

POSTER SUMMARY

THE Z SCORE AS AN ALTERNATIVE MEASURE FOR THE SMRI INTER-LABORATORY TESTING PROGRAMME

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Abstract

The Sugar Milling Research Institute NPC (SMRI) organises an annual inter-laboratory proficiency testing scheme for the South African and Swaziland mills. The objective of the scheme, which runs throughout the season, is to develop and maintain the quality of the testing within the mill laboratories and highlight areas that may need attention to detail. Results from both Very High Pol (VHP) sugar and final molasses comparisons are used as the basis for awarding the prestigious 'SMRI Inter-Laboratory Award'. The scores are currently based on a simple arithmetic basis and do not take into account any statistical factors. This poster reviews the use of the statistical z score as an alternative measure for the SMRI inter-laboratory testing programme. The z score indicates how far and in what direction, a reported value deviates from the overall distribution's mean, expressed in units of the distribution's standard deviation. The mathematics of the z score transformation are such that, if every item in a distribution is converted to its z score, the transformed scores will necessarily have a mean of zero and a standard deviation of one. The z score transformation is especially useful when seeking to compare the relative standings of results from distributions with different means and/or different standard deviations, as is the case when comparing results from multiple mill laboratories and instruments. The laboratory standings using the alternative testing scheme are compared to the current scheme results for the past year.

Keywords: proficiency testing scheme, z score, Inter-Laboratory Award