

Appendix H

Agricultural Seed Count Rule

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AMERICAN SEED TRADE ASSOCIATION



September 11, 2009

Don Onwiler
Executive Director
c/o Laws & Regulations Committee
National Conference on Weights and Measures
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Jonelle Brent
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Re: Seed Count Rule for Agricultural Seeds

Dear Mr. Onwiler and Ms. Brent:

The American Seed Trade Association (“ASTA”) submits this proposal to request that the National Conference on Weights and Measures (“NCWM”) amend Handbook 133 by adopting the mechanical seed count procedures for agricultural seed promulgated by the Association of Official Seed Analysts (“AOSA”) in its *Rules for Testing Seeds*. ASTA is the national trade association representing about 750 companies involved in seed production and distribution, plant breeding, and related industries in North America on matters involving the purchase and sale of seed. ASTA advocates science and policy issues of industry importance and is informed by the seed industry’s experience and expertise. Our mission is to enhance the development and free movement of quality seed worldwide. ASTA’s members are directly affected by the method used for determining the accuracy of seed count declarations on seed labels and appreciate the opportunity to work with NCWM on this important issue.

As widely adopted planting technologies have modernized agriculture in recent years, farmers increasingly prefer to purchase bulk seed by count (versus weight). Because of changes in industry practice, field inspectors commonly are conducting compliance checks by verifying count rather than net weight. The current Handbook 133 standard for packages labeled by count is not practicable to apply to verify statements of count for corn seed, soybean seed, field bean seed, and wheat seed. While the Handbook 133 standard for packages labeled by count functions well for products that are manufactured to precise size and weight specifications, seed that is sold for planting is still produced in seed production fields resulting in inevitable size and

weight variations between seeds or kernels. Against this backdrop, the seed industry and AOSA, along with state and federal seed regulators and academics at leading agricultural universities, have developed a uniform and practical method for determining seed count that is widely accepted and used. ^{1/} NCWM's adoption of the AOSA consensus standard for seed count would ensure that a fair, uniform system for seed count is applied in a manner that ensures an accurate statement of count to the benefit of purchasers and sellers alike.

I. Background on Issue

The American seed industry has had a long and rich history of producing quality products that meet rigorous seed standards, including purity. Members of the seed industry aim to deliver high quality seed products that meet or exceed federal and state standards, as well as customer expectations, and to label seed accordingly. To that end, the AOSA *Rules for Testing Seeds* provide a practical approach for sampling and verifying seed count. In recent months, it has come to our attention through conversations with the Iowa Department of Agriculture that the two different standards regarding seed count labeling, one in Handbook 133 and the other in AOSA's *Rules for Testing Seeds*, are causing confusion. The broad consensus that had developed in the seed industry and among state seed control officials and academics on seed count labeling is threatened unless regulatory clarity is provided through adoption of a uniform method for verifying seed count in Handbook 133.

The manner in which seed is purchased and sold has significantly changed in recent years. Planting equipment has become more sophisticated and precise and producers have become more focused on plant populations on a per acre/per hectare basis. Instead of being sold by weight measurements, seed is increasingly sold and labeled by count. Further, in most instances, even when sold by weight, the seed count per pound is provided on the package. Such information is critically important to modern farming techniques and highly desired by industry's farmer customers. The underlying impetus for the proposal is demand-driven. That is, the seed industry has moved to sale by count in response to the purchasing preferences of its farmer customers.

Selling and labeling by count (rather than by weight or volume) reflects the nature of the product and customary channels of trade that have emerged for seed in recent years. However, because seed is the product of a natural process and is not uniform in size and weight, traditional methods for determining count have proven impractical when applied to seed. Seed is a living biological product. Differing weather conditions, storage conditions, and genetics result in a disparity in

^{1/} AOSA is an organization of official state, federal, and university seed laboratories and regulators from the U.S. and Canada whose mission is to promote uniform laws, regulations, and laboratory test methods. The organization publishes *Rules for Testing Seeds* to promote uniformity among testing labs in seed qualities and characteristics.

The *Rules for Testing Seeds* were developed to aid the agriculture industry in avoiding some of the hazards of crop production by furnishing needed information about seeds that are to be used for planting purposes. The *Rules for Testing Seeds* set definitions and fundamental procedures that are based on a thorough knowledge of the principles involved with seeds and attempt to summarize and make useful the accumulated experience of seed analysts.

the size and weight of seeds grown not only in the same production field, but also on the same plant or even on the same pod (in the case of soybeans). Environmental factors that cause seed size variability include the growing season length, heat unit accumulation, rainfall, soil type, fertility, and individual variety response to stress conditions. The impacts of these factors are particularly pronounced for corn and soybeans. For example, corn kernels can range from round to flat and can have different sizes and shapes depending on their location on an ear of corn. Additional handling to increase uniformity, such as sizing or sieving, cannot be undertaken because it may significantly damage the seed and render it unsuitable for sale.

The challenges for weights and measures officials conducting accurate, uniform regulatory compliance checks have been managed historically by Handbook 133's methods relating to packages sold by weight. The now widespread use of count promoted the development and acceptance of the AOSA method. At the request of farmers, the seed industry is increasingly providing seed count information on the package and is selling seed by count rather than by weight or volume to provide farmers with the information they desire and to maximize the value they obtain in each bag of seed. Because planting equipment has become more precise, farmers are able to better control the plant populations in their fields. Additionally, as there is increased seed value (due to traits, genetics, and treatment), farmers prefer not to retain any surplus seed. Selling by seed count also allows farmers to make purchasing decisions solely on the basis of agronomic considerations, rather than discriminating against some varieties of seed because of large seed size, which was the case when seed was sold by weight. Therefore, the seed industry has sought to deliver and market products that reflect this purchase preference of the growers. Knowing the number of seeds needed for the specific planting rates of their fields, farmers are better able to determine the cost of planting associated with seeding their fields. Because seed count is an important service provided to customers to assist with planting accuracy, seed companies have a strong interest in accuracy of their seed count and have worked together with regulators to develop reliable methods for determining seed count. The proposal directly advances the important role that Handbook 133 plays in ensuring accuracy and fair-dealing in the sale of agricultural seed.

II. Regulatory History

Interest in selling and labeling seed by seed count arose in the mid-1990s. In response, a number of AOSA and Society of Commercial Seed Technologists ("SCST") laboratories began offering seed count services. The addition of seed counts to the seed bag and label required the development of a standardized sampling and testing procedure that allowed for an appropriate level of variation that is scientifically validated and verifiable.

In 1995, AOSA established a committee to research and establish procedures for conducting seed counts. This committee was chaired by Dr. Richard Payne, Chief of the USDA-AMS Seed Regulatory and Testing Branch. The committee recognized that Handbook 133 stipulates a maximum allowable variation ("MAV") in packages labeled by count of 1.5% for packages containing over 1,334 items, which applies to almost all types of products and is not a seed

specific standard. ^{2/} The industry’s experience indicated that the standard in Handbook 133 was unattainable, and very difficult to apply, when applied to seed labeled by count. Because seed is a living biological product sold in very high quantities, it differs from the uniformly produced commodities to which the “packages labeled by count” provisions of Handbook 133 are typically applied.

The AOSA committee conducted “referee tests” in 1996 and 1997. ^{3/} In 1998, the AOSA Board of Directors approved a tentative rule for seed counts to be included in the AOSA *Rules for Testing Seeds*. Additional referee projects were conducted in 1998 and 1999, after analysts had an opportunity to become familiar with the procedure and to suggest modifications. The final proposal was approved in 2000. This standard is widely used and accepted now by many state regulatory seed officials, as well as by industry.

During this time period, NCWM’s Laws and Regulations Committee worked with members of the seed industry, trade associations, and other interested parties to develop a proposal for NCWM consideration regarding agricultural seed count. ^{4/} Around 1998, two differing standards were proposed for determining seed count. One standard was based on studies undertaken by ASTA and Iowa State University and the other was based on AOSA’s studies. ^{5/} Due to the disparity in the recommended allowable variations from labeled count determined by the two studies, and despite efforts to develop a joint proposal, the NCWM committee voted in 2000 to withdraw consideration of amending Handbook 133 seed count procedures. ^{6/} The Committee stated that “variations on seed count make it impossible to determine and establish an appropriate MAV. The Committee believes that it will be some time before such standards can be determined and considered.” ^{7/} Since this time, AOSA’s rule has been adopted as the uniform standard for the seed industry and seed control community. Indeed, collective experts in this field have come together to establish and validate the AOSA rule for seed count. A validated, consensus method provides NCWM with the opportunity to revisit this issue and to adopt the proposal that would align Handbook 133 with the AOSA method.

III. Current Seed Count Standards

Currently, both Handbook 133 and AOSA’s *Rules for Testing Seeds* have rules governing labeled weight and/or count on agricultural seed packages. Handbook 133 sets a general

^{2/} See Handbook 133, Table 2-7, Maximum Allowable Variations for Packages Labeled by Count; § 4.4, Packages Labeled by Count of More than 50 Items.

^{3/} A referee test is a specially designed test which is sent out to a number of seed laboratories in order to obtain information intended to improve seed testing and to provide valuable feedback to the participating laboratories. Referee tests promote precision, standardization, and uniformity among seed laboratories with regard to seed testing methods. They also allow for testing of new methods, which may prove to produce more uniform results than existing methods.

^{4/} NIST, Special Publication No. 932, 83rd NCWM, L&R 18 (1998).

^{5/} *Id.*

^{6/} NIST, Special Publication No. 957, 85th NCWM, L&R 13 (2000).

^{7/} *Id.*

standard of maximum allowable variation at 1.5% of labeled count for products containing over 1,334 units, rounded to the nearest whole number. ^{8/} The AOSA's *Rules for Testing Seeds* set the "tolerance" specifically for labeled seed count at 2.0% for corn seed, 4.0% for soybean seed, 5.0% for field bean seed, and 3.0% for wheat seed based on a properly calibrated mechanical seed counter and a properly obtained representative sample. ^{9/} The "allowances" specifically account for biological variables that are not only unique to agricultural seed, but that also vary by seed type, as noted above.

The standards in Handbook 133 were not developed specifically for agricultural seeds labeled by count. Handbook 133 applies the same standard for products labeled by count to seed as to items where size and weight are precisely controlled in the manufacturing process. Because seed is a living biological product with variable sizes and weights for individual seeds in a single package, it differs from manufactured commodities that only have slight variation in size and weight between individual products. Environmental and storage factors can result in variations in the appearance, size, and weight of a single variety of seeds. As explained above, the need for adoption of the proposal arose only as a result of the growing prevalence of sale by count of agricultural seed.

Applying Handbook 133's standards that were developed based on uniform manufacturing production to this biological product can prove to be quite onerous in the context of modern agriculture. For example, under current test procedures, a package containing 80,000 seeds would require a manual count of 8,000 seeds by the inspector. ^{10/} As bags of agricultural seeds are often labeled with count declarations of over to 200,000 seeds, these requirements are impractical, if not impossible to apply in a regulatory context. Of course, neither industry nor purchasers are well-served if weights and measures officials lack a practical, effective means for conducting field package checks.

The AOSA *Rules for Testing Seeds* were thoughtfully developed to apply specifically to labeled seed count. They are used across the United States by private laboratories, official state seed testing laboratories, and state seed control officials in sampling, inspecting, analyzing, testing, and examining agricultural seeds. The AOSA *Rules for Testing Seeds* are therefore the standard most often used by state and federal regulators when enforcing the accuracy of seed count on seed labels. Many states have expressly adopted these rules into their state code. Accordingly, seed companies rely on the AOSA *Rules for Testing Seeds* as the source of the rules on the appropriate labeling of seed.

Although the AOSA *Rules for Testing Seeds* have been adopted by many states, some states have indicated that they may be legally bound to apply the NIST Handbook 133 procedures to

^{8/} Handbook 133, Table 2-7, Maximum Allowable Variations for Packages Labeled by Count. *See also* Handbook 133, § 4.4.

^{9/} AOSA, *Rules for Testing Seeds*, § 12. AOSA terminology differs from that used in the Weights & Measures community. That is, "tolerance" is understood to essentially specify the maximum allowable variation between labeled count and actual count contained within a package.

^{10/} *See* Handbook 133, § 4.4.

agricultural seed due to a lack of clarity in their individual state regulations. ^{11/} While each state could certainly amend its laws to establish the *AOSA Rules for Testing Seeds* as the appropriate standard for agricultural seed labeling, it is more efficient and appropriate to amend Handbook 133 to include workable standards for agricultural seeds. This proposal is ripe for consideration and adoption because there is now uniformity in the industry and consensus among federal and state seed regulators about the appropriate approach that should be adopted. Furthermore, amending of Handbook 133 will also function to ensure the Handbook maintains its proper role as the authoritative source used by state weights and measures officials conducting net weight compliance inspections. The scope of the proposal is limited by the scientifically valid basis for the MAV values for the particular seed varieties. In the future, further amendment may be appropriate based on development of data validating values for other seed varieties.

IV. Considerations of an Accurate Seed Count

It is appropriate for NCWM to adopt the proposal, paralleling the AOSA’s seed count rules, because the rules are based on comprehensive studies and will ensure accuracy. Research has indicated that there are a number of factors that must be considered when conducting a seed count. First, a representative sample of at least 500 grams must be drawn according to the sampling protocol and procedures specified in the *AOSA Rules for Testing Seeds*. The automatic seed counter also must be calibrated daily prior to use. For these reasons, detailed directions for maintaining a calibration sample and the calibration technique are included in *AOSA’s Rules for Testing Seeds* and should be incorporated into Handbook 133.

Additionally, a purity analysis must be conducted on the sample so that only pure seeds will be counted. There are specific pure seed unit definitions for corn and soybeans described in the *AOSA Rules for Testing Seeds*, which would be adopted into Handbook 133 under this proposal. The rule provides a calculation for determining the number of seeds per pound based on the sample analyzed.

The final component of the AOSA’s current seed count rule provides “tolerances” for comparing results between laboratories or comparing the label against a regulatory laboratory test. Because the wording of this section does not conform to the function of Handbook 133 as it was written for a different purpose (although is entirely applicable), this proposal suggests making a slight modification to this language. ^{12/} The variation levels were established from the research gathered during the referee projects. AOSA’s rule establishes “tolerances” based on the typical variation in size and weight of different types of agricultural seed.

V. Proposed Amendment to Handbook 133

ASTA requests that Handbook 133 be amended by adding the language in Section 12 (Mechanical Seed Count) of the *AOSA Rules for Testing Seeds* as Section 4.11 of Handbook 133,

^{11/} For example, Iowa’s Attorney General recently determined that the state is bound to use Handbook 133’s MAV standard for seed because the state Department of Agriculture lacks legal authority to use the AOSA standard.

^{12/} See Section V., below.

to be titled “Procedure for Checking the Content of Certain Agricultural Seed Packages Labeled by Count.” The language will be altered to conform the headings and section numbers.

In addition, AOSA *Rules for Testing Seeds* Section 12.6 will be changed as follows to adopt the provisions to Handbook 133’s purposes (*i.e.*, packaging and labeling for sale): 13/

12.6 ~~Tolerances~~ *Maximum Allowable Variations* ~~for results from different laboratories.~~

Multiply the labeled seed count ~~or first seed count test result~~ by four percent for soybean samples, two percent for corn (round, flat or plateless) samples, five percent for field bean samples and three percent for wheat samples. Express the ~~tolerance~~ *maximum allowable variation* (the number of seeds) to the nearest whole number. Consider the results of two tests in ~~tolerance~~ *accord with the maximum allowable variation* if the difference, expressed as the number of seeds, is equal to or less than the ~~tolerance~~ *maximum allowable variation*.

Example:

Kind of seed: Corn

Label claim (~~1st test~~): 2275 seed/lb.

Lab Test (~~2nd test~~): Purity working weight = 500.3 g
Seed count of pure seed = 2479 seeds

Number of seeds per pound = $\frac{453.6 \text{ g/lb} \times 2479 \text{ seeds}}{500.3 \text{ g}} = 2247.6 \text{ seeds/lb}$

Rounded to the nearest whole number = 2248 seeds/lb

Calculate ~~tolerance~~ *maximum allowable variation* value for corn:

multiply label claim by 2%
 $2275 \text{ seeds/lb} \times 0.02 = 45.5 \text{ seeds/lb}$;
rounded to the nearest whole number = 46 seeds/lb

Determine the difference between label claim and lab test:

$2275 \text{ seeds/lb} - 2248 \text{ seeds/lb} = 27 \text{ seeds/lb}$

The difference between the lab test (~~2nd test~~) and the label claim (~~1st test~~) is less than the ~~tolerance~~ *maximum allowable variation* ($27 < 46$); therefore, the two results are in ~~tolerance~~ *accord with the maximum allowable variation*.

13/ Language in italic would be added. Language crossed out would be deleted.

In addition, Table 2-10 should be modified to add an exception to MAV for seed count. This table would be renamed to add “agricultural seed labeled by count” to the list of covered topics and a box would be added to the table explaining the specific MAVs for agricultural seeds (*i.e.*, 2.0% for corn seed, 4.0% for soybean seed, 5.0% for field bean seed, and 3.0% for wheat seed, all based on a properly calibrated mechanical seed counter). Table 1-1 would have a minor corresponding change, adopting the new name of Table 2-10.

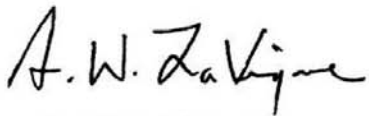
This proposal is structured so that the new MAV only applies to those seeds that fall within the scope of the new standard (*i.e.*, soybeans, corn, field beans, and wheat in packages labeled by count). Within Handbook 133, the accuracy of labeling for other seeds types and seeds labeled by weight would continue to fall under the Handbook’s current provisions.

* * *

Historically, the sale of seed by weight has allowed regulatory officials to conduct accurate, uniform package checks to assess net weight compliance. Although Handbook 133 is an essential tool for checking and ensuring the accuracy of the net contents of packaged goods, Handbook 133 does not account for the unique factors that pertain to agricultural seed labeling when sold by count. In order to promote uniformity in labeling standards, ASTA requests that NWCM adopt the AOSA *Rules for Testing Seeds* provisions pertaining to mechanical seed count as part of Handbook 133.

Thank you for your consideration of this proposal. We would be pleased to make experts and technical resources available to the Conference on this matter. We look forward to working with you to ensure the accuracy of seed counts for agricultural products.

Sincerely,



Andrew W. LaVigne
President & CEO
American Seed Trade Association

ASSOCIATION OF OFFICIAL SEED ANALYSTS

SECTION 12: MECHANICAL SEED COUNT

The following method shall be employed when using a mechanical seed counter to determine the number of seeds contained in a sample of soybean (*Glycine max*), corn (*Zea mays*), wheat (*Triticum aestivum*) and field bean (*Phaseolus vulgaris*).

12.1 Samples.

Samples for testing shall be of at least 500 grams for soybean, corn and field beans and 100 grams for wheat and received in moisture proof containers. Samples shall be retained in moisture proof containers until the weight of the sample prepared for purity analysis is recorded.

12.2 Seed counter calibration.

The seed counter shall be calibrated daily prior to use.

- (a) Prepare a calibration sample by counting 10 sets of 100 seeds. Visually examine each set to insure that it contains whole seeds. Combine the 10 sets of seeds to make a 1,000 seed calibration sample. The seeds of the calibration sample should be approximately the same size and shape as the seeds in a sample being tested. If the seeds in a sample being tested are noticeably different in size or shape from those in the calibration sample, prepare another calibration sample with seeds of the appropriate size and shape. Periodically re-examine the calibration samples to insure that no seeds have been lost or added.
- (b) Carefully pour the 1,000 seed calibration sample into the seed counter. Start the counter and run it until all the seeds have been counted. The seeds should not touch as they run through the counter. Record the number of seeds as displayed on the counter read out. The seed count should not vary more than ± 2 seeds from 1,000. If the count is not within this tolerance, clean the mirrors, adjust the feed rate and/or reading sensitivity. Rerun the calibration sample until it is within the ± 2 seed tolerance. If the seed counter continues to fail the calibration procedure and the calibration sample has been checked to ensure that it contains 1,000 seeds, do not use the counter until it has been repaired.

12.3 Sample preparation.

Immediately after opening the moisture proof container, mix and divide the submitted sample, in accordance with section 2.2, to obtain a sample for purity analysis and record the weight of this sample in grams to the appropriate number of decimal places (refer to section 2.3 a). Conduct the purity analysis to obtain pure seed for the seed count test.

RULES FOR TESTING SEEDS

12.4 Conducting the test.

After the seed counter has been calibrated, test the pure seed portion from the purity test and record the number of seeds in the sample.

12.5 Calculation of results.

Calculate the number of seeds per pound to the nearest whole number using the following formula:

$$\text{Number of seeds per pound} = \frac{453.6 \text{ g/lb} \times \text{no. of seeds counted in d.}}{\text{weight (g) of sample analyzed for purity}}$$

12.6 Tolerances for results from different laboratories.

Multiply the labeled seed count or first seed count test result by four percent for soybean samples, two percent for corn (round, flat or plateless) samples, five percent for field bean samples and three percent for wheat samples. Express the tolerance (the number of seeds) to the nearest whole number. Consider the results of two tests in tolerance if the difference, expressed as the number of seeds, is equal to or less than the tolerance.

Example:

Kind of seed: Corn
Label claim (1st test): 2275 seed/lb.

Lab Test (2nd test): Purity working weight = 500.3 g
Seed count of pure seed = 2479 seeds

$$\text{Number of seeds per pound} = \frac{453.6 \text{ g/lb} \times 2479 \text{ seeds}}{500.3 \text{ g}} = 2247.6 \text{ seeds/lb}$$

Rounded to the nearest whole number = 2248 seeds/lb

Calculate tolerance value for corn:

multiply label claim by 2%
 $2275 \text{ seeds/lb} \times 0.02 = 45.5 \text{ seeds/lb}$;
rounded to the nearest whole number = 46 seeds/lb

Determine the difference between label claim and lab test:

$$2275 \text{ seeds/lb} - 2248 \text{ seeds/lb} = 27 \text{ seeds/lb}$$

The difference between the lab test (2nd test) and the label claim (1st test) is less than the tolerance (27 < 46); therefore, the two results are in tolerance.



AASCO

Association of American Seed Control Officials

September 11, 2009

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Jonelle Brent, Chair of Executive Committee
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RE: Seed Count Rule for Agricultural Seeds

Dear Vicky and Jonelle:

The Association of American Seed Control Officials (AASCO) supports the methods and acceptable variances to determine seed counts as established in the Association of Official Seed Analyst (AOSA) "Rules for Testing Seed". The Recommended Uniform State Seed Law (RUSL) establishes that the methods used to sample, analyze and test seed shall be those as established by the Association of Official Seed Analysts Rules for Testing Seed.

Seed is a biological unit and as such, it is subject to environmental influences that introduce variation in size and density. Seed cannot be produced utilizing a standardized manufacturing process that controls size and density. Utilizing a process of referee testing and scientific review, The Association of Official Seed Analyst, has established in the Rules for Testing Seed, acceptable testing methods and variances for Corn, Soybeans, Field Beans, and Wheat that are recognized and utilized by state seed control officials in the administration of their respective state seed laws. These standards are also acceptable to the regulated seed industry as a fair and valid means for determining that their products are in compliance with the respective state seed laws.

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AASCO

Association of American Seed Control Officials

The Association of American Seed Control Officials is a professional organization of state seed control officials organized in 1945 for purposes of maintenance and amendment of the Recommended Uniform State Seed Law, promotion of uniformity in state seed laws and regulations, and promotion of cooperation between the administrators of the seed laws of the US States, the Dominion of Canada and the Federal Seed Act.

The Association of American Seed Control Officials respectfully requests that NIST adopt the methods and variances used to establish seed counts for Soybeans, Corn, Field Beans and Wheat as established in the Association of Official Seed Analyst Rules for Testing Seed.

Best Regards,

Ronald R. Pence
President – AASCO

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2



National
Corn Growers
Association
www.ncga.com

January 22, 2010

Mr. Don Onwiler Executive Director National
Conference on Weights and Measures 1135 M
Street, Suite 110 Lincoln, Nebraska 68508

Dear Mr. Onwiler:

The National Corn Growers Association (NCGA) supports adoption of the proposal requesting the National Conference on Weights and Measures amend the National Institute for Standards and Technology (NIST) Handbook 133 by adopting the mechanical seed count procedures for agricultural seed promulgated by the Association of Official Seed Analysts (AOSA) in its *Rules for Testing Seeds*. Founded in 1957, NCGA represents approximately 35,000 dues-paying corn growers and the interests of more than 300,000 farmers who contribute through corn checkoff programs in their states. NCGA and its 48 affiliated state associations and checkoff organizations work together to help protect and advance corn growers' interests.

We believe that farmers currently prefer to purchase bulk seed by count rather than weight. We also believe that a 2% Maximum Allowable Variation (MAV) for corn would be a more accurate way for farmers to purchase the right amount of seed.

We believe the National Conference on Weights and Measures should approve the use of AOSA's seed count rules and that the AOSA documented MAV's for corn seed count be harmonized into NIST.

Sincerely,

A handwritten signature in black ink, appearing to read "Darrin Ihnen".

Darrin Ihnen
President

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1933**



January 14, 2010

Andrew W. LaVigne
President and CEO
American Seed Trade Association

Dear Andrew:

On behalf of the American Soybean Association (ASA), I would like to express our support for the seed count procedures for agricultural seed recommended by the Association of Official Seed Analysts (AOSA). Adoption of the AOSA standard would provide a consistent seed count that benefits both seed customers and seed merchants.

Soybean producers prefer to purchase bulk seed by count rather than weight. Since soybean seeds vary in size, newer, more precise planting equipment is designed to plant by numbered populations rather than by weight. Larger seeds weigh more, so purchasing by weight could end up shorting a farmer on population density. Therefore, having a count (within the 4% maximum allowable variance established by AOSA) is a more accurate way for farmers to purchase the right amount of seed.

AOSA has developed uniform and practical methods for testing seed which are widely accepted. We believe the National Conference on Weights and Measures should approve the use of AOSA's seed count rules, relying on the extensive testing that has gone into the accuracy of the process. We also ask that the National Institute for Standards and Technology (NIST) adopt the methods and variances for soybean seed count as found in AOSA rules.

Sincerely,

A handwritten signature in black ink that reads "Robinson L. Joslin".

Robinson L. Joslin, President
American Soybean Association

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November 23, 2009

Andrew W. LaVigne
President and CEO
American Seed Trade Association


Dear Andrew:

On behalf of Iowa's soybean farmers, the Iowa Soybean Association wishes to speak in support of adopting the seed count procedures for agricultural seed as put forth by the Association of Official Seed Analysts (AOSA). We believe that farmers currently prefer to purchase bulk seed by count rather than weight. Soybean seeds vary in size but newer, more precise planting equipment plants by numbered populations rather than by weight. Larger seeds weigh more, so purchasing by weight could end up shorting a farmer on population density. Therefore, having a count (within the 4% maximum allowable variance established by AOSA) is a more accurate way for farmers to purchase the right amount of seed.

We believe that AOSA has developed uniform and practical methods for testing seed which are widely accepted. Adoption of the AOSA standard would provide a consistent seed count that benefits both seed customers and seed merchants.

We believe the National Conference on Weights and Measures should approve the use of AOSA's seed count rules, relying on the extensive testing that has gone into the accuracy of the process. We also ask that the National Institute for Standards and Technology (NIST) adopt the methods and variances for soybean seed count as found in AOSA rules.

Sincerely,



Delbert Christensen, President
Iowa Soybean Association



January 7, 2010

Don Onwiler, Executive Director National
Conference on Weights and Measures
1135 M Street, Suite 110
Lincoln, Nebraska 68508

RE: Seed Count for Agricultural Seeds

Dear Mr. Onwiler,

The Association of Official Seed Control Analysts (AOSA) strongly supports the amendment of NIST Handbook 133 to adopt the procedures and maximum acceptable variances to determine seed counts as established in the Association of Official Seed Analysts' (AOSA) "Rules for Testing Seeds". These standardized seed testing methods and procedures are the primary basis for seed testing and seed labeling in the United States seed community. The vast majority of states recognized the AOSA Rules in their state seed laws and the Federal Seed Act incorporates AOSA testing methods and is periodically updated with AOSA Rule amendments. Adoption of these rules by the weights and measures community would promote uniformity and consistency in state laws.

Precision planting of seeds has led to changes in the way seed is labeled and sold. Farmers need to know the number of seeds in a bag in order to predetermine their planting rates and to figure the costs associated with seeding a field. Seed is the product of a natural, biological process and therefore is not uniform in size and weight. Differing weather conditions and genetics will result in disparity in the size and weight of varieties of seed corn, soybeans, field beans and wheat seed. In order to compensate for the variability of these seeds, seed companies have started to sell seed by seed count rather than by weight. Selling seed by seed count provides farmers the information they need to purchase a specific and accurate amount of seed to plant their fields.

Research had indicated that there are a number of factors that must be considered when conducting a seed count. The AOSA Rules for Testing Seeds specify sampling procedures, calibration of mechanical seed counters, pure seed unit analysts, formulas for determining the number of seeds per pound and provides scientifically based tolerances for comparing results between laboratories or comparing the label against a regulatory laboratory test.

The AOSA Seed Count Rule is the industry standard and has been accepted practice for more than a decade. It is also the standard used by seed control regulatory officials in the states that have adopted the AOSA *Rules for Testing Seeds*. There is clear, scientific evidence to support the procedures and tolerances included in the AOSA *Rules for Testing Seeds*. Seed companies are serving the consumer by selling their seed by seed count. Seed companies should be held to a consistent, fair, and practical standard in all states. It is our position that this standard should be the AOSA Rules for Testing Seeds.

Sincerely,

Michael G. Stahr, AOSA President Iowa State
University Seed Science Center 128A Seed Science
Center Iowa State University Ames, Iowa 50011
515-294-0117 (phone) Email: mgstahr@iastate.edu



College of Agriculture
Seed Science Center
Ames, Iowa 50011
FAX 515 294-2014

September 13, 2009

National Conference on Weights & Measures
Attention: Executive Director, info@ncwm.net
1135 M Street
Suite 110
Lincoln, Nebraska 68508

Jonelle Brent
Chair, Central Weights & Measures Association
Illinois Department of Agriculture
P.O. Box 19281
Springfield, Illinois 62794-9281
Fax: (217) 524-7801
e-mail: jonelle.brent@illinois.gov

Re: Proposal for Amendment to NIST Handbook 133 with respect to Seed Count Labeling

Dear Conference Members:

The Iowa State University Seed Science Center supports amending NIST Handbook 133 to establish Maximum Allowable Variation (“MAV”) levels and related procedures for seed count verification that are scientifically obtainable given the unique nature of seed as a biological product subject to environmental factors that cause very significant seed size variability.

The issue of appropriate MAV’s for seed count based labeling of different crops has been the subject of study and deliberation by the National Conference of Weights & Measures (“NCWM”) for many years, beginning at least as early as 1995. NCWM has carefully considered research data presented by Iowa State University personnel and many others over the subsequent years; however, action on the issue was withdrawn at prior Conferences because it was felt that “variations on seed count make it impossible to determine and establish an appropriate MAV” and “it will be some time before such standards can be determined and considered.” (*Interim Meeting Action, 1999 NCWM Interim Meeting report*).

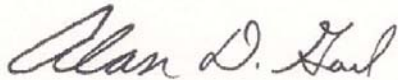
The issue has grown in importance over the past ten years. The Iowa Department of Agriculture has recently taken the position that the Maximum Allowable Variation (MAV) values provided in Table 2-7 (NIST Handbook 133) should also apply to all packages containing seed that are labeled by count. The table provides a stepwise sequence of different MAV levels for various package sizes, converging to 1.5% of labeled count (rounded to the nearest whole number) for packages containing more than 1,334 items. Due to customer demand, package quantity or seed

count based labeling has been increasingly popular for seed applications in recent years. The seed containers currently in commercial use in Iowa and other states are relatively large, with traditional bags typically containing at least 80,000 seeds for seed corn and possibly exceeding 200,000 seeds for other crops. Quantity based labeling is also being introduced for bulk packaging in large bags or boxes, with potential individual package quantities easily exceeding 4,000,000 seeds. The related research conducted at the Iowa State Seed Science Center in the late 1990's was previously presented to the NCWM and demonstrated that a 1.5% MAV for seed count is not appropriate.

The Iowa State Seed Science Center has worked over the years with the Association of Official Seed Analysts (“AOSA”) on the issue of the appropriate MAV’s for seed count labeling for different kinds of seed. The *AOSA Rules for Testing Seed* reflect an appropriate consideration of scientific data and are frequently referenced in state laws and regulations as an official source of methods for the analytical testing of seed. The AOSA documentation currently provides seed count variation allowances for corn (2%), soybeans (4%), field beans (5%) and wheat (3%). These values are commonly used by the seed industry due to the prevalence of seed count testing for multiple seed industry applications. Standard industry practices also exist for many related operations, including package sampling plans, seed sampling methods, and the proper use of mechanical seed counters and moisture measurement devices.

The Iowa State University Seed Science Center believes it is time to harmonize the NIST MAV provisions with those set forth in Section 12 of the *AOSA Rules for Testing Seed*. The availability of a single uniform standard that is science based will add clarity and certainty that is seriously needed by not only seed companies and regulatory agencies but also seed customers and other personnel directly affected by the seed industry.

Best Regards,



Alan D. Gaul
Seed Conditioning Specialist
ISU Seed Science Center



Iowa Department of Agriculture and Land Stewardship

Bill Northey - Secretary of Agriculture

Mr. Don Onwiler, Executive Director
National Conference on Weights and Measures
1135 M Street, Suite 110
Lincoln, Nebraska 68508

Re: Seed Count for Agricultural Seeds

Dear Mr. Onwiler:

The Iowa Department of Agriculture has been following with interest the amendment of the NIST Handbook 133 to adopt the procedures and maximum acceptable variances to determine seed counts. Our understanding is that this initiative continues to gain the support and endorsement of key agricultural groups, including the Iowa State Soybean Association.

Precision planting reinforces the benefits of this proposed amendment to the Handbook. Iowa farmers, like farmers all across the country rely on seed count when making their planting decisions each season. And, because seed is a natural biological product, it is not uniform in size and weight. In fact, differing weather conditions, storage, genetics can and often does result in disparity as it relates to weight. Farmers continue to utilize both seed count and weight when they purchase their seed. For their part, seed companies continue to respond to the farmers and are selling by count and working closely with their customers to ensure that they receive the information they need when making this important investment each planting season.

Research in seed count has indicated that there are a number of factors that must be considered when conducting a seed count. Currently, the Association of Official Seed Analysts (AOSA) has compiled its official Rules for Testing Seeds. This industry standard has been accepted practice for more than a decade. In fact, seed control regulatory officials reference these standards and use them and endorse them, too.

The Iowa Department of Agriculture and Land Stewardship is pleased to join the Iowa Soybean Association, the Association of Official Seed Analysts and the American Association of Seed Control Officials in supporting the amendment to Handbook 133. One other key ally supporting these efforts is the Iowa State University.

In summary, farmers in Iowa rely on seed count when purchasing their seed. We appreciate the leadership of the National Conference on Weights and Measures on this important initiative. We believe that this amendment is consistent and complementary to our mission to ensure that our farmers are protected and informed when purchasing seed. Confidence in seed count labeling is important to our farmers and we believe that the AOSA standards reinforce this practice and will provide additional protection, information and assistance to our farmers.

Sincerely,

A handwritten signature in black ink that reads "Bill Northey". The signature is written in a cursive, flowing style.

Bill Northey
Iowa Secretary of Agriculture

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