amc technical brief

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GMO Proficiency testing: Interpreting z-scores derived from log-transformed data

In some proficiency tests concerned with measuring the proportion of genetically modified organism (GMO) in food the results produced are log-transformed (converted into logarithms) before z-scores are calculated [1]. The transformation can be justified both theoretically and practically. However, the transformation gives rise to z-scores that are not on the same type of scale as the original data, and are therefore less readily interpreted. A certain amount of background in logarithmic transformation may be

le. It is asymmetric, with a positive skew and all values of x necessarily greater than zero. If alternatively we plot the density against the logarithm of x, we see the familiar shape of the normal distribution (Figure 2). (Note that logarithms base ten are implied throughout this Brief.)

Definition: a variable x is lognormally distributed if $\log x$ is normally distributed.

While all normal distributions are essenti417 (wi)Tj10.02 0 0 10.02 125.5675 286.04022 Tm(t)Tj10.02 0 0 10.02 128.32907 286.040

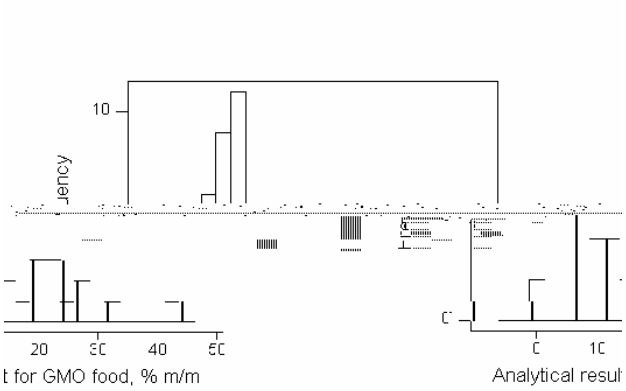

Figure 4. Results from a single round of a proficiency test involving measuring the concentration of GMO soya.