United States Department of Agriculture
Agricultural Marketing Service
Federal Grain Inspection Service

Directive

9180.61 August 1, 2026

OFFICIAL MOISTURE CALIBRATIONS FOR UNIFIED GRAIN MOISTURE ALGORITHM (UGMA) COMPATIBLE METERS

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1. PURPOSE

This directive defines the official calibrations for use with the DICKEY-john GAC 2500-UGMA, DICKEY-john GAC 2700-UGMA, Perten AM 5200-A, and FOSS GAC 2500-C moisture meters used by the Agricultural Marketing Service (AMS) and its system of Official Inspection Providers for official grain moisture measurement.

2. BACKGROUND

This directive specifies updated official UGMA-compatible moisture meter calibrations to be updated. Although there are no specific moisture calibration updates for August 1 Directive, it is still required to update UGMA-compatible meters with the new calibration version to meet National Type Evaluation Program (NTEP) requirements.

This directive also restates all calibrations transmitted in the previous directive dated May 1, 2026.

AMS requires that its official moisture instruments conform to National Type Evaluation Program requirements for use in commercial as well as official grain inspection. The NTEP requirements are stated in the National Conference on Weights and Measures: Publication 14 Grain Moisture Meters & Near Infrared Grain Analyzers ©2026.

AMS's calibration accuracy criteria, more restrictive than the NTEP requirements, mandates that the average difference between the results from a meter model and the USDA air oven method must not exceed +/- 0.15 percent moisture (for the most recent three years of data for the NTEP grains and for five years of data for the minor grains). The tolerance is increased slightly if the number of available samples is small. Tolerances and criteria for agreement between UGMA-Compatible meter models and AMS's master UGMA system are located on the Moisture Equipment page on the AMS Website.

Attachment 1 lists the DICKEY-john GAC 2500-UGMA (FOSS GAC 2500-C), DICKEY-john GAC 2700-UGMA, and Perten AM 5200-A calibration versions for the major grains (those grains that are also included in the NTEP) and for non-NTEP minor grains and commodities for official grain moisture measurements. The FOSS GAC 2500-C and DICKEY-john GAC 2700-UGMA uses the same calibrations as the DICKEY-john GAC 2500-UGMA. Attachment 2 lists calibration moisture ranges and temperature ranges applicable to both meter models. The basic sample temperature range across all moisture contents and all grains is 0 to 45°C (32 to 113°F). The lower temperature limit is extended to -18°C (-0.4°F) for moisture levels below the limits indicated for each grain type in Attachment 2. Moisture readings are automatically inhibited when sample temperatures are outside the specified ranges.

3. REPLACEMENT HIGHLIGHTS

This directive replaces Directive 9180.61, Official Moisture Meter Calibrations, dated May 1, 2026.

4. PROCEDURES

Official calibration files and installation instructions for both the DICKEY-john GAC 2500-UGMA and the Perten AM 5200-A are available for download at Moisture Equipment (https://www.ams.usda.gov/services/fgis/standardization/moisture-equipment). Official calibrations and updates to calibrations must be installed on the FOSS GAC 2500-C remotely through the FossManager network software. Contact FOSS at (952) 974-9892 ext. 3 to request the latest calibration be updated to the GAC 2500-C. All official inspection laboratories must use these official calibrations for the DICKEY-john GAC 2500-UGMA, DICKEY-john GAC 2700-UGMA, Perten AM 5200-A, and FOSS GAC 2500-C meters for all grains and commodities for official inspections performed on and after August 1, 2026.

5. QUESTIONS

Direct any questions concerning this directive to the Inspection Instrumentation Branch at (816) 702-3800.

ATTACHMENT 1
GRAIN TYPES AS DISPLAYED ON THE MOISTURE METERS WITH CURRENT CALIBRATIONS VERSION IDENTIFIERS

Grain/Commodity	Displayed Grain Type	Perten AM 5200-A Calibration Version	DICKEY-john GAC 2500-UGMA Calibration Version	Calibration Effective Date*
NTEP GRAINS				
Barley, Six-rowed	Barley 6Row	BAR 200417	20200415N	May 1, 2020
Barley, Two-rowed	Barley 2Row	BAR 200417	20200415N	May 1, 2020
Corn	Corn	CORN 210414	20200415N	Aug. 1, 2020 (D) Aug. 1, 2021 (P)
Oats	Oats	OATS 240419	20240410N	May 1, 2024
Rice, Long Grain Rough	Rice LG Ruf	LGRR 230415	20250409N	Aug. 1, 2023 (P) Aug. 1, 2025 (D)
Rice, Medium Grain Rough	Rice MG Ruf	MGRR 250411	20250409N	Aug. 1, 2025
Sorghum	Sorghum	SORG 240419	20250409N	Aug. 1, 2024 (P) Aug. 1, 2025 (D)
Soybeans	Soybeans	SOY 220415	20220413N	Aug. 1, 2022
Sunflower seed (Oil-Type)	Sunflower	SFS 220415	20220413N	Aug. 1, 2022
Wheat, Durum	Durum	DURUM 250411	20250409N	May 1, 2025 (D) May 1, 2025 (P)
Wheat, Hard Red Spring	Wheat HRS	WHTH 190415	20200415N	May 1, 2020 (D) May 1, 2019 (P)
Wheat, Hard Red Winter	Wheat HRW	WHTH 190415	20200415N	May 1, 2020 (D) May 1, 2019 (P)
Wheat, Hard White	Wheat HW	WHTH 190415	20200415N	May 1, 2020 (D) May 1, 2019 (P)
Wheat, Soft Red Winter	Wheat SRW	WHTS 200417	20240410N	May 1, 2024 (D) May 1, 2020 (P)
Wheat, Soft White	Wheat SW	WHTS 200417	20240410N	May 1, 2024 (D) May 1, 2020 (P)
NON-NTEP GRAINS				
Beans, Baby Lima	BN Baby Lima	BEAN2 210414	20210414	Aug. 1, 2021
Beans, Black	BN Black	BEAN3 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Beans, Blackeye	BN Blackeye	BEAN1 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Beans, Cranberry	BN Cranberry	BEAN1 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)

***Note: Calibration effective dates with a (D) apply to the DICKEY-john GAC 2500-UGMA, DICKEY-john GAC 2700-UGMA, and FOSS GAC 2500-C. Dates with a (P) apply to the Perten AM 5200-A. Dates without a (D/P) apply to all models.**

Grain/Commodity	Displayed Grain Type	Perten AM 5200-A Calibration Version	DICKEY-john GAC 2500-UGMA Calibration Version	Calibration Effective Date*
Beans, Kidney	BN Kidney	BEAN5 200417	20180414	Aug. 1, 2018 (D) Aug. 1, 2020 (P)
Beans, Garbanzo	BN Garbanzo	BEAN2 210414	20210414	Aug. 1, 2021
Beans, Great Northern	BN Grt Nrthn	BEAN3 200417	20220413	Aug. 1, 2022(D) Aug. 1, 2020 (P)
Beans, Large Lima	BN Lrg Lima	BEAN3 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Beans, Pea	BN Pea	BEAN4 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Beans, Pink	BN Pink	BEAN1 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Beans, Pinto	BN Pinto	BEAN1 200417	20170417	Aug. 1, 2017 (D) Aug. 1, 2020 (P)
Beans, Small Red	BN Small Red	BEAN2 210414	20210414	Aug. 1, 2021
Beans, Small White	BN Small Wht	BEAN4 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Beans, Yelloweye	BN Yelloweye	BEAN2 210414	20210414	Aug. 1, 2021
Canola	Canola	CANOLA 190415	20190415	Aug. 1, 2019
Flaxseed	Flaxseed	FLAX 140418	20130501	May 1, 2013 (D) Aug. 1, 2014 (P)
Lentils	Lentils	BEAN5 200417	20180414	Aug. 1, 2018 (D) Aug. 1, 2020 (P)
Mustard seed, Brown	Mustard Brn	MUSTARD 250411	20250409	Aug. 1, 2025
Mustard seed, Oriental	Mustard O	OMUSTARD 240419	20130501	May 1, 2013 (D) Aug. 1, 2024 (P)
Mustard seed, Yellow	Mustard Y	MUSTARD 250411	20250409	Aug. 1, 2025
Peas, Mottled	Peas Mottled	PEAS 220415	20200415	Aug. 1, 2020 (D) Aug. 1, 2022 (P)
Peas, Smooth Dry	Peas Smooth	PEAS 220415	20200415	Aug. 1, 2020 (D) Aug. 1, 2022 (P)
Peas, Split	Peas Split	BEAN1 200417	20130501	May 1, 2013 (D) Aug. 1, 2020 (P)
Peas, Wrinkled Dry	Peas Wrinkld	PEAS 220415	20200415	Aug. 1, 2020 (D) Aug. 1, 2022 (P)
Popcorn	Popcorn	POPCORN 250411	20250409	Aug. 1, 2025
Rice, Brewers Milled	Rice BMR	SMRICE 140418	20140418	Aug. 1, 2014

***Note: Calibration effective dates with a (D) apply to the DICKEY-john GAC 2500-UGMA, DICKEY-john GAC 2700-UGMA, and FOSS GAC 2500-C. Dates with a (P) apply to the Perten AM 5200-A. Dates without a (D/P) apply to all models.**

Grain/Commodity	Displayed Grain Type	Perten AM 5200-A Calibration Version	DICKEY-john GAC 2500-UGMA Calibration Version	Calibration Effective Date*
Rice, Brewers Milled Parboiled	Rice BMRP	PBRICE 210414	20220413	Aug. 1, 2022 (D) Aug. 1, 2021 (P)
Rice, Long Grain Brown	Rice LGBR	BRRICE 140418	20140418	Aug. 1, 2014
Rice, Long Grain Brown Parboiled	Rice LGBRP	PBRICE 210414	20220413	Aug. 1, 2022 (D) Aug. 1, 2021 (P)
Rice, Long Grain Milled	Rice LGMR	LMRICE 230415	20230412	Aug. 1, 2023
Rice, Long Grain Milled Parboiled	Rice LGMRP	PBRICE 210414	20220413	Aug. 1, 2022 (D) Aug. 1, 2021 (P)
Rice, Medium Grain Brown	Rice MGBR	BRRICE 140418	20140418	Aug. 1, 2014
Rice, Medium Grain Milled	Rice MGMR	LMRICE 230415	20230412	Aug. 1, 2023
Rice, Medium Grain Milled Parboiled	Rice MGMRP	PBRICE 210414	20220413	Aug. 1, 2022 (D) Aug. 1, 2021 (P)
Rice, Screenings Milled	Rice SMR	SMRICE 140418	20140418	Aug. 1, 2014
Rice, Second Head Milled	Rice SHMR	SMRICE 140418	20140418	Aug. 1, 2014
Rice, Second Head Milled Parboiled	Rice SHMRP	PBRICE 210414	20220413	Aug. 1, 2022 (D) Aug. 1, 2021 (P)
Rice, Short Grain Brown	Rice SGBR	BRRICE 140418	20140418	Aug. 1, 2014
Rice, Short Grain Milled	Rice SGMR	SMRICE 140418	20140418	Aug. 1, 2014
Rice, Short Grain Rough	Rice SG Ruf	SGRR 190415	20190415	Aug. 1, 2019
Rye	Rye	RYE 230415	20230412	May 1, 2023
Safflower Seed	Safflower	SAFFL 240419	20240410	Aug. 1, 2024 (D) Aug. 1, 2024 (P)
Sunflower Seed (Confectionary)	Sunflwr Conf	SFS 220415	20220413	Aug. 1, 2022
Triticale	Triticale	RYE 230415	20230412	May 1, 2023
NON-STANDARDIZED GRAINS				
Barley, Hulless	Barley Hless	BAR 200417	2020415	May 1, 2020
Buckwheat	Buckwheat	BKWHT 140418	20140418	Aug. 1, 2014
Buckwheat Groats	Buckwheat Gr	BKWHT 140418	20140418	Aug. 1, 2014
Oats, Hulless	Oats, Hless	DURUM 150420	20150420	May 1, 2015

***Note: Calibration effective dates with a (D) apply to the DICKEY-john GAC 2500-UGMA, DICKEY-john GAC 2700-UGMA, and FOSS GAC 2500-C. Dates with a (P) apply to the Perten AM 5200-A. Dates without a (D/P) apply to all models.**

ATTACHMENT 2
OFFICIAL CALIBRATION MOISTURE AND TEMPERATURE RANGES

Official calibration moisture ranges (outside of which warnings are displayed) and upper moisture limits for moisture measurements when sample temperatures are below 0°C (32°F). The upper sample temperature limit is 45°C (113°F) for all grain types.

Grain/Commodity	Calibration Moisture Range (%)	Temperature Limit Extended to -18°C (0°F) for Moisture Less Than %
NTEP GRAINS		
Barley, Six-rowed	8-18	18
Barley, Two-rowed	8-18	18
Corn	6-46	19
Oats	8-16	13
Rice, Long Grain Rough	8-26	18
Rice, Medium Grain Rough	8-28	18
Sorghum	10-24	16
Soybeans	5-24	20
Sunflower seed (Oil-Type)	4-28	13
Wheat, Durum	4-30	19
Wheat, Hard Red Spring	6-22	19
Wheat, Hard Red Winter	6-22	19
Wheat, Hard White	6-22	19
Wheat, Soft Red Winter	7-24	19
Wheat, Soft White	7-24	19
NON-NTEP GRAINS		
Beans, Baby Lima	6-20	15
Beans, Black	8-20	15
Beans, Blackeye	8-20	15
Beans, Cranberry	8-20	15
Beans, Kidney	6-20	15
Beans, Garbanzo	6-20	15
Beans, Great Northern	8-20	15
Beans, Large Lima	8-20	15
Beans, Pea	8-22	15
Beans, Pink	8-20	15
Beans, Pinto	8-20	15
Beans, Small Red	6-20	15
Beans, Small White	8-22	15
Beans, Yelloweye	6-20	15

Grain/Commodity	Calibration Moisture Range (%)	Temperature Limit Extended to -18°C (0°F) for Moisture Less Than (Below)%
Canola	4-14	18
Flaxseed	6-14	10
Lentils	6-20	15
Mustard Seed, Brown	6-12	9
Mustard Seed, Oriental	6-18	9
Mustard Seed, Yellow	6-12	9
Peas, Mottled	6-16	15
Peas, Smooth Dry	6-16	15
Peas, Split	8-20	15
Peas, Wrinkled Dry	6-16	15
Popcorn	10-30	19
Rapeseed	4-14	18
Rice, Brewers Milled	10-16	16
Rice, Brewers Milled Parboiled	10-14	13
Rice, Long Grain Brown	10-22	16
Rice, Long Grain Brown Parboiled	10-14	13
Rice, Long Grain Milled	10-18	16
Rice, Long Grain Milled Parboiled	10-14	13
Rice, Medium Grain Brown	10-22	16
Rice, Medium Grain Milled	10-18	16
Rice, Medium Grain Milled Parboiled	10-14	13
Rice, Screenings Milled	10-16	16
Rice, Second Head Milled	10-16	16
Rice, Second Head Milled Parboiled	10-14	13
Rice, Short Grain Brown	10-22	16
Rice, Short Grain Milled	10-16	16
Rice, Short Grain Rough	10-28	18
Rye	8-16	16
Safflower seed	4-14	12
Sunflower seed (Confectionary)	4-28	13
Triticale	8-16	16
NON-STANDARDIZED GRAINS		
Barley, Hulless	8-18	18
Buckwheat	10-19	13
Buckwheat Groats	10-19	13
Oats, Hulless	4-30	19