# Studying for the AOSA/SCST Germination and Purity exams

**Presented by: Leanne Duncan**

**January 7, 2020**

A Teaching and Training Webinar

# Disclaimer

The views, material, video or content of this webinar is that of the presenter and not necessarily those of AOSA or SCST.

# When do you qualify to take the exams?

## AOSA

- Employed in seed testing with two years full time experience = 4000 hours
- 100 minimum points to qualify
  - Work experience (1 point/80 hours)
    - 4000 hours = 2 years = 50 points
  - Workshops/Webinars (20 points max)
  - Annual Conference attendance (5 points max)
  - Accredited courses (50 points max, 2 points per quarter, 3 points per semester hour)
- 1 reference

# When do you qualify to take the exams?

## SCST

- Employed in seed testing with two years full time experience = 4000 hours
  - SCST members must be an Associate member for 2 years
- 100 minimum points to qualify
  - Work experience (1 point/80 hours)
    - 4000 hours = 2 years = 50 points
  - Workshops/Webinars (20 points max)
  - Annual Conference attendance (5 points max)
  - Accredited courses (50 points max, 2 points per quarter, 3 points per semester hour)
- SCST - 3 references

# How to apply for the exam

- Application available on committee page on Analyzeseeds.com
  - https://www.analyzeseeds.com/consolidatedexamcommittee
  - Same application for both organizations
  - Submit application at least 60 days prior to exam
  - Applications are considered in the order they are received; space may be limited
  - Check website for current posted exam dates
- All materials must be submitted to support point tabulation
  - References of work experience
  - Workshop certificates/Webinar completion
  - College Transcripts
  - Incomplete applications that are missing information or supplemental materials may not be considered
- Fill out the application completely and clearly – including point total. If unsure about a section - ask!
- Submit application digitally to email addresses provided on application

# AOSA/SCST

## APPLICATION FOR PURITY AND GERMINATION EXAMINATIONS

**Please type or use black ink.**
**NEW: It is the applicant's responsibility to calculate and track points at the end of each application section.**
**A non-refundable fee** of $500.00 for both Exams, $300 each for Purity & Germination, to help with the cost of administering the examination shall be invoiced by the Executive Director upon approval of your application. All requirements must be completed two weeks prior to the examination date with the exception of a workshop attended at the exam site immediately prior to the exam.

**EXAMINATION REQUIREMENTS** – Examination requirements are posted on the AOSA & SCST websites along exam with Study Guides for examination preparation. APPLICATIONS THAT ARE UNCLEAR OR CONTAIN INCOMPLETE INFORMATION WILL BE REJECTED. The Applicant must attach a separate sheet if more space is needed for college records (transcripts), laboratory equipment, references, or additional data helpful to the Board of Examiners.

| | | | |
|---|---|---|---|
| Applicant Name: | | Phone #: | |
| Employer Name: | | FAX #: | |
| Address: | | Email: | |
| City/State/Zip code: | | | |
| Organization: | AOSA | SCST Please provide | |

| Education | School Name, City, State | Dipl |
|---|---|---|
| High School | | |
| College | | |
| Business or Vocational | | |
| Graduate | | |

| Section | Maximum Points Allowed | Applicant Calculated Points |
|---|---|---|
| A | n/a | |
| B | n/a | |
| C | 20 | |
| D | 5 | |
| E | 50 | |

When should you start studying for the exams?

# NOW

When should you start studying for the exams?

***NOW!***

# Written Exams

## AOSA Rules for Testing Seeds

Germination

Pure Seed Units (PSU)
Germination procedures
Ryegrass Fluorescence testing
Tetrazolium Testing
Calculating final results
Reporting results
Tolerances
Volume 4 Seedling Evaluation

Purity

Sampling procedures
Sample preparation
Purity examination procedures
Pure Seed Units (PSU)
Fluorescence testing
Noxious weed examination procedures
Uniform Blowing Procedures
Uniform Classification of Crop & Weed Seeds
Calculating Multiple Seed Units (MSU)
Seed count procedures
Calculating final results
Reporting results
Tolerances

# Written Exams

Germination:

- AOSA Seed Vigor Handbook
- AOSA Tetrazolium Testing Handbook
- AOSA Cultivar Purity Handbook
- AOSA Moisture Testing Handbook

Purity:

- AOSA Cultivar Purity Handbook

# Written Exams

## Federal Seed Act Regulations

https://www.ams.usda.gov/rules-regulations/fsa

https://www.ams.usda.gov/sites/default/files/media/StateNoxiousWeedsSeedList.pdf
(All States Noxious Weed Seed List)

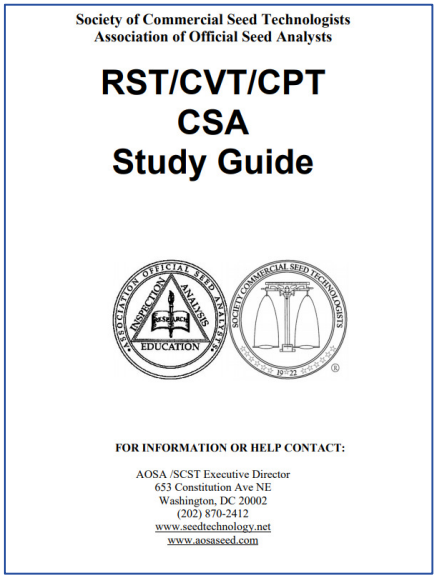
## Canadian Methods & Procedures

Contact CFIA for the latest edition cfia.ssts-ssts.acia@canada.ca

## ISTA Rules for Testing Seeds

https://www.seedtest.org/en/international-rules-_content---1--1083.html

# Written Exams



Society of Commercial Seed Technologists
Association of Official Seed Analysts

**RST/CVT/CPT**
**CSA**
**Study Guide**

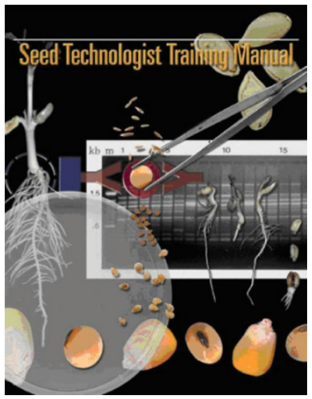
**FOR INFORMATION OR HELP CONTACT:**

AOSA /SCST Executive Director
653 Constitution Ave NE
Washington, DC 20002
(202) 870-2412
www.seedtechnology.net
www.aosaseed.com

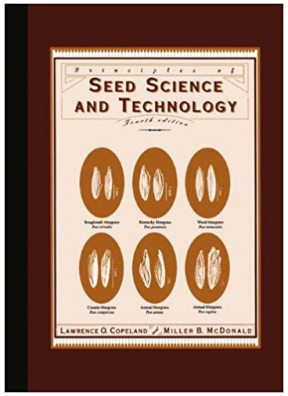
https://www.analyzeseeds.com/wp-content/uploads/2017/02/RST-CVT-CPT-CSA-Study-Guide-2015-Revised-4-18-16-1.pdf

# Written Exams

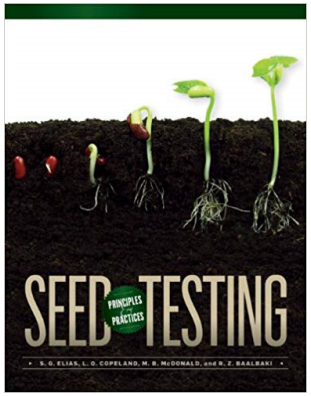
Seed Technologist Training Manual




Principles of Seed Science and Technology, Copeland & McDonald

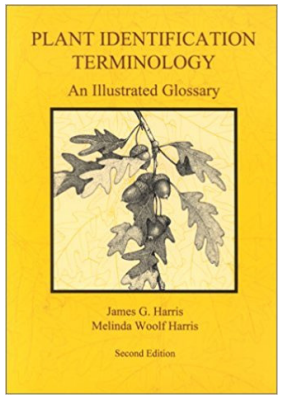



Seed Testing: Principles and Practices, Elias, Copeland, McDonald, & Baalbaki

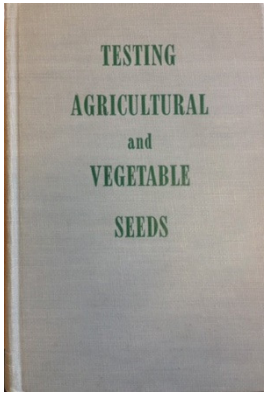


# Written Exams

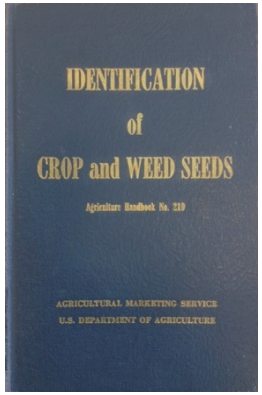
A good botany book for flower and seed structures




USDA Handbook 30:
Manual for Testing Agricultural and Vegetable Seeds




USDA Handbook 219:
Identification of Crop and Weed Seeds



# Written Exams

6.3 Moisture and aeration. — The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times. When appropriate, gently pressing seeds into the germination media helps ensure adequate seed-to-media contact to allow for adequate and timely imbibition. Avoid supplying excessive moisture that will restrict aeration of the seeds. Except as provided for those kinds of seeds requiring high moisture levels in the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds, blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger. See section 6.9b.

Fill in the blank:

> The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds _____.

# Written Exams

6.3 Moisture and aeration. — The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times. When appropriate, gently pressing seeds into the germination media helps ensure adequate seed-to-media contact to allow for adequate and timely imbibition. Avoid supplying excessive moisture that will restrict aeration of the seeds. Except as provided for those kinds of seeds requiring high moisture levels in the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds, blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger. See section 6.9b.

Multiple choice:

The substratum must be moist enough and provide adequate seed-to-media contact to:

a. supply the needed moisture to the seeds at all times
b. ensure seeds have more than adequate moisture for seed imbibition
c. prevent excessive oxygen absorption, oxidation, by the seeds

# Written Exams

6.3 Moisture and aeration. — The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times. When appropriate, gently pressing seeds into the germination media helps ensure adequate seed-to-media contact to allow for adequate and timely imbibition. Avoid supplying excessive moisture that will restrict aeration of the seeds. Except as provided for those kinds of seeds requiring high moisture levels in the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds, blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger. See section 6.9b.

True or false:

The substratum must be moist enough and provide adequate seed-to-media contact to prevent excessive oxygen absorption by the seeds.

a. True
b. False

The substratum must be moist enough and provide adequate seed-to-media contact to provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times.

a. True
b. False

# Written Exams

6.3 Moisture and aeration. — The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times. When appropriate, gently pressing seeds into the germination media helps ensure adequate seed-to-media contact to allow for adequate and timely imbibition. Avoid supplying excessive moisture that will restrict aeration of the seeds. Except as provided for those kinds of seeds requiring high moisture levels in the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds, blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger. See section 6.9b.

True or false:

The substratum must be moist enough and provide adequate seed-to-media contact to prevent excessive oxygen absorption by the seeds.

a. True

**b. False**

If a true or false question is – False; you must give an explanation of why it is False:

*The moisture level, and seed-to-media contact is to ensure the seed has the needed moisture at all times.*

# Written Exams

6.3 Moisture and aeration. — The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times. When appropriate, gently pressing seeds into the germination media helps ensure adequate seed-to-media contact to allow for adequate and timely imbibition. Avoid supplying excessive moisture that will restrict aeration of the seeds. Except as provided for those kinds of seeds requiring high moisture levels in the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds, blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger. See section 6.9b.

Short answer:

How much water should be added to the substratum when planting seed?

# Written Exams

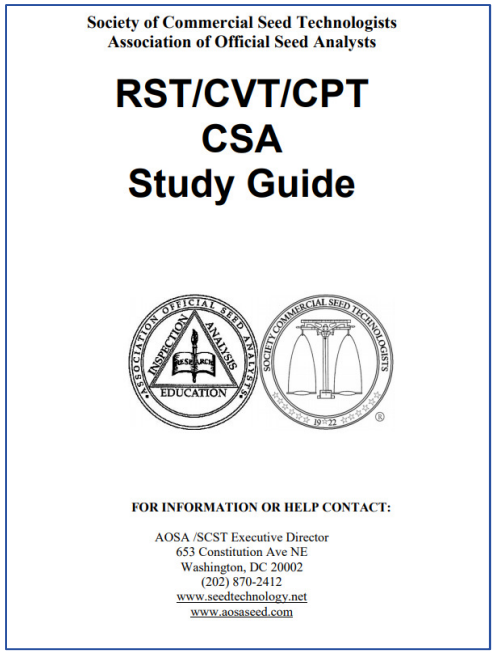
6.3 Moisture and aeration. — The substratum must be moist enough and provide adequate seed-to-media contact to supply the needed moisture to the seeds at all times. When appropriate, gently pressing seeds into the germination media helps ensure adequate seed-to-media contact to allow for adequate and timely imbibition. Avoid supplying excessive moisture that will restrict aeration of the seeds. Except as provided for those kinds of seeds requiring high moisture levels in the germination media, the substrata should never be so wet that a film of water is formed around the seeds. For most kinds of seeds, blotters or other paper substrata should not be so wet that by pressing, a film of water forms around the finger. See section 6.9b.

Short answer:

How much water should be added to the substratum when planting seed?

*There should be adequate water to provide seed to media contact to ensure the seeds have all the water they need throughout the germination test, but not so much that a wet film forms around the seed.*

# Written Exams




## Timing and knowledge

There is no spare time to “figure things out” during the written exams.

If you are unsure of a question, move on to the next and come back to it if you have time.

# Written Exams

Grading the Written Exams is done by four volunteers from the consolidated exam committee.

Exams are coded and grading is anonymous.

One person coordinates the graders results and any question(s) showing a significant difference in scores between graders will be reviewed until a consensus is met.

The scores of the four graders are averaged for a final score.

# Written Exams

Depending on the number of exams to score, the work load of the volunteers, and coordination efforts, please allow 6 weeks for grading.

# Germination Written

Germination Written exam will include questions on Pure Seed Units

¿why?

# Germination Written

Historically

| AOSA | | | | SCST | | | |
|---|---|---|---|---|---|---|---|
| two exams | | | | one exam | | | |
| take Germination written and practical | CSA-G | take Purity written and Practical | CSA-P | take Germination and purity written and Germination practical | CVT | take Purity written and practical | CPT |
| | | | | | | | |
| take Purity written and Practical | CSA-P | take Germination written and practical | CSA-G | | | | |
| | | | | take Purity practical | RST | take Germination written and practical | RST |
| Once you have both CSA-G and CSA-P | CSA | Once you have both CSA-P and CSA-G | CSA | | | | |

The Purity Written was required for the CVT to demonstrate that a candidate had a good working knowledge of what a PSU was and that the candidate was competent in planting seed.

# Germination Written

## Pure Seed Unit Evaluation Scoring

1 point for correctly evaluating the “unit” as Pure Seed or as Inert Matter

# Germination Written

## Pure Seed Unit Evaluation


| Pure Seed/Inert Matter | Points |
|---|---|
| 1. Pure Seed | 1 |
| 2. Pure Seed | 1 |

# Purity Written

## MSU Calculation

**Table 3B. Factors to apply to multiple units[a]**

| Percent of | Crested | Pubescent | Intermediate | Tall | Western | Smooth |
|---|---|---|---|---|---|---|
| 90.01-100.00 | 0.79 | 0.70 | 0.82 | 0.70 | 0.74 | 0.85 |

[a] The factors represent the portion of the multiple unit weights considered pure seed.

[b] Includes both *Agropyron cristatum* and *A. desertorum*.

[c] Dashes in table indicate that no factors are available at the levels shown. For evaluation refer to AOSA News Letter 60(1):10 (February 1986).

Show your math!

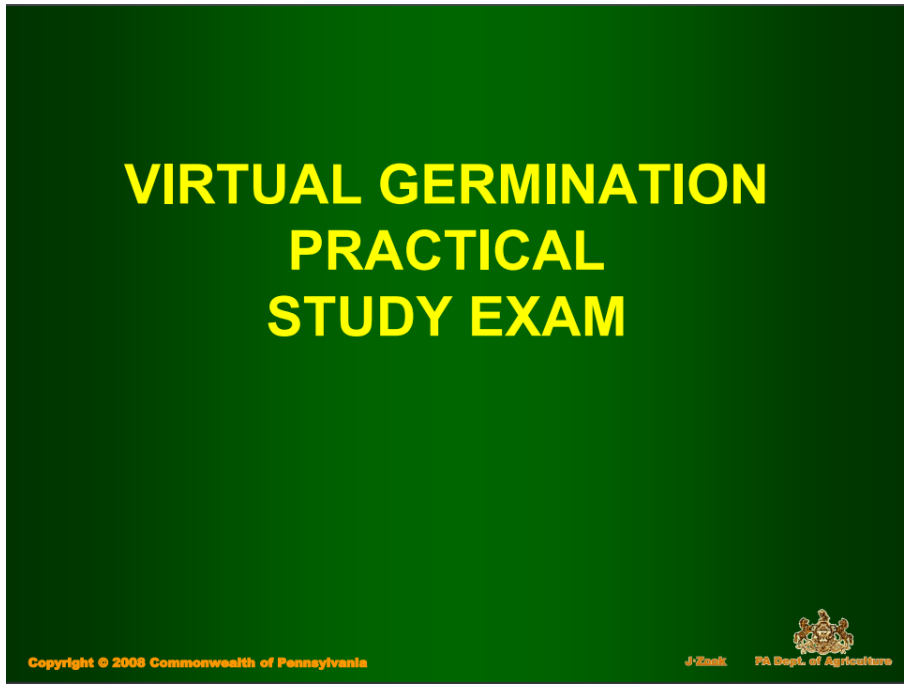
# Germination Practical

## Seedling Evaluation

## TZ Evaluation

# Germination Practical

## Seedling Evaluation



# Germination Practical

## Seedling Evaluation

2a. Slight "knee" visible.

2b. No "knee" visible.

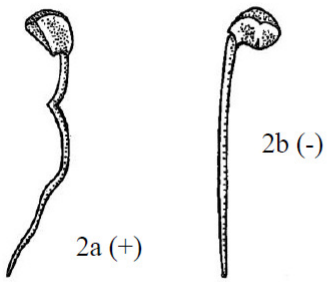



**Fig. 2 Cotyledon "knee".**

3a. Slightly stubby root.

3b. Stubby root, with adventitious roots started.

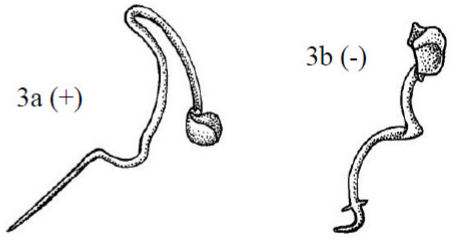



**Fig. 3 Root defects.**

# Germination Practical

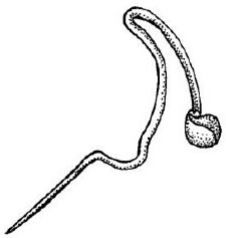
## Seedling Evaluation Scoring

1 point for correctly evaluating a normal seedling

0.5 point for correctly evaluating an abnormal seedling
plus
0.5 point for correctly explaining the abnormal condition

# Germination Practical

## Seedling Evaluation

| | | Explanation | Points |
|---|---|---|---|
|  | N | | 1 |
|  | AB | ~~One or more essential structures damaged or missing~~ | 0.5 |

# Germination Practical

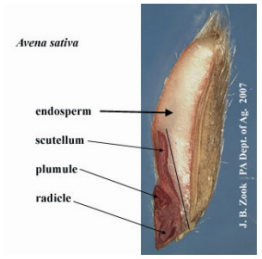
## TZ Evaluation

https://www.analyzeseeds.com/aosascst-tetrazolium-committee/

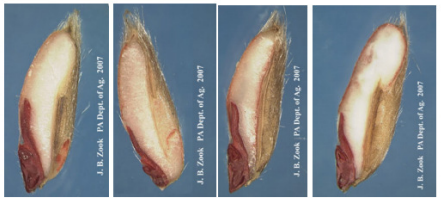
***Avena* TZ images:**

Johnny Zook, Seed Analyst I, PA Dept. of Agriculture, 2301 North Cameron Street
Harrisburg, PA 17110-9408, jzook@state.pa.us 717.787.4894

**Anatomy:**



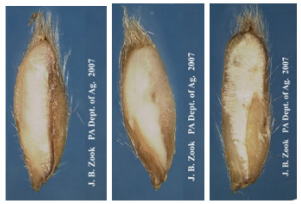

**Viable: fully stained**



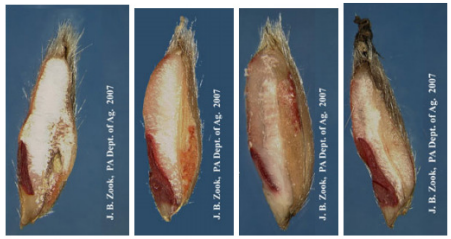

***Avena sativa***

Johnny Zook, Seed Analyst I, PA Dept. of Agriculture, 2301 North Cameron Street
Harrisburg, PA 17110-9408, jzook@state.pa.us 717.787.4894

**nonviable: no stain**

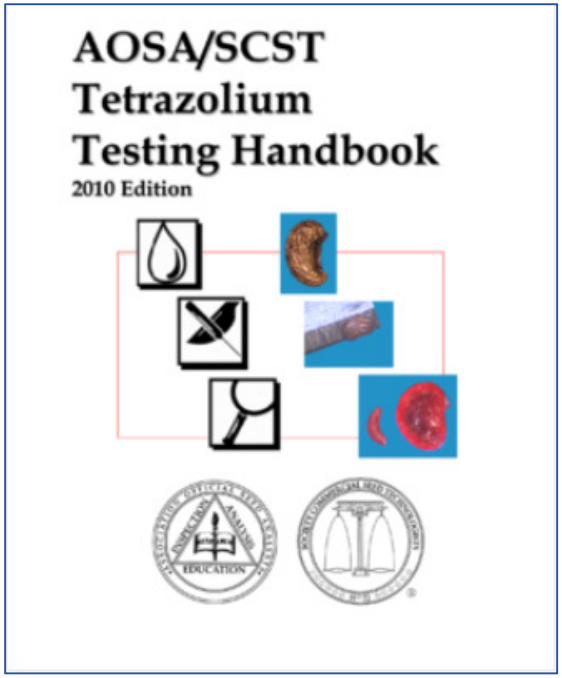



**nonviable: some essential structures unstained**



# Germination Practical

## TZ Evaluation



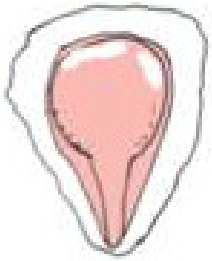
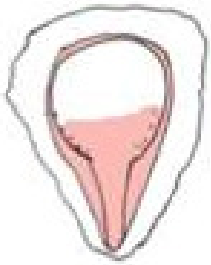
# Germination Practical

## TZ Evaluation Scoring

0.5 point for correctly evaluating the seed as Viable or Non-viable
0.5 point for correctly describing the Viable or Non-viable

# Germination Practical

## TZ Evaluation

| | | Explanation | Points |
|---|---|---|---|
|  | V | Radical stained; more than 50% of cotyledons stained, and the unstained areas away from attachment point | 1 |
|  | NV | Less than 50% of cotyledons stained | 1 |

# Germination Practical

A good metric to measure your readiness to take the Germination Practical exam is;

Can you score 80% or higher by quizzing yourself on images from Seedling Evaluation Handbook, online TZ photos, and online Seedling Evaluation Study exam?

# Purity Practical

Mixing and Dividing
Uniform Blowing Procedure
PSU and MSU classification
Seed ID
Separations
Purity Sample

# Purity Practical

## Mixing and Dividing

**Mixing and Dividing Checklist**

| | |
|---|---|
| Correct AOSA weight for seed kind | |
| Bubble check | |
| Clean equipment with air hose (or equivalent) before use | |
| Sample passed through divider 3 times before division reduction | |
| Pour centrally and together (for motorized dividers, the power should be off when pouring) | |
| Keep containers under shoots when pouring or mixing/dividing | |
| Divide down to approximate, but not less than, Noxious portion | |
| Divide down to approximate, but not less than, Purity portion | |
| Clean equipment with air hose air (or equivalent) | |
| Lab Practices * Cleanliness | |
| Lab Practi Sample ca | |
| | |

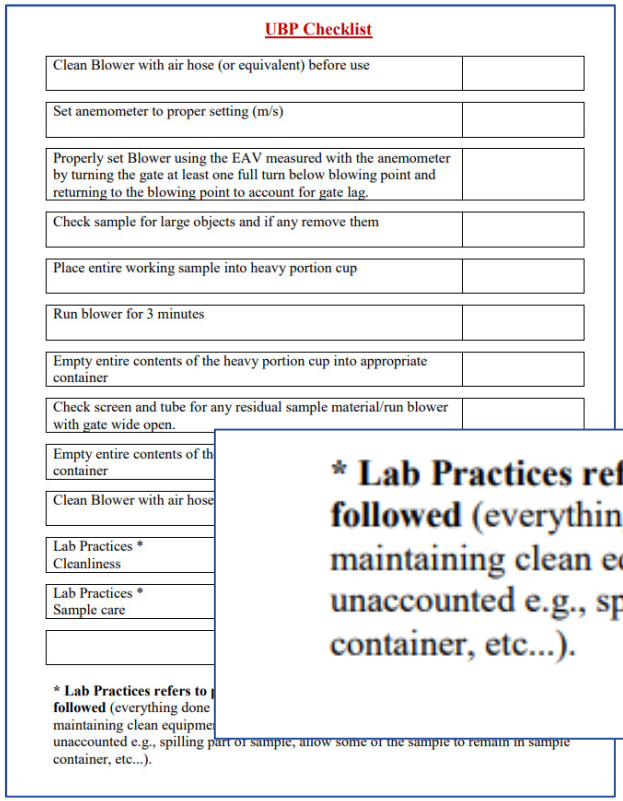
*** Lab Pra followed (** maintaining clean equipment and surfaces and or allowing part of the sample to go unaccounted ie spilling part of sample, allow some of the sample to remain in sample container, etc...).

**** Pouring or Pinching** a small amount of seed from the bulk or pans to achieve correct working weight is ***automatic failure*** of this portion (i.e., a score of Zero out of five).

**** Pouring or Pinching** a small amount of seed from the bulk or pans to achieve correct working weight is ***automatic failure*** of this portion (i.e., a score of Zero out of five).

# Purity Practical

## Uniform Blowing Procedure



**UBP Checklist**

| | |
|---|---|
| Clean Blower with air hose (or equivalent) before use | |
| Set anemometer to proper setting (m/s) | |
| Properly set Blower using the EAV measured with the anemometer by turning the gate at least one full turn below blowing point and returning to the blowing point to account for gate lag. | |
| Check sample for large objects and if any remove them | |
| Place entire working sample into heavy portion cup | |
| Run blower for 3 minutes | |
| Empty entire contents of the heavy portion cup into appropriate container | |
| Check screen and tube for any residual sample material/run blower with gate wide open. | |
| Empty entire contents of th container | |
| Clean Blower with air hose | |
| Lab Practices * Cleanliness | |
| Lab Practices * Sample care | |
| | |

*** Lab Practices refers to p followed** (everything done maintaining clean equipme unaccounted e.g., spilling part of sample, allow some of the sample to remain in sample container, etc...).

*** Lab Practices refers to proper over all work practice: Were standard lab practices followed** (everything done cleanly and entire sample accounted for) **or not** (not maintaining clean equipment and surfaces and or allowing part of the sample to go unaccounted e.g., spilling part of sample, allow some of the sample to remain in sample container, etc...).

# Purity Practical

## PSU and MSU classification

**You are conducting a purity analysis on a sample of red fescue. The state into which the seed will be shipped does not consider any of the contaminating species given below as noxious.**

a. You are to classify the following 15 items. Based on the information provided below from Volume 3, Uniform Classification of Weed and Crop Seeds and your knowledge of AOSA Rules Volume 1 related to purity analyses, you are to classify each item as one of the following: pure seed (P), inert matter (I), other crop seed (C), or weed seed (W). *Circle your answer.*

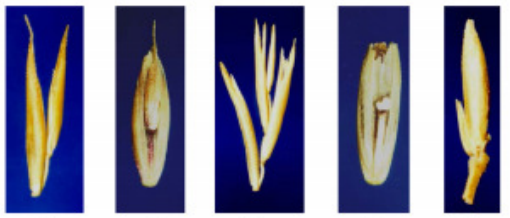
| NOBEN # | SCIENTIFIC NAME | COMMON NAME | FAMILY | SPP. CLASS | CONTAMINATING CLASSIFICATION | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | F | H | R | S | T | V |
| 2017 | *Agrostis capillaris* L. | bentgrass, colonial | Poaceae | T | C | C | C | C | C | C | C |
| 316592 | *Brassica rapa* L. var. *rapa* | rape, annual turnip; rape, biennial turnip; rape, bird; turnip | Brassicaceae | A, V | C | W | W | W | W | W | C |
| 7326 | *Bromus hordeaceus* L. | brome, blando chess, soft | Poaceae | R | W | W | W | C | W | W | W |
| 300215 | *Festuca rubra* L. subsp. *rubra* | fescue, creeping red; fescue,red | Poaceae | T | C | C | C | C | C | C | C |
| 23494 | *Lolium perenne* L. | ryegrass, perennial | Poaceae | A, T | C | C | C | C | C | C | C |
| 23813 | *Medicago lupulina* L. | medic, black | Fabaceae | A | C | W | W | C | W | C | C |
| 28926 | *Poa bulbosa* L. | bluegrass, bulbous | Poaceae | A | W | W | W | W | W | W | W |
| 28996 | *Poa pratensis* L. | bluegrass, Kentucky | Poaceae | T | C | C | C | C | C | C | C |
| 40219 | *Trifolium dubium* Sibth. | clover, small hop; clover, suckling; shamrock, Irish | Fabaceae | A, F | W | C | W | W | W | W | W |

1. P I C W 2. P I C W 3. P I C W 4. P I C W 5. P I C W

6. P I C W 7. P I C W 8. P I C W 9. P I C W 10. P I C W

11. P I C W 12. P I C W 13. P I C W 14. P I C W 15. P I C W

b. The following five items were taken from the pure seed portion of the working sample and each contains a caryopsis. Classify each item as either a single seed unit (S) or a multiple seed unit (M). *Circle your answer.* (5 points – 1 point per item)



16 17 18 19 20

16. S M
17. S M
18. S M
19. S M
20. S M

c. You have completed your purity separation and the component weights are given below. Based on the information provided, calculate the percentages of pure seed, other crop seeds, inert matter and weed seeds. *Please show your work.* (5 points)

# Purity Practical

## Seed ID

**SEED IDENTIFICATION LIST - Sort by Scientific Name**

| Family | Scientific Name | Common Names |
|---|---|---|
| Malvaceae | *Abelmoschus esculentus* | okra |
| Pinaceae | *Abies concolor* | white fir |
| Malvaceae | *Abutilon theophrasti* | butterprint, velvetleaf |
| Euphorbiaceae | *Acalypha virginica* | three-seeded mercury |
| Sapindaceae | *Acer rubrum* | red maple |
| Asteraceae | *Achillea millefolium* | common yarrow, woolly yarrow |
| Poaceae | *Achnatherum hymenoides* | Indian ricegrass |
| Poaceae | *Aegilops cylindrica* | jointed goatgrass |
| Fabaceae | *Aeschynomene indica* | ding ding, curly indigo, Indian jointvetch, northern jointvetch, sensitive jointvetch |
| Poaceae | *Agropyron desertorum* | standard crested wheatgrass |
| Caryophyllaceae | *Agrostemma githago* | corncockle |
| Poaceae | *Agrostis capillaris* | colonial bentgrass |
| Amaryllidaceae | *Allium cepa* | onion |
| Amaryllidaceae | *Allium porrum* | leek |
| Amaryllidaceae | *Allium schoenoprasum* | chives |
| Amaryllidaceae | *Allium vineale* | wild garlic |
| Poaceae | *Alopecurus geniculatus* | water foxtail |
| Poaceae | *Alopecurus pratensis* | meadow foxtail |
| Amaranthaceae | *Amaranthus albus* | tumble pigweed |
| Asteraceae | *Ambrosia artemisiifolia* | common ragweed |
| Asteraceae | *Ambrosia trifida* | giant ragweed |
| Boraginaceae | *Amsinckia tessellata* | western fiddleneck |
| Poaceae | *Andropogon gerardi* | big bluestem |
| Apiaceae | *Anethum graveolens* | dill |
| Asteraceae | *Anthemis arvensis* | field chamomile |

# Purity Practical

## Seed ID Scoring

2 points for correct species name (genus and specific epithet) or correct complete common name

1 point for correct genus

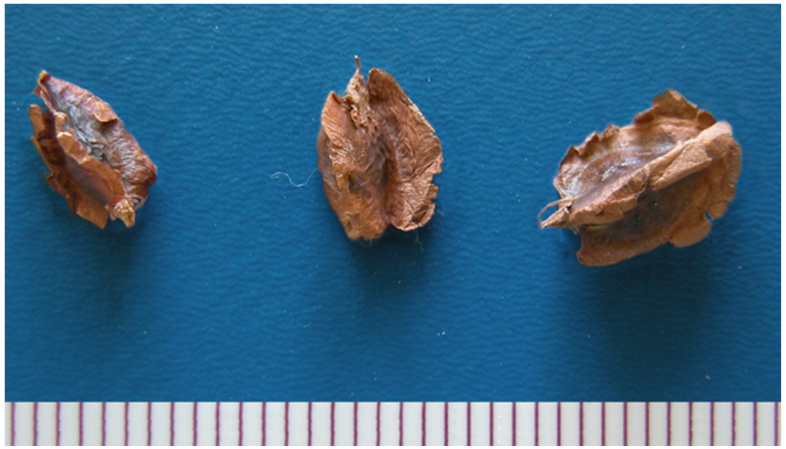
0.5 point for correct Family name

# Purity Practical

## Seed ID

Points

0.5



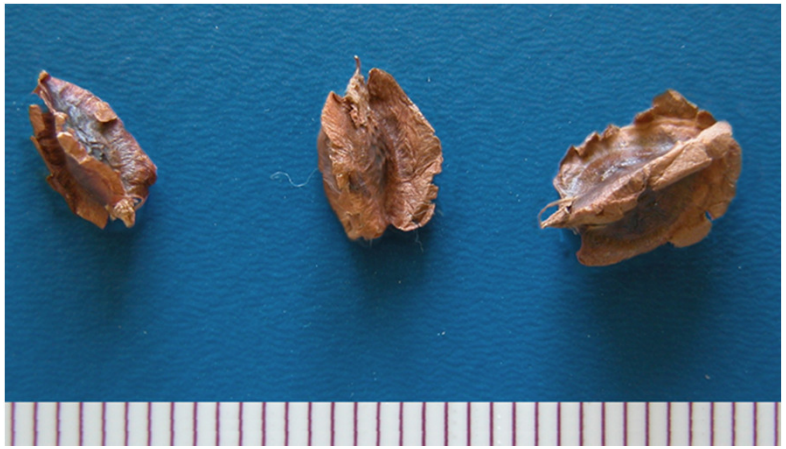
Polygonaceae

# Purity Practical

## Seed ID

Points

1



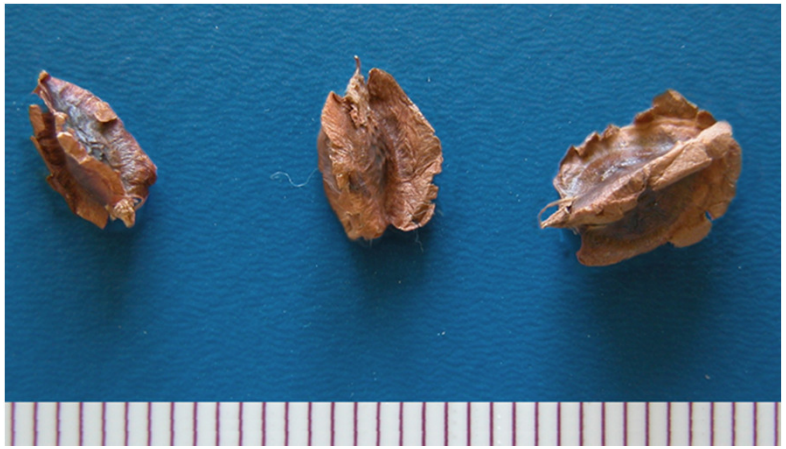
*Rheum* _____

# Purity Practical

## Seed ID

Points

2



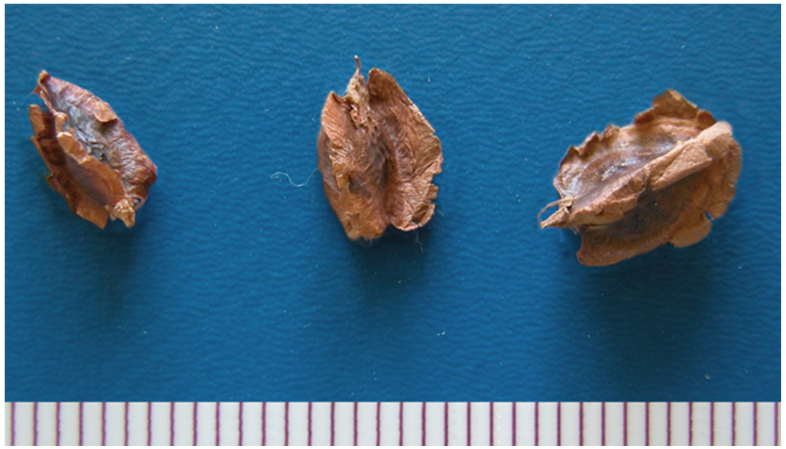
*Rheum x rhabarbarum*

# Purity Practical

## Seed ID

Points

2



*Rhubarb*

# Purity Practical

Seed ID

Points

0


¿Why zero points?

# Purity Practical

*"Medicago"* plus "*lupulina"* is Black medic
*"Medicago" plus* "*sativa"* is Alfalfa

They may be closely related, but they are two different species.

Some may say, but I got the genus correct!

To know someone's thought process is impossible.

What if someone sees a Black medic seed and writes down "*Medicago sativa"?*
Was it because they thought it was *Medicago sativa*
or did they just mix up the specific epithet?

What if someone sees a Black medic seed and think it's a Yellow sweetclover and writes down "*Medicago officinalis"* because they were thinking "*Medicago officinalis"* is the correct species name for Yellow sweetclover (*Melilotus officinalis*)?

If you are unsure of the species name; it's better to answer with the genus name instead.

# Purity Practical

## Separations

A candidate will be provided FIVE “mixtures” with 25 seeds each.
Select any **TWO** mixtures; separate, identify and give the number of each species found.
Use common or scientific names.

# Purity Practical

## Separations Scoring

1 point for correct species name (genus and specific epithet) or correct complete common name x number of seeds

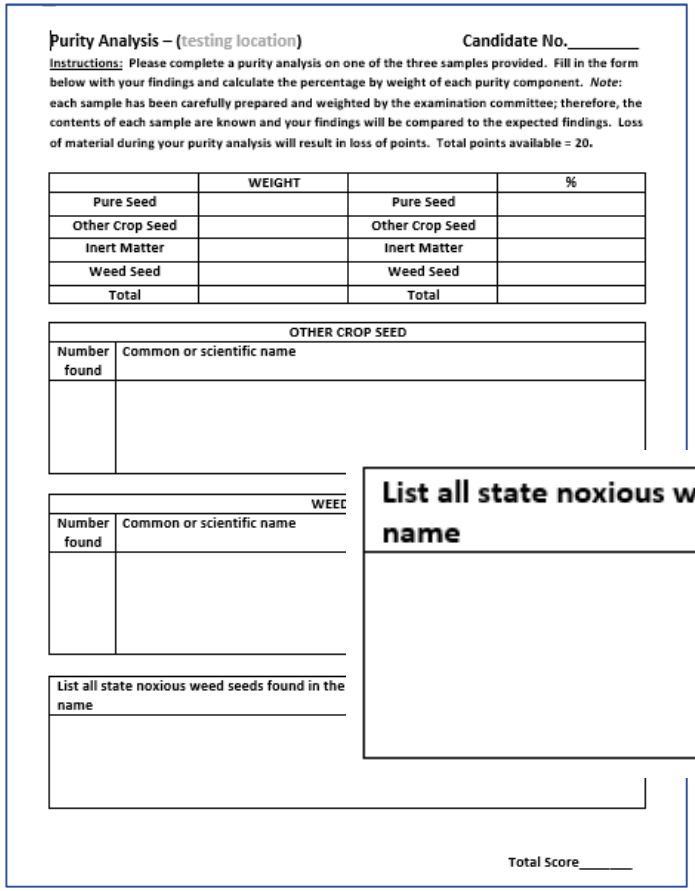
0.5 point for correct genus x number of seeds

# Purity Practical

## Separations

| Separation | | Separation answers | | Points | | | | |
|---|---|---|---|---|---|---|---|---|
| Kind | Number | Kind | No. Found | | | | | |
| Alsike clover/Trifolium hybridum | 6 | Alsike clover | 6 | 1 | x | [6] | = | 6 |
| Alfalfa/Medicago sativa | 5 | Alfalfa | 8 | 1 | x | [5] | = | 5 |
| Black medic/Medicago lupulina | 4 | *Medicago indicus* | 3 | 0 | x | [0] | = | 0 |
| Subclover/Trifolium subterraneum | 4 | *Trifolium* | 3 | 0.5 | x | [3] | = | 1.5 |
| Birdsfoot trefoil/Lotus corniculatus | 4 | Birdsfoot trefoil | 4 | 1 | x | [4] | = | 4 |
| Yellow sweetclover/Medicago officinalis | 2 | | | | | | | |
| Total | 25 | Total | 24 | Total | | | | 16.5 |

# Purity Practical



Purity Analysis – (testing location) Candidate No._____

Instructions: Please complete a purity analysis on one of the three samples provided. Fill in the form below with your findings and calculate the percentage by weight of each purity component. *Note*: each sample has been carefully prepared and weighted by the examination committee; therefore, the contents of each sample are known and your findings will be compared to the expected findings. Loss of material during your purity analysis will result in loss of points. Total points available = 20.

| | WEIGHT | | % |
|---|---|---|---|
| Pure Seed | | Pure Seed | |
| Other Crop Seed | | Other Crop Seed | |
| Inert Matter | | Inert Matter | |
| Weed Seed | | Weed Seed | |
| Total | | Total | |

| OTHER CROP SEED | |
|---|---|
| Number found | Common or scientific name |
| | |

| WEED | |
|---|---|
| Number found | Common or scientific name |
| | |

| List all state noxious weed seeds found in the name |
|---|
| |

Total Score_____

## Purity Sample

You will have three species to choose from to conduct a purity analysis.

| List all state noxious weed seeds found in the purity analysis by common name or scientific name |
|---|
| |

# Purity Practical

## Purity Sample Scoring

Points are awarded for doing things correctly

(unless you don’t maintain sample integrity- then minus 1 point)

# Purity Practical

Seed ID
Separations
Purity Sample

All rely on proper taxonomic seed identification

# Purity Practical 205 Points

| | | |
|---|---|---|
| Seed ID | 100 | points |
| Separations | 50 | points |
| Purity Sample | 20 | points |
| | 170 | points |

or 82.93% of Purity Practical

164 points or 80% is needed to passed

# Purity Practical 205 Points

| | | |
|---|---|---|
| Seed ID | 100 | points |
| Separations | 50 | points |
| Purity Sample | 20 | points |

If you get the full points for M&D, UBP, and PSU and MSU classifications (35 points), you'd would need to score 75.88% (129 points) on the Seed ID, Separations, and Purity Analysis to pass the Purity Practical.

# Purity Practical  205 Points

A good metric to measure your readiness to take the Purity Practical exam is;

Can you score 80% or higher by identifying randomly selected seeds from the Seed Identification List?

# Germination Exam

- Written
  - 160 points
    - 150 written content
    - 10 PSU
  - **70% required**
    - 112 points
- Practical
  - 100 points
    - 90 seedling evaluation
    - 10 TZ
  - **80% required**
    - 80 points

## 80% average needed overall

- Written-70% (112p), practical-90% (90p)
- Written-80% (128p), practical-80% (80p)

# Purity Exam

- Written
  - 155 points
    - 130 written content
    - 25 Scientific name
  - **70% required**
    - 109 points
- Practical
  - 205 points
    - Mix and Divide, UBP - 15
    - Seed ID - 100
    - Separations - 50
    - Purity - 20
    - PSU/MSU - 20
  - **80% required**
    - 164 points

## 80% average needed overall

- Written-70% (109p), practical-90% (185p)
  - This would require 150/170 on seed ID, purity and separations, if M&D, UBP, and PSU/MSU points were 100%
- Written-80% (124p), practical-80% (164p)
  - This would require 129/170 on seed ID, purity and separations, if M&D, UBP, and PSU/MSU points were 100%

# ¿Questions?