

**§ 201.56-9 Mallow family, Malvaceae.**

Kinds of seed: Cotton, kenaf, and okra.

(a) General description.

(1) Germination habit: Epigeal dicot.

(2) Food reserve: Cotyledons, which are convoluted in the seed; they expand and become thin, leaf-like, and photosynthetic.

(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. Areas of yellowish pigmentation may develop on the hypocotyl in cotton.

(4) Root system: A primary root, with secondary roots usually developing within the test period. Areas of yellowish pigmentation may develop on the root in cotton.

(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. (Remove any attached seed coats at the end of the test period for evaluation of cotyledons.)

(2) Epicotyl:

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

(ii) [Reserved]

(3) Hypocotyl:

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

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

(4) Root:

(i) None.

(ii) Weak, stubby, or missing primary root with weak secondary or adventitious roots.

(5) Seedling:

(i) One or more essential structures impaired as a result of decay from primary infection. (A cotton seedling with yellowish areas on the root or hypocotyl is classified as normal, provided the cotyledons are free of infection.)

(ii) Albino.

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**§ 201.56-10 Spurge family, Euphorbiaceae.**

Kind of seed: Castorbean.

(a) General description.

(1) Germination habit: Epigeal dicot.

(2) Food reserves: Cotyledons, which are thin and leaf-like; endosperm (fleshy food-storage organs) usually persisting in the laboratory test.

(3) Shoot system: The hypocotyl lengthens, carrying the cotyledons, endosperm, and epicotyl above the soil surface.

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

(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) Endosperm:

(i) Missing.

(ii) [Reserved]

(3) Epicotyl:

(i) Missing.

(ii) Damaged or missing terminal bud.

(4) Hypocotyl:

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

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

(5) Root:

(i) None.

(ii) Weak, stubby, or missing primary root with weak secondary or adventitious roots.

(6) Seedling:

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

(ii) Albino.

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**§ 201.56-11 Knotweed family, Polygonaceae.**

Kinds of seed: Buckwheat, rhubarb, and sorrel.

(a) General description.

(1) Germination habit: Epigeal dicot.

(2) Food reserves: Cotyledons, starchy endosperm.

(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, with secondary roots developing within the test period for some kinds.

(b) Abnormal seedling description.