

AOSA RULES COMMITTEE REPORT 1996

Following the July 1995 AOSA/SCST Annual Meeting in Sacramento, California, the fourteen new rules approved by the AOSA membership were published in the September issue of the AOSA and SCST Newsletters. These new rules were also submitted for printing by Artcraft Printers in Bozeman, Montana. The Rules Committee reviewed galley proofs of the new rules before approval was given to Artcraft Printers for final printing and distribution.

Twelve proposals were received by the Rules Committee this year. The Committee carefully reviewed these proposals and approved nine for consideration by the AOSA membership at the June 1996 AOSA/SCST Annual Meeting in Milwaukee, Wisconsin. The Rules Committee found three proposals to lack sufficient supporting evidence. Two of these proposals were published in the May 1996 AOSA Newsletter and were discussed, but not voted on, at the annual meeting.

I wish to thank all of the members of the Rules Committee for their careful review of this year's proposals. I also wish to thank my wife, Ann, for her assistance in preparing the new rules for publication.

In other activities, the Rules Committee is reviewing the committee member roles. We are also studying ways to complete our duties in a better and a more timely fashion.

Submitted by:
Rodney W. Young, Chairman

Members:
Malcolm Sarna
Frank Lewis
Mark Hafdahl
Kelly Book

Ex officio members:
Steve McGuire
Tim Gutormson
Richard Payne
Susan Maxon

AOSA RULE CHANGES FOR 1996

AOSA/SCST Annual Meetings Milwaukee, Wisconsin
Effective October 1, 1996

RULE PROPOSAL No. 1

AOSA RULES FOR TESTING SEEDS, Table 1, page 45.

Table 1. Weights for working sample of agricultural, vegetable and herb, flower, and tree and shrub seeds (cont.)

Kind of seed	Minimum weight for purity analysis	Minimum weight for noxious-weed seed or bulk examination	Approximate number of seeds per gram	Approximate number of seeds per ounce
	Grams	Grams	Number	Number
FLOWER SEEDS (continued)				
<i>Penstemon penlandii</i> L. Weber	3.6	36	693	19,647
Penland's beardtongue				

AOSA RULES FOR TESTING SEEDS, Table 4, page 75.

Table 4. Methods of testing for laboratory germination, FLOWER SEEDS (continued)

Kind of seed	Substrata	Temperature° C	First count days	Final count days	Additional Directions
Penstemon penlandii L. Weber					
Penland's beardtongue					
Method 1	P	15-25	7	14	see sec. 4.8m
Method 2	P	15-25	7	14	see sec. 4.8m

AOSA RULES FOR TESTING SEEDS, section 4.8, page 20.

4.8. Special procedures and alternate methods for germination

- m. Penland's beardtongue (*Penstemon penlandii*).--Two test methods as prescribed in Table 4 shall be used on each sample. For Method 1, submerge 400 seeds in aerated GA₃ (350 ppm) for 24 hours at room temperature using an aquarium pump. Use enough volume of GA₃ solution to completely cover seeds. After treatment, blot excess moisture off seeds and place seeds on water-moistened blotters and germinate at 15°-25° C. After 14 days, count normal seedlings; clip either end of remaining ungerminated seeds and continue germination for 7 additional days. At the end of the 7 additional days, count normal seedlings and add to previous count for total number of normal seedlings for Method 1. For Method 2, plant 400 seeds on water-moistened blotters and germinate for 14 days; count normal seedlings. Refer to 4.7d for calculation and reporting of results.

AOSA RULES FOR TESTING SEEDS, section 4.7, page 18.

4.7. Calculation of percentage germination

- d. For *Stipa viridula* and *Penstemon penlandii*, report results of Method 2 (see Table 3 and section 4.8K for *S. viridula* and Table 4 and section 4.8m for *P. penlandii*), as percentage germination. If the number in Method 2 is less than in Method 1, subtract results of Method 2 from Method 1 and report the difference as dormant seed percentage.

RULE PROPOSAL No. 2

AOSA RULES FOR TESTING SEEDS, Table 4, page 71.

Table 4. Methods of testing for laboratory germination, FLOWER SEEDS (continued)

Kind of seed	Substrata	Temperature° C	First count days	Final count days	Additional Directions
<i>Eustoma grandiflorum</i> (Rafinesque) Shinnery eustoma, lisianthus, prairie gentian, tulip gentian	TB	20; 20-30	14	21	Light; the native species may not germinate with these procedures. On slow germinating lots, final count may need to be extended to 28 days.

RULE PROPOSAL No. 3

UNIFORM CLASSIFICATION OF WEED AND CROP SEED

Contribution No. 25 to the Handbook on Seed Testing, page A-1

**APPENDIX A
CLASSIFICATION BY COMMON NAME**

<u>Common name</u>	<u>Scientific name</u>
eustoma	= <i>Eustoma grandiflorum</i>
gentian, prairie	= <i>Eustoma grandiflorum</i>
gentian, tulip	= <i>Eustoma grandiflorum</i>
lisianthus	= <i>Eustoma grandiflorum</i>

RULE PROPOSAL No. 4

UNIFORM CLASSIFICATION OF WEED AND CROP SEED

Contribution No. 25 to the Handbook on Seed Testing, page 54

CLASSIFICATION SECTION

<u>Scientific/Commonname</u>	<u>Family</u>	Spp.	<u>Classification</u>							
			<u>contaminating</u>							
		<u>Class</u>	<u>A</u>	<u>E</u>	<u>H</u>	<u>R</u>	<u>S</u>	<u>I</u>	<u>V</u>	<u>NOX</u>
<i>Eustoma grandiflorum</i>	(Gentianaceae)	F,W	W	C	W	W	W	W	W	NO
--eustoma										
--gentian, prairie										
--gentian, tulip										
--lisianthus										

RULE PROPOSAL No. 5

AOSA RULES FOR TESTING SEEDS, section 2.6, page 5.

2.6 Seed unit

b. Seed units in the grass family (for descriptions and illustrations of grass seed units, see *AOSA Newsletter* 70(1):49-59, 1996) including the following:

- (2) Single floret spikelets in *Agrostis*, *Alopecurus*, and *Zoysia*; and multiple florets or spikelets in *Anthoxanthum*, *Arrhenatherum*, *Avena*, *Axonopus*, *Bouteloua*, *Brachiaria*, *Chloris*, *Echinochloa*, *Ehrharta*, *Holcus*, *Hordeum*, *Melinis*, *Oryza*, *Panicum*, *Paspalum*, *Phalaris*, *Poa*, *Setaria*, and *Zea*;
- (3) Spikelets which may have attached rachis segments, pedicels and sterile spikelets in *Andropogon*, *Bothriochloa ischaemum*, *Schizachyrium scoparium*, *Sorghastrum*, and *Sorghum*;
- (4) Spikelet groups that disarticulate as a unit in *Hilaria jamesii*; spikelet groups that disarticulate as units with attached rachis and internodes in *Andropogon* spp., *Bothriochloa ischaemum*, *Schizachyrium scoparium*, *Elymus elymoides*, *Bouteloua curtipendula* and *Sorghastrum nutans*;
- (5) Fascicles of *Cenchrus ciliaris* and *Pennisetum*, consisting of bristles and spikelets;
- (6) Burs of *Buchloe dactyloides*;
- (7) Bublets of *Poa bulbosa*;

RULE PROPOSAL No. 6

AOSA RULES FOR TESTING SEEDS, page 103

APPENDIX 1B. MATHEMATICAL PRINCIPLES FOR BULK EXAMINATION

These mathematical principles are to be used only when calculating results of a bulk examination (section 3.6) as percentage by weight. For the principles to be used to calculate percentage by weight for components of a purity analysis refer to sections 2.5a and 2.5b.

Brief review of math:

Definition -- significant figures: digits in a number that are known to be reasonably trustworthy. They would include the last digit (which has some degree of uncertainty) as well as all the previous digits. Zeros are considered significant except when their only function is to locate the decimal point.

Examples:

1. All non-zero digits are significant; e.g. 363 has three significant figures.

2. Zeros located between non-zero digits are significant; e.g. 2007 has four significant figures.
3. When a decimal ends in zeros, these zeros are significant; e.g. 43.270 has five significant figures.
4. When a number ends in zeros, these zeros are not significant unless they are specified as being significant or indicated as significant by a line drawn under them; e.g. 17000 has two significant figures (1,7), 17000 has three significant figures (1,7,0), 17000 has five significant figures (1,7,0,0,0), and 1070 has three significant figures (1,0,7).
5. In a decimal fraction (when the number is between 0 and 1), the zeros immediately following the decimal point are not significant; e.g. 0.00351 has three significant figures (3,5,1), 3.0051 has five significant figures (3,0,0,5,1), and 0.0030 has two significant figures (3,0).

Definition -- accuracy: the number of significant figures of a decimal number.

Example: The numbers 50.3 and 0.00754 are both accurate to three significant figures.

Definition -- precision: the number of decimal places of a decimal number.

Example: The number 4.016 is said to be precise to three decimal places.

Literature:

Calter, P. 1979. *Schaum's outline of theory and problems of technical mathematics* McGraw-Hill Book Co., New York, NY. 460 pp.

Stein, E. I. 1980. *Fundamentals of mathematics*. Allyn and Bacon, Inc., Boston, MA. 651 pp.

RULE PROPOSAL No. 7

AOSA RULES FOR TESTING SEEDS, page 103

APPENDIX 1A CONVERSION OF SAMPLE WEIGHTS FOR NOXIOUS-WEED SEED AND BULK EXAMINATIONS

1. When converting numbers of seeds or particles of inert matter found in a noxious-weed seed or bulk examination to the number of seeds or particles per pound, the following formula shall be used:

$$\frac{\text{number of seeds or particles found}}{\text{weight of working sample in grams}} \times \frac{453.6 \text{ grams}}{\text{pound}} = \frac{\text{number of seeds or particles per pound}}{\text{particles per pound}}$$

2. When converting numbers of seeds or particles of inert matter found in a noxious-weed seed or bulk examination to the number of seeds or particles per ounce, the following formula shall be used:

$$\frac{\text{number of seeds or particles found}}{\text{weight of working sample in grams}} \times \frac{28.35 \text{ grams}}{\text{ounce}} = \frac{\text{number of seeds or particles per ounce}}{\text{particles per ounce}}$$

3. When converting numbers of seeds or particles of inert matter found in a noxious-weed seed or bulk examination to the number of seeds or particles per kilogram, the following formula shall be used:

$$\frac{\text{number of seeds or particles found}}{\text{weight of working sample in grams}} \times \frac{1000 \text{ grams}}{\text{kilogram}} = \frac{\text{number of seeds or particles per kilogram}}{\text{particles per kilogram}}$$

When using the above formulas, use the actual weight of the working sample (four significant figures). The final result shall be rounded to a whole number when reporting seed per pound or kilogram and to the first decimal place when reporting seeds per ounce. When rounding off the final

result to a whole number, round down if the first decimal place is 4 or less and round up if the first decimal place is 5 or more. When rounding off the final result to the first decimal place, round down if the second decimal place is 4 or less and round up if the second decimal place is 5 or more.

Examples:

1. In a 50 gram noxious-weed examination of alfalfa seed with an actual working weight of 50.15 grams, 7 dodder seeds were found. For number of seeds per pound (Formula 1):
$$\frac{7 \text{ seeds}}{50.15 \text{ grams}} \times \frac{453.6 \text{ grams}}{\text{pound}} = 63.31 \text{ seeds per pound}$$
rounded to the nearest whole number = 63 seeds per pound
2. In a 20 gram bulk examination of white clover, with an actual working weight of 22.21 grams, 10 chickweed seeds were found. For the number of seeds per pound (Formula 1):
$$\frac{10 \text{ seeds}}{22.21 \text{ grams}} \times \frac{453.6 \text{ grams}}{\text{pound}} = 204.2 \text{ seeds per pound}$$
rounded to the nearest whole number = 204 seeds per pound
3. Calculation of the rate of occurrence of noxious-weed seeds found in a purity examination that exceed the number of seeds specified in section 3.1. - In a 1 gram purity examination of Kentucky bluegrass, with an actual working weight of 1.013 grams, 24 Canada thistle achenes were found. For the number of seeds per ounce (Formula 2):
$$\frac{24 \text{ seeds}}{1.013 \text{ grams}} \times \frac{28.35 \text{ grams}}{\text{ounce}} = 671.67 \text{ seeds per ounce}$$
rounded to one decimal place = 671.7 seeds per ounce
4. In a 2.5 gram bulk examination of bentgrass, with an actual working weight of 2.584 grams, 3 windgrass florets were found. For number of seeds per ounce (Formula 2):
$$\frac{3 \text{ seeds}}{2.584 \text{ grams}} \times \frac{28.35 \text{ grams}}{\text{ounce}} = 32.91 \text{ seeds per ounce}$$
rounded to one decimal place = 32.9 seeds per ounce
5. In a 500 gram bulk examination of soybeans, with an actual working weight of 502.5 grams, 6 hairy vetch seeds were found. For number of seeds per kilogram (Formula 3):
$$\frac{6 \text{ seeds}}{502.5 \text{ grams}} \times \frac{1000 \text{ grams}}{\text{kilogram}} = 11.94 \text{ seeds per kilogram}$$
rounded to the nearest whole number = 12 seeds per kilogram

RULE PROPOSAL No. 8

AOSA RULES FOR TESTING SEEDS, section 3.1, page 12

3.1 Noxious-weed seeds.--The determination of the number of seeds, bulblets, or tubers of individual noxious weeds present per unit weight shall be made on at least the minimum quantities listed in Table 1, provided, that if the following indicated numbers of a single kind of seed, bulblet, or tuber are found in the analysis of the purity working sample (or in a like amount of the noxious-weed seed working sample), the occurrence of that species in the remainder of the bulk examined for noxious-weed seeds need not be noted: 1/2 gram purity working sample, 16 seeds; 1 gram purity working sample, 23 seeds; 2 gram purity working sample or larger, 30 seeds. The working sample shall be weighed to 4 significant figures. Refer to Appendix 1A for examples of calculations of the number of noxious-weed seeds per unit weight. State laws may specify the unit weight to express the rate of occurrence of noxious-weed seeds.

The seeds per unit weight shall be based on the number of single seeds. The number of individual seeds shall be determined in burs of sandbur (*Cenchrus* spp.) and cocklebur (*Xanthium* spp.), capsules of dodder (*Cuscuta* spp.), berries of horsenettle and nightshade (*Solanum* spp.), and in the fruits of other noxious weeds that contain more than one seed. Refer to sections 2.9 and 2.10b(4).

RULE PROPOSAL No. 9

AOSA RULES FOR TESTING SEEDS, section 3.6, page 15a

3.6 Bulk examination.--The examination is conducted to determine the occurrence of particular components in the sample. The component may be seeds of individual species or particles of certain inert matter (e.g. ergot or soil). The rate of occurrence may be expressed as the number of seeds or particles per unit weight or as percentage by weight.

The working weight of the sample shall be made on at least the minimum quantities listed in Table 1 under the heading "Minimum weight for noxious weed seed or bulk examination." The working weight shall be determined to at least four significant figures. If the balance used has sufficient precision, the sample may be weighed to more than four significant figures.

The seeds per unit weight shall be based on individual seeds. The number of individual seeds shall be determined in fruits that contain more than one seed.

Refer to Appendix 1A for examples of calculations of seed or particles of inert matter per unit weight. The sender of the sample may specify the unit weight to be used to express the rate of occurrence of seeds or particles in a bulk examination.

To calculate percentage by weight, the total weight is determined for all seeds of individual species or all particles of inert components. The component may be weighed as accurately as the precision of available weighing equipment permits. The percentage of each component shall be calculated on the basis of the original weight of the working sample. The percentage may be expressed to the same number of significant figures as the weight (either the component weight or the original weight of the working sample) with the least number of significant figures. When rounding off the final result, round down if the next decimal place is four or less and round up if the next decimal place is five or more. Refer to Appendix 1B for mathematical principles used in calculating percentage by weight in the bulk examination.

[The examples were not changed by this proposal.]

GUIDELINES FOR PROPOSING AOSA SEED TESTING RULES

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Please use the following guidelines when proposing rule changes, additions, or new rules to the **AOSA Rules for Testing Seeds**:

- (1) Proposals must be sponsored by an AOSA Laboratory, AOSA Committee, AOSA Subcommittee or SCST registered member.
- (2) Proposals must be typed and photo-ready using the format following this information.

- (3) **Twelve copies** of the proposal must be submitted to the Chairman.
 - (4) Submit a disk copy of the proposal in WordPerfect or ASCII format.
 - (5) The author of the proposal must include their complete mailing address and telephone number. This information will allow questions and comments to reach the proper individual.
 - (6) The deadline for submission of proposals is October 15, 1996. Proposals received after this date will not be considered.
- Please note:** Proposals submitted without following these guidelines will be returned to the author.