

Section 1. Fabaceae Family I – Field and Garden Beans

Classify the following images as normal seedling, abnormal seedling, or dead

1.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

2.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

3.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

4.



a. Normal Seedling

b. Abnormal Seedling

c. Dead



5.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

6.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

7.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

8.



a. Normal Seedling

b. Abnormal Seedling

c. Dead

9.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

10.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

11.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

12.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

13.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

14.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

15.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

16.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

17.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

18.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

19. Which of the following is not known to potentially cause an increase in abnormalities?

- a. watering mid test
- b. planting in sand
- c. seeds spaced very closely together
- d. rolling towels too tight

20. Which of the following are signs of mechanical damage?

- a. seedling with all essential structures present and intact
- b. detached cotyledons
- c. necrotic or decayed tissue
- d. damaged primary roots

21. Which of the following are signs of an abnormal epicotyl?

- a. two primary leaves
- b. terminal bud present
- c. superficial cracks
- d. malformed or thickened

22. Would the following seedling description be classified as normal or abnormal? A garden bean with a healed break in the hypocotyl.

- a. normal seedling
- b. abnormal seedling

23. Would the following seedling description be classified as normal or abnormal? A garden bean with no secondary or adventitious roots.

- a. normal seedling
- b. abnormal seedling

24. If there are swollen seeds remaining at the end of the germination test you are required to remove them and extend for an additional how many days?

- a. 4
- b. 3
- c. 2
- d. 5

Section 2. Fabaceae family II- Soybeans

Classify the following images as normal seedling, abnormal seedling, or dead

25.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

26.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

27.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

28.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

29.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

30.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

31.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

32.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

33.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

34.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

35.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

36.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

37.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

38.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

39.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

40.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

41.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

42.



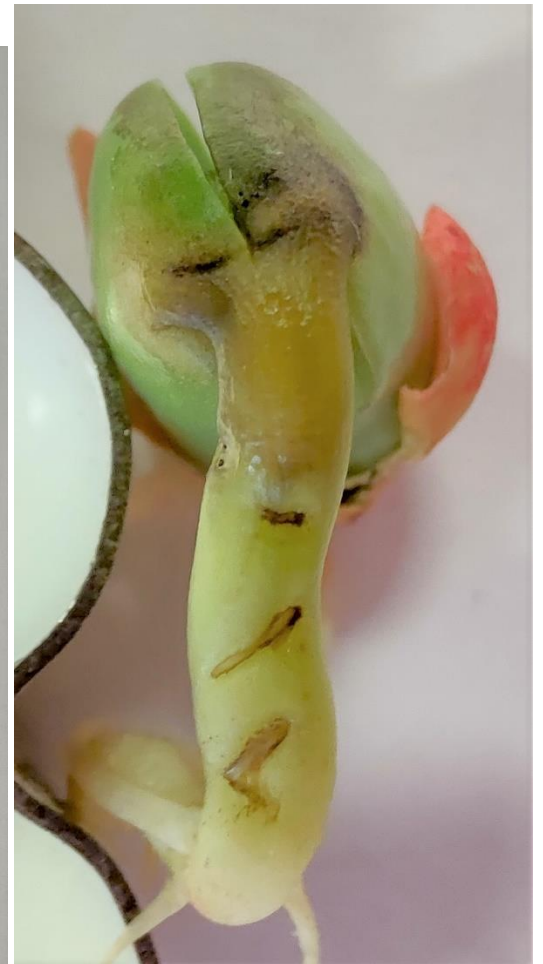
- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

43.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

44.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

45.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

46. What media is recommended to be used for retesting samples that have fungal issues?

- a. creped cellulose
- b. sand
- c. paper toweling
- d. blotters

47. At a minimum the hypocotyl should be _____ the size of one of the seedlings cotyledons.

- a. twice
- b. half
- c. same
- d. three times

48. What media can be known to cause to potential problems with soybean germs such as partial decay of the epicotyl and slow hypocotyl development?

- a. between blotters
- b. paper towelling
- c. organic media
- d. creped cellulose

49. When slow growth or substrate effects are observed, the germination test can be extended how many days?

- a. 3
- b. 4
- c. 2
- d. 5

50. Curling of the root and hypocotyl may be a symptom of what?

- a. too dry test conditions
- b. too wet test conditions
- c. seedlings placed too close together
- d. towels rolled too tightly

51. Adventitious roots at the site of a healed over injury are to be classified as:

- a. abnormal
- b. normal

52. Slow seedlings that contain all essential structures are to be classified as:

- a. abnormal
- b. normal

Section 3. Fabaceae family IV – Large Seeded Hypogeal

Classify the following images as normal seedling, abnormal seedling, or dead

53.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

54.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

55.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

56.



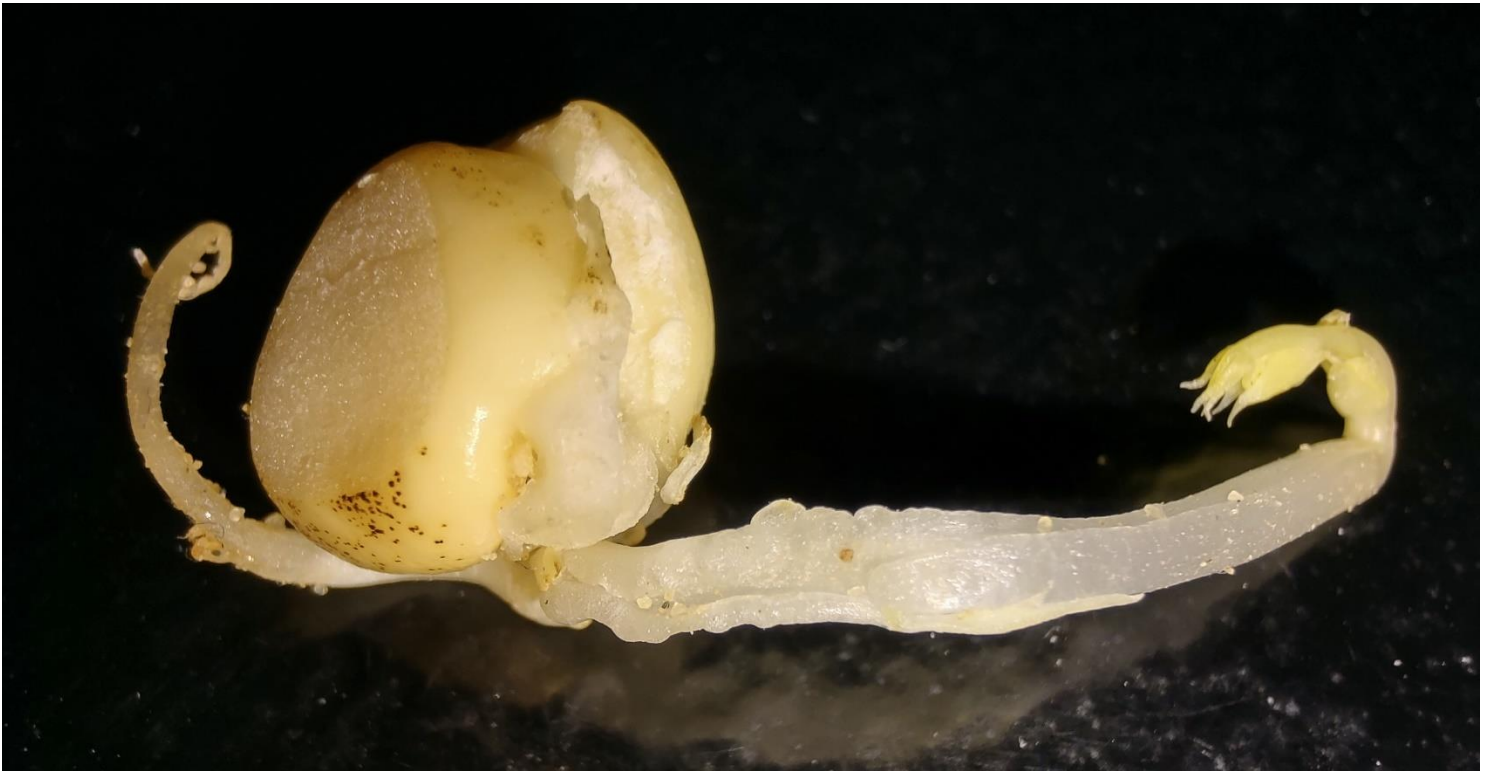
- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

57.



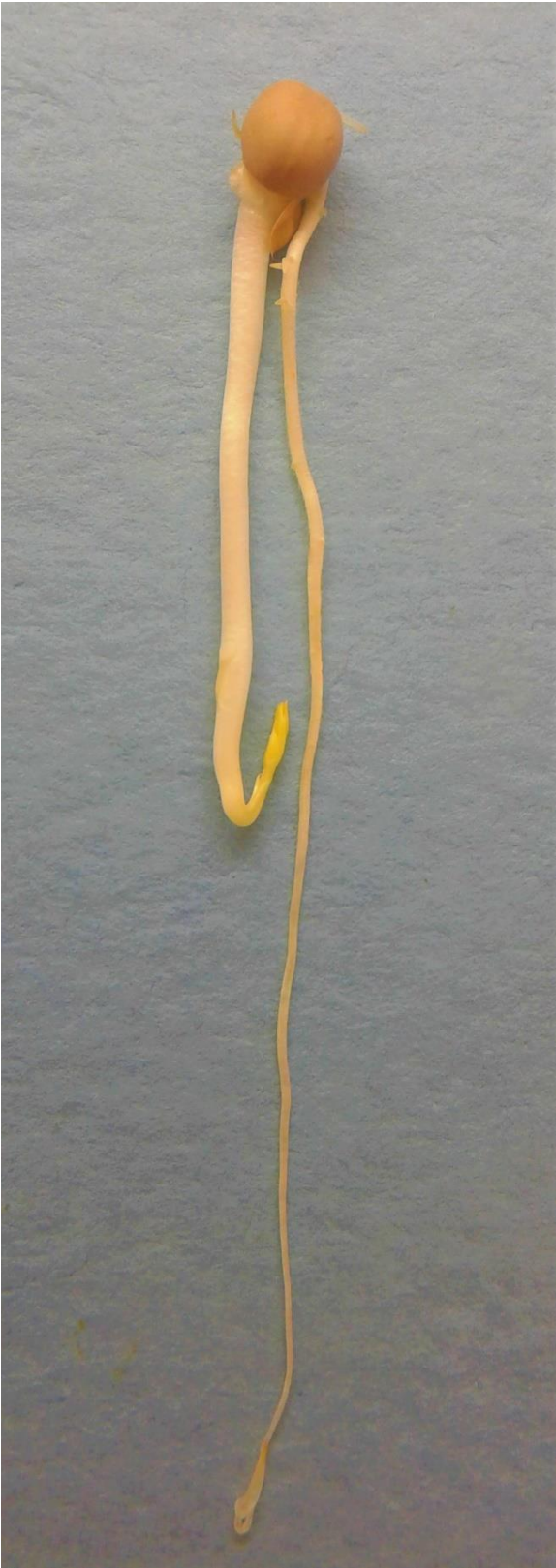
- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead





- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

59.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

60.



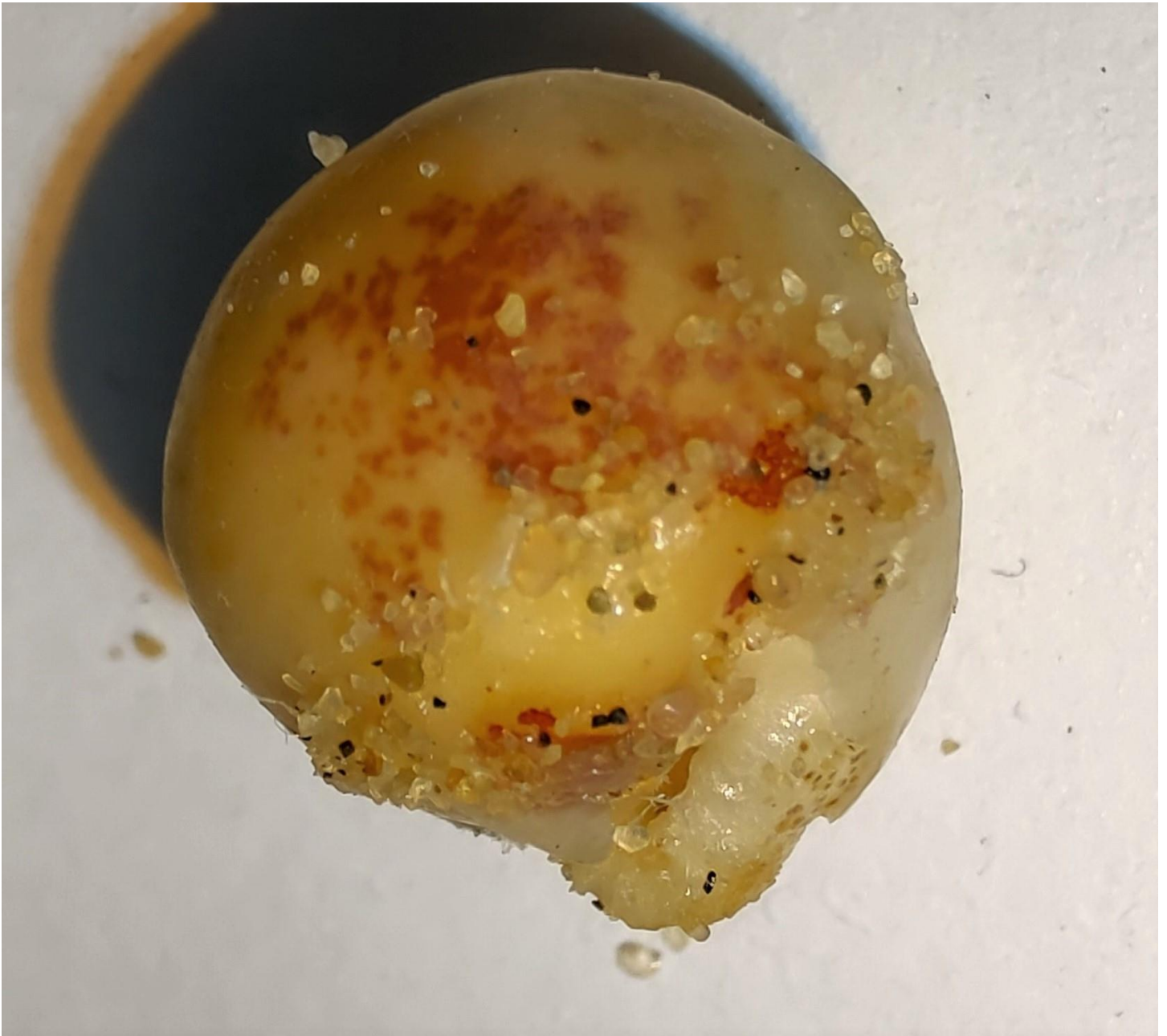
- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

61.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

62.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

63.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

64.



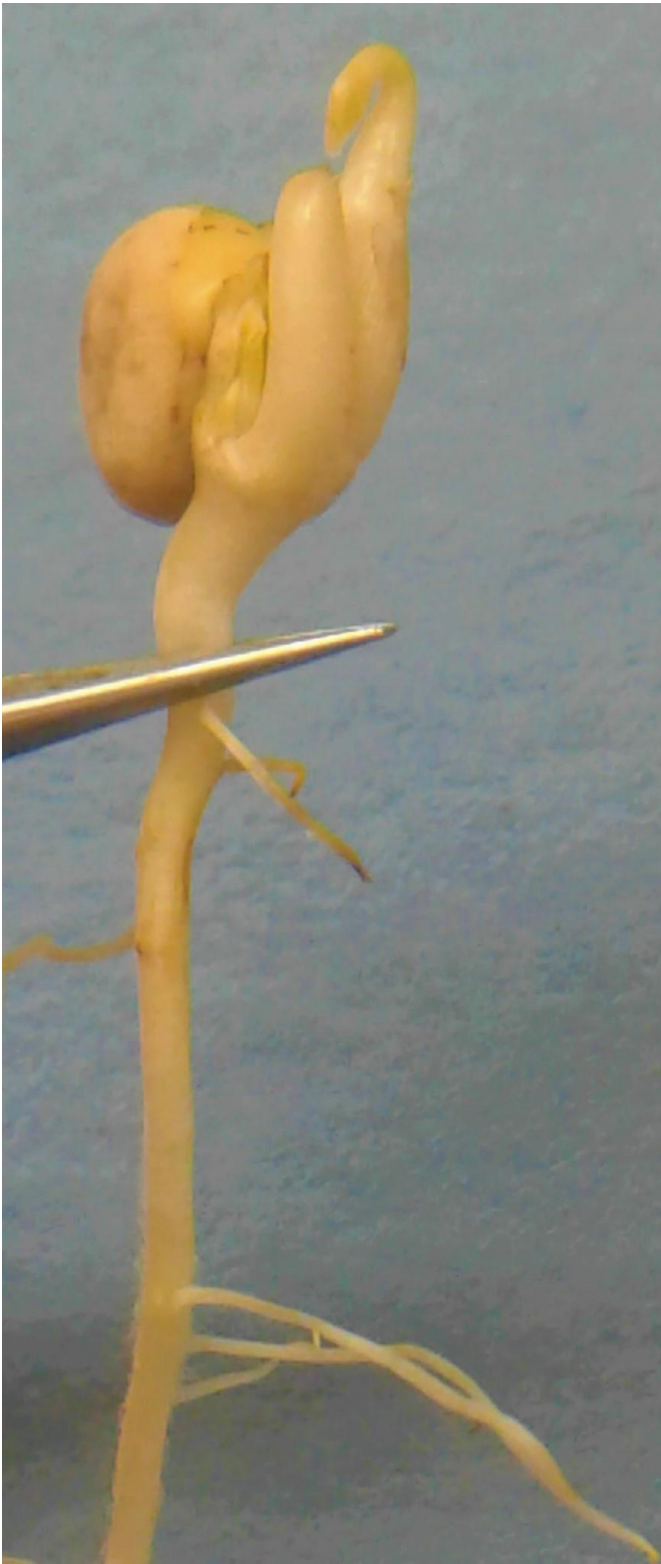
- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

65.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

66.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

67.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

68.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

69.



a. Normal Seedling

b. Abnormal Seedling

c. Dead

70.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

71. Assume the root is normal.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

72.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

73.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

74.



- a. Normal Seedling
- b. Abnormal Seedling
- c. Dead

75. What may cause a discolored brown indentation in the center of the inner surface of the cotyledons?

- a. calcium deficiency
- b. magnesium deficiency
- c. potassium deficiency
- d. Gibberellic acid

76. Hard seeds may be more likely to appear with which one of the following test conditions?

- a. too high of a temperature
- b. the use of gibberellic acid
- c. low moisture level
- d. too high of a moisture level

77. Insufficient water can slow the development of which structure?

- a. epicotyl
- b. cotyledons
- c. primary leaf
- d. hypocotyl

78. What percentage of the cotyledons must be affected by decay to be classified as abnormal?

- a. less than 25%
- b. more than 50%
- c. less than 50%
- d. more than 25%

79. The percentage of what is required to be reported in the Fabaceae family along with the percentage of germination?

- a. abnormal seedlings
- b. hard seeds
- c. dead seeds
- d. dormant seeds

80. Which of the following would be classified as a normal seedling in the Fabaceae Family IV group?

- a. albino seedling
- b. missing primary root with weak secondary roots
- c. only one primary leaf
- d. weak slow growing seedling that has all the essential structures