Weights & Measures Challenges for 2014-15

MULCH & SOIL COUNCIL

2014 Enforcement Actions

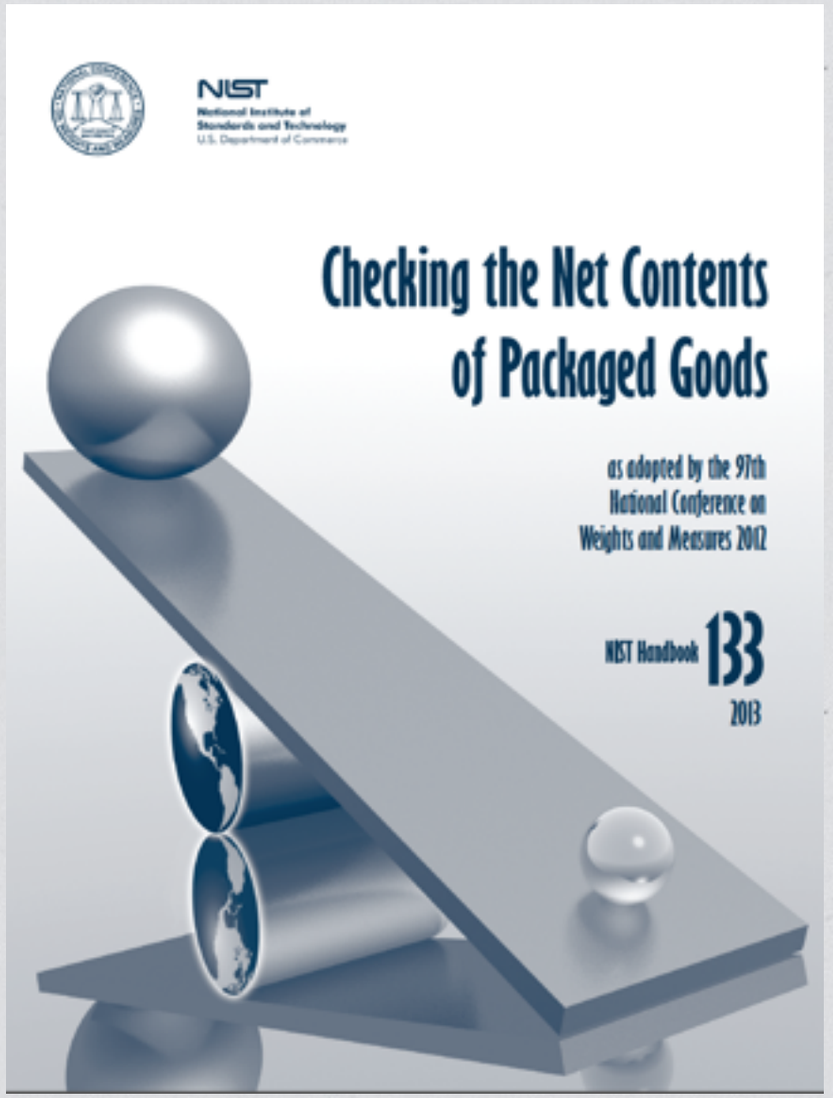
- Industry complaint to NIST triggered Interest by NCWM
- NCWM sent inquiries to states for "unofficial survey"
- Samples of test results filtered into Council office
- MSC contacted NIST and NCWM for information
- 14 states conducted testing over a 3-month period
- Frequency of testing showed state-to-state variations in standardized testing procedures

2014 Enforcement Actions

- NIST contacted regarding observed variations in:
  - Measure container size
  - Product placement into container
  - Measure increments
  - Inspection sample test procedures

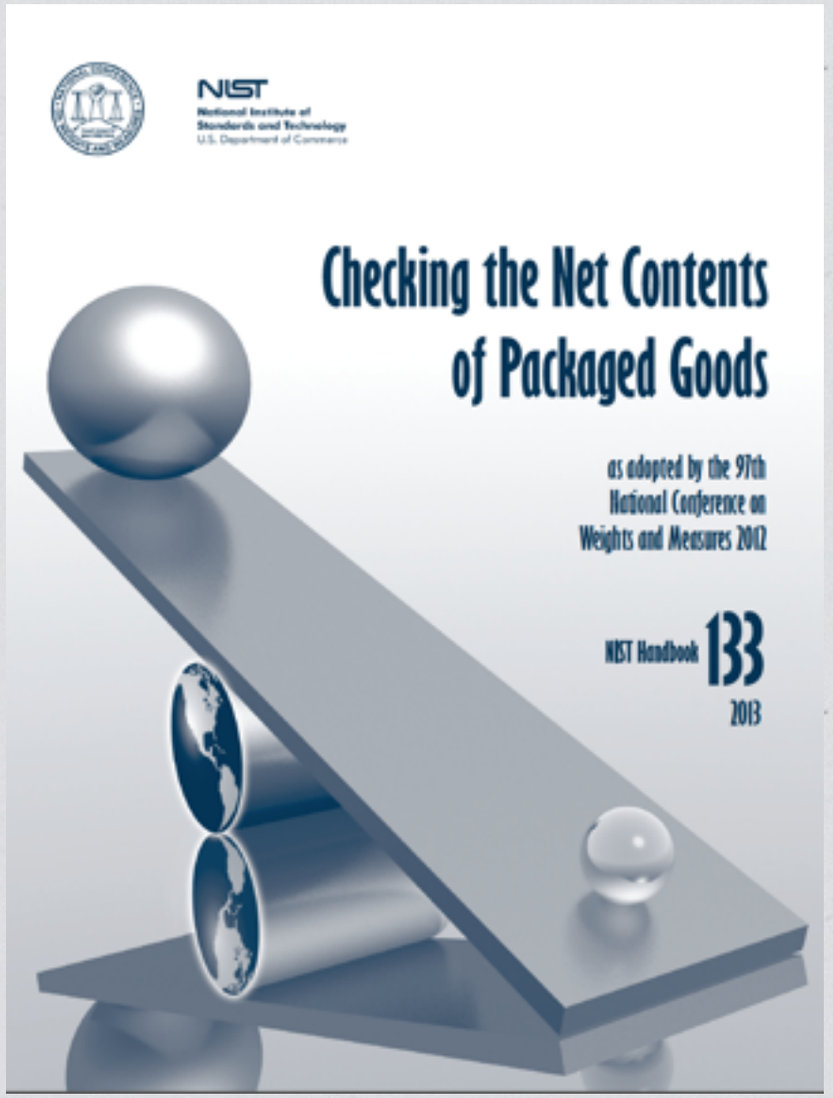
Major Policy Change at NIST

- Handbook 133
- Does not preempt States
- Provides defensible guides
- States may deviate at their own legal risk



Testing Issues at NCWM

- NIST HB133 is a guide - not a law
- Some areas of testing methods are open to interpretation by states
- If industry wants clarification, it should go through the process of making changes to HB133



Measuring Container Size

- NIST specifies the measure should approximate the package size
- Some states used 1 cu ft boxes for 2 cu ft packages
- Some states used 38”- 48” tall boxes for 24” packages

Measure Container Tests

	Drop Comp.		
Substate	2, I cuft boxes in one bag, 38 in box	2, 1 cu ft boxes in one bag, 26 in box	Difference in height using 26 inch box
Cedar Chips	23.0	24.0	1.0
	24.5	24.0	-0.5
	24.0	23.5	-0.5
	24.5	23.5	-1.0
	24.5	23.5	-1.0
Mean	**24.1**	**23.7**	**-0.4**
	0.7	**0.3**	**0.8**
Pine Bark Nuggets	23.0	24.5	1.5
	23.5	24.0	0.5
	22.0	24.0	2.0
	22.5	24.0	1.5
	22.5	23.5	1.0
Mean	**22.7**	**24.0**	**1.3**
	0.6	**0.4**	**0.6**

Measure Container Tests

	Drop Comp.		
Substate	2, I cuft boxes in one bag, 38 in box	2, 1 cu ft boxes in one bag, 26 in box	Difference in height using 26 inch box
Hardwood Mulch	22.5	22.0	-0.5
	22.5	22.5	0.0
	22.5	22.0	-0.5
	22.5	22.0	-0.5
	22.5	22.0	-0.5
Mean	**22.5**	**22.1**	**-0.4**
	0.0	**0.2**	**0.2**
Pine Mulch	23.0	23.5	0.5
	23.0	23.5	0.5
	23.0	23.0	0.0
	22.5	23.0	0.5
	22.5	22.5	0.0
Mean	**22.8**	**23.1**	**0.3**
	0.3	**0.4**	**0.3**
Shredded Cypress Blend	23.0	23.0	0.0
	23.5	23.0	-0.5
	23.0	23.0	0.0
	23.0	23.0	0.0
	22.5	22.5	0.0
Mean	**23.0**	**22.9**	**-0.1**
	0.4	**0.2**	**0.2**

Measure Container Tests

	Partitioned Compression**								
Substate	1cf mark	2cf height	1st partition mark*	Compression Value	2nd partition height	2nd Compression Value	3cf height from 3, 1 cuft boxes	3, 1 cu ft boxes in one bag, 38 in box	Difference in 1, 3 ft in dump vs 3, 1 ft dumps
Cedar Chips	11.50	22.88	11.00	0.50	22.5	0.375	34.25	37.00	2.75
	11.75	23.38	11.50	0.25	23.25	0.125	35.25	37.00	1.75
	12.38	24.38	12.13	0.25	24	0.375	36.75	36.50	-0.25
	11.63	23.50	11.38	0.25	23.25	0.25	35.5	36.75	1.25
	12.25	24.25	11.88	0.38	24	0.25	36.5	37.50	1.00
Mean	**11.9**	**23.7**	**11.6**	**0.3**	**23.4**	**0.3**	**35.7**	**37.0**	**1.3**
	0.4	**0.6**	**0.4**	**0.1**	**0.6**	**0.1**	**1.0**	**0.4**	**1.1**

Measure Container Tests

	Partitioned Compression**			
Substate	1cf mark	2cf height	1st partition mark*	Compression Value
Hardwood Mulch	11.50	22.63	11.00	0.50
	10.88	21.75	10.38	0.50
	11.25	22.00	10.88	0.38
	11.25	22.25	10.63	0.63
	11.38	22.50	10.88	0.50
Mean	**11.3**	**22.2**	**10.8**	**0.5**
	0.2	**0.4**	**0.3**	**0.1**
Pine Mulch	11.38	24.25	11.00	0.38
	12.13	24.38	12.13	0.00
	12.38	24.50	11.50	0.88
	12.88	25.00	12.13	0.75
	12.38	24.38	12.00	0.38
Mean	**12.2**	**24.5**	**11.8**	**0.5**
	0.5	**0.3**	**0.5**	**0.3**
Shredded Cypress Blend	11.38	22.63	11.00	0.38
	11.50	22.13	11.13	0.38
	11.63	23.13	11.38	0.25
	11.50	22.50	11.13	0.38
	11.88	23.13	11.25	0.63
Mean	**11.6**	**22.7**	**11.2**	**0.4**
	0.2	**0.4**	**0.1**	**0.1**

Measure Container Tests

Product (2 cu ft bags)	Dump-No Filtering	Dump with Stiff Finger Filtering	Dump with Moving Finger Filtering
		Inches	
Shredded Natural	24.8	24.5	23.5
Mulch	24.5	23.8	22.0
	24.0	23.5	22.5
Mean	**24.4**	**23.9**	**22.7**
Difference with Filtering		***-0.5***	***-1.7***
Pine Bark Nuggets	24.0	22.5	21.5
	23.5	22.0	20.8
	23.5	21.8	20.8
Mean	**23.7**	**22.1**	**21.0**
Difference with Filtering		**-1.6**	**-2.7**
Brown Mulch	22.0	22.0	21.0
(Fine Mulch)	21.5	21.5	20.5
	21.5	21.0	20.5
Mean	**21.7**	**21.5**	**20.7**
Difference with Filtering		**-0.2**	**-1.0**

Measure Container Tests

- Conclusions
  - The height of the container is insignificant so long as the product is poured in a continuous flow
  - Multiple 1 cu ft measures reduce compaction but increase opportunity for loading & reading errors
  - Finger-sifting the product as it is poured into the measure is highly disadvantageous to the packager

NIST Handbook Edits

Measures are typically constructed of 1.27 cm (1 /2 in) marine plywood. **The measure must accommodate the entire contents of the package being tested, and** a transparent sidewall is useful for determining the level of fill, but must be reinforced if it is not thick enough to resist distortion. If the measure has a clear front, place the level gage at the back (inside) of the measure so that the markings are read over the top of the mulch.

NIST Handbook Edits

Notes

1. Other interior dimensions are acceptable if the test measure approximates the configuration of the package under test, **can accommodate the entire contents of the package at one time** and does not exceed a base configuration of the package cross-section.

2. The height of the test measure **shall not exceed 26” for a 1.5 - 2 CF package or 38” for a 3 cf package.** ~~may be reduced, but this will limit the volume of the package that can be tested.~~

3. When lines are marked in boxes, they should extend to all four sides of the measure if possible to improve readability. It is recommended that a line indicating the MAV level also be marked to reduce the possibility of reading errors when the level of the mulch is at or near the MAV.

NIST Handbook Edits

3.10.2. Test Procedure

1. Follow the Section 2.3.1. “Define the Inspection Lot.” Use a “Category A” sampling plan in the inspection, and select a random sample.

2. ~~Note 1 -~~ **Product Compaction**: Some types of mulch are susceptible to clumping and compacting. ~~Take steps t~~ **T**o ensure that the material is loose and free flowing when placed into the test measure**, g**ently roll the bag **on the ground at least 4 turns (but no more than 8 turns), without lifting and dropping the package,** to reduce the clumping and compaction of material before opening the sample.

3. Excessive Moisture: Mulch products stored exposed to the elements may become saturated with moisture. Excessive moisture adds weight to mulch particles and distorts volume test results. Test samples with flowing or collected moisture in the package should be excluded from the test procedure.

NIST Handbook Edits

4. ~~2.~~ Open each package in turn. **Gather the bag opening, place it into the top of the measure and discharge** ~~Empty~~ the contents of the package into a test measure **in a continuous flow without touching the product directly.** ~~and~~ Level the contents by hand. Do not rock, shake, drop, rotate, or tamp the test measure **at any time during the test.** Read the horizontal marks **rounding up to the nearest ½-inch increment** to determine package net volume.

5. ~~3.~~ Exercise care **to avoid compression** in leveling the surface of the mulch/soil and determine the volume reading **rounding up to the nearest ½-inch increment** from a position that minimizes errors caused by parallax.

6. ~~4.~~ Determine package errors by subtracting the labeled volume from the package net volume in the measure. Record each package error.

Package Error = Package Net Volume − Labeled Volume

Other W&M Issues

- Failure to inform packers of tests that they PASSED
- Unauthorized alternative sampling methods
- Use of improper increments of measure
- Failure to round up to nearest 1/2 inch

What Is Next?

- Finalize HB 133 edits in MSC committee
- Present request to NCWM for proper announcement to states
- Get at least 1 NCWM Region to sponsor changes at the mid-year meeting
- Present arguments and data for changes at mid-year meeting
- Make final presentation at annual meeting

QUESTIONS?

THANK YOU