

Rule Change Proposal No. 7

Purpose

To correct conflicting instructions between the AOSA Rules and Handbook 24 – Uniform Blowing Procedure for the purity testing of mixtures containing species, which require the uniform blowing procedure. Suggested changes are highlighted in red, additions are underlined and deletions are struck through.

Present Rule and Proposed Rule

AOSA Rules

2.11.d **Procedures:** For samples with one kind of seed, the size of the samples to be blown shall be the same as that for a purity test except for blue grama and side-oats grama, which shall be divided into four approximately equal parts prior to blowing. All seed kinds are to be blown for 3 minutes. After completing the blowing procedure, remove all weed and crop seeds from the light portion and add these to the weed or crop separation, as appropriate. The remainder of the light portion will be considered inert matter. Remove all weed and crop seeds and other inert matter (stems, leaves, dirt) from the heavy portion and add these to the weed, crop or inert matter separations, as appropriate. The remainder of the heavy portion will be considered pure seed.

When kinds listed in this section appear in mixtures, they shall be separated from other kinds ~~before using the uniform blowing procedure~~ by one of the two methods described in Sec. 6.9 of Handbook 24.

AOSA Handbook 24

6.9 ~~Faster~~ Methods for Purity Analysis of Mixtures Containing Bluegrass and Other Species Requiring the Use of the Uniform Blowing Procedure.

Method 1

~~7.3 Slower Method For The Purity Analysis of Mixtures Containing Kinds Requiring The Use of The Uniform Blowing Procedure~~

Step 1. The minimum working sample size for mixtures is determined in accordance with section 2.3d of the AOSA Rules.

Step 2. Samples containing more than one kind of crop seed requiring the use of the uniform blowing procedure are separated by kind. Each species, which has a uniform blowing point is blown separately. This procedure requires the full separation of components; therefore, a 400 to 1,000 seed separation is not

appropriate for this method.

~~The minimum sample size for mixtures is determined in accordance with section 2.3d of the Rules. In many cases, the amount of each crop seed separated is too small for blowing. If this is the case, seeds of the kind to be blown are selected indiscriminately from the submitted sample in order to obtain the minimum working sample size for blowing the original separation. If this method is used, then the 400 to 1000 seed separation for the *Poa* spp. can be used only if one species is present in a significant amount.~~

Method 2

STEP 1. Determine the weight of sample using the method described in Step 1, Section 6.8. Divide the working sample into equal fractions of approximately 1 gram.

STEP 2. Blow the working samples at a blower setting above the uniform blowing point used for the species with the highest uniform blowing point (e.g., if orchardgrass is in the mixture, use a blower setting one or two points above the orchardgrass uniform blowing point). This initial blowing reduces the amount of material to be blown at the uniform settings. The heavy fraction is separated according to the AOSA Rules. All of the florets in the heavy fraction are pure seed, subject to the exceptions given for each species (e.g., ergot, etc.).

STEP 3. The lighter fraction is blown at the lowest blowing point for the species present with a uniform blowing point. All florets in the light fraction are classified as inert matter. The light fraction is examined for other crop and weed seeds according to in accordance with Sections 2.7 - 2.10 of the AOSA Rules.

The heavy fraction for those species whose uniform blowing point has been used are considered pure seed, subject to the exceptions outlined in Sections 6.3 to 6.7 of this handbook.

STEP 4. Successively higher uniform blowing points are used for the seed remaining in the cup. At each blower setting, the florets remaining in the heavy fraction are classified as pure seed or inert matter depending upon the uniform blowing point for the species.

Example for the procedure: A sample containing rough bluegrass, Kentucky bluegrass and ryegrass analyzed in the following manner:

1. Determine the required working sample size

Kind	Estimated % in sample (to nearest whole number)		Weight of working sample (see Sec. 6.1)		Percentage multiplied by weight of working sample
Kentucky bluegrass	40	x	1.0	=	40
Rough bluegrass	30	x	0.5	=	15
Annual ryegrass	30	x	5.0	=	150
Totals	100	x		=	205

Weighted average = $205/100 = 2.05 \text{ g}$ Working sample size = ~~2.05~~ 2 g^*

* Working weight rounded to the nearest one-quarter gram (refer to Section 2.3d of the AOSA Rules), therefore the working sample for this example shall not be less than 2 grams.

2. Initial Blowing

Divide sample into two parts weighing about 1 gram each. Set blower at one or two points above the uniform blowing point for Kentucky bluegrass. Separate components as follows:

Heavy Fraction - All florets of Kentucky and rough bluegrass are considered pure seed (subject to the exceptions detailed in Section 6.3).

The florets of ryegrass must be further examined and classified as pure seed or inert matter by the hand method.

Light Fraction – Proceed with second blowing.

3. Second Blowing

The seed ~~which was blown over from the light fraction of the initial blowing~~ is combined and re-blown at the blower setting for rough bluegrass. The seed is classified as follows:

Light Fraction - All bluegrass florets are classified as inert matter. Ryegrass florets ~~are probably inert but~~ must be examined and classified as pure seed or inert matter.

Heavy fraction - Proceed with ~~next~~ third blowing.

4. Third Blowing

Set the blower at the Kentucky bluegrass uniform blowing point. The seed is classified as follows:

Light Fraction - Kentucky bluegrass florets are classified as inert matter, rough bluegrass florets are classified as pure seed, and the ryegrass present is examined by the hand method and classified as pure seed or inert matter.

Heavy fraction - Rough and Kentucky bluegrasses are separated and classified as pure seed for each species. Ryegrass florets are examined by the hand method and classified as pure seed or inert matter.

All of the fractions are examined for weed seeds, other crop seed and inert matter and are separated and classified according to Sections 2.7-2.10 of the AOSA Rules. The procedure requires the full separation of components; therefore, a 400 to 1,000 seed separation is not appropriate for this method.

Example: if the actual working sample weighed 2.050 g and the sample ~~The sample described in this example~~ contained approximately 70% bluegrass, which would the weight of bluegrass is 1.44 1.435 g of the 2.05 g sample. The bluegrass seeds in the light fraction of the second blowing are classified as inert matter regardless of whether they are rough or Kentucky bluegrass. Assuming 10% of the bluegrass is inert, we have 90% of the 1.44 1.435 g, or 1.3 1.292 g of bluegrasses to separate to species on subsequent blowings. ~~This is less bluegrass seed to separate than if the method outlined in section 7.3 was followed.~~ The step-wise increased blowings will also provide the seed analyst with a partial separation of the two species.

Harmonization

Currently ISTA does not have purity testing methods for mixtures. The Federal Seed Act (FSA) requires the separation of kinds, in mixtures of two or more kinds, prior to using the uniform blowing procedure (Sec. 201.51a(1) FSA). The Canadian Methods and Procedures (CMP) treat mixtures of kinds with blowing points in two ways: One method deals with mixtures of bluegrass kinds (Sec. 3.7.2.c CMP); the second method deals with mixtures of kinds that may or may not have blowing points (Sec. 3.7.5 CMP).

Supporting Evidence

The current procedure given in the Rules is in conflict with those described in Handbook 24. The Rules state that kinds in a mixture must first be separated before the uniform blowing procedure is used. This would indicate that regardless on the weight of the component kinds requiring the blowing procedure, the uniform blowing procedure is applied. Therefore, for example, a mixture containing an amount of Kentucky bluegrass that is less than 1 gram would still be required to be blown. This procedure is also required in the Federal Seed Act (Sec. 201.51a(1)). There is considerable support for the concept of applying the uniform blowing procedure to an amount of seed that is less

than the calibration sample used to establish the blowing point. Although a 1 gram calibration sample is used to establish the blowing points for rough bluegrass and weeping alkaligrass, the working weights for these species is considerably less at 0.5 gram and 0.6 gram, respectively. Further support for this concept comes from Section 2.8 of the AOSA Rules, in which the uniform blowing point may be applied for kinds with established blowing procedures when they are found as other crop seed contaminants (i.e., they constitute less than 5% of the sample under consideration). Clearly, in this case the amount of seed to be blown is less than the weight of the calibration sample.

Under the Canadian Methods and Procedures the weights of the working samples for all bluegrasses are 1 gram. Therefore, the initial blowing of the sample is based on a 1 gram sample. However, rough and Canada bluegrasses have different blowing points than Kentucky bluegrass. The procedure for the separation of the pure seed and inert of these three species requires re-blowing of small amount of seed that remains in the light fraction. Clearly, this amount is less than 1 gram. The method used to separate mixtures of kinds that may or may not have uniform blowing procedures, allows the blowing method to be used only as an aid in determining the percentage of pure seed of *Agrostis*, *Dactylis* and *Poa*, since the components will weigh less than the required working sample weights for each species. The seed remaining in the heavy fraction from such blowings is considered pure seed, however, the seed in the light fraction must be further examined.

The proposed method 1 would meet the criteria currently required in the AOSA Rules and the Federal Seed Act. The proposed method 2 would provide an alternative method that would speed up the separation process and hopefully achieve the same result.

Submitted By

AOSA Purity Subcommittee
Deborah Meyer, Chair
CDFA Plant Pest Diagnostics Center
3294 Meadowview Road
Sacramento, CA 95832-1448
Phone (916) 262-1137; FAX (916) 262-1190
dmeyer@cdfa.ca.gov

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