

| <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 | 2.19 | 0.47 | 1.32 | 1.76 |
| 38 | 0.09 | | | |
| 50 | 0.38 | 0.05 | 1.94 | 0.86 |
| 54 | 0.76 | 0.36 | 0.21 | 1.18 |
| 55 | 0.42 | 0.21 | 0.57 | 1.35 |
| 56 | 0.34 | 0.10 | 1.29 | 0.69 |
| 58 | 0.33 | 0.35 | 0.34 | 0.15 |
| 93 | 0.46 | 0.61 | 0.40 | 1.53 |
| 137 | 0.75 | 0.62 | 1.29 | 1.59 |
| 139 | 2.01 | 0.55 | 0.64 | * 5.37 |
| 164 | 0.63 | 0.32 | 0.66 | 0.59 |
| 247 | 0.09 | 0.25 | | 0.88 |
| 306 | 0.93 | | 0.73 | 0.12 |
| 308 | 0.20 | 0.51 | 0.31 | 0.62 |
| 387 | 0.88 | 0.80 | 0.38 | |
| 392 | 0.51 | 0.88 | 0.01 | 0.95 |
| 520 | 2.31 | | | |
| 537 | 1.26 | | | |
| 592 | 0.33 | 0.66 | 0.08 | 0.05 |
| 593 | 0.30 | 0.32 | 0.01 | |
| 657 | 0.34 | 0.77 | 0.96 | 0.25 |
| 660 | 0.17 | 0.47 | 1.32 | 0.82 |
| 687 | 2.43 | 0.62 | 0.86 | 0.25 |
| 771 | 0.09 | 0.25 | 0.60 | |
| 775 | 1.26 | 0.66 | 0.31 | * 5.47 |
| 902 | 0.51 | 0.47 | 0.18 | 0.82 |
| 1052 | 0.93 | | 0.64 | 2.16 |
| 1326 | 0.51 | 0.02 | 0.47 | 0.15 |
| 1332 | 0.33 | 0.32 | 0.25 | 0.25 |
| 1352 | 0.09 | 0.43 | 1.03 | 0.21 |
| 1427 | * 3.69 | 0.66 | 0.05 | 0.68 |
| 1456 | 0.12 | 0.84 | 0.86 | 0.68 |
| 1472 | | 0.51 | * 3.92 | 0.76 |
| 1493 | 0.51 | 1.18 | 0.66 | 1.49 |
| 1519 | 0.51 | 0.71 | 0.25 | 0.55 |
| 1529 | 2.52 | 2.19 | 0.66 | 0.38 |
| 1534 | 0.34 | 1.63 | 2.66 | 0.21 |
| 1585 | 0.75 | 1.36 | 0.96 | 1.65 |
| 1662 | 0.72 | 0.39 | 0.38 | 0.69 |
| 1691 | 0.93 | 1.63 | 0.05 | |
| 1692 | 1.85 | 1.63 | 0.01 | 0.49 |
| 1729 | 0.09 | 0.39 | * 5.20 | 2.15 |
| 1731 | 0.21 | 1.26 | 0.53 | 1.02 |
| 1732 | 0.09 | * 9.99 | 3.07 | 0.76 |

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|--------------|------------------------------|-----------------------------|-------------------------|------------------------------------|
| 1738 | * 6.05 | 3.46 | | 0.95 |
| 1740 | 0.51 | * 3.61 | 1.32 | 0.29 |
| N | 43 | 39 | 39 | 37 |
| Mean | 0.72 | 0.74 | 0.72 | 0.81 |
| Min | 0.09 | 0.02 | 0.01 | 0.05 |
| Max | 2.52 | 3.46 | 3.07 | 2.16 |

* 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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