

**AAFCO**  
Proficiency Testing Program



**Animal Feed Scheme**

**Sheep Feed**

**Test Material Code # 202030**

**Method Summary Report**

(Precision Report Follows)

**# Labs Reporting: 178**

**# Methods Reported: 382**

**Issue Date : 11/30/2020**

| 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                      | 1.000    |        |                            |                     |                        |                |                       |                       |
| 001.07      | Loss on Drying, 104°C 3 hr, in malt (%)                | 39                      | 37                     | 8.109    | 0.2804 | 8.110                      | 0.2582              | 0.0531                 | 3.18%          | 0.1123                | 2.92%                 |
| 001.99      | Loss on Drying, Miscellaneous (%)                      | 20                      | 20                     | 8.004    | 0.4980 | 8.002                      | 0.4483              | 0.1253                 | 5.60%          | 0.1361                | 2.92%                 |
| 001.03      | Loss on Drying, Low temp. methods (%)                  | 7                       | 7                      | 8.194    | 0.3669 | 8.155                      | 0.3209              | 0.1516                 | 3.94%          | 0.0486                | 2.92%                 |
| 001.00      | Loss on Drying, Vac 95°C 5 hr (%)                      | 3                       | 3                      | 7.928    | 0.2342 | 7.928                      | 0.2342              | 0.1352                 | 2.95%          | 0.0690                | 2.93%                 |
| 001.05      | Loss on Drying, LECO (%)                               | 2                       | 2                      | 8.315    | 0.3956 |                            |                     |                        |                |                       |                       |
| 002.06      | Protein, Crude, Combustion Nitrogen Analyzer (%)       | 114                     | 112                    | 14.05    | 0.4536 | 14.04                      | 0.2573              | 0.0304                 | 1.83%          | 0.1683                | 2.67%                 |
| 002.05      | Protein, Crude, Copper, Boric Acid (%)                 | 30                      | 30                     | 13.90    | 0.1923 | 13.89                      | 0.1650              | 0.0377                 | 1.19%          | 0.1169                | 2.68%                 |
| 002.01      | Protein, Crude, Auto Kjeh-Foss (%)                     | 14                      | 14                     | 13.86    | 0.1716 | 13.85                      | 0.1612              | 0.0539                 | 1.16%          | 0.0771                | 2.69%                 |
| 002.11      | Protein, Crude, NIR (%)                                | 5                       | 5                      | 14.08    | 1.067  | 14.08                      | 1.067               | 0.4770                 | 7.57%          | 0.0640                | 2.67%                 |
| 002.00      | Protein, Crude, Crude (%)                              | 2                       | 2                      | 13.74    | 0.2793 |                            |                     |                        |                |                       |                       |
| 002.02      | Protein, Crude, Semiauto Autoanalyzer (%)              | 2                       | 2                      | 13.82    | 0.1259 |                            |                     |                        |                |                       |                       |
| 002.99      | Protein, Crude, Miscellaneous (%)                      | 2                       | 2                      | 13.74    | 0.8980 |                            |                     |                        |                |                       |                       |
| 002.03      | Protein, Crude, Hach Method (%)                        | 1                       | 1                      | 16.67    |        |                            |                     |                        |                |                       |                       |
| 002.04      | Protein, Crude, Copper Catalyst (%)                    | 1                       | 1                      | 13.90    |        |                            |                     |                        |                |                       |                       |
| 002.08      | Protein, Crude, Cu/Ti (%)                              | 1                       | 1                      | 13.90    |        |                            |                     |                        |                |                       |                       |
| 003.14      | Fat, Crude, Ankom (%)                                  | 54                      | 53                     | 2.302    | 0.2834 | 2.295                      | 0.2409              | 0.0414                 | 10.50%         | 0.1262                | 3.53%                 |
| 003.10      | Fat, Crude, Randall, Pet Ether (%)                     | 28                      | 27                     | 2.139    | 0.2040 | 2.127                      | 0.2055              | 0.0494                 | 9.66%          | 0.0748                | 3.57%                 |
| 003.06      | Fat, Crude, Pet Ether (%)                              | 15                      | 15                     | 2.417    | 0.2606 | 2.417                      | 0.2955              | 0.0954                 | 12.23%         | 0.0757                | 3.50%                 |
| 003.09      | Fat, Crude, Randall, Diethyl Ether Ext (%)             | 12                      | 11                     | 2.574    | 0.1675 | 2.583                      | 0.1690              | 0.0637                 | 6.54%          | 0.0262                | 3.47%                 |
| 003.00      | Fat, Crude, Diethyl Ether Ext., Direct (%)             | 8                       | 8                      | 2.673    | 0.2741 | 2.673                      | 0.3108              | 0.1374                 | 11.63%         | 0.1123                | 3.45%                 |
| 003.13      | Fat, Crude, Randall, Hexane Ext. (%)                   | 8                       | 7                      | 2.501    | 0.3187 | 2.463                      | 0.2692              | 0.1272                 | 10.93%         | 0.0455                | 3.49%                 |
| 003.12      | Fat, Crude, Hexane Ext (%)                             | 6                       | 6                      | 2.571    | 0.3905 | 2.571                      | 0.4428              | 0.2260                 | 17.23%         | 0.0883                | 3.47%                 |
| 003.11      | Fat, Crude, NIR (%)                                    | 5                       | 5                      | 3.022    | 0.7419 | 3.022                      | 0.7419              | 0.3318                 | 24.55%         | 0.0720                | 3.39%                 |
| 003.99      | Fat, Crude, Miscellaneous (%)                          | 5                       | 5                      | 2.428    | 0.2747 | 2.428                      | 0.2747              | 0.1229                 | 11.31%         | 0.0760                | 3.50%                 |
| 003.01      | Fat, Crude, Diethyl Ether Ext (13th ed.), Indirect (%) | 1                       | 1                      | 2.805    |        |                            |                     |                        |                |                       |                       |
| 004.07      | Fiber, Crude, ANKOM (%)                                | 65                      | 64                     | 16.19    | 1.270  | 16.08                      | 1.081               | 0.1689                 | 6.72%          | 0.3593                | 2.49%                 |
| 004.06      | Fiber, Crude, Fibertec (%)                             | 22                      | 22                     | 15.59    | 0.8868 | 15.50                      | 0.7110              | 0.1895                 | 4.59%          | 0.2107                | 2.54%                 |
| 004.00      | Fiber, Crude, Asbestos Free (%)                        | 14                      | 14                     | 16.88    | 1.457  | 16.81                      | 1.502               | 0.5019                 | 8.94%          | 0.2267                | 2.44%                 |

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|-------------|---|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|-----------------------|-----------------------|
| 004.03      | Fiber, Crude, Fritted Glass (%)                           | 5                       | 5                      | 15.52    | 1.668  | 15.52                      | 1.668               | 0.7459                 | 10.75%         | 0.5100                | 2.54%                 |
| 004.11      | Fiber, Crude, NIR (%)                                     | 4                       | 3                      | 15.35    | 0.4347 | 15.35                      | 0.4347              | 0.2510                 | 2.83%          | 0.0167                | 2.55%                 |
| 004.01      | Fiber, Crude, Sing Filt (%)                               | 1                       | 1                      | 14.93    |        |                            |                     |                        |                |                       |                       |
| 004.99      | Fiber, Crude, Miscellaneous (%)                           | 1                       | 1                      | 15.49    |        |                            |                     |                        |                |                       |                       |
| 005.00      | Ash, 2h @ 600°C (%)                                       | 72                      | 70                     | 10.62    | 0.3781 | 10.59                      | 0.3233              | 0.0483                 | 3.05%          | 0.0957                | 2.80%                 |
| 005.05      | Ash, 3h @ 550°C (%)                                       | 25                      | 24                     | 10.82    | 0.2701 | 10.84                      | 0.2626              | 0.0670                 | 2.42%          | 0.0840                | 2.79%                 |
| 005.99      | Ash, Miscellaneous (%)                                    | 8                       | 7                      | 10.53    | 0.7331 | 10.55                      | 0.7897              | 0.3731                 | 7.49%          | 0.0571                | 2.81%                 |
| 005.11      | Ash, NIR (%)  | 3                       | 3                      | 8.215    | 2.520  | 8.215                      | 2.520               | 1.782                  | 30.68%         | 0.4500                | 2.91%                 |
| 005.02      | Ash, LECO (%)   | 2                       | 2                      | 10.56    | 0.1287 |                            |                     |                        |                |                       |                       |
| 005.03      | Ash, Microwave furnace (%)                                | 1                       | 1                      | 10.65    |        |                            |                     |                        |                |                       |                       |
| 006.99      | Total Sugars, Miscellaneous (%)                           | 6                       | 6                      | 4.893    | 1.834  | 4.876                      | 2.040               | 1.041                  | 41.84%         | 0.0700                | 3.15%                 |
| 006.00      | Total Sugars, As sucrose (%)                              | 4                       | 4                      | 4.038    | 0.3957 | 4.038                      | 0.3957              | 0.1978                 | 9.80%          | 0.1918                | 3.24%                 |
| 006.05      | Total Sugars, TSI, Lane-Eunon (12th) (%)                  | 1                       | 1                      | 3.900    |        |                            |                     |                        |                |                       |                       |
| 008.08      | Fiber, Acid Detergent, Filter Bag - ANKOM (%)             | 45                      | 44                     | 21.09    | 1.205  | 21.13                      | 1.193               | 0.2247                 | 5.64%          | 0.2875                | 2.18%                 |
| 008.02      | Fiber, Acid Detergent, Crucible (%)                       | 13                      | 13                     | 21.56    | 0.8675 | 21.60                      | 0.8699              | 0.3016                 | 4.03%          | 0.2328                | 2.15%                 |
| 008.99      | Fiber, Acid Detergent, Miscellaneous (%)                  | 3                       | 3                      | 82.19    | 103.3  | 82.19                      | 103.3               | 73.06                  | 125.70%        | 0.8600                | 1.10%                 |
| 008.05      | Fiber, Acid Detergent, Acid Detergent-Hach (%)            | 1                       | 1                      | 23.10    |        |                            |                     |                        |                |                       |                       |
| 009.09      | Fiber, Neutral Detergent, Filter Bag - ANKOM (%)          | 44                      | 42                     | 37.22    | 1.346  | 37.19                      | 1.314               | 0.2535                 | 3.53%          | 0.4129                | 1.64%                 |
| 009.07      | Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)          | 13                      | 13                     | 38.16    | 3.385  | 38.50                      | 1.881               | 0.6523                 | 4.89%          | 0.4019                | 1.61%                 |
| 009.99      | Fiber, Neutral Detergent, Miscellaneous (%)               | 2                       | 2                      | 35.94    | 5.342  |                            |                     |                        |                |                       |                       |
| 009.04      | Fiber, Neutral Detergent, Neutral Det-No ENZ Pretreat (%) | 1                       | 1                      | 41.59    |        |                            |                     |                        |                |                       |                       |
| 010.99      | Moisture, Miscellaneous (%)                               | 13                      | 12                     | 8.148    | 0.4005 | 8.144                      | 0.4101              | 0.1480                 | 5.04%          | 0.1175                | 2.92%                 |
| 010.11      | Moisture, NIR (%)   | 3                       | 3                      | 9.223    | 1.420  | 9.223                      | 1.420               | 0.8201                 | 15.40%         | 0.0400                | 2.86%                 |
| 010.03      | Moisture, Karl-Fischer (%)                                | 2                       | 2                      | 7.518    | 0.6329 |                            |                     |                        |                |                       |                       |
| 011.01      | Loss on Drying, 135°C 2hr (%)                             | 59                      | 58                     | 8.984    | 0.4584 | 8.987                      | 0.4670              | 0.0767                 | 5.20%          | 0.1209                | 2.87%                 |
| 011.99      | Loss on Drying, High Temp. Methods Miscellaneous (%)      | 4                       | 4                      | 8.737    | 0.3996 | 8.737                      | 0.3996              | 0.1998                 | 4.57%          | 0.1018                | 2.89%                 |
| 011.02      | Loss on Drying, 130°C for 2 hours (%)                     | 2                       | 2                      | 8.923    | 0.3217 |                            |                     |                        |                |                       |                       |
| 012.00      | Starch, Polarimetric (Ewers) (%)                          | 16                      | 16                     | 15.90    | 0.6093 | 15.89                      | 0.5376              | 0.1680                 | 3.38%          | 0.1368                | 2.51%                 |
| 012.01      | Starch, Enzymatic-Colorimetric Method (Megazyme) (%)      | 13                      | 13                     | 15.17    | 1.248  | 15.08                      | 1.107               | 0.3838                 | 7.34%          | 0.2588                | 2.57%                 |
| 012.04      | Starch, Enzymatic-Enzyme Membrane Technology (YSI) (%)    | 5                       | 5                      | 14.95    | 1.289  | 14.95                      | 1.289               | 0.5765                 | 8.63%          | 0.1382                | 2.59%                 |
| 012.03      | Starch, Enzymatic-Colorimetric Method, Miscellaneous (%)  | 4                       | 4                      | 14.43    | 1.698  | 14.43                      | 1.698               | 0.8491                 | 11.77%         | 0.2903                | 2.63%                 |
| 012.11      | Starch, NIR (%)   | 4                       | 4                      | 17.84    | 3.079  | 17.84                      | 3.079               | 1.539                  | 17.25%         | 0.1275                | 2.37%                 |
| 012.20      | Starch, Dietary, Enzymatic-Colorimetric (%)               | 1                       | 1                      | 15.51    |        |                            |                     |                        |                |                       |                       |
| 012.99      | Starch, Miscellaneous (%)                                 | 1                       | 1                      | 14.65    |        |                            |                     |                        |                |                       |                       |
| 013.00      | Fat, Acid Pretreat, Acid hydrolysis (%)                   | 17                      | 17                     | 3.306    | 0.5179 | 3.303                      | 0.5538              | 0.1679                 | 16.77%         | 0.2198                | 3.34%                 |
| 013.02      | Fat, Acid Pretreat, Mojonier, Bak Ext (%)                 | 17                      | 16                     | 3.783    | 0.2606 | 3.772                      | 0.2698              | 0.0843                 | 7.15%          | 0.1318                | 3.28%                 |
| 013.10      | Fat, Acid Pretreat, Soxtec-Acid Hydrolysis (%)            | 5                       | 5                      | 2.883    | 0.5530 | 2.883                      | 0.5530              | 0.2473                 | 19.18%         | 0.1395                | 3.41%                 |
| 013.13      | Fat, Acid Pretreat, Ankom- Acid Hydrolysis (%)            | 5                       | 5                      | 4.281    | 1.151  | 4.281                      | 1.151               | 0.5146                 | 26.88%         | 0.6012                | 3.21%                 |
| 014.99      | Fiber, Total Dietary, Miscellaneous (%)                   | 1                       | 1                      | 43.65    |        |                            |                     |                        |                |                       |                       |
| 015.43      | Aluminum, ICP, Microwave (ppm)                            | 8                       | 8                      | 101.0    | 16.33  | 101.0                      | 18.52               | 8.184                  | 18.34%         | 2.772                 | 7.99%                 |

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|-------------|--------------------------------------|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|-----------------------|-----------------------|
| 015.41      | Aluminum, ICP, Dry ash (ppm)         | 5                       | 5                      | 100.0    | 7.787  | 100.0                      | 7.787               | 3.483                  | 7.79%          | 1.261                 | 8.00%                 |
| 015.42      | Aluminum, ICP, Open vessel (ppm)     | 2                       | 2                      | 81.23    | 9.238  |                            |                     |                        |                |                       |                       |
| 015.52      | Aluminum, ICP-MS, Open vessel (ppm)  | 1                       | 1                      | 99.10    |        |                            |                     |                        |                |                       |                       |
| 015.53      | Aluminum, ICP-MS, Microwave (ppm)    | 1                       | 1                      | 113.0    |        |                            |                     |                        |                |                       |                       |
| 017.42      | Boron, ICP, Open vessel (ppm)        | 6                       | 6                      | 6.799    | 1.137  | 6.826                      | 1.226               | 0.6255                 | 17.96%         | 0.4032                | 11.98%                |
| 017.41      | Boron, ICP, Dry ash (ppm)            | 5                       | 5                      | 6.788    | 0.8052 | 6.788                      | 0.8052              | 0.3601                 | 11.86%         | 0.1824                | 11.99%                |
| 017.43      | Boron, ICP, Microwave (ppm)          | 7                       | 4                      | 6.446    | 0.5450 | 6.446                      | 0.5450              | 0.3406                 | 8.46%          | 0.0802                | 12.08%                |
| 017.52      | Boron, ICP-MS, Open vessel (ppm)     | 1                       | 1                      | 9.225    |        |                            |                     |                        |                |                       |                       |
| 019.43      | Calcium, ICP, Microwave (%)          | 28                      | 27                     | 1.888    | 0.1730 | 1.877                      | 0.1236              | 0.0297                 | 6.58%          | 0.0415                | 3.64%                 |
| 019.41      | Calcium, ICP, Dry ash (%)            | 23                      | 23                     | 1.850    | 0.1094 | 1.847                      | 0.0970              | 0.0253                 | 5.25%          | 0.0586                | 3.65%                 |
| 019.42      | Calcium, ICP, Open vessel (%)        | 17                      | 17                     | 1.897    | 0.1516 | 1.904                      | 0.1500              | 0.0455                 | 7.88%          | 0.0383                | 3.63%                 |
| 019.31      | Calcium, AAS, Dry ash (%)            | 14                      | 14                     | 1.759    | 0.2665 | 1.802                      | 0.1707              | 0.0570                 | 9.47%          | 0.0525                | 3.66%                 |
| 019.00      | Calcium, Ox-Mn04 Vol. (%)            | 12                      | 12                     | 1.790    | 0.1164 | 1.789                      | 0.1301              | 0.0469                 | 7.27%          | 0.0293                | 3.66%                 |
| 019.08      | Calcium, EDTA (%)                    | 11                      | 11                     | 1.798    | 0.3738 | 1.841                      | 0.3254              | 0.1227                 | 17.67%         | 0.0276                | 3.65%                 |
| 019.99      | Calcium, Miscellaneous (%)           | 7                       | 7                      | 1.843    | 0.1792 | 1.843                      | 0.2032              | 0.0960                 | 11.03%         | 0.0314                | 3.65%                 |
| 019.52      | Calcium, ICP-MS, Open vessel (%)     | 4                       | 4                      | 1.729    | 0.1242 | 1.729                      | 0.1242              | 0.0621                 | 7.19%          | 0.0227                | 3.68%                 |
| 019.53      | Calcium, ICP-MS, Microwave (%)       | 3                       | 3                      | 1.800    | 0.0492 | 1.800                      | 0.0492              | 0.0284                 | 2.74%          | 0.0933                | 3.66%                 |
| 019.02      | Calcium, Hach Method (%)             | 1                       | 1                      | 1.580    |        |                            |                     |                        |                |                       |                       |
| 019.03      | Calcium, Semiauto (Autoanalyzer) (%) | 1                       | 1                      | 1.984    |        |                            |                     |                        |                |                       |                       |
| 019.09      | Calcium, Ion-selective electrode (%) | 1                       | 1                      | 1.663    |        |                            |                     |                        |                |                       |                       |
| 019.32      | Calcium, AAS, Open vessel (%)        | 1                       | 1                      | 1.935    |        |                            |                     |                        |                |                       |                       |
| 019.33      | Calcium, AAS, Microwave (%)          | 1                       | 1                      | 1.970    |        |                            |                     |                        |                |                       |                       |
| 019.44      | Calcium, ICP, Dry ash (%)            | 1                       | 1                      | 1.710    |        |                            |                     |                        |                |                       |                       |
| 021.43      | Cobalt, ICP, Microwave (ppm)         | 9                       | 9                      | 2.332    | 0.4842 | 2.381                      | 0.4267              | 0.1778                 | 17.92%         | 0.1548                | 14.04%                |
| 021.41      | Cobalt, ICP, Dry ash (ppm)           | 4                       | 4                      | 2.249    | 0.6751 | 2.249                      | 0.6751              | 0.3375                 | 30.02%         | 0.0765                | 14.16%                |
| 021.53      | Cobalt, ICP-MS, Microwave (ppm)      | 4                       | 4                      | 2.718    | 0.1878 | 2.718                      | 0.1878              | 0.0939                 | 6.91%          | 0.2400                | 13.76%                |
| 021.31      | Cobalt, AAS, Dry ash (ppm)           | 3                       | 3                      | 2.555    | 1.225  | 2.555                      | 1.225               | 0.8663                 | 47.95%         | 0.2900                | 13.89%                |
| 021.52      | Cobalt, ICP-MS, Open vessel (ppm)    | 3                       | 3                      | 1.735    | 0.3291 | 1.735                      | 0.3291              | 0.2327                 | 18.97%         | 0.2033                | 14.72%                |
| 021.42      | Cobalt, ICP, Open vessel (ppm)       | 1                       | 1                      | 1.960    |        |                            |                     |                        |                |                       |                       |
| 022.43      | Copper, ICP, Microwave (ppm)         | 20                      | 19                     | 10.63    | 2.008  | 10.47                      | 1.475               | 0.4230                 | 14.09%         | 0.4565                | 11.23%                |
| 022.42      | Copper, ICP, Open vessel (ppm)       | 16                      | 15                     | 11.21    | 2.813  | 10.72                      | 1.710               | 0.5520                 | 15.95%         | 0.6137                | 11.19%                |
| 022.41      | Copper, ICP, Dry ash (ppm)           | 14                      | 14                     | 8.329    | 1.355  | 8.326                      | 1.530               | 0.5113                 | 18.38%         | 0.7267                | 11.63%                |
| 022.31      | Copper, AAS, Dry ash (ppm)           | 8                       | 8                      | 8.444    | 2.049  | 8.707                      | 1.660               | 0.7334                 | 19.06%         | 0.6026                | 11.55%                |
| 022.53      | Copper, ICP-MS, Microwave (ppm)      | 4                       | 4                      | 10.22    | 0.9913 | 10.22                      | 0.9913              | 0.4957                 | 9.70%          | 0.6000                | 11.28%                |
| 022.99      | Copper, Miscellaneous (ppm)          | 4                       | 4                      | 8.218    | 1.130  | 8.218                      | 1.130               | 0.5651                 | 13.75%         | 0.6150                | 11.65%                |
| 022.52      | Copper, ICP-MS, Open vessel (ppm)    | 2                       | 2                      | 10.13    | 0.5303 |                            |                     |                        |                |                       |                       |
| 022.33      | Copper, AAS, Microwave (ppm)         | 1                       | 1                      | 9.190    |        |                            |                     |                        |                |                       |                       |
| 022.44      | Copper, ICP, Dry ash (ppm)           | 1                       | 1                      | 8.300    |        |                            |                     |                        |                |                       |                       |
| 024.52      | Iodine, ICP-MS, Open vessel (ppm)    | 1                       | 1                      | 4.185    |        |                            |                     |                        |                |                       |                       |
| 024.53      | Iodine, ICP-MS, Microwave (ppm)      | 1                       | 1                      | 2.820    |        |                            |                     |                        |                |                       |                       |

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| 024.99      | Iodine, Miscellaneous (ppm)          | 1                       | 1                      | 2.940    |        |                            |                     |                        |                |                       |                       |
| 025.43      | Iron, ICP, Microwave (ppm)           | 20                      | 20                     | 340.9    | 44.80  | 341.0                      | 43.06               | 12.04                  | 12.63%         | 9.437                 | 6.65%                 |
| 025.41      | Iron, ICP, Dry ash (ppm)             | 15                      | 15                     | 312.0    | 91.52  | 330.0                      | 39.20               | 12.65                  | 11.88%         | 8.342                 | 6.68%                 |
| 025.42      | Iron, ICP, Open vessel (ppm)         | 14                      | 14                     | 299.0    | 60.14  | 305.5                      | 50.51               | 16.87                  | 16.53%         | 7.549                 | 6.76%                 |
| 025.31      | Iron, AAS, Dry ash (ppm)             | 7                       | 7                      | 312.7    | 56.10  | 321.9                      | 40.03               | 18.91                  | 12.43%         | 5.250                 | 6.71%                 |
| 025.99      | Iron, Miscellaneous (ppm)            | 3                       | 3                      | 349.5    | 37.18  | 349.5                      | 37.18               | 21.47                  | 10.64%         | 1.667                 | 6.63%                 |
| 025.53      | Iron, ICP-MS, Microwave (ppm)        | 2                       | 2                      | 344.3    | 0.3536 |                            |                     |                        |                |                       |                       |
| 027.43      | Magnesium, ICP, Microwave (%)        | 21                      | 21                     | 0.3984   | 0.0337 | 0.4017                     | 0.0280              | 0.0076                 | 6.97%          | 0.0087                | 4.59%                 |
| 027.42      | Magnesium, ICP, Open vessel (%)      | 17                      | 17                     | 0.4088   | 0.0231 | 0.4103                     | 0.0196              | 0.0059                 | 4.77%          | 0.0054                | 4.57%                 |
| 027.41      | Magnesium, ICP, Dry ash (%)          | 14                      | 14                     | 0.4099   | 0.0253 | 0.4100                     | 0.0195              | 0.0065                 | 4.76%          | 0.0095                | 4.57%                 |
| 027.31      | Magnesium, AAS, Dry ash (%)          | 9                       | 9                      | 0.4170   | 0.0448 | 0.4073                     | 0.0206              | 0.0086                 | 5.07%          | 0.0077                | 4.58%                 |
| 027.99      | Magnesium, Miscellaneous (%)         | 5                       | 5                      | 0.4160   | 0.0455 | 0.4160                     | 0.0455              | 0.0203                 | 10.93%         | 0.0080                | 4.56%                 |
| 027.52      | Magnesium, ICP-MS, Open vessel (%)   | 3                       | 3                      | 0.4007   | 0.0277 | 0.4007                     | 0.0277              | 0.0160                 | 6.90%          | 0.0039                | 4.59%                 |
| 027.53      | Magnesium, ICP-MS, Microwave (%)     | 3                       | 3                      | 0.4077   | 0.0157 | 0.4077                     | 0.0157              | 0.0111                 | 3.85%          | 0.0073                | 4.58%                 |
| 027.32      | Magnesium, AAS, Open vessel (%)      | 1                       | 1                      | 0.4250   |        |                            |                     |                        |                |                       |                       |
| 027.33      | Magnesium, AAS, Microwave (%)        | 1                       | 1                      | 0.3900   |        |                            |                     |                        |                |                       |                       |
| 027.44      | Magnesium, ICP, Dry ash (%)          | 1                       | 1                      | 0.4030   |        |                            |                     |                        |                |                       |                       |
| 028.43      | Manganese, ICP, Microwave (ppm)      | 25                      | 25                     | 185.0    | 10.53  | 184.5                      | 9.085               | 2.271                  | 4.92%          | 4.835                 | 7.29%                 |
| 028.42      | Manganese, ICP, Open vessel (ppm)    | 18                      | 18                     | 183.3    | 14.46  | 183.1                      | 16.15               | 4.757                  | 8.82%          | 3.121                 | 7.30%                 |
| 028.41      | Manganese, ICP, Dry ash (ppm)        | 15                      | 14                     | 165.8    | 13.05  | 166.2                      | 13.83               | 4.620                  | 8.32%          | 2.664                 | 7.41%                 |
| 028.31      | Manganese, AAS, Dry ash (ppm)        | 10                      | 10                     | 160.3    | 36.79  | 169.0                      | 15.59               | 6.162                  | 9.23%          | 2.923                 | 7.39%                 |
| 028.53      | Manganese, ICP-MS, Microwave (ppm)   | 4                       | 4                      | 176.5    | 7.842  | 176.5                      | 7.842               | 3.921                  | 4.44%          | 15.00                 | 7.34%                 |
| 028.99      | Manganese, Miscellaneous (ppm)       | 4                       | 4                      | 179.0    | 25.14  | 179.0                      | 25.14               | 12.57                  | 14.05%         | 3.000                 | 7.33%                 |
| 028.52      | Manganese, ICP-MS, Open vessel (ppm) | 3                       | 3                      | 179.7    | 11.05  | 179.7                      | 11.05               | 6.377                  | 6.15%          | 4.167                 | 7.32%                 |
| 028.44      | Manganese, ICP, Dry ash (ppm)        | 2                       | 2                      | 166.3    | 7.350  |                            |                     |                        |                |                       |                       |
| 028.33      | Manganese, AAS, Microwave (ppm)      | 1                       | 1                      | 173.8    |        |                            |                     |                        |                |                       |                       |
| 028.34      | Manganese, AAS, Dry ash (ppm)        | 1                       | 1                      | 142.5    |        |                            |                     |                        |                |                       |                       |
| 031.01      | Phosphorus, Photometric (%)          | 32                      | 32                     | 0.8084   | 0.0619 | 0.8208                     | 0.0346              | 0.0077                 | 4.22%          | 0.0142                | 4.12%                 |
| 031.43      | Phosphorus, ICP, Microwave (%)       | 27                      | 26                     | 0.8128   | 0.0510 | 0.8173                     | 0.0398              | 0.0098                 | 4.87%          | 0.0236                | 4.12%                 |
| 031.41      | Phosphorus, ICP, Dry ash (%)         | 20                      | 20                     | 0.7994   | 0.0502 | 0.8002                     | 0.0552              | 0.0154                 | 6.90%          | 0.0271                | 4.14%                 |
| 031.42      | Phosphorus, ICP, Open vessel (%)     | 18                      | 18                     | 0.8009   | 0.0452 | 0.8015                     | 0.0498              | 0.0147                 | 6.21%          | 0.0290                | 4.14%                 |
| 031.99      | Phosphorus, Miscellaneous (%)        | 5                       | 4                      | 0.7163   | 0.1302 | 0.7163                     | 0.1302              | 0.0651                 | 18.17%         | 0.0125                | 4.21%                 |
| 031.03      | Phosphorus, Autoanalyzer (%)         | 3                       | 3                      | 0.8342   | 0.0230 | 0.8342                     | 0.0230              | 0.0133                 | 2.75%          | 0.0054                | 4.11%                 |
| 031.52      | Phosphorus, ICP-MS, Open vessel (%)  | 3                       | 3                      | 0.7849   | 0.0392 | 0.7849                     | 0.0392              | 0.0226                 | 4.99%          | 0.0073                | 4.15%                 |
| 031.53      | Phosphorus, ICP-MS, Microwave (%)    | 3                       | 3                      | 0.7830   | 0.0244 | 0.7830                     | 0.0244              | 0.0141                 | 3.12%          | 0.0440                | 4.15%                 |
| 031.00      | Phosphorus, Vol (%)                  | 2                       | 2                      | 0.8825   | 0.0601 |                            |                     |                        |                |                       |                       |
| 031.44      | Phosphorus, ICP, Dry ash (%)         | 2                       | 2                      | 0.7895   | 0.0064 |                            |                     |                        |                |                       |                       |
| 031.06      | Phosphorus, Hach Method (%)          | 1                       | 1                      | 0.9300   |        |                            |                     |                        |                |                       |                       |
| 032.43      | Potassium, ICP, Microwave (%)        | 21                      | 21                     | 1.132    | 0.0901 | 1.146                      | 0.0642              | 0.0175                 | 5.60%          | 0.0269                | 3.92%                 |
| 032.42      | Potassium, ICP, Open vessel (%)      | 16                      | 16                     | 1.152    | 0.0495 | 1.155                      | 0.0473              | 0.0148                 | 4.09%          | 0.0144                | 3.91%                 |

| 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 |
|-------------|---|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|-----------------------|-----------------------|
| 032.41      | Potassium, ICP, Dry ash (%)             | 15                      | 14                     | 1.116    | 0.0846 | 1.100                      | 0.0594              | 0.0198                 | 5.39%          | 0.0230                | 3.94%                 |
| 032.31      | Potassium, AAS, Dry ash (%)             | 8                       | 8                      | 1.070    | 0.0934 | 1.070                      | 0.1059              | 0.0468                 | 9.90%          | 0.0129                | 3.96%                 |
| 032.99      | Potassium, Miscellaneous (%)            | 5                       | 5                      | 1.125    | 0.0992 | 1.125                      | 0.0992              | 0.0444                 | 8.82%          | 0.0060                | 3.93%                 |
| 032.52      | Potassium, ICP-MS, Open vessel (%)      | 3                       | 3                      | 1.173    | 0.0972 | 1.173                      | 0.0972              | 0.0687                 | 8.29%          | 0.0921                | 3.90%                 |
| 032.53      | Potassium, ICP-MS, Microwave (%)        | 3                       | 3                      | 1.137    | 0.0275 | 1.137                      | 0.0275              | 0.0159                 | 2.42%          | 0.0333                | 3.92%                 |
| 032.32      | Potassium, AAS, Open vessel (%)         | 1                       | 1                      | 1.195    |        |                            |                     |                        |                |                       |                       |
| 032.44      | Potassium, ICP, Dry ash (%)             | 1                       | 1                      | 1.115    |        |                            |                     |                        |                |                       |                       |
| 033.01      | Salt as chloride, Poten Cl (%)          | 29                      | 28                     | 1.713    | 0.0494 | 1.711                      | 0.0510              | 0.0120                 | 2.98%          | 0.0138                | 3.69%                 |
| 033.00      | Salt as chloride, Sol Cl (%)            | 21                      | 21                     | 1.594    | 0.2152 | 1.643                      | 0.0756              | 0.0206                 | 4.60%          | 0.0203                | 3.71%                 |
| 033.99      | Salt, Miscellaneous (%)                 | 9                       | 9                      | 1.421    | 0.2927 | 1.423                      | 0.3281              | 0.1367                 | 23.06%         | 0.0371                | 3.79%                 |
| 033.03      | Salt as chloride, Quantab (%)           | 5                       | 5                      | 1.369    | 0.3703 | 1.369                      | 0.3703              | 0.1656                 | 27.05%         | 0.0460                | 3.82%                 |
| 033.05      | Salt as chloride, Ion Sel Electrode (%) | 2                       | 2                      | 1.665    | 0.0495 |                            |                     |                        |                |                       |                       |
| 034.53      | Selenium, ICP-MS, Microwave (ppm)       | 8                       | 8                      | 0.7959   | 0.0868 | 0.7930                     | 0.0918              | 0.0406                 | 11.57%         | 0.0522                | 16.56%                |
| 034.43      | Selenium, ICP, Microwave (ppm)          | 6                       | 4                      | 0.8481   | 0.3387 | 0.8481                     | 0.3387              | 0.2117                 | 39.94%         | 0.1333                | 16.40%                |
| 034.04      | Selenium, AA, Hydride (ppm)             | 3                       | 3                      | 0.7158   | 0.0507 | 0.7158                     | 0.0507              | 0.0293                 | 7.08%          | 0.0290                | 16.82%                |
| 034.41      | Selenium, ICP, Dry ash (ppm)            | 3                       | 3                      | 0.5980   | 0.1246 | 0.5980                     | 0.1246              | 0.0720                 | 20.84%         | 0.0240                | 17.28%                |
| 034.52      | Selenium, ICP-MS, Open vessel (ppm)     | 3                       | 3                      | 0.9950   | 0.2693 | 0.9950                     | 0.2693              | 0.1555                 | 27.07%         | 0.0833                | 16.01%                |
| 034.01      | Selenium, Fluor (ppm)                   | 1                       | 1                      | 0.7570   |        |                            |                     |                        |                |                       |                       |
| 034.31      | Selenium, AAS, Dry ash (ppm)            | 1                       | 1                      | 0.8400   |        |                            |                     |                        |                |                       |                       |
| 034.99      | Selenium, Miscellaneous (ppm)           | 1                       | 1                      | 1.860    |        |                            |                     |                        |                |                       |                       |
| 035.41      | Sodium, ICP, Dry ash (%)                | 20                      | 20                     | 0.3826   | 0.0297 | 0.3794                     | 0.0252              | 0.0070                 | 6.64%          | 0.0106                | 4.63%                 |
| 035.43      | Sodium, ICP, Microwave (%)              | 21                      | 20                     | 0.3991   | 0.0418 | 0.3953                     | 0.0201              | 0.0056                 | 5.08%          | 0.0080                | 4.60%                 |
| 035.42      | Sodium, ICP, Open vessel (%)            | 16                      | 16                     | 0.3918   | 0.0201 | 0.3895                     | 0.0172              | 0.0054                 | 4.41%          | 0.0083                | 4.61%                 |
| 035.31      | Sodium, AAS, Dry ash (%)                | 10                      | 10                     | 0.3918   | 0.0382 | 0.3847                     | 0.0231              | 0.0091                 | 6.00%          | 0.0115                | 4.62%                 |
| 035.99      | Sodium, Miscellaneous (%)               | 5                       | 4                      | 0.4038   | 0.0333 | 0.4038                     | 0.0333              | 0.0166                 | 8.24%          | 0.0075                | 4.58%                 |
| 035.52      | Sodium, ICP-MS, Open vessel (%)         | 3                       | 3                      | 0.3866   | 0.0391 | 0.3866                     | 0.0391              | 0.0226                 | 10.11%         | 0.0095                | 4.61%                 |
| 035.53      | Sodium, ICP-MS, Microwave (%)           | 3                       | 3                      | 0.3785   | 0.0075 | 0.3785                     | 0.0075              | 0.0043                 | 1.97%          | 0.0337                | 4.63%                 |
| 035.01      | Sodium, Ion-selective electrode (%)     | 1                       | 1                      | 0.3710   |        |                            |                     |                        |                |                       |                       |
| 035.02      | Sodium, Em Spect (%)                    | 1                       | 1                      | 0.3850   |        |                            |                     |                        |                |                       |                       |
| 035.05      | Sodium, Flame Emission (%)              | 1                       | 1                      | 0.3600   |        |                            |                     |                        |                |                       |                       |
| 035.32      | Sodium, AAS, Open vessel (%)            | 1                       | 1                      | 0.4150   |        |                            |                     |                        |                |                       |                       |
| 036.42      | Sulfur, ICP, Open vessel (%)            | 20                      | 19                     | 0.2878   | 0.0213 | 0.2890                     | 0.0212              | 0.0061                 | 7.34%          | 0.0063                | 4.82%                 |
| 036.43      | Sulfur, ICP, Microwave (%)              | 17                      | 17                     | 0.3056   | 0.0191 | 0.3061                     | 0.0162              | 0.0049                 | 5.28%          | 0.0114                | 4.78%                 |
| 036.04      | Sulfur, LECO (%)                        | 3                       | 3                      | 0.3030   | 0.0271 | 0.3030                     | 0.0271              | 0.0156                 | 8.93%          | 0.0067                | 4.79%                 |
| 036.52      | Sulfur, ICP-MS, Open vessel (%)         | 2                       | 2                      | 0.3246   | 0.0136 |                            |                     |                        |                |                       |                       |
| 036.99      | Sulfur, Miscellaneous (%)               | 2                       | 2                      | 0.2600   | 0.0071 |                            |                     |                        |                |                       |                       |
| 036.53      | Sulfur, ICP-MS, Microwave (%)           | 1                       | 1                      | 0.3000   |        |                            |                     |                        |                |                       |                       |
| 037.43      | Zinc, ICP, Microwave (ppm)              | 26                      | 26                     | 195.6    | 15.78  | 194.9                      | 11.79               | 2.890                  | 6.05%          | 7.403                 | 7.23%                 |
| 037.42      | Zinc, ICP, Open vessel (ppm)            | 17                      | 17                     | 176.6    | 48.15  | 184.8                      | 16.65               | 5.047                  | 9.01%          | 5.673                 | 7.29%                 |
| 037.41      | Zinc, ICP, Dry ash (ppm)                | 15                      | 15                     | 165.7    | 11.35  | 165.6                      | 12.87               | 4.153                  | 7.77%          | 5.116                 | 7.41%                 |

| 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 |
|-------------|---|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|-----------------------|-----------------------|
| 037.31      | Zinc, AAS, Dry ash (ppm)                          | 11                      | 11                     | 161.0    | 40.95  | 167.0                      | 21.69               | 8.175                  | 12.99%         | 4.448                 | 7.40%                 |
| 037.99      | Zinc, Miscellaneous (ppm)                         | 5                       | 5                      | 181.2    | 25.16  | 181.2                      | 25.16               | 11.25                  | 13.88%         | 6.336                 | 7.31%                 |
| 037.52      | Zinc, ICP-MS, Open vessel (ppm)                   | 3                       | 3                      | 177.4    | 21.77  | 177.4                      | 21.77               | 12.57                  | 12.27%         | 6.857                 | 7.34%                 |
| 037.53      | Zinc, ICP-MS, Microwave (ppm)                     | 3                       | 3                      | 182.8    | 9.929  | 182.8                      | 9.929               | 5.732                  | 5.43%          | 7.667                 | 7.30%                 |
| 037.33      | Zinc, AAS, Microwave (ppm)                        | 2                       | 2                      | 168.1    | 0.6399 |                            |                     |                        |                |                       |                       |
| 037.44      | Zinc, ICP, Dry ash (ppm)                          | 2                       | 2                      | 161.9    | 14.01  |                            |                     |                        |                |                       |                       |
| 038.43      | Molybdenum, ICP, Microwave (ppm)                  | 9                       | 9                      | 3.904    | 0.6229 | 3.930                      | 0.6478              | 0.2699                 | 16.48%         | 0.1463                | 13.02%                |
| 038.41      | Molybdenum, ICP, Dry ash (ppm)                    | 3                       | 3                      | 3.646    | 0.5357 | 3.646                      | 0.5357              | 0.3788                 | 14.69%         | 0.1562                | 13.17%                |
| 038.42      | Molybdenum, ICP, Open vessel (ppm)                | 3                       | 3                      | 4.198    | 0.4492 | 4.198                      | 0.4492              | 0.2594                 | 10.70%         | 0.5033                | 12.89%                |
| 038.53      | Molybdenum, ICP-MS, Microwave (ppm)               | 3                       | 3                      | 4.613    | 0.1484 | 4.613                      | 0.1484              | 0.0857                 | 3.22%          | 0.2667                | 12.71%                |
| 038.52      | Molybdenum, ICP-MS, Open vessel (ppm)             | 2                       | 2                      | 3.378    | 0.1025 |                            |                     |                        |                |                       |                       |
| 040.52      | Barium, ICP-MS, Open vessel (ppm)                 | 1                       | 1                      | 22.25    |        |                            |                     |                        |                |                       |                       |
| 041.53      | Vanadium, ICP-MS, Microwave (ppm)                 | 1                       | 1                      | 0.8950   |        |                            |                     |                        |                |                       |                       |
| 041.43      | Vanadium, ICP, Microwave (ppm)                    | 1                       |                        | 2.000    |        |                            |                     |                        |                |                       |                       |
| 042.00      | Chloride, Titrimetric (%)                         | 2                       | 2                      | 1.050    | 0.0141 |                            |                     |                        |                |                       |                       |
| 042.99      | Chloride, Miscellaneous (%)                       | 2                       | 2                      | 0.9675   | 0.1379 |                            |                     |                        |                |                       |                       |
| 101.99      | Choline Chloride, Miscellaneous (ppm)             | 1                       | 1                      | 1,475    |        |                            |                     |                        |                |                       |                       |
| 102.01      | Niacin, Microbiological (ppm)                     | 1                       | 1                      | 110.5    |        |                            |                     |                        |                |                       |                       |
| 103.01      | Pantothenic Acid, Microbiological (ppm)           | 1                       | 1                      | 9.350    |        |                            |                     |                        |                |                       |                       |
| 104.00      | Riboflavin, Fluorometric (ppm)                    | 2                       | 2                      | 6.113    | 3.914  |                            |                     |                        |                |                       |                       |
| 104.03      | Riboflavin, LC (ppm)                              | 1                       | 1                      | 0.7650   |        |                            |                     |                        |                |                       |                       |
| 105.00      | Thiamine, LC (ppm)                                | 1                       | 1                      | 1.755    |        |                            |                     |                        |                |                       |                       |
| 105.01      | Thiamine, Fluorometer (ppm)                       | 1                       | 1                      | 3.550    |        |                            |                     |                        |                |                       |                       |
| 106.02      | Vitamin A, LC (KU / kg)                           | 16                      | 15                     | 13.05    | 5.846  | 12.71                      | 5.734               | 1.851                  | 45.13%         | 1.081                 |                       |
| 106.00      | Vitamin A, Color (KU / kg)                        | 1                       | 1                      | 13.45    |        |                            |                     |                        |                |                       |                       |
| 106.01      | Vitamin A, UV (KU / kg)                           | 1                       | 1                      | 13.55    |        |                            |                     |                        |                |                       |                       |
| 107.00      | Vitamin B12, Microbiological (ppb)                | 1                       | 1                      | 37.60    |        |                            |                     |                        |                |                       |                       |
| 108.02      | Vitamin D3, LC (KU / kg)                          | 4                       | 4                      | 1.379    | 0.5576 | 1.379                      | 0.5576              | 0.2788                 | 40.44%         | 0.1673                |                       |
| 108.99      | Vitamin D3, Miscellaneous (KU / kg)               | 1                       | 1                      | 0.7185   |        |                            |                     |                        |                |                       |                       |
| 109.02      | Vitamin E, LC (IU / kg)                           | 14                      | 13                     | 76.59    | 20.58  | 77.98                      | 19.90               | 6.900                  | 25.52%         | 5.682                 |                       |
| 109.99      | Vitamin E, Miscellaneous (IU / kg)                | 1                       | 1                      | 74.00    |        |                            |                     |                        |                |                       |                       |
| 111.00      | Vitamin C, Phosphorylated, LC (ppm)               | 1                       |                        | 9.530    |        |                            |                     |                        |                |                       |                       |
| 112.01      | Pyridoxine, LC (µg / g)                           | 1                       | 1                      | 3.430    |        |                            |                     |                        |                |                       |                       |
| 113.01      | Folic Acid, Micro (ppm)                           | 1                       | 1                      | 0.6785   |        |                            |                     |                        |                |                       |                       |
| 114.01      | Biotin, Microbiological (ppm)                     | 1                       | 1                      | 0.2255   |        |                            |                     |                        |                |                       |                       |
| 115.00      | Non Protein N (NPN), Urea + Am, Urease method (%) | 1                       | 1                      | 1.005    |        |                            |                     |                        |                |                       |                       |
| 118.99      | Peroxide value, Miscellaneous (meq/kg)            | 1                       | 1                      | 6.235    |        |                            |                     |                        |                |                       |                       |
| 120.00      | Alanine, Post-col Ninhydrin Der (%)               | 19                      | 19                     | 0.6167   | 0.0284 | 0.6203                     | 0.0213              | 0.0061                 | 3.44%          | 0.0100                | 4.30%                 |
| 120.05      | Alanine, Pre-col AQC Der (%)                      | 7                       | 7                      | 0.6044   | 0.0146 | 0.6044                     | 0.0166              | 0.0078                 | 2.75%          | 0.0160                | 4.31%                 |
| 120.99      | Alanine, Miscellaneous (%)                        | 2                       | 2                      | 0.5525   | 0.0884 |                            |                     |                        |                |                       |                       |

| 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 |
|-------------|--|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|-----------------------|-----------------------|
| 120.02      | Alanine, Post-col OPA Der (%)                    | 1                       | 1                      | 0.6315   |        |                            |                     |                        |                |                       |                       |
| 121.00      | Arginine, Post-col Ninhydrin Der (%)             | 19                      | 19                     | 0.7614   | 0.0378 | 0.7589                     | 0.0303              | 0.0087                 | 3.99%          | 0.0143                | 4.17%                 |
| 121.05      | Arginine, Pre-col AQC Der (%)                    | 7                       | 7                      | 0.7650   | 0.0377 | 0.7650                     | 0.0427              | 0.0202                 | 5.58%          | 0.0183                | 4.16%                 |
| 121.99      | Arginine, Miscellaneous (%)                      | 2                       | 2                      | 0.7225   | 0.0035 |                            |                     |                        |                |                       |                       |
| 121.02      | Arginine, Post-col OPA Der (%)                   | 1                       | 1                      | 0.7410   |        |                            |                     |                        |                |                       |                       |
| 122.00      | Aspartic, Post-col Ninhydrin Der (%)             | 19                      | 19                     | 0.9397   | 0.0325 | 0.9378                     | 0.0297              | 0.0085                 | 3.17%          | 0.0124                | 4.04%                 |
| 122.05      | Aspartic, Pre-col AQC Der (%)                    | 6                       | 5                      | 0.9122   | 0.0540 | 0.9122                     | 0.0540              | 0.0292                 | 5.92%          | 0.0020                | 4.06%                 |
| 122.99      | Aspartic, Miscellaneous (%)                      | 2                       | 2                      | 0.9850   | 0.0990 |                            |                     |                        |                |                       |                       |
| 122.02      | Aspartic, Post-col OPA Der (%)                   | 1                       | 1                      | 0.9135   |        |                            |                     |                        |                |                       |                       |
| 124.00      | Cysteine/Cystine, PAO Post-col Ninhydrin Der (%) | 19                      | 19                     | 0.2468   | 0.0195 | 0.2465                     | 0.0195              | 0.0056                 | 7.90%          | 0.0095                | 4.94%                 |
| 124.05      | Cysteine/Cystine, PAO Pre-col AQC Der (%)        | 7                       | 7                      | 0.2956   | 0.1064 | 0.2910                     | 0.1098              | 0.0519                 | 37.75%         | 0.0046                | 4.82%                 |
| 124.99      | Cysteine/Cystine, Miscellaneous (%)              | 2                       | 2                      | 0.2050   | 0.0212 |                            |                     |                        |                |                       |                       |
| 124.02      | Cysteine/Cystine, PAO Post-col OPA Der (%)       | 1                       | 1                      | 0.2580   |        |                            |                     |                        |                |                       |                       |
| 125.00      | Glutamic, Post-col Ninhydrin Der (%)             | 19                      | 19                     | 2.152    | 0.0843 | 2.149                      | 0.0875              | 0.0251                 | 4.07%          | 0.0209                | 3.56%                 |
| 125.05      | Glutamic, Pre-col AQC Der (%)                    | 7                       | 7                      | 2.120    | 0.0708 | 2.120                      | 0.0803              | 0.0379                 | 3.79%          | 0.0603                | 3.57%                 |
| 125.99      | Glutamic, Miscellaneous (%)                      | 2                       | 2                      | 1.885    | 0.2616 |                            |                     |                        |                |                       |                       |
| 125.02      | Glutamic, Post-col OPA Der (%)                   | 1                       | 1                      | 2.124    |        |                            |                     |                        |                |                       |                       |
| 126.00      | Glycine, Post-col Ninhydrin Der (%)              | 19                      | 19                     | 0.6516   | 0.0262 | 0.6526                     | 0.0276              | 0.0079                 | 4.23%          | 0.0115                | 4.27%                 |
| 126.05      | Glycine, Pre-col AQC Der (%)                     | 7                       | 7                      | 0.6497   | 0.0384 | 0.6497                     | 0.0435              | 0.0206                 | 6.70%          | 0.0195                | 4.27%                 |
| 126.99      | Glycine, Miscellaneous (%)                       | 2                       | 2                      | 0.4675   | 0.2510 |                            |                     |                        |                |                       |                       |
| 126.02      | Glycine, Post-col OPA Der (%)                    | 1                       | 1                      | 0.6625   |        |                            |                     |                        |                |                       |                       |
| 127.00      | Histidine, Post-col Ninhydrin Der (%)            | 19                      | 18                     | 0.3265   | 0.0180 | 0.3260                     | 0.0187              | 0.0055                 | 5.74%          | 0.0048                | 4.73%                 |
| 127.05      | Histidine, Pre-col AQC Der (%)                   | 7                       | 7                      | 0.3106   | 0.0322 | 0.3042                     | 0.0199              | 0.0094                 | 6.54%          | 0.0138                | 4.78%                 |
| 127.99      | Histidine, Miscellaneous (%)                     | 2                       | 2                      | 0.3050   | 0.0212 |                            |                     |                        |                |                       |                       |
| 127.02      | Histidine, Post-col OPA Der (%)                  | 1                       | 1                      | 0.3195   |        |                            |                     |                        |                |                       |                       |
| 128.00      | Isoleucine, Post-col Ninhydrin Der (%)           | 19                      | 19                     | 0.3949   | 0.0348 | 0.3949                     | 0.0305              | 0.0087                 | 7.72%          | 0.0109                | 4.60%                 |
| 128.05      | Isoleucine, Pre-col AQC Der (%)                  | 7                       | 7                      | 0.3925   | 0.0295 | 0.3984                     | 0.0179              | 0.0085                 | 4.49%          | 0.0100                | 4.59%                 |
| 128.99      | Isoleucine, Miscellaneous (%)                    | 2                       | 2                      | 0.3925   | 0.0106 |                            |                     |                        |                |                       |                       |
| 128.02      | Isoleucine, Post-col OPA Der (%)                 | 1                       | 1                      | 0.4115   |        |                            |                     |                        |                |                       |                       |
| 129.00      | Leucine, Post-col Ninhydrin Der (%)              | 19                      | 19                     | 0.7974   | 0.0392 | 0.7994                     | 0.0321              | 0.0092                 | 4.01%          | 0.0136                | 4.14%                 |
| 129.05      | Leucine, Pre-col AQC Der (%)                     | 7                       | 6                      | 0.7806   | 0.0468 | 0.7806                     | 0.0531              | 0.0271                 | 6.80%          | 0.0058                | 4.15%                 |
| 129.99      | Leucine, Miscellaneous (%)                       | 2                       | 2                      | 0.8500   | 0.0849 |                            |                     |                        |                |                       |                       |
| 129.02      | Leucine, Post-col OPA Der (%)                    | 1                       | 1                      | 0.8155   |        |                            |                     |                        |                |                       |                       |
| 130.00      | L-Lysine, Post-col Ninhydrin Der (%)             | 19                      | 19                     | 0.5018   | 0.0173 | 0.5028                     | 0.0175              | 0.0050                 | 3.48%          | 0.0089                | 4.44%                 |
| 130.05      | L-Lysine, Pre-col AQC Der (%)                    | 7                       | 6                      | 0.4848   | 0.0506 | 0.4848                     | 0.0574              | 0.0293                 | 11.83%         | 0.0055                | 4.46%                 |
| 130.99      | L-Lysine, Miscellaneous (%)                      | 2                       | 2                      | 0.5300   | 0.0141 |                            |                     |                        |                |                       |                       |
| 130.02      | L-Lysine, Post-col OPA Der (%)                   | 1                       | 1                      | 0.5430   |        |                            |                     |                        |                |                       |                       |
| 131.00      | Methionine, PAO Post-col Ninhydrin Der (%)       | 19                      | 18                     | 0.1631   | 0.0129 | 0.1643                     | 0.0106              | 0.0031                 | 6.46%          | 0.0037                | 5.25%                 |
| 131.05      | Methionine, PAO Pre-col AQC Der (%)              | 7                       | 7                      | 0.1667   | 0.0477 | 0.1667                     | 0.0540              | 0.0255                 | 32.42%         | 0.0100                | 5.24%                 |
| 131.99      | Methionine, Miscellaneous (%)                    | 2                       | 2                      | 0.1800   | 0.0141 |                            |                     |                        |                |                       |                       |

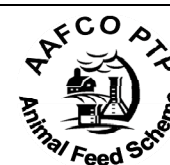
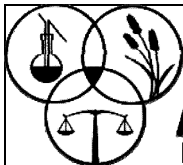
| Method Code | Analyte and Method                          | Total # Labs Submitting | # Labs in Robust Calcs | Raw Mean | Raw SD | Assigned Value Robust Mean | AAFCO ffp Robust SD | Uncertainty (U) Robust | % RSD - Robust | Average Range (R-bar) | Thompson Horwitz %RSD |
|-------------|---|-------------------------|------------------------|----------|--------|----------------------------|---------------------|------------------------|----------------|-----------------------|-----------------------|
| 131.02      | Methionine, PAO Post-col OPA Der (%)        | 1                       | 1                      | 0.1640   |        |                            |                     |                        |                |                       |                       |
| 132.00      | Phenylalanine, Post-col Ninhydrin Der (%)   | 19                      | 19                     | 0.4860   | 0.0326 | 0.4825                     | 0.0281              | 0.0081                 | 5.83%          | 0.0128                | 4.46%                 |
| 132.05      | Phenylalanine, Pre-col AQC Der (%)          | 7                       | 7                      | 0.4939   | 0.0527 | 0.4939                     | 0.0598              | 0.0282                 | 12.10%         | 0.0157                | 4.45%                 |
| 132.99      | Phenylalanine, Miscellaneous (%)            | 2                       | 2                      | 0.4825   | 0.0318 |                            |                     |                        |                |                       |                       |
| 132.02      | Phenylalanine, Post-col OPA Der (%)         | 1                       | 1                      | 0.4855   |        |                            |                     |                        |                |                       |                       |
| 133.00      | Proline, Post-col Ninhydrin Der (%)         | 19                      | 19                     | 0.7903   | 0.0761 | 0.7927                     | 0.0590              | 0.0169                 | 7.44%          | 0.0250                | 4.14%                 |
| 133.05      | Proline, Pre-col AQC Der (%)                | 7                       | 7                      | 0.8158   | 0.0497 | 0.8158                     | 0.0564              | 0.0266                 | 6.91%          | 0.0160                | 4.12%                 |
| 133.99      | Proline, Miscellaneous (%)                  | 2                       | 2                      | 0.8125   | 0.0743 |                            |                     |                        |                |                       |                       |
| 134.00      | Serine, Post-col Ninhydrin Der (%)          | 19                      | 18                     | 0.5429   | 0.0235 | 0.5421                     | 0.0190              | 0.0056                 | 3.50%          | 0.0068                | 4.39%                 |
| 134.05      | Serine, Pre-col AQC Der (%)                 | 7                       | 7                      | 0.5378   | 0.0878 | 0.5580                     | 0.0455              | 0.0215                 | 8.16%          | 0.0079                | 4.37%                 |
| 134.99      | Serine, Miscellaneous (%)                   | 2                       | 2                      | 0.4900   | 0.0707 |                            |                     |                        |                |                       |                       |
| 134.02      | Serine, Post-col OPA Der (%)                | 1                       | 1                      | 0.4960   |        |                            |                     |                        |                |                       |                       |
| 135.00      | Threonine, Post-col Ninhydrin Der (%)       | 19                      | 19                     | 0.4218   | 0.0159 | 0.4218                     | 0.0158              | 0.0045                 | 3.73%          | 0.0057                | 4.55%                 |
| 135.05      | Threonine, Pre-col AQC Der (%)              | 7                       | 6                      | 0.4112   | 0.0629 | 0.4294                     | 0.0173              | 0.0089                 | 4.04%          | 0.0018                | 4.54%                 |
| 135.99      | Threonine, Miscellaneous (%)                | 2                       | 2                      | 0.4150   | 0.0071 |                            |                     |                        |                |                       |                       |
| 135.02      | Threonine, Post-col OPA Der (%)             | 1                       | 1                      | 0.4240   |        |                            |                     |                        |                |                       |                       |
| 136.00      | Tryptophan, Alka-Hydrol Post-col Ninhyd (%) | 7                       | 7                      | 0.1640   | 0.0243 | 0.1640                     | 0.0275              | 0.0130                 | 16.80%         | 0.0114                | 5.25%                 |
| 136.03      | Tryptophan, Alka-Hydrol + IS RP LC FI (%)   | 5                       | 5                      | 0.1523   | 0.0079 | 0.1523                     | 0.0079              | 0.0035                 | 5.15%          | 0.0031                | 5.31%                 |
| 136.01      | Tryptophan, Alka-Hydrol Rev Phase LC UV (%) | 3                       | 3                      | 0.1600   | 0.0028 | 0.1600                     | 0.0028              | 0.0016                 | 1.74%          | 0.0027                | 5.27%                 |
| 136.05      | Tryptophan, Pre-col AQC Der (%)             | 2                       | 2                      | 0.1435   | 0.0240 |                            |                     |                        |                |                       |                       |
| 136.02      | Tryptophan, Alka-Hydrol Post-col OPA De (%) | 1                       | 1                      | 0.1530   |        |                            |                     |                        |                |                       |                       |
| 136.99      | Tryptophan, Miscellaneous (%)               | 1                       | 1                      | 0.3350   |        |                            |                     |                        |                |                       |                       |
| 137.00      | Tyrosine, Post-col Ninhydrin Der (%)        | 13                      | 13                     | 0.3115   | 0.0652 | 0.3144                     | 0.0676              | 0.0234                 | 21.50%         | 0.0095                | 4.76%                 |
| 137.05      | Tyrosine, Pre-col AQC Der (%)               | 7                       | 7                      | 0.4127   | 0.1217 | 0.3917                     | 0.0842              | 0.0398                 | 21.50%         | 0.0103                | 4.61%                 |
| 137.99      | Tyrosine, Miscellaneous (%)                 | 2                       | 2                      | 0.3250   | 0.0141 |                            |                     |                        |                |                       |                       |
| 137.02      | Tyrosine, Post-col OPA Der (%)              | 1                       | 1                      | 0.3370   |        |                            |                     |                        |                |                       |                       |
| 138.00      | Valine, Post-col Ninhydrin Der (%)          | 19                      | 18                     | 0.5566   | 0.0329 | 0.5583                     | 0.0329              | 0.0097                 | 5.89%          | 0.0101                | 4.37%                 |
| 138.05      | Valine, Pre-col AQC Der (%)                 | 7                       | 7                      | 0.5517   | 0.0623 | 0.5610                     | 0.0472              | 0.0223                 | 8.41%          | 0.0154                | 4.36%                 |
| 138.99      | Valine, Miscellaneous (%)                   | 2                       | 2                      | 0.5550   | 0.0636 |                            |                     |                        |                |                       |                       |
| 138.02      | Valine, Post-col OPA Der (%)                | 1                       | 1                      | 0.5925   |        |                            |                     |                        |                |                       |                       |
| 139.00      | Taurine, Post-col Ninhydrin Der (%)         | 1                       | 1                      | 0.0750   |        |                            |                     |                        |                |                       |                       |
| 139.05      | Taurine, Pre-col AQC Der (%)                | 1                       | 1                      | 0.0350   |        |                            |                     |                        |                |                       |                       |
| 139.99      | Taurine, Miscellaneous (%)                  | 2                       | 1                      | 0.0100   |        |                            |                     |                        |                |                       |                       |
| 139.02      | Taurine, Post-col OPA Der (%)               | 1                       |                        | 0.0100   |        |                            |                     |                        |                |                       |                       |
| 160.99      | Fructose, Miscellaneous (%)                 | 3                       | 3                      | 0.2283   | 0.0355 | 0.2283                     | 0.0355              | 0.0205                 | 15.53%         | 0.0273                | 5.00%                 |
| 160.10      | Fructose, HPAEC PAD (%)                     | 1                       | 1                      | 0.1645   |        |                            |                     |                        |                |                       |                       |
| 161.10      | Galactose, HPAEC PAD (%)                    | 1                       |                        | 0.0000   |        |                            |                     |                        |                |                       |                       |
| 162.99      | Glucose, Miscellaneous (%)                  | 3                       | 2                      | 0.1680   | 0.0240 | 0.1680                     | 0.0240              |                        |                | 0.0070                | 5.23%                 |
| 162.10      | Glucose, HPAEC PAD (%)                      | 1                       | 1                      | 0.1480   |        |                            |                     |                        |                |                       |                       |
| 163.99      | Lactose, Miscellaneous (%)                  | 3                       | 1                      |          |        |                            |                     |                        |                |                       |                       |



| 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 |
|-------------|--|-------------------------|------------------------|----------|--------|----------------------------|---------------------|--------------------------|----------------|-----------------------|-----------------------|
| 163.10      | Lactose, HPAEC PAD (%)                         | 1                       |                        | 0.0000   |        |                            |                     |                          |                |                       |                       |
| 164.10      | Maltose, HPAEC PAD (%)                         | 1                       | 1                      | 0.4855   |        |                            |                     |                          |                |                       |                       |
| 164.99      | Maltose, Miscellaneous (%)                     | 2                       | 1                      | 0.1150   |        |                            |                     |                          |                |                       |                       |
| 165.99      | Sucrose, Miscellaneous (%)                     | 3                       | 3                      | 1.777    | 0.2855 | 1.777                      | 0.2855              | 0.1648                   | 16.07%         | 0.0133                | 3.67%                 |
| 165.10      | Sucrose, HPAEC PAD (%)                         | 1                       | 1                      | 1.486    |        |                            |                     |                          |                |                       |                       |
| 166.99      | Raffinose, Miscellaneous (%)                   | 2                       | 2                      | 0.2845   | 0.1563 |                            |                     |                          |                |                       |                       |
| 166.10      | Raffinose, HPAEC PAD (%)                       | 1                       | 1                      | 0.4890   |        |                            |                     |                          |                |                       |                       |
| 167.99      | Stachyose, Miscellaneous (%)                   | 2                       | 2                      | 0.2125   | 0.0955 |                            |                     |                          |                |                       |                       |
| 167.10      | Stachyose, HPAEC PAD (%)                       | 1                       | 1                      | 0.3935   |        |                            |                     |                          |                |                       |                       |
| 345.04      | Amprolium, LC-MS/MS (ppm)                      | 5                       | 3                      | 0.1336   | 0.0177 | 0.1336                     | 0.0177              | 0.0102                   | 13.24%         | 0.0107                | 21.66%                |
| 345.02      | Amprolium, LC (UV or FL) (ppm)                 | 1                       | 1                      | 3.243    |        |                            |                     |                          |                |                       |                       |
| 354.04      | Decoquinatate, LC-MS/MS (ppm)                  | 5                       | 4                      | 2.171    | 0.1541 | 2.171                      | 0.1541              | 0.0770                   | 7.10%          | 0.0675                | 14.23%                |
| 354.01      | Decoquinatate, LC (UV or FL) (ppm)             | 2                       | 2                      | 2.769    | 0.2556 |                            |                     |                          |                |                       |                       |
| 354.02      | Decoquinatate, LC (ppm)                        | 1                       | 1                      | 2.600    |        |                            |                     |                          |                |                       |                       |
| 361.05      | Lasalocid Sodium, LC-MS/MS (ppm)               | 7                       | 7                      | 1.104    | 0.1646 | <b>1.144</b>               | 0.0782              | 0.0370                   | 6.84%          | 0.0957                | 15.68%                |
| 361.03      | Lasalocid Sodium, LC (UV or FL) (ppm)          | 4                       | 4                      | 3.997    | 4.740  | 3.997                      | 4.740               | 2.370                    | 118.58%        | 0.0778                | 12.99%                |
| 365.05      | Monensin, LC-MS/MS (ppm)                       | 1                       |                        | 0.2400   |        |                            |                     |                          |                |                       |                       |
| 400.01      | Water Activity, Aqualab chilled mirror (Units) | 9                       | 9                      | 0.4604   | 0.0334 | <b>0.4571</b>              | 0.0296              | 0.0123                   | 6.47%          | 0.0060                |                       |
| 400.99      | Water Activity, Miscellaneous (Units)          | 1                       | 1                      | 0.4485   |        |                            |                     |                          |                |                       |                       |
| 516.53      | Arsenic, Total, ICP-MS, Microwave (ppm)        | 4                       | 4                      | 0.1947   | 0.0147 | 0.1947                     | 0.0147              | 0.0074                   | 7.55%          | 0.0110                | 20.46%                |
| 516.00      | Arsenic, Total, AA, Hydride (ppm)              | 2                       | 2                      | 0.1708   | 0.0293 |                            |                     |                          |                |                       |                       |
| 516.52      | Arsenic, Total, ICP-MS, Open vessel (ppm)      | 2                       | 2                      | 0.1850   | 0.0141 |                            |                     |                          |                |                       |                       |
| 516.43      | Arsenic, Total, ICP, Microwave (ppm)           | 2                       |                        | 5.000    |        |                            |                     |                          |                |                       |                       |
| 518.53      | Cadmium, ICP-MS, Microwave (ppm)               | 4                       | 4                      | 0.1138   | 0.0103 | 0.1138                     | 0.0103              | 0.0052                   | 9.09%          | 0.0050                | 22.00%                |
| 518.41      | Cadmium, ICP, Dry ash (ppm)                    | 2                       | 2                      | 0.0974   | 0.0153 |                            |                     |                          |                |                       |                       |
| 518.43      | Cadmium, ICP, Microwave (ppm)                  | 4                       | 2                      | 0.1070   | 0.0142 | 0.1070                     | 0.0142              |                          |                | 0.0050                | 22.00%                |
| 518.52      | Cadmium, ICP-MS, Open vessel (ppm)             | 2                       | 2                      | 0.1175   | 0.0177 |                            |                     |                          |                |                       |                       |
| 518.31      | Cadmium, AAS, Dry ash (ppm)                    | 1                       |                        | 0.2000   |        |                            |                     |                          |                |                       |                       |
| 520.43      | Chromium, ICP, Microwave (ppm)                 | 4                       | 3                      | 18.52    | 0.6235 | 18.52                      | 0.6235              | 0.4409                   | 3.37%          | 0.2670                | 10.31%                |
| 520.41      | Chromium, ICP, Dry ash (ppm)                   | 2                       | 2                      | 8.909    | 5.034  |                            |                     |                          |                |                       |                       |
| 520.53      | Chromium, ICP-MS, Microwave (ppm)              | 2                       | 2                      | 17.10    | 1.839  |                            |                     |                          |                |                       |                       |
| 520.42      | Chromium, ICP, Open vessel (ppm)               | 1                       | 1                      | 17.45    |        |                            |                     |                          |                |                       |                       |
| 520.52      | Chromium, ICP-MS, Open vessel (ppm)            | 1                       | 1                      | 3.750    |        |                            |                     |                          |                |                       |                       |
| 526.53      | Lead, ICP-MS, Microwave (ppm)                  | 4                       | 3                      | 0.1930   | 0.0380 | 0.1930                     | 0.0380              | 0.0219                   | 19.69%         | 0.0187                | 20.49%                |
| 526.41      | Lead, ICP, Dry ash (ppm)                       | 2                       | 2                      | 0.1005   | 0.0219 |                            |                     |                          |                |                       |                       |
| 526.52      | Lead, ICP-MS, Open vessel (ppm)                | 2                       | 2                      | 0.2175   | 0.0248 |                            |                     |                          |                |                       |                       |
| 526.43      | Lead, ICP, Microwave (ppm)                     | 3                       | 1                      |          |        |                            |                     |                          |                |                       |                       |
| 526.31      | Lead, AAS, Dry ash (ppm)                       | 1                       |                        | 0.2000   |        |                            |                     |                          |                |                       |                       |
| 529.99      | Mercury, Miscellaneous (ppb)                   | 4                       | 1                      |          |        |                            |                     |                          |                |                       |                       |
| 539.43      | Nickel, ICP, Microwave (ppm)                   | 3                       | 3                      | 9.578    | 1.181  | 9.578                      | 1.181               | 0.8347                   | 12.32%         | 0.0493                | 11.39%                |

| 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 |
|-------------|---|-------------------------|------------------------|----------|--------|----------------------------|---------------------|--------------------------|----------------|-----------------------|-----------------------|
| 539.41      | Nickel, ICP, Dry ash (ppm)  | 2                       | 2                      | 6.663    | 0.6119 |                            |                     |                          |                |                       |                       |
| 539.53      | Nickel, ICP-MS, Microwave (ppm)   | 2                       | 2                      | 10.89    | 0.8627 |                            |                     |                          |                |                       |                       |
| 539.52      | Nickel, ICP-MS, Open vessel (ppm)   | 1                       | 1                      | 2.650    |        |                            |                     |                          |                |                       |                       |
| 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))                                | 1                       |                        | 0.0200   |        |                            |                     |                          |                |                       |                       |
| 708.99      | Capric acid (10:0), Miscellaneous (% (w/w))                                 | 1                       |                        | 0.0200   |        |                            |                     |                          |                |                       |                       |
| 710.99      | Lauric Acid (12:0), Miscellaneous (% (w/w))                                 | 2                       |                        | 0.0050   |        |                            |                     |                          |                |                       |                       |
| 714.99      | Myristic Acid (14:0) , Miscellaneous (% (w/w))                              | 2                       | 1                      | 0.0070   |        |                            |                     |                          |                |                       |                       |
| 716.99      | Palmitic Acid (16:0), Miscellaneous (% (w/w))                               | 2                       | 2                      | 0.5613   | 0.0548 |                            |                     |                          |                |                       |                       |
| 718.99      | Palmitoleic Acid (9c-16:1), Miscellaneous (% (w/w))                         | 2                       | 1                      | 0.0105   |        |                            |                     |                          |                |                       |                       |
| 720.99      | Margaric acid (17:0), Miscellaneous (% (w/w))                               | 1                       |                        | 0.0200   |        |                            |                     |                          |                |                       |                       |
| 722.99      | Stearic Acid (18:0), Miscellaneous (% (w/w))                                | 2                       | 2                      | 0.0678   | 0.0103 |                            |                     |                          |                |                       |                       |
| 724.99      | Oleic Acid (9c-18:1), Miscellaneous (% (w/w))                               | 2                       | 2                      | 0.5133   | 0.0308 |                            |                     |                          |                |                       |                       |
| 726.99      | Linoleic Acid (9c,12c-18:2), Miscellaneous (% (w/w))                        | 2                       | 2                      | 1.238    | 0.0028 |                            |                     |                          |                |                       |                       |
| 728.99      | alpha-Linolenic Acid (9c,12c,15c-18:3), Miscellaneous (% (w/w))             | 2                       | 2                      | 0.0895   | 0.0007 |                            |                     |                          |                |                       |                       |
| 730.99      | Arachidic Acid (20:0), Miscellaneous (% (w/w))                              | 2                       | 1                      | 0.0090   |        |                            |                     |                          |                |                       |                       |
| 732.99      | Gondoic Acid (11c-20:1), Miscellaneous (% (w/w))                            | 2                       | 2                      | 0.0175   | 0.0035 |                            |                     |                          |                |                       |                       |
| 736.99      | Arachidonic Acid (5c,8c,11c,14c-20:4), Miscellaneous (% (w/w))              | 1                       |                        | 0.0200   |        |                            |                     |                          |                |                       |                       |
| 740.99      | Eicosapentaenoic Acid EPA (5c,8c,11c,14c,17c-20:5), Miscellaneous (% (w/w)) | 2                       |                        | 0.0000   |        |                            |                     |                          |                |                       |                       |
| 742.99      | Behenic Acid (22:0), Miscellaneous (% (w/w))                                | 2                       | 1                      | 0.0095   |        |                            |                     |                          |                |                       |                       |
| 744.99      | Erucic Acid (13c-22:1), Miscellaneous (% (w/w))                             | 2                       |                        | 0.0050   |        |                            |                     |                          |                |                       |                       |
| 746.99      | Docosapentaenoic Acid n-3 DPA (7c,10c,13c,16c,19c-22:5), Miscellaneous (%)  | 2                       |                        | 0.0000   |        |                            |                     |                          |                |                       |                       |
| 748.99      | Lignoceric Acid (24:0), Miscellaneous (% (w/w))                             | 2                       | 2                      | 0.0183   | 0.0025 |                            |                     |                          |                |                       |                       |
| 750.99      | Docosahexaenoic Acid DHA (4c,7c,10c,13c,16c,19c-22:6), Miscellaneous (%)    | 2                       |                        | 0.0000   |        |                            |                     |                          |                |                       |                       |
| 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))    | 1                       | 1                      | 0.1000   |        |                            |                     |                          |                |                       |                       |
| 756.99      | Total n-6 Polyunsaturated (Omega-6) Fatty Acids, Miscellaneous (% (w/w))    | 1                       | 1                      | 1.255    |        |                            |                     |                          |                |                       |                       |
| 758.99      | Total Saturated Fatty Acids, Miscellaneous (% (w/w))                        | 1                       | 1                      | 0.7550   |        |                            |                     |                          |                |                       |                       |
| 764.99      | Total cis Monounsaturated Fatty Acids, Miscellaneous (% (w/w))              | 1                       | 1                      | 0.6200   |        |                            |                     |                          |                |                       |                       |
| 768.99      | Total cis Polyunsaturated Fatty Acids, Miscellaneous (% (w/w))              | 1                       | 1                      | 1.360    |        |                            |                     |                          |                |                       |                       |
| 770.99      | Total Fat (equivalent to NLEA), Miscellaneous (% (w/w))                     | 1                       | 1                      | 2.885    |        |                            |                     |                          |                |                       |                       |
| 772.99      | Total Fatty Acids, Miscellaneous (% (w/w))                                  | 2                       | 2                      | 2.605    | 0.1980 |                            |                     |                          |                |                       |                       |

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**

**Sheep Feed**

**Test Material Code # 202030**

**Method Precision Report**

**# Methods Reported: 87**

**# Labs Reporting: 178**

**Issue Date : 11/30/2020**

| 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 (%)              | 39                      | 33                             | 8.109          | 0.2804       | 0.2145          | 0.0896         | 0.2324             | 2.65%             | 1.11%            | 2.87%                | 2.595 |
| 001.99      | Loss on Drying, Miscellaneous (%)                    | 20                      | 20                             | 8.004          | 0.4980       | 0.4882          | 0.1384         | 0.5075             | 6.10%             | 1.73%            | 6.34%                | 3.667 |
| 002.01      | Protein, Crude, Auto Kjel-Foss (%)                   | 14                      | 12                             | 13.86          | 0.1716       | 0.1207          | 0.0738         | 0.1414             | 0.87%             | 0.53%            | 1.02%                | 1.917 |
| 002.05      | Protein, Crude, Copper, Boric Acid (%)               | 30                      | 29                             | 13.90          | 0.1923       | 0.1204          | 0.1061         | 0.1605             | 0.87%             | 0.76%            | 1.16%                | 1.513 |
| 002.06      | Protein, Crude, Combustion Nitrogen Analyzer (%)     | 114                     | 104                            | 14.05          | 0.4536       | 0.2836          | 0.1253         | 0.3101             | 2.02%             | 0.89%            | 2.21%                | 2.474 |
| 003.06      | Fat, Crude, Pet Ether (%)                            | 15                      | 14                             | 2.417          | 0.2606       | 0.2494          | 0.0613         | 0.2568             | 10.22%            | 2.51%            | 10.53%               | 4.188 |
| 003.09      | Fat, Crude, Randall, Diethyl Ether Ext (%)           | 12                      | 10                             | 2.574          | 0.1675       | 0.1745          | 0.0172         | 0.1753             | 6.76%             | 0.67%            | 6.79%                | 10.19 |
| 003.10      | Fat, Crude, Randall, Pet Ether (%)                   | 28                      | 27                             | 2.139          | 0.2040       | 0.1980          | 0.0695         | 0.2098             | 9.26%             | 3.25%            | 9.81%                | 3.019 |
| 003.14      | Fat, Crude, Ankom (%)                                | 54                      | 49                             | 2.302          | 0.2834       | 0.2419          | 0.1091         | 0.2653             | 10.65%            | 4.80%            | 11.68%               | 2.432 |
| 004.00      | Fiber, Crude, Asbestos Free (%)                      | 14                      | 13                             | 16.88          | 1.457        | 1.221           | 0.1535         | 1.231              | 7.34%             | 0.92%            | 7.39%                | 8.016 |
| 004.06      | Fiber, Crude, Fibertec (%)                           | 22                      | 20                             | 15.59          | 0.8868       | 0.5898          | 0.1856         | 0.6183             | 3.81%             | 1.20%            | 4.00%                | 3.332 |
| 004.07      | Fiber, Crude, ANKOM (%)                              | 65                      | 60                             | 16.19          | 1.270        | 1.156           | 0.2986         | 1.194              | 7.18%             | 1.86%            | 7.42%                | 3.998 |
| 005.00      | Ash, 2h @ 600°C (%)                                  | 72                      | 67                             | 10.62          | 0.3781       | 0.3138          | 0.0825         | 0.3245             | 2.96%             | 0.78%            | 3.07%                | 3.931 |
| 005.05      | Ash, 3h @ 550°C (%)                                  | 25                      | 22                             | 10.82          | 0.2701       | 0.2307          | 0.0744         | 0.2424             | 2.13%             | 0.69%            | 2.24%                | 3.257 |
| 008.02      | Fiber, Acid Detergent, Crucible (%)                  | 13                      | 12                             | 21.56          | 0.8675       | 0.8659          | 0.1741         | 0.8833             | 4.03%             | 0.81%            | 4.11%                | 5.073 |
| 008.08      | Fiber, Acid Detergent, Filter Bag - ANKOM (%)        | 45                      | 43                             | 21.09          | 1.205        | 1.200           | 0.2489         | 1.226              | 5.69%             | 1.18%            | 5.81%                | 4.925 |
| 009.07      | Fiber, Neutral Detergent, AOAC -ENZ Pretreat (%)     | 13                      | 12                             | 38.16          | 3.385        | 2.295           | 0.3353         | 2.320              | 5.91%             | 0.86%            | 5.97%                | 6.918 |
| 009.09      | Fiber, Neutral Detergent, Filter Bag - ANKOM (%)     | 44                      | 41                             | 37.22          | 1.346        | 1.298           | 0.3335         | 1.340              | 3.49%             | 0.90%            | 3.61%                | 4.018 |
| 010.99      | Moisture, Miscellaneous (%)                          | 13                      | 12                             | 8.148          | 0.4005       | 0.3936          | 0.1049         | 0.4073             | 4.83%             | 1.29%            | 5.00%                | 3.884 |
| 011.01      | Loss on Drying, 135°C 2hr (%)                        | 59                      | 56                             | 8.984          | 0.4584       | 0.4071          | 0.1137         | 0.4227             | 4.53%             | 1.27%            | 4.71%                | 3.717 |
| 012.00      | Starch, Polarimetric (Ewers) (%)                     | 16                      | 16                             | 15.90          | 0.6093       | 0.6026          | 0.1274         | 0.6159             | 3.79%             | 0.80%            | 3.87%                | 4.834 |
| 012.01      | Starch, Enzymatic-Colorimetric Method (Megazyme) (%) | 13                      | 13                             | 15.17          | 1.248        | 1.236           | 0.2414         | 1.260              | 8.15%             | 1.59%            | 8.30%                | 5.219 |
| 013.00      | Fat, Acid Pretreat, Acid hydrolysis (%)              | 17                      | 16                             | 3.306          | 0.5179       | 0.5182          | 0.1840         | 0.5499             | 15.70%            | 5.58%            | 16.66%               | 2.988 |
| 013.02      | Fat, Acid Pretreat, Mojonnier, Bak Ext (%)           | 17                      | 15                             | 3.783          | 0.2606       | 0.2469          | 0.0977         | 0.2655             | 6.49%             | 2.57%            | 6.98%                | 2.718 |
| 019.00      | Calcium, Ox-Mn04 Vol. (%)                            | 12                      | 11                             | 1.790          | 0.1164       | 0.1003          | 0.0231         | 0.1029             | 5.66%             | 1.31%            | 5.81%                | 4.451 |
| 019.08      | Calcium, EDTA (%)                                    | 11                      | 10                             | 1.798          | 0.3738       | 0.3739          | 0.0219         | 0.3746             | 21.22%            | 1.24%            | 21.26%               | 17.08 |
| 019.31      | Calcium, AAS, Dry ash (%)                            | 14                      | 13                             | 1.759          | 0.2665       | 0.1364          | 0.0465         | 0.1441             | 7.49%             | 2.56%            | 7.92%                | 3.096 |
| 019.41      | Calcium, ICP, Dry ash (%)                            | 23                      | 22                             | 1.850          | 0.1094       | 0.1005          | 0.0494         | 0.1120             | 5.41%             | 2.66%            | 6.03%                | 2.268 |
| 019.42      | Calcium, ICP, Open vessel (%)                        | 17                      | 16                             | 1.897          | 0.1516       | 0.1508          | 0.0294         | 0.1536             | 7.98%             | 1.56%            | 8.14%                | 5.220 |
| 019.43      | Calcium, ICP, Microwave (%)                          | 28                      | 25                             | 1.888          | 0.1730       | 0.1151          | 0.0398         | 0.1217             | 6.19%             | 2.14%            | 6.55%                | 3.060 |
| 021.43      | Cobalt, ICP, Microwave (ppm)                         | 9                       | 8                              | 2.332          | 0.4842       | 0.2989          | 0.1152         | 0.3203             | 12.15%            | 4.68%            | 13.02%               | 2.780 |
| 022.41      | Copper, ICP, Dry ash (ppm)                           | 14                      | 14                             | 8.329          | 1.355        | 1.283           | 0.6157         | 1.423              | 15.40%            | 7.39%            | 17.08%               | 2.311 |
| 022.42      | Copper, ICP, Open vessel (ppm)                       | 16                      | 13                             | 11.21          | 2.813        | 1.168           | 0.2416         | 1.193              | 11.31%            | 2.34%            | 11.54%               | 4.936 |
| 022.43      | Copper, ICP, Microwave (ppm)                         | 20                      | 17                             | 10.63          | 2.008        | 1.454           | 0.4123         | 1.512              | 14.30%            | 4.05%            | 14.87%               | 3.667 |
| 025.41      | Iron, ICP, Dry ash (ppm)                             | 15                      | 14                             | 312.0          | 91.52        | 31.04           | 8.773          | 32.25              | 9.29%             | 2.62%            | 9.65%                | 3.677 |
| 025.42      | Iron, ICP, Open vessel (ppm)                         | 14                      | 13                             | 299.0          | 60.14        | 40.17           | 6.385          | 40.67              | 12.90%            | 2.05%            | 13.07%               | 6.370 |

| 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 |
|-------------|--|-------------------------|--------------------------------|----------------|--------------|-----------------|----------------|--------------------|-------------------|------------------|----------------------|-------|
| 025.43      | Iron, ICP, Microwave (ppm)                       | 20                      | 20                             | 340.9          | 44.80        | 44.35           | 8.966          | 45.25              | 13.01%            | 2.63%            | 13.27%               | 5.047 |
| 027.31      | Magnesium, AAS, Dry ash (%)                      | 9                       | 8                              | 0.4170         | 0.0448       | 0.0153          | 0.0073         | 0.0169             | 3.80%             | 1.80%            | 4.20%                | 2.334 |
| 027.41      | Magnesium, ICP, Dry ash (%)                      | 14                      | 13                             | 0.4099         | 0.0253       | 0.0255          | 0.0069         | 0.0264             | 6.20%             | 1.69%            | 6.43%                | 3.810 |
| 027.42      | Magnesium, ICP, Open vessel (%)                  | 17                      | 15                             | 0.4088         | 0.0231       | 0.0169          | 0.0049         | 0.0176             | 4.10%             | 1.18%            | 4.26%                | 3.619 |
| 027.43      | Magnesium, ICP, Microwave (%)                    | 21                      | 20                             | 0.3984         | 0.0337       | 0.0224          | 0.0092         | 0.0242             | 5.55%             | 2.28%            | 6.00%                | 2.635 |
| 028.31      | Manganese, AAS, Dry ash (ppm)                    | 10                      | 9                              | 160.3          | 36.79        | 12.26           | 2.941          | 12.60              | 7.16%             | 1.72%            | 7.36%                | 4.286 |
| 028.41      | Manganese, ICP, Dry ash (ppm)                    | 15                      | 14                             | 165.8          | 13.05        | 12.94           | 2.413          | 13.16              | 7.80%             | 1.46%            | 7.94%                | 5.454 |
| 028.42      | Manganese, ICP, Open vessel (ppm)                | 18                      | 17                             | 183.3          | 14.46        | 14.57           | 2.425          | 14.77              | 7.92%             | 1.32%            | 8.03%                | 6.090 |
| 028.43      | Manganese, ICP, Microwave (ppm)                  | 25                      | 24                             | 185.0          | 10.53        | 8.770           | 4.149          | 9.702              | 4.77%             | 2.26%            | 5.27%                | 2.338 |
| 031.01      | Phosphorus, Photometric (%)                      | 32                      | 29                             | 0.8084         | 0.0619       | 0.0397          | 0.0127         | 0.0417             | 4.84%             | 1.55%            | 5.08%                | 3.274 |
| 031.41      | Phosphorus, ICP, Dry ash (%)                     | 20                      | 19                             | 0.7994         | 0.0502       | 0.0474          | 0.0217         | 0.0521             | 5.91%             | 2.71%            | 6.50%                | 2.400 |
| 031.42      | Phosphorus, ICP, Open vessel (%)                 | 18                      | 18                             | 0.8009         | 0.0452       | 0.0393          | 0.0315         | 0.0503             | 4.91%             | 3.93%            | 6.28%                | 1.600 |
| 031.43      | Phosphorus, ICP, Microwave (%)                   | 27                      | 24                             | 0.8128         | 0.0510       | 0.0330          | 0.0191         | 0.0381             | 4.01%             | 2.33%            | 4.64%                | 1.992 |
| 032.31      | Potassium, AAS, Dry ash (%)                      | 8                       | 8                              | 1.070          | 0.0934       | 0.0930          | 0.0116         | 0.0937             | 8.69%             | 1.08%            | 8.76%                | 8.081 |
| 032.41      | Potassium, ICP, Dry ash (%)                      | 15                      | 12                             | 1.116          | 0.0846       | 0.0654          | 0.0159         | 0.0673             | 5.93%             | 1.44%            | 6.10%                | 4.225 |
| 032.42      | Potassium, ICP, Open vessel (%)                  | 16                      | 15                             | 1.152          | 0.0495       | 0.0376          | 0.0140         | 0.0401             | 3.24%             | 1.21%            | 3.46%                | 2.861 |
| 032.43      | Potassium, ICP, Microwave (%)                    | 21                      | 19                             | 1.132          | 0.0901       | 0.0634          | 0.0259         | 0.0684             | 5.53%             | 2.26%            | 5.97%                | 2.644 |
| 033.00      | Salt as chloride, Sol Cl (%)                     | 21                      | 19                             | 1.594          | 0.2152       | 0.0939          | 0.0184         | 0.0957             | 5.75%             | 1.13%            | 5.86%                | 5.206 |
| 033.01      | Salt as chloride, Poten Cl (%)                   | 29                      | 26                             | 1.713          | 0.0494       | 0.0416          | 0.0108         | 0.0430             | 2.43%             | 0.63%            | 2.51%                | 3.996 |
| 033.99      | Salt, Miscellaneous (%)                          | 9                       | 9                              | 1.421          | 0.2927       | 0.2916          | 0.0363         | 0.2938             | 20.52%            | 2.55%            | 20.68%               | 8.096 |
| 034.53      | Selenium, ICP-MS, Microwave (ppm)                | 8                       | 8                              | 0.7959         | 0.0868       | 0.0811          | 0.0435         | 0.0921             | 10.20%            | 5.46%            | 11.57%               | 2.117 |
| 035.31      | Sodium, AAS, Dry ash (%)                         | 10                      | 9                              | 0.3918         | 0.0382       | 0.0158          | 0.0100         | 0.0187             | 4.15%             | 2.62%            | 4.91%                | 1.874 |
| 035.41      | Sodium, ICP, Dry ash (%)                         | 20                      | 19                             | 0.3826         | 0.0297       | 0.0212          | 0.0089         | 0.0229             | 5.60%             | 2.34%            | 6.07%                | 2.592 |
| 035.42      | Sodium, ICP, Open vessel (%)                     | 16                      | 15                             | 0.3918         | 0.0201       | 0.0153          | 0.0077         | 0.0172             | 3.95%             | 1.97%            | 4.41%                | 2.239 |
| 035.43      | Sodium, ICP, Microwave (%)                       | 21                      | 19                             | 0.3991         | 0.0418       | 0.0221          | 0.0078         | 0.0234             | 5.64%             | 1.99%            | 5.98%                | 3.009 |
| 036.42      | Sulfur, ICP, Open vessel (%)                     | 20                      | 17                             | 0.2878         | 0.0213       | 0.0175          | 0.0051         | 0.0182             | 5.99%             | 1.74%            | 6.24%                | 3.581 |
| 036.43      | Sulfur, ICP, Microwave (%)                       | 17                      | 16                             | 0.3056         | 0.0191       | 0.0134          | 0.0104         | 0.0169             | 4.33%             | 3.38%            | 5.49%                | 1.627 |
| 037.31      | Zinc, AAS, Dry ash (ppm)                         | 11                      | 9                              | 161.0          | 40.95        | 18.72           | 3.303          | 19.01              | 10.70%            | 1.89%            | 10.86%               | 5.755 |
| 037.41      | Zinc, ICP, Dry ash (ppm)                         | 15                      | 14                             | 165.7          | 11.35        | 11.41           | 3.837          | 12.04              | 6.88%             | 2.31%            | 7.26%                | 3.137 |
| 037.42      | Zinc, ICP, Open vessel (ppm)                     | 17                      | 15                             | 176.6          | 48.15        | 16.35           | 4.776          | 17.04              | 8.68%             | 2.53%            | 9.04%                | 3.568 |
| 037.43      | Zinc, ICP, Microwave (ppm)                       | 26                      | 24                             | 195.6          | 15.78        | 10.20           | 6.356          | 12.02              | 5.22%             | 3.25%            | 6.15%                | 1.891 |
| 038.43      | Molybdenum, ICP, Microwave (ppm)                 | 9                       | 9                              | 3.904          | 0.6229       | 0.6167          | 0.1236         | 0.6290             | 15.80%            | 3.17%            | 16.11%               | 5.087 |
| 106.02      | Vitamin A, LC (KU / kg)                          | 16                      | 14                             | 13.05          | 5.846        | 5.759           | 1.018          | 5.848              | 42.70%            | 7.54%            | 43.36%               | 5.747 |
| 109.02      | Vitamin E, LC (IU / kg)                          | 14                      | 13                             | 76.59          | 20.58        | 20.22           | 5.449          | 20.94              | 26.40%            | 7.11%            | 27.34%               | 3.843 |
| 120.00      | Alanine, Post-col Ninhydrin Der (%)              | 19                      | 17                             | 0.6167         | 0.0284       | 0.0231          | 0.0083         | 0.0246             | 3.73%             | 1.34%            | 3.96%                | 2.960 |
| 121.00      | Arginine, Post-col Ninhydrin Der (%)             | 19                      | 18                             | 0.7614         | 0.0378       | 0.0259          | 0.0121         | 0.0286             | 3.43%             | 1.61%            | 3.79%                | 2.358 |
| 122.00      | Aspartic, Post-col Ninhydrin Der (%)             | 19                      | 18                             | 0.9397         | 0.0325       | 0.0251          | 0.0099         | 0.0270             | 2.69%             | 1.06%            | 2.89%                | 2.717 |
| 124.00      | Cysteine/Cystine, PAO Post-col Ninhydrin Der (%) | 19                      | 18                             | 0.2468         | 0.0195       | 0.0182          | 0.0085         | 0.0201             | 7.43%             | 3.46%            | 8.20%                | 2.370 |
| 125.00      | Glutamic, Post-col Ninhydrin Der (%)             | 19                      | 19                             | 2.152          | 0.0843       | 0.0831          | 0.0197         | 0.0854             | 3.86%             | 0.91%            | 3.97%                | 4.346 |
| 126.00      | Glycine, Post-col Ninhydrin Der (%)              | 19                      | 19                             | 0.6516         | 0.0262       | 0.0250          | 0.0111         | 0.0273             | 3.83%             | 1.70%            | 4.19%                | 2.467 |
| 127.00      | Histidine, Post-col Ninhydrin Der (%)            | 19                      | 18                             | 0.3265         | 0.0180       | 0.0178          | 0.0045         | 0.0183             | 5.44%             | 1.37%            | 5.61%                | 4.098 |
| 128.00      | Isoleucine, Post-col Ninhydrin Der (%)           | 19                      | 18                             | 0.3949         | 0.0348       | 0.0344          | 0.0084         | 0.0354             | 8.74%             | 2.14%            | 9.00%                | 4.211 |
| 129.00      | Leucine, Post-col Ninhydrin Der (%)              | 19                      | 18                             | 0.7974         | 0.0392       | 0.0295          | 0.0129         | 0.0322             | 3.67%             | 1.60%            | 4.01%                | 2.498 |
| 130.00      | L-Lysine, Post-col Ninhydrin Der (%)             | 19                      | 18                             | 0.5018         | 0.0173       | 0.0168          | 0.0076         | 0.0184             | 3.34%             | 1.52%            | 3.67%                | 2.417 |
| 131.00      | Methionine, PAO Post-col Ninhydrin Der (%)       | 19                      | 17                             | 0.1631         | 0.0129       | 0.0101          | 0.0036         | 0.0107             | 6.12%             | 2.21%            | 6.51%                | 2.945 |
| 132.00      | Phenylalanine, Post-col Ninhydrin Der (%)        | 19                      | 17                             | 0.4860         | 0.0326       | 0.0332          | 0.0076         | 0.0341             | 6.84%             | 1.57%            | 7.02%                | 4.470 |

**Test Material Code # 202030**

**Issue Date : 11/30/2020**

| 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 |
|-------------|---------------------------------------|-------------------------|--------------------------------|----------------|--------------|-----------------|----------------|--------------------|-------------------|------------------|----------------------|-------|
| 133.00      | Proline, Post-col Ninhydrin Der (%)   | 19                      | 17                             | 0.7903         | 0.0761       | 0.0565          | 0.0217         | 0.0605             | 7.08%             | 2.72%            | 7.58%                | 2.791 |
| 134.00      | Serine, Post-col Ninhydrin Der (%)    | 19                      | 17                             | 0.5429         | 0.0235       | 0.0188          | 0.0069         | 0.0201             | 3.49%             | 1.28%            | 3.72%                | 2.913 |
| 135.00      | Threonine, Post-col Ninhydrin Der (%) | 19                      | 18                             | 0.4218         | 0.0159       | 0.0159          | 0.0043         | 0.0165             | 3.78%             | 1.03%            | 3.92%                | 3.799 |
| 137.00      | Tyrosine, Post-col Ninhydrin Der (%)  | 13                      | 13                             | 0.3115         | 0.0652       | 0.0649          | 0.0089         | 0.0655             | 20.83%            | 2.84%            | 21.02%               | 7.393 |
| 138.00      | Valine, Post-col Ninhydrin Der (%)    | 19                      | 16                             | 0.5566         | 0.0329       | 0.0271          | 0.0086         | 0.0284             | 4.82%             | 1.54%            | 5.06%                | 3.296 |

Notes: Precision Calculations provided for methods with 8 or more labs contributing to calculations.