

National Type Evaluation Technical Committee (NTETC) Grain Analyzer Sector Meeting Agenda

August 22-23, 2012 / Kansas City, Missouri

INTRODUCTION

The charge of the NTETC Grain Analyzer Sector is important in providing appropriate type evaluation criteria based on specifications, tolerances and technical requirements of *NIST Handbook 44* Sections 1.10. General Code, 5.56. Grain Moisture Meters and 5.57. Near-Infrared Grain Analyzers. The sector’s recommendations are presented to the National Type Evaluation Program (NTEP) Committee each January for approval and inclusion in *NCWM Publication 14 Technical Policy, Checklists, and Test Procedures* for national type evaluation.

The sector is also called upon occasionally for technical expertise in addressing difficult *NIST Handbook 44* issues on the agenda of National Conference on Weights and Measures (NCWM) Specifications and Tolerances (S&T) Committee. Sector membership includes industry, NTEP laboratory representatives, technical advisors, and the NTEP Administrator. Meetings are held annually, or as needed and are open to all NCWM members and other registered parties.

Suggested revisions are shown in **bold face print** by ~~striking out~~ information to be deleted and underlining information to be added. Requirements that are proposed to be nonretroactive are printed in *bold faced italics*.

**Table A
Table of Contents**

Title of Content	NTEP - B Page
INTRODUCTION	1
1. Report on the 2012 NCWM Interim and Annual Meetings	2
2. Report on NTEP Evaluations and Ongoing Calibration Program (OCP) (Phase II) Testing	3
3. Review of OCP (Phase II) Performance Data	3
4. Amend Table S.2.5. of §5.56.(a) in NIST Handbook 44.....	4
4.a. Proposed Changes to Table S.2.5. in Appendix C of the GMM Chapter of Publication 14.....	6
4.b. Proposed Changes to the Checklist of the GMM chapter of Publication 14	8
4.c. Proposed Changes to the Checklist of the NIR Grain Analyzer Chapter of Publication 14.....	8
5. Modify the Definition of Remote Configuration Capability Appearing in Appendix D of NIST Handbook 44 to Recognize the Expanded Scope of “Remote Configuration Capability”	9
6. Test Weight per Bushel Acceptance and Maintenance Tolerances.....	10
7. Report on International Organization of Legal Metrology (OIML) TC 17/SC 1 R 59 Moisture Meters for Cereal Grains and Oilseeds.....	11
8. Update on Efforts to Establish Recognized Traceability under the International Committee of Weights and Measures (CIPM) Mutual Recognition Agreement (MRA) for Moisture in Grain Measurements. 11	11
9. Report on OIML TC 17/SC 8 Protein Measuring Instruments for Cereal Grain and Oil Seeds	13
10. Item 356-1 Printed Ticket User Requirements - Update	13
11. Update on Proficiency Testing	15
12. NCWM Publication 14, NTEP Administrative Policy Changes	16
13. Next Sector Meeting	16

Table B
Glossary of Acronyms and Terms

Acronym	Term	Acronym	Term
BIML	International Bureau of Legal Metrology	NTETC	National Type Evaluation Technical Committee
CD	Committee Draft	OCP	Ongoing Calibration Program
CIML	International Committee of Legal Metrology	OIML	International Organization of Legal Metrology
CIPM	International Committee of Weights and Measures	OWM	Office of Weights and Measures
D	Document	R	Recommendation
EMRP	European Metrology Research Program	S&T	Specifications and Tolerances Committee
GIPSA	Grain Inspection, Packers and Stockyards Administration	SC	Technical Subcommittee
GMM	Grain Moisture Meter	SD	Secure Digital
MRA	Mutual Recognition Agreement	TC	Technical Committee
NCWM	National Conference on Weights and Measures	TW	Test Weight
NIR	Near Infrared Grain Analyzer	USB	Universal Serial Bus
NIST	National Institute of Standards and Technology	USDA	United States Department of Agriculture
NTEP	National Type Evaluation Program		

Details of All Items
(In order by Reference Key)

1. Report on the 2012 NCWM Interim and Annual Meetings

The 2012 NCWM Interim Meeting was held January 22-25, 2012 in New Orleans, LA. At that meeting, the NTEP Committee accepted the sector's recommended amendments and changes to the 2011 Edition of *NCWM Publication 14*. These changes appear in the 2012 Edition. For additional background/details refer to Agenda Item 4 in the Sector's August 2011 Meeting Summary.

The 2012 NCWM Annual Meeting was held July 16-19, 2012 in Portland, ME. There were no Grain Analyzer Sector Voting Items on the agenda. Item 351-1, UR.3.4. Printed Tickets remains an Informational Item on the NCWM Agenda. See Grain Analyzer Agenda Item 10, below, for details.

Mr. Truex, NTEP Administrator, will report on other items that may be of interest to the sector.

Amendments/Changes to the Grain Moisture Meters Chapter in the 2011 Edition of NCWM Publication 14			
Section Number	Amendment/Change	Page (2011 Edition)	Source: 2011 Grain Analyzer Sector Meeting Summary
§ II. Sample Temperature Sensitivity	Amend §II to accommodate cold grain temperatures down to -0 °C and to specify the conditions under which an intermediate manufacturer-specified cold grain temperature must be specified.	GMM-2	Agenda Item 4.a.
Appendix A Test: Sample Temperature Sensitivity	Modify Sample Temperature Sensitivity Test to reflect the expanded cold grain temperatures described in § II.	GMM-34	Agenda Item 4.b.
Appendix E – Sample Temperature Sensitivity	Modify Sample Temperature Sensitivity Test for grains/oilseeds other than corn, soybeans and hard red winter wheat to reflect the expanded cold grain temperatures described in § II.	GMM-45	Agenda Item 4.c.
GMM Checklist 3. Code Reference: S.1.3. Operating Range	Add Paragraph 3.10.2.1 to require that grains or seeds with an extended temperature range neither display nor print moisture results if outside applicable moisture OR temperature ranges.	GMM-19	Agenda Item 4.d.

2. Report on NTEP Evaluations and Ongoing Calibration Program (OCP) (Phase II) Testing

Ms. Brenner, Grain Inspection, Packers and Stockyards Administration (GIPSA), will bring the sector up to date on NTEP Evaluation (Phase I) activity. She will also report on the collection and analysis of Grain Moisture Meter OCP (Phase II) data on the 2011 crop. Ms. Brenner will identify, for the 2012 harvest, the models enrolled in Phase II.

3. Review of OCP (Phase II) Performance Data

At the sector’s August 2005 meeting it was agreed that comparative OCP data identifying the Official Meter and listing the average bias for each NTEP meter type should be available for annual review by the sector. Accordingly, Ms. Brenner, GIPSA, will present data showing the performance of NTEP meters compared to the air oven. This data is based on the last three crop years (2009–2011) using calibrations updated for use during the 2012 harvest season. See the 2009-2011 Grain Moisture Meter (GMM) Phase II comparison graphs http://ncwm.net/sites/default/files/meetings/grain_analyzer/2012/12_GMM_Bias.pdf.

4. Amend Table S.2.5. of §5.56.(a) in NIST Handbook 44

Source:

NTETC Grain Analyzer Sector

Purpose:

Delete “remotely” from the second paragraph of Category 3 requirements that begins, “When accessed remotely ...” to make it clear that the requirements of Category 3 apply whether accessed manually using the keyboard or accessed by remote means, and add the modified second paragraph of Category 3 requirements to Categories 3a and 3b to make it clear that these requirements apply to all the subcategories of Category 3.

Item Under Consideration:

Table S.2.5. Categories of Device and Methods of Sealing	
Categories of Device	Methods of Sealing
<p>Category 1: No remote configuration capability.</p>	<p>Seal by physical seal or two event counters: one for calibration parameters (000 to 999) and one for configuration parameters (000 to 999). If equipped with event counters, the device must be capable of displaying, or printing through the device or through another on-site device, the contents of the counters.</p>
<p>Category 2: Remote configuration capability, but access is controlled by physical hardware.</p> <p>A device shall clearly indicate that it is in the remote configuration mode and shall not be capable of operating in the measure mode while enabled for remote configuration.</p>	<p>The hardware enabling access for remote communication must be at the device and sealed using a physical seal or two event counters: one for calibration parameters (000 to 999) and one for configuration parameters (000 to 999). If equipped with event counters, the device must be capable of displaying, or printing through the device or through another on-site device, the contents of the counters.</p>
<p>Category 3: Remote configuration capability access may be unlimited or controlled through a software switch (e.g., password).</p> <p>When accessed remotely for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measuring mode.</p>	<p>An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter (for calibration changes consisting of multiple constants, the calibration version number may be used rather than the calibration constants). A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to twenty-five (25) times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)</p>
<p>Category 3a: No remote capability, but operator is able to make changes that affect the metrological integrity of the device (e.g., slope, bias, etc.) in normal operation.</p> <p><u>When accessed for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measuring mode.</u></p>	<p>Same as Category 3</p>
<p>Category 3b: No remote capability, but access to metrological parameters is controlled through a software switch (e.g., password).</p> <p><u>When accessed for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measuring mode.</u></p>	<p>Same as Category 3</p>

[Nonretroactive as of January 1, 1999 and January 1, 201X]

(Amended 1998 and 201X)

Note: Zero-setting and test point adjustments are considered to affect metrological characteristics and must be sealed.

(Added 1993) (Amended 1995 and 1997)

Background / Discussion:

All of the GMMs in Categories 3, 3a, and 3c of Table S.2.5. use an electronic method of sealing, and most of them also offer access to the configuration mode thorough a keyboard entered password. In this mode, sealable parameters can also be changed locally through the keyboard. Category 3 of Table S.2.5. currently includes the following requirement:

When accessed remotely for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measuring mode.

At its 2011 Grain Analyzer Sector Meeting the sector agreed by consensus that the following changes to Table S.2.5. of §5.56.(a) of *NIST Handbook 44* should be forwarded to the S&T Committee for consideration:

- Add a note to Table S.2.5. to recognize the expanded scope of “remote capability”.
- Delete “remotely” from the second paragraph of Category 3 requirements that begins, “When accessed remotely ...” to make it clear that the requirements of Category 3 apply whether accessed manually using the keyboard or accessed by remote means.
- Add the modified second paragraph of Category 3 requirements to Categories 3a and 3b to make it clear that these requirements apply to all the subcategories of Category 3.

At the suggestion of National Institute of Standards Technology (NIST), Office of Weights and Measures (OWM), the Table S.2.5. changes approved by the sector in 2011 have been separated into two independent items: one dealing with the changes to Category 3 and its subcategories (as shown in Item Under Consideration) and one dealing with the modification of the definition of remote configuration capability appearing in Appendix D of *NIST Handbook 44* to recognize the expanded scope of “remote capability”. This independence insures that one item will not hold up the other from consideration.

The sector is asked to approve the Item Under Consideration for submission to the S&T Committee for consideration as a voting item at the 2013 NCWM Annual Meeting.

Contingent upon approval of the Item Under Consideration by NCWM, a number of related changes will be required to both the GMM Chapter and the Near Infrared (NIR) Grain Analyzer Chapter of *NCWM Publication 14*. These changes are shown in Items 4(a), 4(b), and 4(c) following:

4.a. Proposed Changes to Table S.2.5. in Appendix C of the GMM Chapter of Publication 14

[Changes shown below are contingent upon acceptance of Item Under Consideration]

Table S.2.5. Categories of Device and Methods of Sealing

Categories of Device	Method of Sealing
<p>Category 1: No remote configuration capability</p>	<p>Seal by physical seal or two event counters: one for calibration parameters (000 to 999) and one for configuration parameters (000 to 999.) If equipped with event counters, the device must be capable of displaying, or printing through the device or through another on-site device, the contents of the counters.</p>
<p>Category 2: Remote configuration capability, but access is controlled by physical hardware.</p> <p>Device shall clearly indicate that it is in the remote configuration mode and shall not be capable of operating in the measure mode while enabled for remote configuration.</p>	<p>The hardware enabling access for remote communication must be at the device and sealed using a physical seal or two event counters; one for calibration parameters (000 to 999) and one for configuration parameters (000 to 999.) If equipped with event counters, the device must be capable of displaying, or printing through the device or through another on-site device, the contents of the counters.</p>
<p>Category 3: Remote configuration capability, access may be unlimited or controlled through a software switch (e.g. password.)</p> <p>When remotely accessed remotely for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measure mode.</p>	<p>An event logger is required in the device; it must include an event counter (000 to 999), the parameter ID, the date and time of the change and the new value of the parameter (for calibration changes consisting of multiple constants, the calibration version number may be used rather than the calibration constants.) A printed copy of the information must be available through the device or through another on-site device. The event logger shall have a capacity to retain records equal to twenty-five (25) times the number of sealable parameters in the device, but not more than 1000 records are required. (Note: Does not require 1000 changes to be stored for each parameter.)</p>
<p>Category 3a: No remote capability, but operator is able to make changes that affect the metrological integrity of the device (e.g. slope, bias, etc.) in normal operation.</p> <p><u>When accessed for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measure mode.</u></p>	<p>Device shall clearly indicate that it is in the remote configuration mode and shall not be capable of operating in the measure mode while enabled for remote configuration.</p>
<p>Category 3b: No remote capability, but access to metrological parameters is controlled through a software switch (e.g. password.)</p> <p><u>When accessed for the purpose of modifying sealable parameters, the device shall clearly indicate that it is in the configuration mode and shall not be capable of operating in the measure mode.</u></p>	<p>Remote configuration capability, access may be unlimited or controlled through a software switch (e.g. password.)</p>

Non-retroactive as of January 1, 1999. Amended 1998 and 201X

4.b. Proposed Changes to the Checklist of the GMM chapter of Publication 14

[Changes shown below are contingent upon acceptance of Item Under Consideration]

For Category 3 Devices

- 4.6.36. If a measurement is in process when the device is accessed ~~remotely~~ for the purpose of modifying sealable parameters, the measurement is either: Yes No N/A
- Terminated Before Results can be Displayed or Printed. **OR**
 - Completed Before Entering the Configuration Mode
- 4.6.37. When accessed ~~remotely~~ for the purpose of modifying sealable parameters, the device clearly indicates that it is in the configuration mode and is not capable of operating in the measure mode. Yes No N/A
- 4.6.37.1 Describe the method used to seal the device or access the audit trail information:

4.c. Proposed Changes to the Checklist of the NIR Grain Analyzer Chapter of Publication 14

Near Infrared (NIR) Grain Analyzers use an electronic method of sealing similar to those of GMMs, and most of them also offer access to the configuration mode thorough a keyboard entered password. In this mode, sealable parameters can be changed locally through the keyboard. At the 2011 NTETC Grain Analyzer Sector Meeting the sector agreed that contingent upon acceptance of Item Under Consideration the NIR Check List of *NCWM Publication 14* should be modified to delete “remotely” from §4 Design of NIR Analyzers, ¶ 4.9.16 as shown below.

[The change shown below is contingent upon acceptance of Item Under Consideration]

- 4.9.16. If a measurement is in process when the device is accessed ~~remotely~~ for the purpose of modifying sealable parameters, the measurement is either:
- 4.9.16.1 Terminated Before Results can be Displayed or Printed. **OR** Yes No N/A
- 4.9.16.2 Completed before entering the configuration mode Yes No N/A
- 4.9.16.3 Describe the method used to seal the device or access the audit trail information:

5. Modify the Definition of Remote Configuration Capability Appearing in Appendix D of NIST Handbook 44 to Recognize the Expanded Scope of “Remote Configuration Capability”

Source:

NTETC Grain Analyzer Sector

Purpose:

Table S.2.5. *Categories of Device and Methods of Sealing* that appears in §5.56.(a) of *NIST Handbook 44* lists acceptable methods of sealing for various categories of GMMs. When the sector first recommended adding the table to *NIST Handbook 44* at their September 1996 meeting, the concept of making a change to a GMM from a remote site involved information “...sent by to the device by modem (or computer).” In 2011 this concept has expanded to include the ability of the measuring device to accept new or revised sealable parameters from a memory chip (e.g., an SD Memory Card that may or may not itself be necessary to the operation of the device), external computer, network, or other device plugged into a mating port (e.g., Universal Serial Bus (USB) port) on the measuring device or connected wirelessly to the measuring device. The changes proposed in Item Under Consideration expands the scope of “remote configuration capability” to cover instances where the “other device” may be necessary to the operation of the weighing or measuring device or which may be considered a permanent part of that device.

Item Under Consideration:

remote configuration capability. – The ability to adjust a weighing or measuring device or change its sealable parameters from or through some other device that ~~is not~~ **may or may not** itself **be** necessary to the operation of the weighing or measuring device or ~~is not~~ **may or may not be** a permanent part of that device.[2.20, 2.21, 2.24, 3.30, 3.37, 5.56(a)]

(Added 1993, Amended 20XX)

Background / Discussion:

Two common types of removable data storage devices are the USB flash drive and the Secure Digital (SD) memory card. A USB flash drive is a data storage device that includes flash memory with an integrated USB interface. USB flash drives are typically removable and rewritable, and physically much smaller than a floppy disk. A SD card is a non-volatile memory card format originally designed for use in portable devices. The SD standard is maintained by the SD Card Association.

Removable digital storage devices can be used in GMMs as either “data transfer” devices which are not necessary to the operation of the GMM or as “data storage devices” which are necessary to the operation of the GMM.

A USB flash drive is most likely to be used as a “data transfer” device. In a typical “data transfer” application, the USB flash drive is first connected to a computer with access to the web. The computer visits the GMM manufacturer’s web site and downloads the latest grain calibrations that are then stored in the USB flash drive. The USB flash drive is removed from the computer and plugged into a USB port on the GMM. The GMM is put into “remote configuration” mode to copy the new grain calibration data into the GMM’s internal memory. When the GMM has been returned to normal operating (measuring) mode the USB flash drive can be removed from the GMM.

Although an SD memory card could also be used as a “data transfer device” it is more likely to be used as a “data storage device”. In a typical “data storage device” application, the SD memory card stores the grain calibrations used on the GMM. The SD memory card must be plugged into an SD memory card connector on a GMM circuit card for the GMM to operate in measuring mode. To install new grain calibrations the GMM must be turned “off” or put into a mode in which the SD memory card can be safely removed. The SD memory card can either be replaced with an SD memory card that has been programmed with the new grain calibrations or the original SD memory card can be re-programmed with the new grain calibrations in much the same way as that described in the preceding paragraph to copy new grain calibrations into a USB flash drive. In either case, the SD memory card containing the new calibrations must be installed in the GMM for the GMM to operate in measuring mode. In that

regard, the SD memory card (although removable) can be considered a “permanent part” of the GMM in that the GMM cannot operate without it.

Note: In the above example “SD memory card” could be any removable flash memory card such as the Secure Digital Standard-Capacity, the Secure Digital High-Capacity, the Secure Digital eXtended-Capacity, and the Secure Digital Input/Output, which combines input/output functions with data storage. These come in three form factors: the original size, the “mini” size, and the “micro” size. “Memory Stick” is a removable flash memory card format, launched by Sony in 1998, and is also used in general to describe the whole family of Memory Sticks. In addition to the original Memory Stick, this family includes the Memory Stick PRO, the Memory Stick Duo, the Memory Stick PRO Duo, the Memory Stick Micro, and the Memory Stick PRO-HG.

The sector is asked to approve the Item Under Consideration for submission to the S&T Committee for consideration as a Voting Item at the 2013 NCWM Annual Meeting.

6. Test Weight per Bushel Acceptance and Maintenance Tolerances

Source:

Mr. Adkisson, Grain and Feed Association of Illinois

Purpose:

Due to problems cited in the grain and feed industry, review and make any needed changes to the test weight per bushel tolerances in *NIST Handbook 44* Section 5.56(a).

Item Under Consideration:

Reform a task group to study the test weight per bushel measurement system to include issues with field inspection and grain moisture meters and provide the sector with recommendations for any needed changes to the test weight per bushel tolerances in *NIST Handbook 44* Section 5.56(a).

Background / Discussion:

This is a carryover from the sector’s 2011 meeting. Mr. Adkisson, Grain and Feed Association of Illinois, cited problems his industry is having regarding Test Weight (TW) per bushel. GMMs that have failed TW during field inspection are sent to the manufacturer for repair. When the meters are returned, the reports indicate that no problems have been found. There are also situations where a meter has failed TW. When the state inspector subsequently tested the elevator’s quart kettle it matched the meter, but it didn’t match the state inspector’s sample. This is particularly frustrating for the country elevators in Illinois that are using the GMM TW only as a screening tool.

Dr. Hurburgh, Iowa State University, objected to increasing TW tolerances as this would only cover up the problems. What was needed was an investigation of the whole system of calibrating meters, then translating that calibration into the field, and then keeping it that way. The whole system has some issues that can be fixed.

He suggested that the sector re-form a task group on TW and ultimately lay out a procedure that would improve TW both for the user and for the inspection function. Dr. Hurburgh agreed to head a task group to study the whole TW system (including the economic impact) and to recommend solutions to the issues that need fixing. Other TW Task Group members:

- Mr. Adkisson – Grain and Feed Association of Illinois
- Ms. Lee – NIST, OWM
- Ms. Eigenmann – DICKEY-john Corporation
- Mr. Hankins – Iowa Department of Agriculture/Weights and Measures
- Mr. Kaeding – Perten Instruments, Inc.
- Mr. Cunningham – Illinois Department of Agriculture

The sector decided to postpone action on the issue of tolerances until the TW Task Group had studied the issue and had recommended action.

Earlier this year the TW Task Group developed the following list of Action Items:

- Develop a draft procedure for sample selection and prequalification
- Survey the grain industry as to the frequency of discounting each of the major grains (wheat, corn, and soybeans) for test weight, and within those discounted the frequency of use of the meter test weight versus the cup-bucket test weight.
- Survey the industry for comparative data between meters and an Official GIPSA agency on the same samples.

Dr. Hurburgh, Iowa State University, will bring the sector up to date on the TW Task Group's progress.

7. Report on International Organization of Legal Metrology (OIML) TC 17/SC 1 R 59 Moisture Meters for Cereal Grains and Oilseeds

Background / Discussion:

This item was included on the sector's agenda to provide a summary of the activities of OIML TC17/SC1. The Co-Secretariats (China and the United States) are working closely with an International Work Group to revise OIML Recommendation (R) 59 *Moisture Meters for Cereal Grains and Oilseeds*. The 5 Committee Draft (CD) of OIML R 59, revised to comply with OIML's Guide *Format for OIML Recommendations* and to incorporate tests for the recommended disturbances of OIML Document (D) 11 *General Requirements for Electronic Measuring Instruments*, was distributed to the Subcommittee in February 2009. Comments to R 59 5 CD were received from 10 countries including the United States. A preliminary R 59 6 CD addressing those comments was prepared for discussion at the September 2010 TC 17/SC 1 meeting in Orlando, FL. Per discussions at that meeting, Germany submitted suggestions for additional software requirements that will be included in the 6 CD which is anticipated to be distributed in late 2012.

Ms. Lee, NIST, OWM, will brief the sector on the 2010 meeting and the current status of R 59 6 CD.

8. Update on Efforts to Establish Recognized Traceability under the International Committee of Weights and Measures (CIPM) Mutual Recognition Agreement (MRA) for Moisture in Grain Measurements

Background / Discussion:

At the 2011 NTETC Grain Analyzer Sector Meeting, Ms. Lee, NIST, OWM, reported that there is a proposal on the international front to do a study of moisture measurement methods with the apparent purpose of establishing a universal standard method "internationally accepted by competent authorities in the field of moisture measurements in grains and cereal." During the September 2010 TC 17/SC 1 Meeting Mr. Magana, International Bureau of Legal Metrology (BIML), gave an overview of a discussion paper titled, *Efforts to Establish Recognized Traceability Under the International Committee of Weights and Measures (CIPM) Mutual Recognition Arrangement (MRA) for 'moisture-in-grain' measurements.* This document discusses National Measurement Institutes having their measurement capabilities internationally recognized for moisture. It also discusses key comparisons for moisture, and the use of *ISO 712, Cereals and cereal products -- Determination of moisture content -- Reference method (not applicable to maize and pulses)*. In November 2011 the United States and China received a notice for a proposal for a new project within TC 17/SC 1 to create a new OIML recommendation to define the measurand "moisture mass fraction in grain" by a globally recognized measurement method. In the United States, NIST, OWM and United States Department of Agriculture (USDA), with management from both agencies, held a conference call to discuss technical issues concerning establishing a globally recognized reference method. After which the United States and China responded and elaborated on technical and economic issues. A copy of the response is shown below:

“...On the matter of International Committee of Legal Metrology (CIML) approval of this proposed project, we feel that the draft letter that you have prepared does not provide enough information to CIML Members for them to make an informed decision. We have consulted with members of the United States “mirror” committee, USDA, GIPSA, and they have informed us that studies of the type being proposed here have already been carried out in the 1980’s, and so it is questionable whether it makes sense to try and ‘reinvent the wheel’ with this project. The results of the studies have shown that this issue involves not only the technical feasibility of developing an acceptable global measurement method for moisture mass fraction in grains (i.e., defining the measurand), but equally (if not more) importantly involves the economic (and hence political) feasibility of developing and implementing a single global standard. The anticipated global costs associated with making the changes that this project could lead to are staggering, and would quite likely not be acceptable to the stakeholder communities.

Therefore, we believe that the initial letter to the CIML Members should ask not only the technical questions that you have posed (and perhaps others as well), but should also ask what the national agencies and customers in the different Member States have to say about the idea of possibly changing the test method in their country to accommodate a single global standard measurement method. We feel that such information should be obtained (through a formal survey, not in the informal way posed in your draft letter) and then shared with the CIML Members before asking them to vote on approval of this proposal. We would be happy to assist you in the re-drafting of your letter and preparation of the survey.

Elaborating on what we see as the technical issues, it is well recognized that no universal method can be used for all grains and seeds. The main steps of the experimental procedure, i.e., pre-drying, grinding, drying time, and temperature, generally differ from one grain type to the next as dictated by physical and chemical composition. Thus, a critical study of the procedure would be required for each grain type. A wide range of grain moisture reference methods are used by major grain exporting and importing countries. Grain moisture reference methods were adopted decades ago and are well established within these countries. Comparison studies have shown that no methods are identical and that differences can be significant between some methods. The extent to which the methods agree will vary by grain type.

Elaborating on what we see as the economic issues, it is challenging to identify economic benefits of moving to an international moisture reference method. Persuasive arguments have been presented that market prices have already adjusted to reflect differences in grain moisture reference results. It is easier, and fairly daunting, to predict costs associated with making a change to grain moisture reference methods for an individual country. It would be necessary to develop new moisture meter calibration coefficients for each grain type. In some cases, grain drying costs could be increased in order to meet moisture specifications. Perhaps most significantly, price structures would need to be modified...”

This was discussed further at the OIML Presidential Council meeting March 5-7, 2012, and it was included in the meeting minutes that there was insufficient evidence that the latest developments described in the NIST, OWM newsletter article would result in an instrument/procedure that could be used as an international standard for moisture mass fraction of grain measurements.

In a conversation with Mr. Patoray, BIML Director, Dr. Erlich, NIST, OWM was informed that the OIML is no longer pursuing the new project to create an OIML recommendation to define the measurand “moisture mass fraction in grain”.

Subsequently, the United States and China, secretariats of OIML Technical Committee (TC) 17/Technical Subcommittee (SC) 1, received a document from Mr. Bell, National Physical Laboratory in the UK in reference to a proposed research topic to submit to the current call of the European Metrology Research Program (EMRP) to address the need for a more effective metrology infrastructure for measurements of moisture in materials. The United States and China responded including excerpts from the response provided for the OIML Proposal to create a new OIML recommendation to define the measurand “moisture mass fraction in grain”. OIML TC 17/SC 1 was not listed in support of these efforts.

Ms. Lee, NIST, OWM will report on the current status of the EMRP proposed research topic to address the need for a more effective metrology infrastructure for measurements of moisture in materials.

9. Report on OIML TC 17/SC 8 Protein Measuring Instruments for Cereal Grain and Oil Seeds

Background / Discussion:

This item was included on the sector’s agenda to provide a summary of the activities of OIML TC 17/SC 8. Subcommittee SC 8 was formed to study the issues and write a working draft document *Measuring Instruments for Protein Determination in Grains*. Australia is the Secretariat for this subcommittee. A TC 17/SC 8 meeting was hosted by NIST, OWM in September 2007 to discuss the 2 CD. Discussions on 2 CD dealt mostly with Maximum Permissible Errors and harmonization of the TC 17/SC 8 Recommendation for protein with the TC 17/SC 1 Recommendation for moisture. The Secretariat distributed a 2 CD of the document in February 2010. A meeting of TC 17/SC 8 was held September 2010 in Orlando, FL. At the September meeting comments to the Recommendation on Protein Measuring Instruments for Cereal Grain and Oil Seeds 2 CD were reviewed. It was agreed at this meeting that two instruments will be submitted for OIML type approval. This agreed change and other changes from the September 2010 meeting will be included in 3 CD.

Ms. Lee, NIST, OWM, will bring the sector up to date on the status of 3 CD.

10. Item 356-1 Printed Ticket User Requirements - Update

Source:

Grain and Feed Association of Illinois (2012)

Purpose:

Change the mandatory printing of tickets from grain moisture meters to an “on demand at the time of transaction” printing and remove the requirement of printing the calibration version identification. Note that the S&T Committee did not agree with proposed removal of the requirement to print the calibration version identification; this position is reflected in the version of the proposal currently under consideration by the committee.

Item Under Consideration:

Amend *NIST Handbook 44*, Grain Moisture Meter Code 5.56.(a) as follows:

UR.3.4. Printed Tickets.

- (b) The customer shall be given a printed ticket **at the time of the transaction or as otherwise specified by the customer.** The printed ticket shall include the date, grain type, grain moisture results, and test weight per bushel, and calibration version identification. The ticket **information** shall be generated by the grain moisture meter system.

(Amended 1993, 1995, ~~and~~ 2003, **and 20XX**)

Background / Discussion:

According to the submitter, the user requirement to provide a printed ticket for every single load is unrealistic in the country elevator industry. Traffic patterns at country elevators do not lend themselves to providing a printed ticket to all customers and customers really don’t want them. As the speed and capacity increases in the industry, outbound scales are being located at a distance from the inbound scale and the scale house where the moisture tester is located to alleviate traffic bottlenecks. When the outbound scale is located away from where the ticket is printed, the truck driver must circle back around to pick up the ticket, thus, causing logistical problems. In addition, since meters are sealed, inspected and required to have the correct calibration, there is no need for the calibration version identification to be printed on the ticket. Also, most customers are not going to know if it is the correct calibration version identification or not. There have been problems getting the information from the grain moisture meter to the grain accounting system – especially the calibration version identification. Some grain accounting systems have to be “hard coded” for calibration version identification which must be changed whenever the calibration changes. The change will be at an added cost for the industry.

When a consumer pays at a gas pump, they have the option of a receipt on demand at the time of transaction or not receiving a receipt. There would be a cost savings to moisture meter users as they would save on paper and filing space, and in the situation where the calibration version identification is “hard coded,” there will be a cost savings of the expense to have the grain accounting software provider make those changes.

Since moisture meters are capable of printing the ticket, some would argue that they should just go ahead and print them and provide them to the customer. In addition, the requirement does not say when the ticket shall be given to the customer; thus, the printed tickets could be saved for weeks, months, or even years in case the customer had a concern at some point. Printing the calibration version identification ensures the correct calibration is being used.

The submitter proposed amendments to paragraph UR.3.4. Printed Tickets as follows:

UR.3.4. Printed Tickets.

- (b) The customer shall be given a printed ticket on **demand at the time of the transaction** showing the date, grain type, grain moisture results, **and** test weight per bushel, ~~and calibration version identification~~. The ticket **information** shall be generated by the grain moisture meter system.
(Amended 1993, 1995, ~~and~~ 2003, **and 20XX**)

At the 2011 Central Weights and Measures Association (CWMA) Interim Meeting some jurisdictions opposed the proposal citing that it is a fundamental element of a point of sale transaction that there is either a witness to the transaction or that a receipt is made available. Others supported the item and recognized that many customers refuse to take the printed tickets. The CWMA believes that the calibration version identification is not necessary on the ticket since most jurisdictions are already verifying the calibrations version when the device is inspected. This proposal is not eliminating the opportunity for the seller to obtain a printed ticket. The CWMA forwarded the item to NCWM, recommending it as a Voting Item.

At the 2011 Western Weights and Measures Association (WWMA) Annual Meeting the committee heard no comments on this item. The WWMA amended the proposal to make the language consistent with other codes such as 3.32. LPG and Anhydrous Ammonia Liquid-Measuring Devices Code paragraph UR.2.6. Ticket Printer: Customer Tickets. The WWMA forwarded the modified version below to NCWM, recommending it as a Voting Item.

UR.3.4. Printed Tickets.

- (b) The customer shall be given a printed ticket **showing at the time of the transaction or as otherwise specified by the customer. The printed ticket shall include** the date, grain type, grain moisture results, and test weight per bushel, ~~and calibration version identification~~. The ticket **information** shall be generated by the grain moisture meter system.

(Amended 1993, 1995, ~~and~~ 2003, **and 20XX**)

At the 2011 Northeastern Weights and Measures Association (NEWMA) Interim Meeting there were no comments. Deferring to the expertise of the NTETC Grain Analyzer Sector, NEWMA forwarded the item to NCWM, recommending it as a Developing Item.

At the 2011 Southern Weights and Measures Association (SWMA) Annual Meeting, Ms. Butcher, NIST Technical Advisor, noted that the proposed language submitted was slightly different from that discussed by the NTETC Grain Analyzer Sector and provided a summary corresponding to this item prepared by Ms. Lee, Grain Analyzer Sector Technical Advisor. Ms. Butcher also pointed out that WWMA proposed alternate language that is consistent with printed tickets requirements in other codes. The SWMA agreed that the customer should be given the option of receiving a printed ticket from a transaction and that the proposed changes would clarify the responsibility of the device user. The SWMA preferred the option forwarded by WWMA since it mirrors existing language in other *NIST Handbook 44* codes. The SWMA forwarded the item to NCWM, recommending it as a Voting Item as revised by WWMA.

At the 2012 NCWM Interim Meeting, the S&T Committee received comments in support of the alternative language submitted by the WWMA. NIST, OWM reported that the proposed language submitted to the regional weights and measures associations was different from that agreed to by the Grain Analyzer Sector at its August 2011 meeting. The Grain Analyzer Sector had specifically opposed deleting the phrase “calibration version identification.” NIST, OWM also noted that not all grain moisture meters are Category 3 devices; consequently, calibration version identification information is a critical component on the printed receipt to reconstruct the basis for a sale and help officials to resolve complaints.

The committee agreed that the version proposed by WWMA and SWMA was preferable since it mirrors similar language in other *NIST Handbook 44* Codes. The committee also agreed that, given the Grain Analyzer Sector’s opposition to deleting the reference to “calibration version identification,” this phrase should be retained in the paragraph. The committee presented an amended version of the proposal. The committee recognized that the regional associations were not aware of the sector’s position on the proposed deletion of the reference to the calibration version and that the submitter has not had an opportunity to review the significant changes from the original version. The 2012 S&T Committee designated this item as an Informational Item to allow additional opportunity for input.

The sector is asked to approve the wording as shown in Item Under Consideration.

11. Update on Proficiency Testing

Source:

Dr. Hurburgh, Iowa State University

Purpose:

Develop an air-oven proficiency testing program to ensure state laboratory and manufacturers air-oven measurements are traceable to the official USDA, GIPSA air-oven measurements.

Item Under Consideration:

Create an ongoing air-oven proficiency testing program for states maintaining a grain moisture laboratory and GMM manufactures.

Background / Discussion:

At the 2009 NTETC Grain Analyzer Sector Meeting Dr. Hurburgh, Iowa State University, urged the representatives from the American Oil Chemists Society (AOCS) to prepare a proposal so that the collaborative (air-oven) study could be conducted on an on-going basis rather than on an ad hoc basis. He cautioned that the proposal would have to include corn and wheat as well as soybeans.

At the 2011 NTETC Grain Analyzer Sector Meeting, Ms. Johnson, AOCS, proposed an air-oven/GMM proficiency testing series designed specifically to address the needs of GMM manufacturers and states maintaining a grain moisture laboratory. AOCS would administer the program, oversee distribution of samples, compile results, perform statistical analysis of results, and distribute a report to participants. AOCS does not collect the samples. This is subcontracted to suitable providers. AOCS does not have laboratories. Since GIPSA/ FGIS is a certified laboratory already participating in the AOCS Soybean Quality Traits program, GIPSA air-oven results could be reported for comparison.

The sector decided that the program should focus solely on the standard FGIS air-oven method. Instrument results will not be reported. Participants’ air-oven results will be compared against GIPSA’s standard FGIS air-oven results.

Program Details:

- Samples – Soybeans 2, Corn 2, Hard Red Winter Wheat 2
- Cost to Participants - \$100.00/year
- Schedule:
 - Samples (6) ship on the 15th of February
 - Samples must be tested within 5 business days with results due by 15 March
 - Reports will be posted on www.SoybeanQualityTraits.org by 1 May.
 - Detailed Participant Instructions will be provided to each participant.

Ms. Lee, NIST, OWM, will bring the sector up to date on the status of the Proficiency Testing program.

12. NCWM Publication 14, NTEP Administrative Policy Changes

Source:

NTEP

Background / Discussion:

NCWM is working on revisions to *Publication 14, Administrative Policy*, to put it in a more logical order and more understandable form. The purpose is not to change the intent of the publication, but to realign and clarify sections as necessary. Sectors, committees and the NTEP laboratories are asked to review the revised section, NTEP Administrative Policy and provide feedback. An electronic copy of the document will be distributed by NCWM to all that submit a registration form to attend the NTETC Grain Analyzer Sector meeting in August.

The sector is asked to review the revised document and be prepared to provide feedback.

[See attached document.](#)

13. Next Sector Meeting

A tentative date and location will be selected for the next meeting. An August meeting in Kansas City is suggested.