

- (a) General description.
 - (1) Germination habit: Epigeal dicot.
 - (2) Food reserves: Leaf-like cotyledons and perisperm.
 - (3) Shoot system: The hypocotyl elongates carrying the cotyledons above the soil surface. The epicotyl usually does not show any development within the test period.
 - (4) Root system: A primary root; secondary roots may develop within the test period.
 - (5) Seedling: Frequent counts should be made on multigerm beet since the growing seedlings will separate from the cluster making it difficult to identify the source. Any cluster which produces at least one normal seedling is classified as normal; only one normal seedling per cluster is to be counted (see §201.56(d)). Toxic substances from the clusters of beet and Swiss chard may cause discoloring of the hypocotyl and/or root. Seedlings which are slightly discolored are to be classified as normal; however, if there is excessive discoloration, retest by the method in §201.58(b)(3).
 - (b) Abnormal seedling description.
 - (1) Cotyledons:
 - (i) Less than half of the original cotyledon tissue remaining attached.
 - (ii) Less than half of the original cotyledon tissue free of necrosis or decay.
 - (2) Epicotyl:
 - (i) Missing. (May be assumed to be present if cotyledons are intact.)
 - (ii) [Reserved]
 - (3) Hypocotyl:
 - (i) Deep open cracks extending into the conducting tissue.
 - (ii) Malformed, such as markedly shortened, curled, or thickened.
 - (iii) Watery.
 - (4) Root:
 - (i) None.
 - (ii) Weak, stubby, or missing primary root with weak secondary or adventitious roots.
 - (iii) For discolored roots of beet and Swiss chard, see §201.58(b)(3).
 - (5) Seedling:
 - (i) One or more essential structures impaired as a result of decay from primary infection. (For discolored seedlings of beet and Swiss chard, see §201.58(b)(3).)
 - (ii) Albino.

[59 FR 64500, Dec. 14, 1994]

§ 201.56-2 Sunflower family, Asteraceae (Compositae).

- Kinds of seed: Artichoke, cardoon, chicory, dandelion, endive, great burdock, lettuce, safflower, salsify, Louisiana sagewort, and sunflower.
- (a) Lettuce.
 - (1) General description.
 - (i) Germination habit: Epigeal dicot.
 - (ii) Food reserves: Cotyledons which expand and become thin, leaf-like, and photosynthetic. The cotyledons of some varieties develop elongated petioles.
 - (iii) Shoot system: The hypocotyl elongates and carries the cotyledons above the soil surface. The epicotyl usually does not show any development within the test period.
 - (iv) Root system: A long primary root.
 - (v) Seedling: The interpretations of lettuce seedlings are made only at the end of the test period.
 - (2) Abnormal seedling description.
 - (i) Cotyledons:
 - (A) Less than half of the original cotyledon tissue remaining attached.
 - (B) Less than half of the original cotyledon tissue free of necrosis or decay. (Remove attached seed coat for evaluation of cotyledons. Physiological necrosis is manifested by discolored areas on the cotyledons and should not be confused with natural pigmentation of some lettuce varieties.)
 - (ii) Epicotyl:
 - (A) Missing. (May be assumed to be present if cotyledons are intact.)
 - (B) Any degree of necrosis or decay.
 - (iii) Hypocotyl:
 - (A) Deep open cracks extending into the conducting tissue.
 - (B) Severely twisted or grainy.
 - (C) Watery.
 - (iv) Root:
 - (A) Stubby or missing primary root. (Secondary roots will not compensate for a defective primary root.)
 - (B) Primary root tip blunt, swollen, or discolored. (Toxic materials in the substratum may cause short, blunt roots; see §201.58(a)(9).)
 - (C) Primary root with splits or lesions.
 - (v) Seedling:
 - (A) Swollen cotyledons associated with extremely short or vestigial hypocotyl and root.

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(B) One or more essential structures impaired as a result of decay from primary infection.

(C) Albino.

(b) Other kinds in the sunflower family: Artichoke, cardoon, chicory, dandelion, endive, great burdock, safflower, salsify, Louisiana sagewort, and sunflower.

(1) General description.

(i) Germination habit: Epigeal dicot.

(ii) Food reserves: Cotyledons which expand and become thin, leaf-like, and photosynthetic.

(iii) Shoot system: The hypocotyl elongates and carries the cotyledons above the soil surface. The epicotyl usually does not show any development within the test period.

(iv) Root system: A long primary root with secondary roots usually developing within the test period.

(2) Abnormal seedling description.

(i) Cotyledons:

(A) Less than half of the original cotyledon tissue remaining attached.

(B) Less than half of the original cotyledon tissue free of necrosis or decay. (Remove any attached seed coats at the end of the test period for evaluation of cotyledons.)

(ii) Epicotyl:

(A) Missing. (May be assumed to be present if cotyledons are intact.)

(B) [Reserved]

(iii) Hypocotyl:

(A) Deep open cracks extending into the conducting tissue.

(B) Malformed, such as markedly shortened, curled, or thickened.

(C) Watery.

(iv) Root:

(A) None.

(B) Weak, stubby, or missing primary root with weak secondary or adventitious roots. (Seedlings with roots bound within tough seed coats should be left in the test until the final count to allow for development.)

(v) Seedling:

(A) One or more essential structures impaired as a result of decay from primary infection.

(B) Albino.

[59 FR 64500, Dec. 14, 1994]

§ 201.56-3 Mustard family, Brassicaceae (Cruciferae).

Kinds of seed: Broccoli, brussels sprouts, cabbage, Chinese cabbage, cauliflower, collards, garden cress, upland cress, water cress, kale, Chinese kale, Siberian kale, kohlrabi, mustard, pakchoi, radish, rape, rutabaga, and turnip.

(a) General description.

(1) Germination habit: Epigeal dicot.

(2) Food reserves: Cotyledons which expand and become thin, leaf-like and photosynthetic. In *Brassica*, *Sinapis*, and *Raphanus*, the cotyledons are bilobed and folded, with the outer cotyledon being larger than the inner.

(3) Shoot system: The hypocotyl elongates and carries the cotyledons above the soil surface; the epicotyl usually does not show any development within the test period.

(4) Root system: A long primary root.

(b) Abnormal seedling description.

(1) Cotyledons:

(i) Decayed at point of attachment.

(ii) Less than half of the original cotyledon tissue remaining attached.

(iii) Less than half of the original cotyledon tissue free of necrosis or decay.

(2) Epicotyl:

(i) Missing. (May be assumed to be present if the cotyledons are intact.)

(ii) [Reserved]

(3) Hypocotyl:

(i) Deep open cracks extending into the conducting tissue.

(ii) Malformed, such as markedly shortened, curled, or thickened.

(iii) Watery.

(4) Root:

(i) Weak, stubby, or missing primary root. (Secondary roots will not compensate for a defective root.)

(ii) [Reserved]

(5) Seedling:

(i) One or more essential structures impaired as result of decay from primary infection.

(ii) Albino.

[59 FR 64501, Dec. 14, 1994]

§ 201.56-4 Cucurbit family, Cucurbitaceae.

Kinds of seed: Citron, cucumber, West India gherkin, melon, pumpkin, squash, and watermelon.

(a) General description.