Explanation of graphs for worm egg count assessments

With careful attention to mixing and sub-sampling the solutions, there should still be some variation amongst operators in the results obtained in the worm egg counting process. The QA plots are intended to show which results lie outside the Poisson variation that is expected following a rigorous application of the McMaster technique.

Key

The pink area on the graphs represents results outside a 99.73% confidence limit assuming Poisson variation (the variation expected for sampling from a well mixed solution). It is highly probable that operators within the pink area have a problem with their procedures.

The light blue area represents results outside a 95% confidence limit. **Operators within this area are likely to have a problem with their procedures, but five out of 100 well performing operators will still appear in this area.**

1. Combined Score

The Combined Score is calculated by first standardizing both the average of the five "300" samples and the five "1000" samples; and then averaging these two values. Each vertical line represents one operator, with the operators for your lab highlighted in blue.

A negative Combined Score indicates the operator's worm egg counts are below average, and a positive score indicates above average counts.

A low Combined Score (in the pink area to the left) implies that the operator is either missing eggs or there is some other problem with the counting procedure (like consistent incorrect sub-sampling[1], inadequate salt saturation, not waiting long enough for eggs to rise in the chamber or incorrect conversion factors).

A high Combined Score (in the pink area to the right) implies that the operator is either counting coccidian oocysts as eggs or there is some other problem with the counting procedure (like consistent incorrect sub-sampling[1] or incorrect conversion factors).

It is possible that an operator counts too high for the low samples and not the high samples, or *vice versa*. This will give an acceptable Combined Score, but will become evident in one of the two lower graphs.

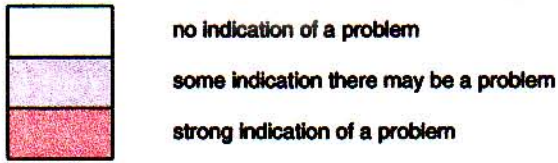## 2. '300' Samples & 3. '1000' Samples

These two graphs plot the average of the five "300" or "1000" samples on the x-axis and the variance ratio (square root of the variance of the number of eggs counted divided by the mean) of the five samples on the y-axis. Each circle represents one operator, with the operators for your lab highlighted in blue.

A high variance ratio (in the pink area near the top) indicates that there is too much variability within the five counts. This may result, for example, from uneven mixing or inconsistent reading of the samples.
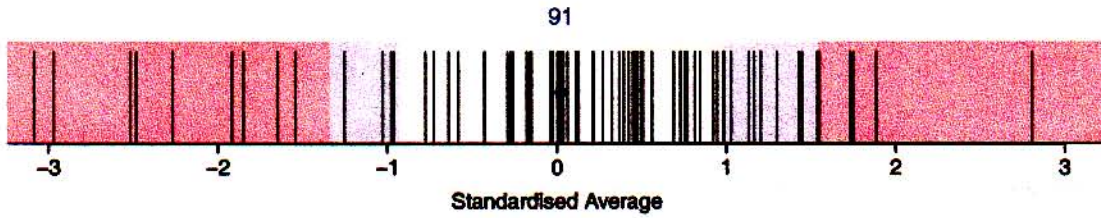
As explained above, a low average score (in the pink area to the left) implies some problem with the counting procedure (such as consistent incorrect sub-sampling[1], inadequate salt saturation, not waiting long enough for eggs to rise in the chamber, or incorrect conversion factors).

Likewise, a high average score (in the pink area to the right) implies that the operator is either counting coccidian oocysts as eggs or there is some other problem with the counting procedure (such as consistent incorrect sub-sampling[1] or incorrect conversion factors).
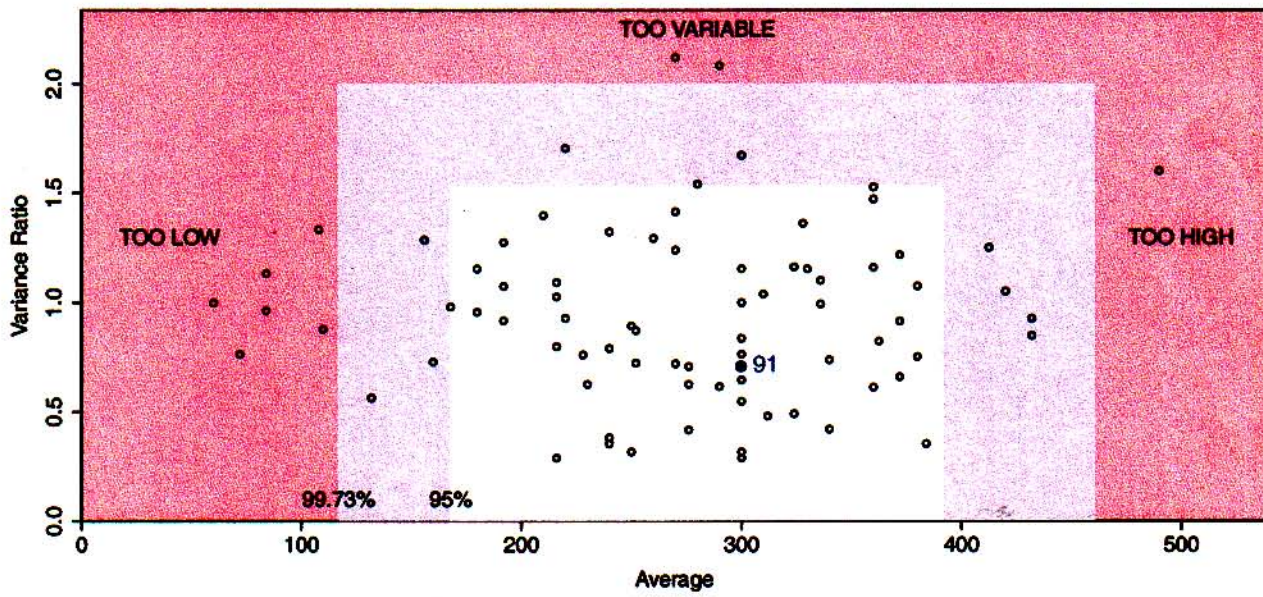
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	no indication of a problem
	some indication there may be a problem
	strong indication of a problem

1. Combined Score

2. "300" Samples

3. "1000" Samples