

| <i>Sub #</i> | <i>Moisture Z-Values</i> | <i>Protein Z-Values</i> | <i>Ash Z-Values</i> | <i>Falling Number Z-Values</i> |
|--------------|------------------------------|-----------------------------|-------------------------|------------------------------------|
| 19 | 0.64 | 0.73 | 0.63 | 0.11 |
| 38 | 2.75 | | | |
| 50 | 0.74 | 0.34 | 0.05 | 1.21 |
| 54 | 0.02 | 0.78 | 0.54 | 0.28 |
| 55 | 0.31 | 1.02 | 0.63 | 2.37 |
| 56 | 0.50 | 0.03 | 0.11 | 0.72 |
| 58 | 0.40 | 0.08 | 0.63 | 0.33 |
| 93 | 0.53 | 0.03 | 0.30 | 0.56 |
| 137 | 0.10 | 0.25 | 0.17 | 0.39 |
| 139 | 0.20 | 0.91 | 0.07 | 0.50 |
| 164 | 0.80 | 0.37 | 0.01 | 0.00 |
| 247 | 1.10 | 0.15 | 0.60 | 0.50 |
| 308 | 0.10 | 0.36 | 1.83 | 0.56 |
| 392 | 0.80 | 0.73 | 1.65 | 0.06 |
| 520 | 0.40 | | | |
| 537 | 0.29 | | | |
| 592 | 0.43 | 0.74 | 0.36 | 1.00 |
| 593 | 0.08 | 0.14 | 2.04 | |
| 623 | 1.31 | 2.53 | 0.50 | 0.83 |
| 657 | 1.57 | 0.34 | 0.69 | 1.33 |
| 660 | 1.75 | 0.21 | 0.69 | 1.43 |
| 687 | 1.13 | 0.18 | 0.05 | 0.38 |
| 771 | 1.10 | 0.34 | 1.28 | |
| 775 | 0.77 | 0.12 | 0.01 | * 20.54 |
| 902 | 0.91 | 0.21 | 0.17 | 0.00 |
| 1052 | 2.26 | 2.56 | 0.81 | |
| 1326 | 0.80 | 0.14 | 0.23 | 0.49 |
| 1332 | 0.32 | 0.04 | 0.36 | 0.55 |
| 1352 | 0.80 | 0.74 | 0.38 | 0.56 |
| 1354 | 0.70 | 1.82 | 1.40 | 1.38 |
| 1427 | 0.20 | 0.41 | 1.12 | 0.94 |
| 1456 | 0.13 | 0.10 | 0.01 | 0.33 |
| 1493 | 0.68 | 0.15 | 0.20 | 0.60 |
| 1519 | 0.97 | 0.63 | 0.38 | 1.54 |
| 1529 | 0.07 | 0.15 | 1.03 | 2.21 |
| 1531 | 0.49 | 1.54 | 0.14 | |
| 1534 | 0.14 | 1.91 | 3.03 | 0.27 |
| 1585 | 0.62 | 0.65 | 1.03 | 0.60 |
| 1617 | 2.80 | 2.57 | 0.20 | 2.43 |
| 1642 | 0.19 | 1.53 | 1.03 | 0.28 |
| 1662 | 1.28 | 0.30 | 0.85 | 0.11 |
| 1691 | 0.34 | 1.09 | 0.42 | |
| 1692 | 0.58 | 0.51 | 2.41 | 0.67 |
| 1694 | 0.85 | | | |

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|--------------|------------------------------|-----------------------------|-------------------------|------------------------------------|
| 1711 | 0.91 | 0.81 | 1.10 | |
| N | 45 | 41 | 41 | 34 |
| Mean | 0.75 | 0.69 | 0.71 | 0.75 |
| Min | 0.02 | 0.03 | 0.01 | 0.00 |
| Max | 2.80 | 2.57 | 3.03 | 2.43 |

* Not included in analytical mean

Z-Values

Each individual z-value represents the decimal number of standard deviations by which an analytical result differs from the "true value", as represented by the mean. The minimum or "perfect" z-value is thus 0.00.

Proficiency in any one analysis over a year's time (11 or 12 monthly, 6 bimonthly, or 4 quarterly results) is determined by their mean z-value plus a penalty for each outlier (*) reported, if any. Proficiency in a series is determined by the mean of the mean z-values (including penalties, if any) for the specified principal analyses in that series.

In general, z-values of less than 2.00, consistently maintained and thus averaging less than 2000 over a year for a series (including outlier penalties, if any), are considered to represent satisfactory accuracy and precision. On the same basis, values of less than 1.00 consistently maintained represent outstanding accuracy and precision.

A detailed description of this rating system is available upon request from AACC headquarters.

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