

Practice [REDACTED]
Germination
[REDACTED]

Section 1 : General [REDACTED]

1. Give a few facts concerning the history of seed testing, (a) including the rules and laws under which we operate and (b) the type and functions of laboratories.

2) Why are the rules for testing seed important?

3) Seed testing provides information for:

4) Information for seed testing is desired by:

5) If a sample requires special treatment or any deviation from the rules, how should this be handled?

6) What do you consider the qualifications of a good seed analysts?

7) If you are given a job of setting up a small lab for a small seed company that handled a variety of crops and vegetable seed, what equipment would you consider necessary?

8) What working conditions would you select as best light?

9) What reference materials should you have on hand?

10) How long should you keep samples on file after testing and what conditions would you consider best for the storage of these samples?

11) What information should be on your certificate of analysis?

12) What is the ultimate purpose in making a seed test?

[REDACTED]
[REDACTED]

Section 2: Sampling

- 1) Why should the analyst be familiar with sampling procedures?
- 2) Define a lot of seed:
- 3) How do you secure a representative seed sample?
- 4) What is the procedure for sampling free flowing seed?
- 5) What is the importance of individual bag samples?
- 6) How do you sample a lot of seed to test for uniformity?
- 7) Describe the construction and the use of a good trier:
- 8) What is the chief fault in using a thief trier?
- 9) How can seed be sampled during the cleaning and bulking process?
- 10) How can a farmer without equipment take a sample?
- 11) In sampling boxes of beans, what amount should you take?

12) How many bags should be sampled on lots

a) 6 bags

b) 10 bags

c) 279 bags

13) What are the approximate sizes for composite samples

a) grasses and small seed

b) Alfalfa, clover, fax etc.

c) Larger seed

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Section 3: Germination

- 1) In seed laboratory practice, how is germination defined?
- 2) What conditions are necessary for germination to take place?
- 3) What activities are started in seed as it begins to germinate?
- 4) Name the five (5) most commonly used constant and alternating germination temperatures:
- 5) Define a normal seedling:
- 6) Define an abnormal seedling:
- 7) List some causes for an abnormal seedling:
- 8) What special abnormalities should you watch for in counting tests of the following kinds of seed:
 - a) Radish
 - b) Watermelon
 - c) Corn
 - d) Sweet Clover
 - e) Onion
 - f) Red clover

9) Name the kinds of substrate listed in the rules as germination media:

10) What are the specifications for germination substrata?

11) Give a simple test for toxicity in germination substrata?

12) What is the general rule for moisture in blotters or other paper substrata for the germination of seed?

13) What is the proper use of a vacuum counter?

14) What is the approximate proper spacing of seed?

15) Give the general rules for counts during the germination period:

16) How many seed should be tested for germination (nonmixtures):

17) Give the source of seed for germination when:

a) A purity and germination test is required

b) When the pure seed appears to be less than 98%

c) When only a germination test is required

18) When can only 200 seeds be used for a germination test?

19) In germination tests, how are multiple seed units, such as beets, handled?

20) How should fungi infested test be treated?

Give special testing procedures for the following:

21) Alyce Clover

22) Bahiagrass

23) Beets

24) Buffelgrass

25) Cotton

26) Endive

27) Lettuce

28) Rice

True or False:

29) In Compositae, all ungerminated seed should be examined to determine if they are empty, dead or dormant.

30) Although endive and chicory are practically indistinguishable, endive may show extreme dormancy whereas chicory will not.

31) Citron must be soaked 6 hours before being placed in a test. Fresh and dormant seed should be tested at 30° C.

32) If dormancy is suspected in millets, remove the glumes and put back in the test. If the seed is dead, embryos will turn dark and decay.

33) Degluming is not specified in the rules for Pensacloa Bahiagrass.

34) In barely, oats rye, and wheat the shoot may be spirally twisted provided it is green and has normal length.

35) Germination substrata for cucurbits and sorghum should be on the dry side.

36) Temperature and scarification are present in the rules for overcoming dormancy in legumes.

37) Hard seed can occur in cotton, okra, clovers, vetch and cowpeas.

38) Tomato dormancy can be broken by light and KNO_3 .

39) The prechill time should be added to the total time given for germination.

40) What is dormancy?

41) What would lead one to think the seed is dormant?

42) Name at least three kinds of seed likely to show dormancy:

43) List methods for over coming dormancy:

44) Give five causes of dormancy

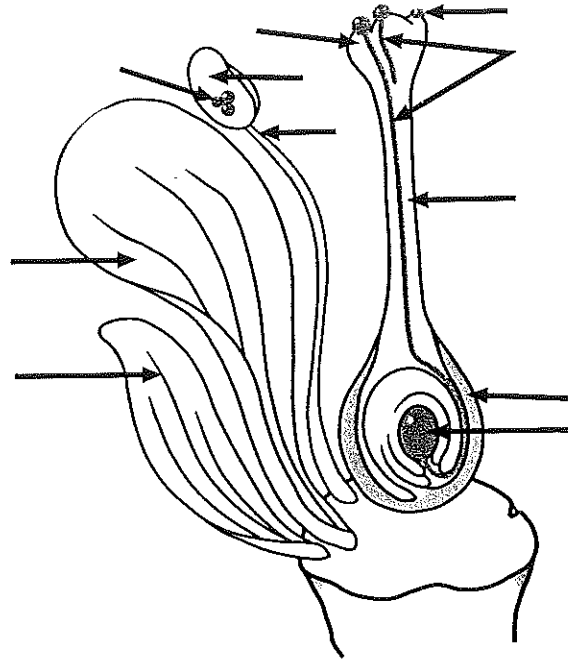
45) Define hard seed:

46) What causes variation in hard seed content?

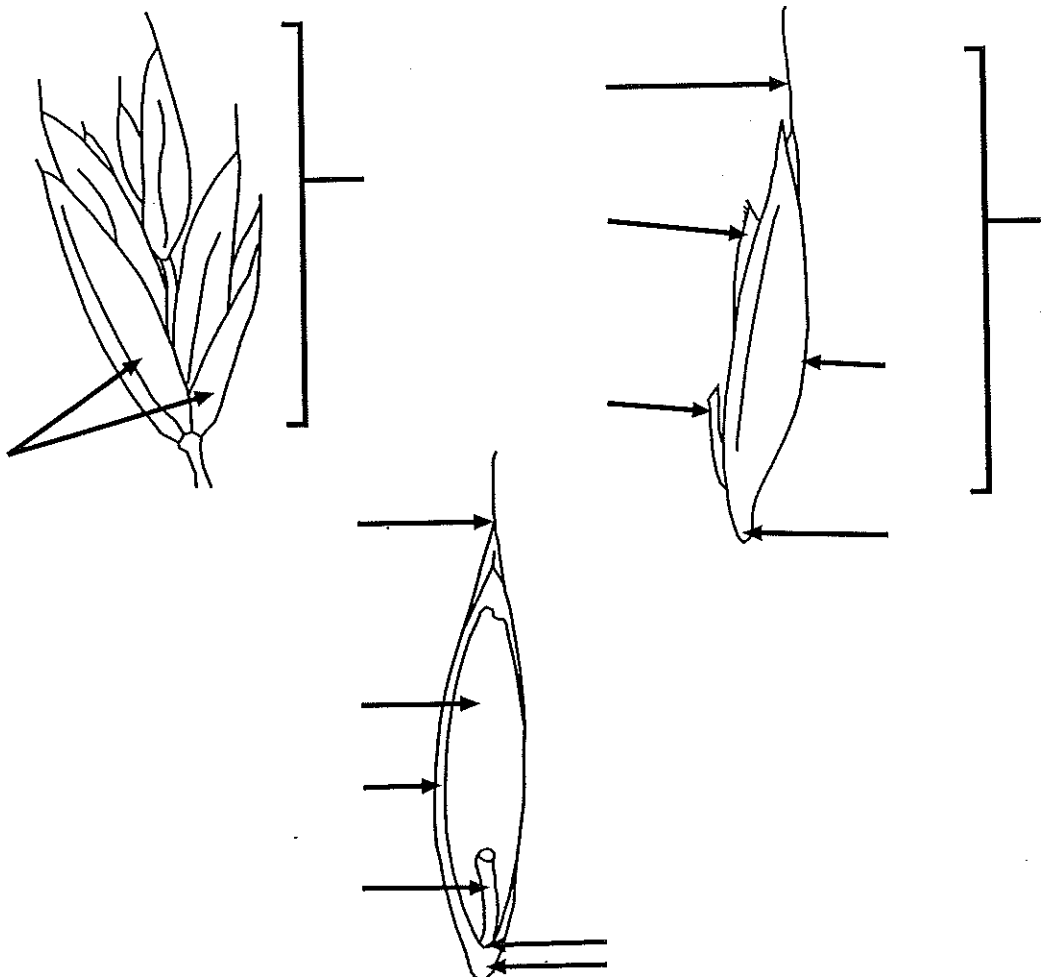
47-52 on attached pages



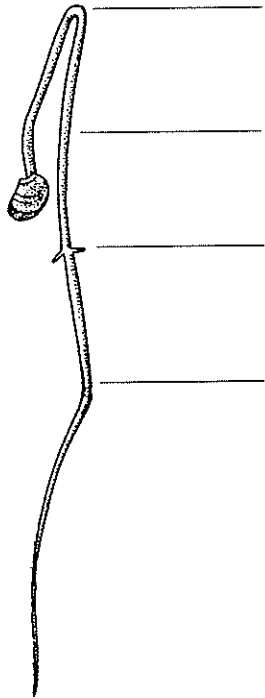
47) ID the flower parts



48) ID the spikelet parts

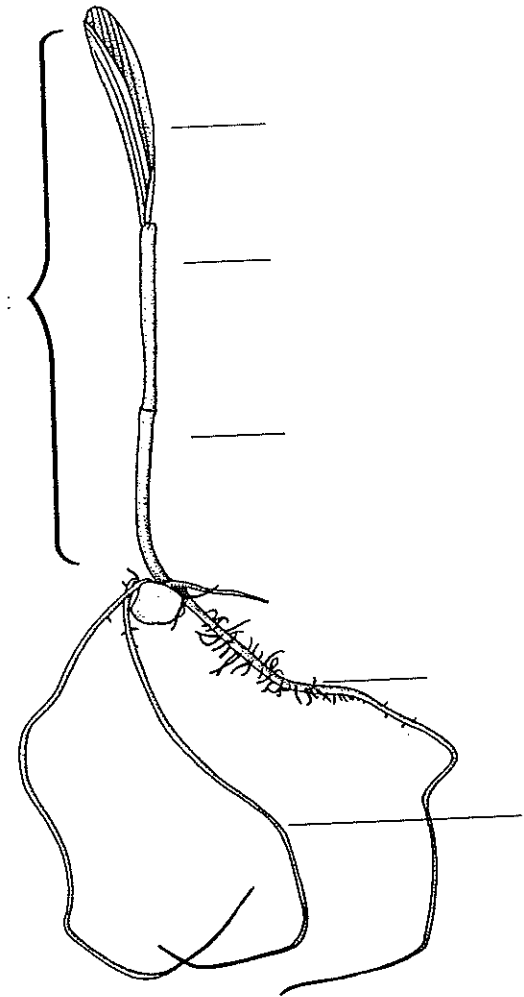


49) ID the seedling parts



50) ID the seedling parts

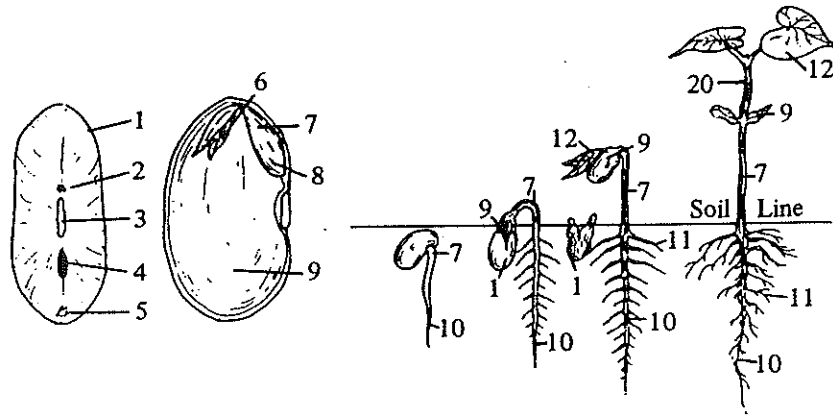
ONION



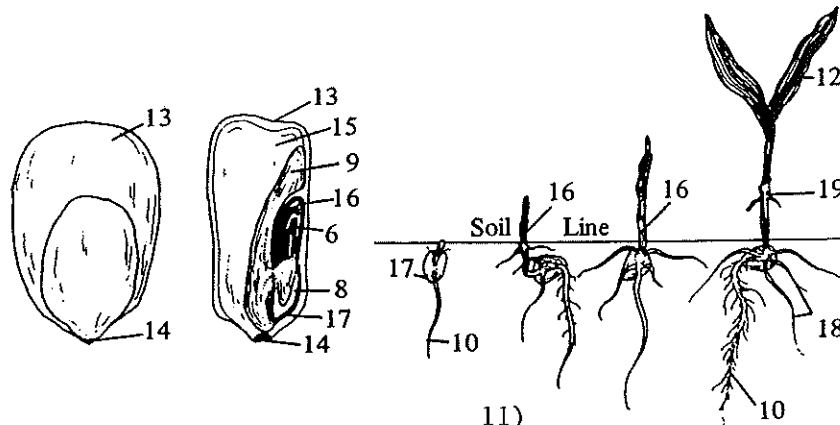
CORN

51) ID the numbered parts

A. Epigeal Germination of Bean Seed

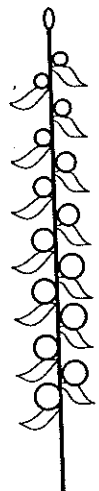
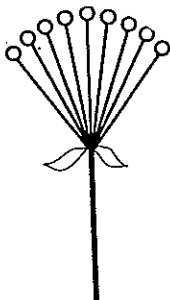
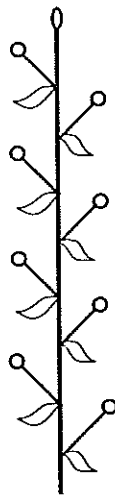
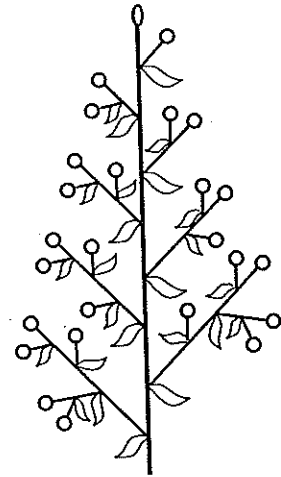
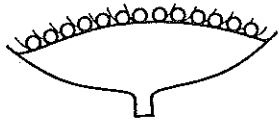


B. Hypogeal Germination of Corn Seed



- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)
- 10)

- 11)
- 12)
- 13)
- 14)
- 15)
- 16)
- 17)
- 18)
- 19)
- 20)



52) Name the types of inflorescence and give an example of a crop with this type of inflorescence.

Section 4: Federal Seed Act.

- 1) List for information necessary in complete records of the seed.
- 2) What is meant by the word hybrid?
- 3) How much must be kept of a sample for reference in interstate shipments?
- 4) What information is necessary on the label of seed for interstate shipment of both vegetable and field seed?
 - a)
 - b)
 - c)
 - d)
 - e)
 - f)
 - g)
 - h)
 - i)
 - j)
 - k)
- 5) What are the requirements on imported seed?
- 6) How may screenings be shipped in interstate commerce?

7) Define pure live seed.

8) Define kind.

9) Define variety

10) Define type

11) What is the jurisdiction of the Federal Seed Act concerned with and how does it cooperate with state agencies?