01%
132.00	Phenylalanine, Post-col Ninhydry Der (%)	13	12	0.6912	0.0200	0.6923	0.0164	0.0059	2.37%	0.0100	4.23%
132.05	Phenylalanine, Pre-col AQC Der (%)	7	7	0.6942	0.0364	0.6942	0.0412	0.0195	5.94%	0.0402	4.23%
132.99	Phenylalanine, Miscellaneous (%)	3	3	0.7100	0.0427	0.7100	0.0427	0.0247	6.02%	0.0300	4.21%
133.00	Proline, Post-col Ninhydry Der (%)	13	12	1.011	0.0245	1.011	0.0277	0.0100	2.74%	0.0074	3.99%
133.05	Proline, Pre-col AQC Der (%)	7	7	0.9856	0.0818	1.001	0.0519	0.0245	5.18%	0.0343	4.00%
133.99	Proline, Miscellaneous (%)	3	3	1.029	0.0227	1.029	0.0227	0.0131	2.20%	0.0183	3.98%
134.00	Serine, Post-col Ninhydry Der (%)	13	13	0.7048	0.0389	0.7098	0.0302	0.0105	4.25%	0.0104	4.21%
134.05	Serine, Pre-col AQC Der (%)	7	7	0.7483	0.0590	0.7500	0.0631	0.0298	8.41%	0.0298	4.18%
134.99	Serine, Miscellaneous (%)	3	3	0.7133	0.0104	0.7133	0.0104	0.0060	1.46%	0.0250	4.21%
135.00	Threonine, Post-col Ninhydry Der (%)	13	13	0.5256	0.0190	0.5250	0.0171	0.0059	3.25%	0.0106	4.41%
135.05	Threonine, Pre-col AQC Der (%)	7	7	0.5433	0.0408	0.5433	0.0462	0.0218	8.51%	0.0248	4.38%
135.99	Threonine, Miscellaneous (%)	4	3	0.5367	0.0076	0.5367	0.0076	0.0044	1.42%	0.0250	4.39%
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	6	0.2008	0.0070	0.2006	0.0076	0.0039	3.77%	0.0051	5.09%
136.05	Tryptophan, Pre-col AQC Der (%)	4	4	0.1853	0.0208	0.1853	0.0208	0.0104	11.24%	0.0087	5.15%
136.00	Tryptophan, Alka-Hydrol Post-col Ninhyd (%)	4	3	0.1670	0.0052	0.1670	0.0052	0.0037	3.11%		5.24%

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136.99	Tryptophan, Miscellaneous (%)	3	3	0.2756	0.1943	0.2756	0.1943	0.1374	70.52%	0.0072	4.86%
136.01	Tryptophan, Alka-Hydrol Rev Phase LC UV (%)	2	2	0.1998	0.0018						
137.00	Tyrosine, Post-col Ninhydrin Der (%)	10	9	0.4493	0.0264	0.4493	0.0300	0.0125	6.67%	0.0114	4.51%
137.05	Tyrosine, Pre-col AQC Der (%)	7	7	0.4758	0.0497	0.4758	0.0563	0.0266	11.84%	0.0249	4.47%
137.99	Tyrosine, Miscellaneous (%)	3	3	0.4717	0.0491	0.4717	0.0491	0.0347	10.40%		4.48%
138.00	Valine, Post-col Ninhydrin Der (%)	13	13	0.6690	0.0381	0.6720	0.0315	0.0109	4.68%	0.0176	4.25%
138.05	Valine, Pre-col AQC Der (%)	7	7	0.6932	0.0616	0.6945	0.0669	0.0316	9.63%	0.0254	4.23%
138.99	Valine, Miscellaneous (%)	3	3	0.7183	0.0029	0.7183	0.0029	0.0017	0.40%	0.0450	4.20%
139.00	Taurine, Post-col Ninhydrin Der (%)	2	2	0.1330	0.0806						
139.05	Taurine, Pre-col AQC Der (%)	2	1	0.0640							
139.99	Taurine, Miscellaneous (%)	2		0.0050							
160.99	Fructose, Miscellaneous (%)	2	2	0.2168	0.0895						
162.99	Glucose, Miscellaneous (%)	3	3	1.507	2.077	1.507	2.077	1.199	137.84%	0.0880	3.76%
163.99	Lactose, Miscellaneous (%)	2		0.0000							
164.99	Maltose, Miscellaneous (%)	1		0.1500							
165.99	Sucrose, Miscellaneous (%)	2	2	2.483	0.1096						
166.99	Raffinose, Miscellaneous (%)	2	2	0.3573	0.0456						
167.99	Stachyose, Miscellaneous (%)	2	2	1.174	0.5671						
365.02	Monensin, LC (ppm)	1		0.1000							
388.03	Tylosin, LC (ppm)	1		0.2000							
400.01	Water Activity, Aqualab chilled mirror (Units)	11	10	0.5016	0.0285	0.5055	0.0218	0.0086	4.32%	0.0028	
400.99	Water Activity, Miscellaneous (Units)	1	1	0.4965							
413.01	Starch, Resistant, Enzymatic-Colorimetric (%)	1	1	0.3500							
516.53	Arsenic, Total (As), ICP-MS, Microwave (ppm)	3	3	0.0504	0.0373	0.0504	0.0373	0.0264	74.02%	0.0122	22.00%
516.43	Arsenic, Total (As), ICP, Microwave (ppm)	1		20.00							
516.52	Arsenic, Total (As), ICP-MS, Open vessel (ppm)	2		0.0500							
518.53	Cadmium, ICP-MS, Microwave (ppm)	3	3	0.0540	0.0033	0.0540	0.0033	0.0019	6.06%	0.0015	22.00%
518.52	Cadmium, ICP-MS, Open vessel (ppm)	2	2	0.0533	0.0046						
518.34	Cadmium, AAS, Graphite furnace (ppm)	1	1	0.0522							
518.41	Cadmium, ICP, Dry ash (ppm)	1	1	0.0603							
518.43	Cadmium, ICP, Microwave (ppm)	2	1	0.0615							
518.99	Cadmium, Miscellaneous (ppm)	1	1	0.0569							
520.43	Chromium, Total (Cr), ICP, Microwave (ppm)	4	4	1.422	0.4351	1.422	0.4351	0.2176	30.59%	0.0702	15.17%
520.53	Chromium, Total (Cr), ICP-MS, Microwave (ppm)	4	4	1.673	0.0494	1.673	0.0494	0.0247	2.95%	0.0793	14.80%
520.42	Chromium, Total (Cr), ICP, Open vessel (ppm)	3	3	1.558	0.4333	1.558	0.4333	0.2501	27.81%	0.2127	14.96%
520.41	Chromium, Total (Cr), ICP, Dry ash (ppm)	1	1	0.9838							
520.51	Chromium, Total (Cr), ICP-MS, Dry ash (ppm)	1	1	0.7200							
520.52	Chromium, Total (Cr), ICP-MS, Open vessel (ppm)	1	1	0.7376							
526.53	Lead, ICP-MS, Microwave (ppm)	3	3	0.1128	0.0950	0.1128	0.0950	0.0548	84.19%	0.0092	22.00%
526.34	Lead, AAS, Graphite furnace (ppm)	1	1	0.0693							

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526.41	Lead, ICP, Dry ash (ppm)	1	1	0.0881							
526.43	Lead, ICP, Microwave (ppm)	2	1	0.0767							
526.52	Lead, ICP-MS, Open vessel (ppm)	2	1	0.0663							
529.99	Mercury, Miscellaneous (ppb)	4	1								
539.43	Nickel, ICP, Microwave (ppm)	3	3	1.954	0.6720	1.954	0.6720	0.3880	34.39%	0.0176	14.46%
539.53	Nickel, ICP-MS, Microwave (ppm)	3	3	1.794	0.0851	1.794	0.0851	0.0491	4.74%	0.0587	14.65%
539.41	Nickel, ICP, Dry ash (ppm)	1	1	1.497							
539.51	Nickel, ICP-MS, Dry ash (ppm)	1	1	1.400							
539.52	Nickel, ICP-MS, Open vessel (ppm)	1	1	1.418							
702.00	Butyric Acid (4:0), Miscellaneous GC (%)	1		0.0200							
704.00	Caproic Acid (6:0) , Miscellaneous GC (%)	1		0.0200							
706.99	Caprylic acid (8:0), Miscellaneous (%) (w/w)	2		0.0200							
708.99	Capric acid (10:0), Miscellaneous (%) (w/w)	2	1	0.1200							
710.99	Lauric Acid (12:0), Miscellaneous (%) (w/w)	4									
714.99	Myristic Acid (14:0) , Miscellaneous (%) (w/w)	3	2	0.1237	0.1644	0.1237	0.1644				5.48%
716.99	Palmitic Acid (16:0), Miscellaneous (%) (w/w)	3	3	6.136	9.738	6.136	9.738	6.885	158.69%	0.0283	3.04%
718.99	Palmitoleic Acid (9c-16:1), Miscellaneous (%) (w/w)	4	3	0.1067	0.1675	0.1067	0.1675				5.60%
720.99	Margaric acid (17:0), Miscellaneous (%) (w/w)	1		0.0200							
722.99	Stearic Acid (18:0), Miscellaneous (%) (w/w)	3	3	1.103	1.751	1.103	1.751	1.238	158.83%	0.0171	3.94%
724.99	Oleic Acid (9c-18:1), Miscellaneous (%) (w/w)	3	3	7.438	11.90	7.438	11.90	8.412	159.96%	0.0339	2.96%
726.99	Linoleic Acid (9c,12c-18:2), Miscellaneous (%) (w/w)	4	3	1.322	0.0366	1.322	0.0366	0.0259	2.76%		3.84%
728.99	alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (%) (w/w)	4	3	0.0969	0.0027	0.0969	0.0027	0.0019	2.75%	0.0028	5.68%
730.99	Arachidic Acid (20:0), Miscellaneous (%) (w/w)	3	2	0.1440	0.1923	0.1440	0.1923				5.35%
732.99	Gondoic Acid (11c-20:1), Miscellaneous (%) (w/w)	2	1	0.0125							
736.99	Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (%) (w/w)	2		0.0000							
740.99	Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (%) (w/w)	4	1								
742.99	Behenic Acid (22:0), Miscellaneous (%) (w/w)	3	2	0.1356	0.1830	0.1356	0.1830				5.40%
744.99	Erucic Acid (13c-22:1), Miscellaneous (%) (w/w)	3	1								
746.99	Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (%) (w/w)	4									
748.99	Lignoceric Acid (24:0), Miscellaneous (%) (w/w)	3	2	0.1290	0.1712	0.1290	0.1712				5.44%
750.99	Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (%) (w/w)	4									
752.99	Nervonic Acid (24:1) isomers, Miscellaneous (%) (w/w)	2		0.0050							
754.99	Total n-3 Polyunsaturated (Omega-3) Fatty Acids, Miscellaneous (%) (w/w)	3	3	0.0988	0.0020	0.0988	0.0020	0.0014	2.04%		5.67%
756.99	Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (%) (w/w)	3	3	1.339	0.0377	1.339	0.0377	0.0218	2.82%	0.0240	3.83%
758.99	Total Saturated Fatty Acids, Miscellaneous (%) (w/w)	2	2	11.38	15.14						
762.99	Total Monounsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	22.28							
764.99	Total cis Monounsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	0.6475							
766.99	Total Polyunsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	52.20							
768.99	Total cis Polyunsaturated Fatty Acids, Miscellaneous (%) (w/w)	1	1	1.401							
770.99	Total Fat (equivalent to NLEA), Miscellaneous (%) (w/w)	1	1	2.859							

Method Code	Analyte and Method	Total # Labs Submitting	# Labs in Robust Calcs	Raw Mean	Raw SD	Assigned Value Robust Mean	AAFCO ffp Robust SD	Uncertainty (U) Robust	% RSD - Robust	Average Range (Rob R-bar)	Thompson Horwitz %RSD
772.99	Total Fatty Acids, Miscellaneous (% (w/w))	2	2	2.674	0.0831						

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

Swine Finisher

Test Material Code # 202332

Methods Reported: 121

Labs Reporting: 152

Issue Date : 01/31/2024

Method Precision Report

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	10.03	0.5750	0.2630	0.1618	0.3088	2.61%	1.60%	3.06%	1.909
001.99	Loss on Drying, Miscellaneous (%)	17	15	9.808	0.5736	0.4520	0.0858	0.4600	4.57%	0.87%	4.65%	5.363
002.01	Protein, Crude, Auto Kjeh-Foss (%)	14	13	15.19	0.2769	0.2610	0.1308	0.2919	1.72%	0.86%	1.92%	2.232
002.05	Protein, Crude, Copper, Boric Acid (%)	25	22	15.23	0.2881	0.2207	0.0985	0.2417	1.45%	0.65%	1.59%	2.454
002.06	Protein, Crude, Combustion Nitrogen Analyzer (%)	101	94	15.40	0.9811	0.4598	0.1121	0.4732	2.99%	0.73%	3.07%	4.221
003.00	Fat, Crude, Diethyl Ether Ext., Direct (%)	8	8	2.324	0.2483	0.2443	0.0625	0.2522	10.51%	2.69%	10.85%	4.032
003.06	Fat, Crude, Pet Ether (%)	14	12	2.392	0.2601	0.1204	0.0912	0.1510	5.17%	3.91%	6.48%	1.656
003.09	Fat, Crude, Randall, Diethyl Ether Ext (%)	9	7	2.302	0.3714	0.0998	0.0565	0.1146	4.38%	2.48%	5.03%	2.029
003.10	Fat, Crude, Randall, Pet Ether (%)	26	23	2.194	0.1720	0.1383	0.0561	0.1492	6.38%	2.59%	6.88%	2.659
003.13	Fat, Crude, Randall, Hexane Ext. (%)	5	5	2.290	0.1751	0.1734	0.0343	0.1768	7.57%	1.50%	7.72%	5.152
003.14	Fat, Crude, Ankom (%)	53	49	2.148	0.2612	0.2486	0.0731	0.2592	11.49%	3.38%	11.98%	3.543
004.00	Fiber, Crude, Asbestos Free (%)	9	9	3.142	0.3295	0.3193	0.1152	0.3394	10.16%	3.67%	10.80%	2.947
004.06	Fiber, Crude, Fibertec (%)	15	14	2.911	0.1871	0.0983	0.0993	0.1398	3.42%	3.46%	4.86%	1.407
004.07	Fiber, Crude, ANKOM (%)	68	62	2.878	0.4146	0.2881	0.1250	0.3141	10.26%	4.45%	11.18%	2.513
005.00	Ash, 2h @ 600°C (%)	87	81	4.382	0.5446	0.1521	0.0716	0.1682	3.52%	1.66%	3.89%	2.347
005.05	Ash, 3h @ 550°C (%)	21	20	4.497	0.1609	0.1292	0.0574	0.1413	2.86%	1.27%	3.13%	2.463
005.99	Ash, Miscellaneous (%)	9	9	4.399	0.2273	0.2238	0.0561	0.2308	5.09%	1.28%	5.25%	4.111
006.99	Total Sugars, Miscellaneous (%)	8	7	5.053	3.447	0.8033	0.1378	0.8151	20.79%	3.57%	21.10%	5.914
008.02	Fiber, Acid Detergent, Crucible (%)	11	10	3.987	0.4197	0.2582	0.1417	0.2945	6.32%	3.47%	7.21%	2.079
008.08	Fiber, Acid Detergent, Filter Bag - ANKOM (%)	40	36	4.221	0.9764	0.4751	0.1349	0.4939	11.67%	3.31%	12.13%	3.662
009.07	Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)	10	9	11.43	1.215	1.200	0.2731	1.230	10.50%	2.39%	10.77%	4.505
009.09	Fiber, Neutral Detergent, Filter Bag - ANKOM (%)	36	33	10.94	1.047	0.7298	0.2086	0.7590	6.76%	1.93%	7.03%	3.638
010.99	Moisture, Miscellaneous (%)	12	11	10.14	0.5029	0.3464	0.1385	0.3731	3.38%	1.35%	3.64%	2.693
011.01	Loss on Drying, HT, 135°C 2hr (%)	65	59	10.76	0.4338	0.3960	0.1010	0.4087	3.67%	0.94%	3.79%	4.045
012.00	Starch, Polarimetric (Ewers) (%)	13	13	46.85	0.9555	0.9164	0.3827	0.9931	1.96%	0.82%	2.12%	2.595
012.01	Starch, Enzymatic-Colorimetric Method (Megazyme) (%)	11	10	44.49	2.811	1.353	2.002	2.417	3.09%	4.57%	5.51%	1.207
012.04	Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)	7	7	44.75	1.199	1.163	0.4112	1.234	2.60%	0.92%	2.76%	3.001
013.00	Fat, Pretreat, Acid hydrolysis (%)	15	14	3.011	0.4466	0.4215	0.1057	0.4345	14.20%	3.56%	14.64%	4.112
013.02	Fat, Pretreat, Mojonier, Bak Ext, Acid hydrolysis (%)	14	13	3.414	0.4622	0.4707	0.0762	0.4768	13.70%	2.22%	13.88%	6.257
013.13	Fat, Pretreat, Ankom- Acid Hydrolysis (%)	9	8	2.819	0.5570	0.5914	0.0973	0.5993	20.96%	3.45%	21.24%	6.161
015.43	Aluminum, ICP, Microwave (ppm)	6	6	38.34	13.10	13.00	2.201	13.19	33.91%	5.74%	34.39%	5.991
017.43	Boron, ICP, Microwave (ppm)	6	6	6.999	0.9056	0.8999	0.1424	0.9111	12.86%	2.03%	13.02%	6.397
019.00	Calcium, Ox-Mn04 Vol. (%)	5	5	0.7209	0.0725	0.0704	0.0247	0.0746	9.76%	3.43%	10.35%	3.016
019.08	Calcium, EDTA (%)	11	10	0.8404	0.3523	0.0837	0.0148	0.0850	11.35%	2.01%	11.53%	5.724
019.31	Calcium, AAS, Dry ash (%)	17	15	0.7041	0.0441	0.0329	0.0111	0.0348	4.73%	1.60%	4.99%	3.118
019.41	Calcium, ICP, Dry ash (%)	21	20	0.7025	0.0291	0.0273	0.0139	0.0307	3.89%	1.98%	4.37%	2.203

Method Code	Analyte and Method	Total # Labs Submitting	# Labs used in Precision Calcs	Precision Mean	Precision SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
019.42	Calcium, ICP, Open vessel (%)	18	18	0.7243	0.0449	0.0430	0.0183	0.0468	5.94%	2.53%	6.46%	2.549
019.43	Calcium, ICP, Microwave (%)	22	20	0.7051	0.0392	0.0288	0.0117	0.0311	4.12%	1.68%	4.45%	2.650
019.99	Calcium, Miscellaneous (%)	5	5	0.6710	0.0893	0.0886	0.0152	0.0899	13.21%	2.26%	13.40%	5.928
022.31	Copper, AAS, Dry ash (ppm)	7	6	15.40	2.132	2.021	0.9601	2.238	13.12%	6.23%	14.53%	2.331
022.41	Copper, ICP, Dry ash (ppm)	16	16	13.09	1.289	1.081	0.9928	1.468	8.26%	7.58%	11.21%	1.479
022.42	Copper, ICP, Open vessel (ppm)	20	18	14.82	0.9079	0.5385	0.6814	0.8685	3.67%	4.64%	5.91%	1.275
022.43	Copper, ICP, Microwave (ppm)	24	23	13.41	1.300	1.262	0.4451	1.338	9.41%	3.32%	9.97%	3.006
025.31	Iron, AAS, Dry ash (ppm)	9	8	207.0	33.23	17.61	9.893	20.20	8.91%	5.01%	10.22%	2.042
025.41	Iron, ICP, Dry ash (ppm)	19	19	178.2	14.91	13.88	7.708	15.88	7.79%	4.33%	8.91%	2.060
025.42	Iron, ICP, Open vessel (ppm)	18	18	179.7	11.59	9.114	10.12	13.62	5.07%	5.63%	7.58%	1.346
025.43	Iron, ICP, Microwave (ppm)	22	22	182.1	10.55	9.635	6.073	11.39	5.29%	3.33%	6.25%	1.875
027.31	Magnesium, AAS, Dry ash (%)	8	7	0.1760	0.0090	0.0088	0.0026	0.0092	5.01%	1.46%	5.22%	3.588
027.41	Magnesium, ICP, Dry ash (%)	18	15	0.1770	0.0100	0.0099	0.0016	0.0100	5.59%	0.88%	5.65%	6.454
027.42	Magnesium, ICP, Open vessel (%)	19	17	0.1832	0.0125	0.0087	0.0068	0.0111	4.83%	3.76%	6.12%	1.626
027.43	Magnesium, ICP, Microwave (%)	19	18	0.1783	0.0126	0.0097	0.0037	0.0103	5.36%	2.05%	5.74%	2.795
028.31	Manganese, AAS, Dry ash (ppm)	9	9	57.92	3.361	3.293	0.9548	3.428	5.68%	1.65%	5.92%	3.591
028.41	Manganese, ICP, Dry ash (ppm)	16	15	56.82	4.846	3.445	2.567	4.296	5.98%	4.46%	7.46%	1.674
028.42	Manganese, ICP, Open vessel (ppm)	20	18	58.78	3.632	3.074	2.212	3.787	5.20%	3.74%	6.41%	1.712
028.43	Manganese, ICP, Microwave (ppm)	22	21	57.38	2.969	1.866	2.247	2.920	3.23%	3.89%	5.06%	1.300
028.53	Manganese, ICP-MS, Microwave (ppm)	5	5	58.34	1.613	1.016	1.772	2.043	1.74%	3.04%	3.50%	1.153
031.01	Phosphorus, Photometric (%)	31	29	0.4370	0.0195	0.0188	0.0077	0.0203	4.29%	1.76%	4.64%	2.640
031.41	Phosphorus, ICP, Dry ash (%)	20	20	0.4422	0.0206	0.0196	0.0090	0.0216	4.44%	2.03%	4.88%	2.403
031.42	Phosphorus, ICP, Open vessel (%)	19	17	0.4517	0.0234	0.0222	0.0117	0.0252	4.91%	2.59%	5.56%	2.142
031.43	Phosphorus, ICP, Microwave (%)	23	21	0.4418	0.0228	0.0213	0.0066	0.0223	4.79%	1.48%	5.02%	3.386
031.99	Phosphorus, Miscellaneous (%)	5	5	0.3960	0.0386	0.0385	0.0045	0.0388	9.72%	1.13%	9.79%	8.667
032.31	Potassium, AAS, Dry ash (%)	7	7	0.7116	0.0478	0.0477	0.0043	0.0479	6.70%	0.60%	6.73%	11.15
032.41	Potassium, ICP, Dry ash (%)	19	18	0.7174	0.0402	0.0309	0.0163	0.0350	4.27%	2.26%	4.83%	2.140
032.42	Potassium, ICP, Open vessel (%)	18	16	0.7519	0.0715	0.0690	0.0239	0.0730	9.23%	3.21%	9.77%	3.048
032.43	Potassium, ICP, Microwave (%)	21	20	0.7377	0.0443	0.0349	0.0052	0.0353	4.70%	0.70%	4.75%	6.750
033.00	Salt as chloride, Sol Cl (%)	14	12	0.4862	0.0677	0.0386	0.0245	0.0457	8.09%	5.15%	9.58%	1.862
033.01	Salt as chloride, Poten Cl (%)	24	22	0.4863	0.0227	0.0173	0.0038	0.0177	3.58%	0.79%	3.67%	4.633
033.99	Salt, Miscellaneous (%)	8	8	0.5064	0.0749	0.0726	0.0261	0.0772	14.34%	5.16%	15.24%	2.956
034.53	Selenium, Total (Se), ICP-MS, Microwave (ppm)	7	6	0.3595	0.0472		0.0389			10.32%		
035.31	Sodium, AAS, Dry ash (%)	9	8	0.2497	0.0243	0.0249	0.0072	0.0259	10.04%	2.91%	10.45%	3.592
035.41	Sodium, ICP, Dry ash (%)	21	21	0.2453	0.0111	0.0097	0.0077	0.0123	3.94%	3.12%	5.02%	1.609
035.42	Sodium, ICP, Open vessel (%)	17	16	0.2466	0.0210	0.0159	0.0073	0.0175	6.38%	2.92%	7.01%	2.401
035.43	Sodium, ICP, Microwave (%)	19	17	0.2470	0.0126	0.0120	0.0033	0.0125	4.86%	1.35%	5.04%	3.746
036.04	Sulfur, LECO (%)	5	5	0.3198	0.0129	0.0081	0.0142	0.0164	2.53%	4.45%	5.12%	1.150
036.42	Sulfur, ICP, Open vessel (%)	18	17	0.3077	0.0181	0.0165	0.0113	0.0200	5.36%	3.65%	6.48%	1.775
036.43	Sulfur, ICP, Microwave (%)	18	16	0.3269	0.0295	0.0290	0.0052	0.0295	8.83%	1.59%	8.97%	5.627
037.31	Zinc, AAS, Dry ash (ppm)	9	8	115.2	13.78	6.624	2.016	6.924	5.55%	1.69%	5.81%	3.435
037.41	Zinc, ICP, Dry ash (ppm)	17	17	120.5	9.252	8.821	3.945	9.663	7.32%	3.27%	8.02%	2.449
037.42	Zinc, ICP, Open vessel (ppm)	19	18	118.1	9.556	8.728	6.172	10.69	7.40%	5.24%	9.07%	1.732
037.43	Zinc, ICP, Microwave (ppm)	24	22	120.3	13.35	12.17	2.938	12.52	10.22%	2.47%	10.51%	4.262
037.53	Zinc, ICP-MS, Microwave (ppm)	5	5	114.4	6.413	5.534	4.583	7.186	4.84%	4.01%	6.28%	1.568
038.42	Molybdenum, ICP, Open vessel (ppm)	6	6	1.249	0.1011	0.0735	0.0982	0.1226	5.89%	7.86%	9.82%	1.249

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
038.43	Molybdenum, ICP, Microwave (ppm)	7	7	1.041	0.4138	0.4102	0.0773	0.4174	39.40%	7.43%	40.09%	5.397
038.53	Molybdenum, ICP-MS, Microwave (ppm)	5	5	1.123	0.0496	0.0427	0.0356	0.0556	3.80%	3.17%	4.95%	1.562
042.00	Chloride, Titrimetric (%)	6	6	0.3683	0.0718	0.0711	0.0141	0.0725	19.31%	3.84%	19.68%	5.127
120.00	Alanine, Post-col Ninhydrin Der (%)	13	12	0.7079	0.0265	0.0147	0.0074	0.0165	2.06%	1.03%	2.31%	2.240
120.05	Alanine, Pre-col AQC Der (%)	7	7	0.6494	0.1243	0.1236	0.0185	0.1249	19.03%	2.84%	19.24%	6.762
121.00	Arginine, Post-col Ninhydrin Der (%)	13	12	0.9067	0.0348	0.0248	0.0096	0.0266	2.71%	1.05%	2.91%	2.770
121.05	Arginine, Pre-col AQC Der (%)	7	7	0.9338	0.0399	0.0383	0.0159	0.0415	4.10%	1.70%	4.44%	2.611
122.00	Aspartic, Post-col Ninhydrin Der (%)	13	11	1.264	0.0493	0.0367	0.0062	0.0372	2.88%	0.48%	2.92%	6.029
122.05	Aspartic, Pre-col AQC Der (%)	7	6	1.248	0.0951	0.0326	0.0356	0.0483	2.55%	2.78%	3.77%	1.357
124.00	Cysteine/Cystine, PAO Post-col Ninhydrin Der (%)	13	12	0.2670	0.0333	0.0200	0.0049	0.0206	7.29%	1.78%	7.51%	4.211
124.05	Cysteine/Cystine, PAO Pre-col AQC Der (%)	7	7	0.2615	0.0323	0.0319	0.0064	0.0326	12.21%	2.43%	12.45%	5.119
125.00	Glutamic, Post-col Ninhydrin Der (%)	13	11	2.982	0.0860	0.0636	0.0131	0.0649	2.14%	0.44%	2.19%	4.950
125.05	Glutamic, Pre-col AQC Der (%)	7	5	3.040	0.2565	0.0392	0.0483	0.0622	1.31%	1.61%	2.08%	1.288
126.00	Glycine, Post-col Ninhydrin Der (%)	13	12	0.6331	0.0437	0.0215	0.0055	0.0222	3.34%	0.86%	3.45%	4.013
126.05	Glycine, Pre-col AQC Der (%)	7	6	0.6649	0.0531	0.0252	0.0139	0.0288	3.90%	2.16%	4.45%	2.066
127.00	Histidine, Post-col Ninhydrin Der (%)	13	13	0.3867	0.0187	0.0182	0.0065	0.0193	4.70%	1.68%	4.99%	2.973
127.05	Histidine, Pre-col AQC Der (%)	7	7	0.3900	0.0297	0.0281	0.0136	0.0312	7.21%	3.48%	8.00%	2.301
128.00	Isoleucine, Post-col Ninhydrin Der (%)	13	12	0.5624	0.0368	0.0381	0.0065	0.0387	6.79%	1.15%	6.88%	5.973
128.05	Isoleucine, Pre-col AQC Der (%)	7	7	0.5542	0.0423	0.0412	0.0138	0.0434	7.43%	2.49%	7.84%	3.150
129.00	Leucine, Post-col Ninhydrin Der (%)	13	12	1.147	0.0370	0.0197	0.0127	0.0235	1.71%	1.10%	2.03%	1.846
129.05	Leucine, Pre-col AQC Der (%)	7	7	1.146	0.0490	0.0464	0.0222	0.0515	4.05%	1.94%	4.49%	2.317
130.00	L-Lysine, Post-col Ninhydrin Der (%)	15	14	0.6798	0.0305	0.0302	0.0060	0.0308	4.44%	0.88%	4.53%	5.141
130.05	L-Lysine, Pre-col AQC Der (%)	7	7	0.6962	0.0561	0.0544	0.0196	0.0578	7.81%	2.82%	8.31%	2.945
131.00	Methionine, PAO Post-col Ninhydrin Der (%)	13	13	0.2217	0.0180	0.0169	0.0089	0.0191	7.60%	4.02%	8.60%	2.139
131.05	Methionine, PAO Pre-col AQC Der (%)	7	7	0.2379	0.0238	0.0235	0.0052	0.0240	9.87%	2.17%	10.11%	4.663
132.00	Phenylalanine, Post-col Ninhydrin Der (%)	13	11	0.6912	0.0200	0.0136	0.0070	0.0153	1.96%	1.00%	2.20%	2.191
132.05	Phenylalanine, Pre-col AQC Der (%)	7	7	0.6942	0.0364	0.0315	0.0257	0.0407	4.53%	3.71%	5.86%	1.579
133.00	Proline, Post-col Ninhydrin Der (%)	13	11	1.011	0.0245	0.0232	0.0051	0.0238	2.29%	0.50%	2.35%	4.662
133.05	Proline, Pre-col AQC Der (%)	7	6	0.9856	0.0818	0.0280	0.0251	0.0376	2.76%	2.48%	3.71%	1.495
134.00	Serine, Post-col Ninhydrin Der (%)	13	12	0.7048	0.0389	0.0234	0.0071	0.0244	3.27%	1.00%	3.42%	3.432
134.05	Serine, Pre-col AQC Der (%)	7	7	0.7483	0.0590	0.0573	0.0202	0.0607	7.65%	2.70%	8.12%	3.007
135.00	Threonine, Post-col Ninhydrin Der (%)	13	12	0.5256	0.0190	0.0190	0.0066	0.0201	3.62%	1.25%	3.83%	3.070
135.05	Threonine, Pre-col AQC Der (%)	7	7	0.5433	0.0408	0.0393	0.0153	0.0422	7.24%	2.82%	7.76%	2.756
136.03	Tryptophan, Alka-Hydrol + IS RP LC FI (%)	6	6	0.2008	0.0070	0.0064	0.0042	0.0076	3.17%	2.09%	3.79%	1.816
137.00	Tyrosine, Post-col Ninhydrin Der (%)	10	9	0.4493	0.0264	0.0256	0.0094	0.0273	5.69%	2.10%	6.07%	2.889
137.05	Tyrosine, Pre-col AQC Der (%)	7	7	0.4758	0.0497	0.0485	0.0153	0.0509	10.19%	3.23%	10.69%	3.313
138.00	Valine, Post-col Ninhydrin Der (%)	13	11	0.6690	0.0381	0.0234	0.0097	0.0253	3.44%	1.43%	3.72%	2.601
138.05	Valine, Pre-col AQC Der (%)	7	7	0.6932	0.0616	0.0605	0.0168	0.0628	8.72%	2.42%	9.05%	3.738
400.01	Water Activity, Aqualab chilled mirror (Units)	11	9	0.5016	0.0285	0.0163	0.0022	0.0164	3.20%	0.42%	3.23%	7.622

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