

Germination

1. You are requested to test Soybean and Barley. The AOSA Rules for Testing Seed, Table 3., Methods for testing for laboratory germination, AGRICULTURAL SEEDS, provides the following information:

	Substrata	Temperature degree C.	First count days	Final count days	<u>Additional directions</u> See Sec. 4.2 and 4.9
<i>Glycine max</i> soybean	B,T,S TC	20-30; 25	5	8	Hard seeds: see sec. 4.2d and 4.9k(6).
<i>Hordeum vulgare</i> subsp. <i>vulgare</i> Barley	B,T,S	20,15	4	7	Fresh and dormant: Prechill 5 days at 5 deg. C. or 10 deg. C. or predry (refer to sec. 4.2g)

A.) When testing soybeans, your options of media are: (please spell out the names)

B _____, T _____, S _____,
TC _____

B.) How many days would the soybean germination test require to completion?
Always?

C.) When testing soybeans under alternate temperatures, how many hours should the
temperature remain at 20C. and how many hours at 30 C.? 20 C. _____,
30 C. _____

If you provide light, it should be on when the temperature is _____ C.

D.) If a customer submits a sample of freshly harvested barley, when can he/she
expect to know the germination percentage of the submitted sample? (suppose the
sample is planted on the same day as it arrives and results are reported as soon as they
are available?) _____ days.

4) Methods of testing (reference: table 3 AOSA Rules)

List the scientific name and all testing information:

- a) Common name: **Barley**
- b) Scientific name: _____
- c) Substrata: _____
- d) Temperature: _____
- e) First, final counts: _____

What is the listed final count? _____

Running a germ test with a pre-chill period would make the total number of days tested:

_____ days (assume normal first count)

- a) Common name: **Soybean**
- b) Scientific name: _____
- c) Substrata: _____
- d) Temperature: _____
- e) First, final count _____

How many days can swollen soybean seed be *extended*? _____

For the listed alternating temperatures, what temperature coincides with light?

How many hours spent without light? _____

4) Circle the letter(s) of the information that **must** be listed on the label of a bag of seed:

- a) Normal 80%
- b) Abnormal 15%
- c) Dead 1%
- d) Hard 4%

True or false

- ___ First counts for barley must always be done on the 4th day, exactly.
- ___ At the end of the prescribed test, swollen soybean seed can be extended a maximum of two days.
- ___ The germination test in barley can be performed under 20-30C alternating temperatures.
- ___ The germination test in soybean can be performed under 20-30C alternating temperatures.

2. Fill in the blanks

1. A germinating seedling that has been seriously damaged by fungi from any source other than the specific seed shall be considered _____ if it is determined that all essential structures are present.
2. The AOSA rules specify that we should plant at least _____ number of seeds in conducting a germination test. In mixtures, 200 seeds of those kinds present to the extent of _____ % or less may be used.
3. Seeds for germination should be taken from the _____
Component of the purity analysis; OR indiscriminately from a representative portion divided from the bulk if the _____ (same two word) is determined or estimated to be at least _____ percent of the sample.
4. List two advantages of a tetrazolium test over the regular germ test. a) _____
b) _____
5. How many normal seedlings have to grow from a multiple unit or multiple floret for the analyst to consider that it has germinated? _____
6. The pure seed components of a prairie grass mixture are: 85% Little bluestem; 12% Big bluestem. How many seeds of each component are you required to test?
Little Bluestem _____ Big bluestem _____

3. Define the following terms

Germination

Normal seedling

Abnormal seedling

Pre-chill

GERMINATION TESTING

1. Are these replications in tolerance?

a) Normal 99 89 88 79 AVG. =

Abn 1 11 10 14

Dead	0	0	2	7
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Tolerance:

Difference:

In tolerance?

B.) Normal 84 86 92 98 Average =

Abn	13	11	5	0
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Dead	3	3	3	2
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Tolerance:

Difference:

In tolerance?

2. Are these tests in tolerance? Original test: 91% 2nd test 82%

Average:

Tolerance:

Difference:

In tolerance?

3. List five circumstances when it is necessary to retest.

[illegible]