February 2004

New Requirements for Grain Moisture Meters Capable of Measuring Test Weight

By G. Diane Lee

Specifications and tolerances for meters that measure the test weight of grain were added to Section 5.56 (a) of the 2004 edition of NIST Handbook 44 (H 44). Prior to this change only a tolerance, 0.15 lb/bu, for test weight was included in the NIST Handbook 44 Grain Moisture Meters code. That tolerance was taken from the Federal Grain Inspection Service, now Grain Inspection Packers and Stockyards Administration, mainte-nance procedure, which compared results obtained using a "standard" quart test kettle to results obtained on the kettle under test. However, this test was not realistic for field testing and the various types of devices in commercial use, and different tolerances needed to be considered for each grain type.

One of the principle factors for the grade of a sample of grain is the test weight. The test weight or mass per volume (typically expressed as pounds per bushel or lb/bu) is a measurement used in the market place that will affect the amount of money a farmer receives for his grain based on the weight of a sample. Typically, the heavier a sample of grain, the better it is. A heavier sample of grain has a higher commercial value. In addition grain grades have been adopted so that the value of different grain lots can be compared. Most of the grain in commerce is sold by its grade. The highest grades of grain will receive the highest prices. When the test weight of a given sample of grain fails to meet specified minimum standards for test weight, the price of the grain is discounted. That is, the price the farmer receives for the grain is reduced by a certain amount for every pound per bushel below the minimum standard.

NTEP grain moisture meters that are capable of measuring test weight that meet the requirements of H 44 and that have successfully been NTEP evaluated and approved for test weight may now be used commercially to determine the test weight of grain. Due to the importance of the grain sample volume in the determination of test weight, the recent changes to H 44 Section 5.56(a) Paragraph S.2.6. include a non-retroactive requirement that, as of January 1, 2004, the meter must have means to ensure that the measurement of test weight per bushel is not displayed or printed when an insufficient sample volume is available to provide an accurate measurement.

Many grain moisture meters are equipped with a feature for determining test weight. As inspectors begin to evaluate these devices they should reference the testing procedures for the test weight feature in H 44 Section 5.56(a) Paragraph N.1.1 and N.1.2. For States that require NTEP Certificates of Conformance (CC), the inspectors must also review the CC to verify that the test weight feature has been evaluated.

If there are any questions, please contact G. Diane Lee by phone at 301-975-4405 or by e-mail at diane.lee@nist.gov.