PURPOSE OF PROPOSAL:

The purpose of this proposal is to add Field Pennycress *(Thlaspi arvense)* purity weights into the AOSA Rules Volume 1.

PRESENT RULE:

New Rule

PROPOSED RULE:

Table 2A. Weights for working samples.

Pure Seed Unit #	Chaffy Seed [a]	Kind of seed	Minimum weight for purity analysis [b]	Minimum weight for noxious-weed seed or bulk examination	Approximate number of seeds per gram [c]	Approximate number of seeds per ounce [d]
			Grams	Grams	Number	Number
2		*Thlaspi arvense* L. Fanweed; Frenchweed; pennycress,field	3.5	35	1532	43,356

HARMONIZATION/IMPACT STATEMENT:

Thlaspi arvense is currently not included in the ISTA Rules, Canadian Methods and Procedures or the Federal Seed Act.

SUPPORTING EVIDENCE:

Thlaspi arvense is an annual winter oilseed crop, also a well-known species as a weed and in some states a noxious weed. There has been interest and work done to understand the use of this species as an oilseed crop. Companies and universities have been working on developing versions of *Thlaspi arvense* for this purpose. With all this work on development it has become necessary to include the species in the AOSA Rules to enable this new market.

The Purity Committee was consulted prior to the start of the process to confirm the Pure Seed Unit (PSU) designation. Debbie Meyers determined that the PSU shall be #2. This is aligned with other species of Brassica already in table 2A. Eight (8) replicates of one hundred (100) seeds were counted and weighed for each sample per the guidance provided in committee protocol. The Purity Weight Calculator v3 was used for all 18 samples. One sample was found to have excessive size variation, and an additional 8 replicates were counted and weighed.

It should be noted that the locations of the domesticated samples in the table are concentrated in the mid-west and have a shorter span of harvest years. This can be attributed to the span of time the domesticated version has been in development and the growing area in which the work was done. The domesticated samples used are gene edited and visually look different by color from the wild type.

Table 1 Samples with harvest, location and type.

Sample ID	Harvest	Location	Type
CC1:WG:AVI	2022	Arenzville, IL	Domesticated
CC1:WG:AVI	2023	Arenzville, IL	Domesticated
CC3:WG:AVI	2021	Arenzville, IL	Domesticated
CC3:WG:RMCI	2024	Mascoutah, IL	Domesticated
CC4:WG:AVI	2022	Arenzville, IL	Domesticated
CC4:WG:GH	2022	St. Louis, MO	Domesticated
CC5:WG:AVI	2022	Arenzville, IL	Domesticated
CC5:WG:AVI	2023	Arenzville, IL	Domesticated
CC5:WG:HVI	2020	Havana, IL	Domesticated
CC6:WG:MPI	2023	Mt. Pulaski, IL	Domesticated
CC6:WG:RMCI	2024	Mascoutah, IL	Domesticated
Beecher	2011	Macomb IL	Wild
Beecher	2015	Macomb IL	Wild
CC12:WT:HVI	2024	Havana, IL	Wild
CC12:WT:SKM	2024	Sikeston, MO	Wild
CC7:WT:VNI	2020	Venedy, IL	Wild
CC9:WT:GH	2022	St. Louis, MO	Wild
Elizabeth	2019	Macomb IL	Wild

Figure 1 shows higher than expected variation in size as identified by the CV% of 15. This is an indicator for excessive variation of seed size. Per the purity weight calculator, the projected weight should be 2.6 grams for a purity. Section E of Figure 1 indicates that for the samples utilized there were several samples with less than the desired 2500 seed count at 2.6 grams. It is my recommendation with consultation with the Purity Committee to propose a larger amount than suggested by the tool. A 3.5-gram purity weight as seen in chart E of Figure 2 ensures all the samples meet the 2500 seed target for purity assessment. Although in most cases the test will be on more seeds than needed, the purity for the species is uncomplicated and should not pose an excessive burden on the analyst.

D

D1. For each seed lot, enter the average purity weight calculated in either B5 or C5 without further rounding.

D2. Check the CV. The CV should not exceed 10% for either chaffy or non-chaffy kinds. If the CV is greater than 10%, single reliable estimates of minimum purity and bulk/noxious weed weights cannot be calculated based on the sampled seed lots.

D3. The average purity weight from all lots is calculated. *Do not use this value when proposing an addition/change to Table 2A of the Rules, vol. 1 (2022).*

D4. The **Minimum Purity Working Weight (g)**, derived from the value in D3, is calculated without rounding. This value is the upper limit 95% confidence interval for the mean calculated in D3. Results must be rounded to the correct number of decimal places, as described in sec. 13.4b.1 of the rules, vol. 1 (2022) and section IV.4 of the instructions, before inclusion in Table 2A of the rules.

D5. Manually enter the correctly rounded mean from D4 in the provided field. *This is the value to be proposed for addition to Table 2A of the rules*.

D6. The minimum bulk/noxious weed weight for inclusion in Table 2A is automatically generated.

Before a new analysis for a different species, make sure to clear the data entered under A, B1, B4, C4, D1 and D5.

D1. Average purity weight for each seed lot

Lot No.	ID	Calculated purity weight (g)
1	CC5:WG:HVI2020	2.21
2	CC3:WG:AVI2021	2.3325
3	CC4:WG:AVI2022	1.985
4	CC4:WG:GH2022	2.6475
5	CC1:WG:AVI2023	1.855
6	CC6:WG:MPI2023	2.75
7	CC3:WG:RMCI2024	2.2675
8	CC1:WG:AVI2022	2.08
9	CC5:WG:AVI2023	2.1
10	CC5:WG:AVI2022	2.1675
11	CC6:WG:RMCI2024	3.425
12	Beecher 2011	2.345
13	Beecher 2015	2.6575
14	Elizabeth 2019	2.345
15	CC7:WT:VNI2020	2.735
16	CC9:WT:GH2022	2.45
17	CC12:WT:HVI2024	2.5575
18	CC12:WT:SKM2024	2.53
19		
20		

D2. CV (%):	15.0
D3. Mean purity weight	2.4133
D4. Unrounded Minimum Purity Working Weight (g):	2.56197
Minimum purity weight rounded to 2 decimals:	2.56
Minimum purity weight rounded to 1 decimal:	2.6
Minimum purity weight rounded to whole number:	3
D5. Minimum Purity Working Weight (g):	2.56
D6. Minimum bulk/noxious weed weight (g):	25.6

E (Optional)

E1. The minimum purity working weight entered in D5 is automatically imported.

E2. The purity weights for each lot are imported from D1. The estimated number of seeds for each lot is automatically calculated.

Before a new analysis for a different species, make sure to clear the data entered under A1, B1, B4, C4, D1 and D5.

E1. Minimum purity working weight (g):	2.56

E2. Estimated seed number

Lot ID	Purity weight	Seed number per lot
CC5:WG:HVI2020	2.21	2896
CC3:WG:AVI2021	2.3325	2744
CC4:WG:AVI2022	1.985	3224
CC4:WG:GH2022	2.6475	2417
CC1:WG:AVI2023	1.855	3450
CC6:WG:MPI2023	2.75	2327
CC3:WG:RMCI2024	2.2675	2822
CC1:WG:AVI2022	2.08	3077
CC5:WG:AVI2023	2.1	3048
CC5:WG:AVI2022	2.1675	2953
CC6:WG:RMCI2024	3.425	1869
Beecher 2011	2.345	2729
Beecher 2015	2.6575	2408
Elizabeth 2019	2.345	2729
CC7:WT:VNI2020	2.735	2340
CC9:WT:GH2022	2.45	2612
CC12:WT:HVI2024	2.5575	2502
CC12:WT:SKM2024	2.53	2530

Figure 1. Excerpt from Purity Weight Tool

D

D1. For each seed lot, enter the average purity weight calculated in either B5 or C5 without further rounding.

D2. Check the CV. The CV should not exceed 10% for either chaffy or non-chaffy kinds. If the CV is greater than 10%, single reliable estimates of minimum purity and bulk/noxious weed weights cannot be calculated based on the sampled seed lots.

D3. The average purity weight from all lots is calculated. *Do not use this value when proposing an addition/change to Table 2A of the Rules, vol. 1 (2022).*

D4. The **Minimum Purity Working Weight (g)**, derived from the value in D3, is calculated without rounding. This value is the upper limit 95% confidence interval for the mean calculated in D3. Results must be rounded to the correct number of decimal places, as described in sec. 13.4b.1 of the rules, vol. 1 (2022) and section IV.4 of the instructions, before inclusion in Table 2A of the rules.

D5. Manually enter the correctly rounded mean from D4 in the provided field. *This is the value to be proposed for addition to Table 2A of the rules*.

D6. The minimum bulk/noxious weed weight for inclusion in Table 2A is automatically generated.

Before a new analysis for a different species, make sure to clear the data entered under A, B1, B4, C4, D1 and D5.

D1. Average purity weight for each seed lot

Lot No.	ID	Calculated purity weight (g)
1	CC5:WG:HVI2020	2.21
2	CC3:WG:AVI2021	2.3325
3	CC4:WG:AVI2022	1.985
4	CC4:WG:GH2022	2.6475
5	CC1:WG:AVI2023	1.855
6	CC6:WG:MPI2023	2.75
7	CC3:WG:RMCI2024	2.2675
8	CC1:WG:AVI2022	2.08
9	CC5:WG:AVI2023	2.1
10	CC5:WG:AVI2022	2.1675
11	CC6:WG:RMCI2024	3.425
12	Beecher 2011	2.345
13	Beecher 2015	2.6575
14	Elizabeth 2019	2.345
15	CC7:WT:VNI2020	2.735
16	CC9:WT:GH2022	2.45
17	CC12:WT:HVI2024	2.5575
18	CC12:WT:SKM2024	2.53
19		
20		

D2. CV (%):	15.0
D3. Mean purity weight	2.4133
D4. Unrounded Minimum Purity Working Weight (g):	2.56197
Minimum purity weight rounded to 2 decimals:	2.56
Minimum purity weight rounded to 1 decimal:	2.6
Minimum purity weight rounded to whole number:	3
D5. Minimum Purity Working Weight (g):	3.5
D6. Minimum bulk/noxious weed weight (g):	35

E (Optional)

E1. The minimum purity working weight entered in D5 is automatically imported.

E2. The purity weights for each lot are imported from D1. The estimated number of seeds for each lot is automatically calculated.

Before a new analysis for a different species, make sure to clear the data entered under A1, B1, B4, C4, D1 and D5.

E1. Minimum purity working weight (g):	3.5

E2. Estimated seed number

Lot ID	Purity weight	Seed number per lot
CC5:WG:HVI2020	2.21	3959
CC3:WG:AVI2021	2.3325	3751
CC4:WG:AVI2022	1.985	4408
CC4:WG:GH2022	2.6475	3305
CC1:WG:AVI2023	1.855	4717
CC6:WG:MPI2023	2.75	3182
CC3:WG:RMCI2024	2.2675	3859
CC1:WG:AVI2022	2.08	4207
CC5:WG:AVI2023	2.1	4167
CC5:WG:AVI2022	2.1675	4037
CC6:WG:RMCI2024	3.425	2555
Beecher 2011	2.345	3731
Beecher 2015	2.6575	3293
Elizabeth 2019	2.345	3731
CC7:WT:VNI2020	2.735	3199
CC9:WT:GH2022	2.45	3571
CC12:WT:HVI2024	2.5575	3421
CC12:WT:SKM2024	2.53	3458

Figure 2 Purity Weight Tool with adjusted weights

The following figures are excerpts from the Purity Weight Calculator -v3 for all of the individual samples tested.

A Lot/sample identification	
Lot	ID
1	CC3:WG:AVI2021
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell, before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B1. Data entry		
Replication	100-seed weight (g)	
1	0.0946	13
2	0.0906	11
3	0.0935	15
4	0.0925	14
5	0.0934	16
6	0.0982	10
7	0.0883	9
8	0.095	12
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	3.2

B3. Mean before rounding:	0.09326
Mean after rounding to 4 decimals:	0.0933
Mean after rounding to 3 decimals:	0.093
Mean after rounding to 2 decimals:	0.09
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.0933

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.3325
Bulk/noxious weed wt. (25,000 seeds):	23.325

A	
Lot/sample identification	
Lot	ID
1	
2	CC3:WG:AVI2021
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B1. Data entry		
Replication	100-seed weight (g)	
1	0.0946	13
2	0.0906	11
3	0.0935	15
4	0.0925	14
5	0.0934	16
6	0.0982	10
7	0.0883	9
8	0.095	12
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	3.2

B3. Mean before rounding:	0.09326
Mean after rounding to 4 decimals:	0.0933
Mean after rounding to 3 decimals:	0.093
Mean after rounding to 2 decimals:	0.09
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.0933

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.3325
Bulk/noxious weed wt. (25,000 seeds):	23.325

A

Lot/sample identification

Lot	ID
1	
2	
3	CC4:WG:AVI2022
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0743	3
2	0.078	11
3	0.0777	8
4	0.0772	6
5	0.0743	3
6	0.0847	2
7	0.081	9
8	0.0804	12
9	0.0812	7
10	0.0791	15
11	0.0779	10
12	0.08	14
13	0.0803	13
14	0.0769	5
15	0.0797	16
16	0.0884	1

B2. CV (%); first 8 replicates:	4.5

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed on the complete data set (16 replicates), and should not be used after a replicate weight has been deleted from the data. If the replicate with the largest difference from the mean (Rank 1) is identified as an outlier ('YES' result), while Rank 2 replicate is not an outlier ('NO'), delete the replicate weight corresponding to Rank 1 and proceed to C3 after confirming that the revised CV (C1) is now within acceptable limits. However, if the second ranked replicate weight (Rank 2) is also identified as an outlier ('YES') before any replicate weight is deleted, this seedlot's replicate results cannot be used for determining purity/bulk/noxious working weights. *Presence of more than one outlier indicates possible methodological errors. Check your data for possible errors and refer to the accompanying instructions for possible remedies..*

C3. The unrounded revised mean of all remaining replicates is calculated. Use section 2.3a of AOSA Rules, vol. 1 (2022), or refer to section II.5 of the accompanying instructions to determine the correct number of decimals for your final answer.

C4. Manually enter the correctly rounded mean from C3.

C5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter the purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation rather than the actual value. Double clicking on the destination cell before pasting is another way of just adding cell value (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot when the CV is above acceptable limits. Before each new seedlot analysis, make sure you clear the data you entered in B1, B4, and C4.

B3. Mean before rounding:	0.07845
Mean after rounding to 4 decimals:	0.0785
Mean after rounding to 3 decimals:	0.078
Mean after rounding to 2 decimals:	0.08
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.0785

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	1.9625
Bulk/noxious weed wt. (25,000 seeds):	19.625

C1. Revised CV (%); all replicates:	4.4

C2. Outlier check

This test is designed to check for outliers using the full data set. Do not use after a replicate weight is discarded.

100-seed weight rank	Outlier
Rank 1	NO
Rank 2	NO

C3. Revised mean before rounding:	0.079444
Mean after rounding to 4 decimals:	0.0794
Mean after rounding to 3 decimals:	0.079
Mean after rounding to 2 decimals:	0.08
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

C4. Enter rounded mean value here:	0.0794

C5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	1.985
Bulk/noxious weed wt. (25,000 seeds):	19.85

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	CC4:WG:GH2022
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.1099	9
2	0.1073	12
3	0.1059	16
4	0.1056	15
5	0.1054	13
6	0.1042	11
7	0.10321	10
8	0.1055	14
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	**1.9**

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed on the complete data set (16 replicates), and should not be used after a replicate weight has been deleted from the data. If the replicate with the largest difference from the mean (Rank 1) is identified as an outlier ('YES' result), while Rank 2 replicate

B3. Mean before rounding:	**0.10588**
Mean after rounding to 4 decimals:	0.1059
Mean after rounding to 3 decimals:	0.106
Mean after rounding to 2 decimals:	0.11
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	**0.1059**

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	**2.6475**
Bulk/noxious weed wt. (25,000 seeds):	**26.475**

C1. Revised CV (%): all replicates:	**1.9**

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	CC1:WG:AVI2023
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0702	9
2	0.0714	10
3	0.0742	16
4	0.0757	12
5	0.0763	11
6	0.075	15
7	0.0751	14
8	0.0756	13
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	3.0

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.07419
Mean after rounding to 4 decimals:	0.0742
Mean after rounding to 3 decimals:	0.074
Mean after rounding to 2 decimals:	0.07
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.0742

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	1.855
Bulk/noxious weed wt. (25,000 seeds):	18.55

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	CC6:WG:MPI2023
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B1. Data entry

Replication	100-seed weight (g)	
1	0.1118	13
2	0.1137	10
3	0.1105	15
4	0.109	14
5	0.1125	12
6	0.1098	16
7	0.1064	11
8	0.1061	9
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	**2.5**

B3. Mean before rounding:	**0.10998**
Mean after rounding to 4 decimals:	0.1100
Mean after rounding to 3 decimals:	0.110
Mean after rounding to 2 decimals:	0.11
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	**0.11**

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.75
Bulk/noxious weed wt. (25,000 seeds):	27.5

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	CC1:WG:AVI2022
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0859	10
2	0.0839	15
3	0.0854	11
4	0.0837	16
5	0.0852	12
6	0.0821	14
7	0.0777	9
8	0.0819	13
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	**3.2**

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	**0.08323**
Mean after rounding to 4 decimals:	0.0832
Mean after rounding to 3 decimals:	0.083
Mean after rounding to 2 decimals:	0.08
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	**0.0832**

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	**2.08**
Bulk/noxious weed wt. (25,000 seeds):	**20.8**

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	CC5:WG:AVI2023
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0812	9
2	0.0844	15
3	0.0852	13
4	0.0855	11
5	0.0853	12
6	0.0851	14
7	0.0841	16
8	0.0815	10
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	2.1

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.08404
Mean after rounding to 4 decimals:	0.0840
Mean after rounding to 3 decimals:	0.084
Mean after rounding to 2 decimals:	0.08
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.084

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.1
Bulk/noxious weed wt. (25,000 seeds):	21

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	CC5:WG:AVI2022
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part **C**.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0889	12
2	0.0845	11
3	0.0894	9
4	0.0884	13
5	0.0852	14
6	0.0844	10
7	0.0875	16
8	0.0855	15
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	2.4

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.08673
Mean after rounding to 4 decimals:	0.0867
Mean after rounding to 3 decimals:	0.087
Mean after rounding to 2 decimals:	0.09
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.0867

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.1675
Bulk/noxious weed wt. (25,000 seeds):	21.675

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	CC6:WG:RMCI2024
12	
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B1. Data entry

Replication	100-seed weight (g)	
1	0.1408	11
2	0.1361	14
3	0.1364	15
4	0.1418	10
5	0.1314	9
6	0.1366	16
7	0.1388	13
8	0.1332	12
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	2.6

B3. Mean before rounding:	0.13689
Mean after rounding to 4 decimals:	0.1369
Mean after rounding to 3 decimals:	0.137
Mean after rounding to 2 decimals:	0.14
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.1369

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	3.4225
Bulk/noxious weed wt. (25,000 seeds):	34.225

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	Beecher 2011
13	
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0948	14
2	0.0957	11
3	0.0946	15
4	0.0965	10
5	0.0902	9
6	0.0925	13
7	0.094	16
8	0.0922	12
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	2.2

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.09381
Mean after rounding to 4 decimals:	0.0938
Mean after rounding to 3 decimals:	0.094
Mean after rounding to 2 decimals:	0.09
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.0938

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.345
Bulk/noxious weed wt. (25,000 seeds):	23.45

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	Beecher 2015
14	
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B1. Data entry

Replication	100-seed weight (g)	
1	0.1047	12
2	0.1052	14
3	0.1082	11
4	0.105	13
5	0.1073	15
6	0.1058	16
7	0.1101	9
8	0.1041	10
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	1.9

B3. Mean before rounding:	0.10630
Mean after rounding to 4 decimals:	0.1063
Mean after rounding to 3 decimals:	0.106
Mean after rounding to 2 decimals:	0.11
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.1063

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.6575
Bulk/noxious weed wt. (25,000 seeds):	26.575

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	Elizabeth 2019
15	
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0944	15
2	0.0904	10
3	0.0947	14
4	0.0919	11
5	0.0948	13
6	0.0982	9
7	0.0937	16
8	0.0919	11
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	**2.6**

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	**0.09375**
Mean after rounding to 4 decimals:	0.0938
Mean after rounding to 3 decimals:	0.094
Mean after rounding to 2 decimals:	0.09
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	**0.0938**

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	**2.345**
Bulk/noxious weed wt. (25,000 seeds):	**23.45**

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	CC7:WT:VNI2020
16	
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.1057	11
2	0.1118	13
3	0.1102	16
4	0.1132	10
5	0.1113	15
6	0.1119	12
7	0.1042	9
8	0.1071	14
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	3.0

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.10943
Mean after rounding to 4 decimals:	0.1094
Mean after rounding to 3 decimals:	0.109
Mean after rounding to 2 decimals:	0.11
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.1094

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.735
Bulk/noxious weed wt. (25,000 seeds):	27.35

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	CC9:WT:GH2022
17	
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.0991	12
2	0.0994	11
3	0.0969	13
4	0.0958	9
5	0.0996	10
6	0.0983	16
7	0.0975	15
8	0.0973	14
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%): first 8 replicates:	1.4

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.09799
Mean after rounding to 4 decimals:	0.0980
Mean after rounding to 3 decimals:	0.098
Mean after rounding to 2 decimals:	0.10
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.098

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.45
Bulk/noxious weed wt. (25,000 seeds):	24.5

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	CC12:WT:HVI2024
18	
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.1066	11
2	0.1004	13
3	0.0979	10
4	0.1042	14
5	0.0968	9
6	0.1026	16
7	0.1066	11
8	0.1034	15
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	**3.6**

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	**0.10231**
Mean after rounding to 4 decimals:	0.1023
Mean after rounding to 3 decimals:	0.102
Mean after rounding to 2 decimals:	0.10
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	**0.1023**

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	**2.5575**
Bulk/noxious weed wt. (25,000 seeds):	**25.575**

A

Lot/sample identification

Lot	ID
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	CC12:WT:SKM2024
19	
20	

B

B1. Enter the weights of 8 replications (1-8) for a single sampled seedlot. Ignore the ranked results with marked red dots generated for the first 8 replicates. Ranked results are only used in Part C below.

B2. Check the CV. If the CV is 6% or less for chaffy kinds, or 4% or less for non-chaffy kinds, proceed to B3. If the CV is greater than 6% or 4% for chaffy and non-chaffy kinds, respectively, skip steps B3-B5 and go to part C.

B3. The output shows the unrounded mean, with all possible rounding options. Use section 2.3a of AOSA Rules, vol. 1 (2021) to determine the correct number of decimals for your final answer. Section II.5 of the accompanying instructions also describes correct rounding.

B4. Manually enter the correctly rounded mean from B3 in the provided field.

B5. The purity and bulk/noxious weed exam weights are calculated for this seedlot. Enter this purity weight without further rounding in D1 for that seedlot. *If you copy and paste the purity weight from B5 to D1, make sure you use the 'Paste as value' function in Excel. Otherwise, Excel will paste the equation for calculating the purity weight rather than the actual value. Double clicking on the destination cell before pasting is a shortcut for pasting just cell values (double clicking only works for single cells, not when multiple cells are selected).*

Repeat for samples from each seed lot. Before each new analysis, make sure you clear the contents you entered under B1 and B4.

B1. Data entry

Replication	100-seed weight (g)	
1	0.1028	12
2	0.0987	11
3	0.1006	15
4	0.1047	10
5	0.1011	16
6	0.1027	13
7	0.0968	9
8	0.1018	14
9		1
10		1
11		1
12		1
13		1
14		1
15		1
16		1

B2. CV (%); first 8 replicates:	2.5

C

This part is only needed if the CV(%) calculated in part B is above the maximum acceptable limit for either chaffy or non-chaffy seeds.

Enter the additional replicate weights (9-16) from the same sample in B1. The rank of each replicate weight, based on its absolute difference from the mean, is displayed to the right of the data. Among the 16 replicates, the two replicate weights with the largest absolute difference from the mean, ranked 1 and 2 from higher to lower, are marked by corresponding red dots.

C1. A revised CV is calculated based on all 16 replicates. If the CV is within acceptable limits (equal to or less than 4% or 6%) skip C2 and proceed to C3 without checking for outliers. If the CV is greater than the acceptable limit, go to C2.

C2. Outlier checks for the two replicate weights with the largest absolute difference from the mean are displayed. Note that outlier checks are only valid when performed

B3. Mean before rounding:	0.10115
Mean after rounding to 4 decimals:	0.1012
Mean after rounding to 3 decimals:	0.101
Mean after rounding to 2 decimals:	0.10
Mean after rounding to 1 decimal:	0.1
Mean after rounding to whole number:	0

B4. Enter rounded mean value here:	0.1012

B5. Purity and bulk/noxious exam weights	
Purity wt. (2500 seeds):	2.53
Bulk/noxious weed wt. (25,000 seeds):	25.3

Purity weight Calculator, https://analyzeseeds.com/committees/purity-analysis/, accessed 9/25/2025

SUBMITTED BY:

Melissa Phillips, RST/ CGT

melissa.phillips@bayer.com
630-383-1569
Bayer Crop Science
460 E. Adams St.
Waterman, IL 60556

DATE SUBMITTED: October 13, 2025