

| <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 | 0.10 | 0.85 | 1.64 | 0.49 |
| 38 | 0.96 | | | |
| 50 | 0.10 | 0.22 | 0.73 | 2.33 |
| 54 | 0.97 | 1.25 | 0.18 | 0.59 |
| 55 | 2.09 | 1.14 | 0.78 | 1.23 |
| 56 | 0.10 | 0.06 | 0.36 | 1.42 |
| 58 | 0.90 | 0.50 | 0.66 | 0.29 |
| 93 | 0.09 | 0.71 | 0.07 | 0.91 |
| 137 | 0.53 | 0.23 | 0.72 | 0.59 |
| 139 | 0.47 | 0.28 | 0.42 | 0.20 |
| 164 | 0.09 | 1.60 | 0.12 | 1.42 |
| 308 | 0.53 | 0.33 | 2.37 | 0.12 |
| 314 | 0.15 | 1.46 | 0.86 | 1.59 |
| 392 | 1.40 | 0.80 | 1.64 | 0.03 |
| 537 | 0.15 | | | |
| 592 | 0.46 | 1.18 | 0.01 | 0.34 |
| 593 | 0.90 | 0.33 | 1.39 | |
| 623 | 2.14 | * 5.83 | 0.31 | 1.00 |
| 657 | 0.96 | 0.74 | 0.54 | 0.03 |
| 660 | 0.28 | 0.84 | 0.25 | 0.89 |
| 687 | 0.15 | 0.23 | 0.30 | 0.64 |
| 771 | 2.64 | 0.51 | 1.04 | |
| 902 | 0.22 | 0.62 | 0.19 | 0.54 |
| 1052 | * 3.83 | 1.18 | 0.18 | 1.06 |
| 1326 | 1.40 | 0.68 | 0.78 | 0.91 |
| 1332 | 0.16 | 0.34 | 0.06 | 0.13 |
| 1354 | 1.71 | 0.10 | 0.12 | 1.74 |
| 1427 | 0.47 | 0.34 | 1.51 | 0.00 |
| 1456 | 0.41 | 1.29 | 0.92 | 0.56 |
| 1493 | 2.03 | 1.64 | 0.78 | 1.49 |
| 1519 | 0.15 | 0.36 | 0.30 | 0.77 |
| 1529 | 0.66 | * 29.57 | * 5.16 | 0.61 |
| 1531 | 1.58 | 1.52 | 1.21 | 1.54 |
| 1585 | 0.47 | 0.23 | 0.48 | 1.66 |
| 1662 | 0.40 | 0.40 | 0.37 | 0.20 |
| 1691 | 0.22 | 2.65 | 1.10 | |
| 1692 | 0.59 | 1.29 | 0.37 | 0.50 |
| 1694 | 0.10 | 0.16 | 1.64 | |
| 1731 | 0.97 | 1.64 | 2.61 | 0.31 |
| 1745 | 0.59 | | | |

| <i>Sub #</i> | <i>Moisture Z-Values</i> | <i>Protein Z-Values</i> | <i>Ash Z-Values</i> | <i>Falling Number Z-Values</i> |
|--------------|------------------------------|-----------------------------|-------------------------|------------------------------------|
| N | 39 | 35 | 36 | 33 |
| Mean | 0.73 | 0.79 | 0.75 | 0.79 |
| Min | 0.09 | 0.06 | 0.01 | 0.00 |
| Max | 2.64 | 2.65 | 2.61 | 2.33 |

* 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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