**Rule Proposal #18**

1. **PURPOSE OF PROPOSAL:**

The primary purpose of this proposal is to clarify in AOSA Rules Volume 4, for which Families sufficient secondary, seminal, and/or adventitious roots are permitted to compensate for a missing or defective primary root. These proposed changes will lead to more uniformity with root evaluations amongst analysts and increase laboratory testing uniformity. The established root evaluation criteria in Volume 4 are not changed with this proposal, only clarified.

2. **PRESENT RULE/PROPOSED RULE:**

Proposed changes listed as “a” through “x”. Present Rule is listed first with the Proposed Rule listed underneath with proposed changes in red text.

**a)** AIZOACEAE, CARPETWEED FAMILY (p. 19)

…

**Root system:** A primary root; secondary roots may develop within the test period.

AIZOACEAE, CARPETWEED FAMILY

…

**Root system:** A primary root; weak, stubby, or missing primary root with sufficient secondary or adventitious roots; secondary roots may develop within the test period.

**b)** ASTERACEAE, SUNFLOWER FAMILY II - Kinds other than lettuce (p. 27)

…

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

ASTERACEAE, SUNFLOWER FAMILY II - Kinds other than lettuce

…

**Root system:** A long primary root with secondary roots usually developing within the test period. Weak, stubby, or missing primary root with sufficient secondary or adventitious roots.

**c)** BALSAMINACEAE, BALSAM FAMILY (p. 30)

…

**Root system:** A primary root, with one to many secondary roots, which usually develop within the test period. The primary root is not always readily distinguishable from the secondary roots.

BALSAMINACEAE, BALSAM FAMILY

…

**Root system:** A primary root, with one ~~to many~~ or more secondary roots, which usually develop within the test period. Weak, stubby, or missing primary root with two or more sufficient secondary roots. The primary root is not always readily distinguishable from the secondary roots.

**d)** CHENOPODIACEAE, GOOSEFOOT FAMILY (p. 38)

…

**Root system:** A primary root; secondary roots may develop within the test period.

CHENOPODIACEAE, GOOSEFOOT FAMILY

…

**Root system:** A primary root; weak, stubby, or missing primary root with sufficient secondary or adventitious roots; secondary roots may develop within the test period.

**e)** CUCURBITACEAE, CUCURBIT FAMILY (p. 41)

…

**Root system:** A long primary root with numerous secondary roots.

CUCURBITACEAE, CUCURBIT FAMILY

…

**Root system:** A long primary root with numerous secondary roots; weak, stubby, or missing primary root with two or more sufficient secondary or adventitious roots.

**f)** FABACEAE, LEGUME FAMILY I - Large-seeded epigeal, except soybean, peanut, lupine (p. 45)

**…**

**Root system:** A long primary root with secondary roots.

FABACEAE, LEGUME FAMILY I - Large-seeded epigeal, except soybean, peanut, lupine

…

**Root system:** A long primary root with secondary roots; weak, stubby, or missing primary root with sufficient secondary or adventitious roots.

**g)** FABACEAE, LEGUME FAMILY II - Soybean and lupine (p. 52)

…

**Root system:** A long primary root with secondary roots.

FABACEAE, LEGUME FAMILY II - Soybean and lupine

…

**Root system:** A long primary root with secondary roots; weak, stubby, or missing primary root with sufficient secondary or adventitious roots.

**h)** FABACEAE, LEGUME FAMILY III - Peanut (p. 57)

…

**Root system:** A long primary root with secondary roots. Adventitious roots develop from the base of the hypocotyl if the primary root is damaged.

FABACEAE, LEGUME FAMILY III - Peanut

…

**Root system:** A long primary root with secondary roots. Weak, stubby, or missing primary root with sufficient secondary or adventitious roots. Adventitious roots develop from the base of the hypocotyl if the primary root is damaged

**i)** FABACEAE, LEGUME FAMILY IV - Large-seeded hypogeal (p. 61)

…

**Root system:** A long primary root with secondary roots.

FABACEAE, LEGUME FAMILY IV - Large-seeded hypogeal

…

**Root system:** A long primary root with secondary roots; weak, stubby, or missing primary root with sufficient secondary roots.

**j)** FABACEAE, LEGUME FAMILY V (p. 67)

…

**ABNORMAL SEEDLING DESCRIPTION**

…

**Root:**

• none.

• primary root stubby (for sweetclover and crownvetch, or for roots bound by the seed coat see note 1). • split extending into the hypocotyl

FABACEAE, LEGUME FAMILY V

…

**ABNORMAL SEEDLING DESCRIPTION**

…

**Root:**

• none.

• primary root stubby (for sweetclover and crownvetch, or for roots bound by the seed coat see note 1). • split extending into the hypocotyl.

* secondary roots will not compensate for a defective primary root.

**k)** LILIACEAE, LILY FAMILY I – Asparagus (p. 74)

…

**Root system:** A long slender primary root.

LILIACEAE, LILY FAMILY I – Asparagus

…

**Root system:** A long slender primary root; stubby primary root with sufficient secondary roots.

**l)** LINACEAE, FLAX FAMILY (p. 79)

…

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

LINACEAE, FLAX FAMILY

…

**Root system:** A primary root, with secondary roots usually developing within the test period; weak, stubby, or missing primary root with sufficient secondary roots.

**m)** MALVACEAE, MALLOW FAMILY (p. 82)

…

**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.

MALVACEAE, MALLOW FAMILY

…

**Root system:** A primary root, with secondary roots usually developing within the test period. Weak, stubby, or missing primary root with sufficient secondary or adventitious roots. Areas of yellowish pigmentation may develop on the root in cotton.

**n)** POACEAE, GRASS FAMILY I – Cereals (p. 85)

…

**Root system:** A primary root and seminal roots. The primary root is not readily distinguishable from the seminal roots, therefore all roots arising from the seed are referred to as seminal roots.

POACEAE, GRASS FAMILY I – Cereals

…

**Root system:** A primary root and seminal roots. The primary root is not readily distinguishable from the seminal roots, therefore all roots rising from the seed are referred to as seminal roots; one or more sufficient seminal roots.

**o)** POACEAE, GRASS FAMILY II – Rice (p. 90)

…

**Root system:** Strong primary root and seminal roots. Adventitious roots may start to develop from the mesocotyl or coleoptilar node within the test period. If the mesocotyl elongates the adventitious roots will be carried above the grain.

POACEAE, GRASS FAMILY II – Rice

…

**Root system:** Strong primary root and seminal roots. Adventitious roots may start to develop from the mesocotyl or coleoptilar node within the test period. Weak primary root with sufficient seminal or adventitious roots. If the mesocotyl elongates the adventitious roots will be carried above the grain.

**p)** POACEAE, GRASS FAMILY III – Corn (p. 93)

…

**Root system:** Strong primary root and seminal roots. Adventitious roots may start to develop from the mesocotyl or coleoptilar node within the test period.

POACEAE, GRASS FAMILY III – Corn

…

**Root system:** Strong primary root and seminal roots. Weak, stubby, or missing primary root with sufficient seminal roots. Adventitious roots may start to develop from the mesocotyl or coleoptilar node within the test period

**q)** POACEAE, GRASS FAMILY IV – Sorghum (p. 100)

…

**Root system:** A long primary root, usually with secondary roots developing within the test period. Adventitious roots arising from the mesocotyl and coleoptilar node may start development within the test period. Areas of natural, reddish pigmentation may develop on the root.

POACEAE, GRASS FAMILY IV – Sorghum

…

**Root system:** Strong primary root and seminal roots. Damaged or weak primary root with two or more sufficient secondary roots. Adventitious roots may start to develop from the mesocotyl or coleoptilar node within the test period. Areas of natural, reddish pigmentation may develop on the root.

**r)** POLYGONACEAE, KNOTWEED FAMILY (p. 107)

…

**Root system:** A primary root with secondary roots developing within the test period for some species.

POLYGONACEAE, KNOTWEED FAMILY

…

**Root system:** A primary roots with secondary roots developing within the test period for some species. Weak, stubby, or missing primary root with sufficient secondary or adventitious roots.

**s)** PRIMULACEAE, PRIMROSE FAMILY I – Cyclamen (p. 110)

…

**Root system:** Several seminal roots, developing more or less simultaneously at the distal end of the hypocotyl.

PRIMULACEAE, PRIMROSE FAMILY I – Cyclamen

…

**Root system:** Several seminal roots, developing more or less simultaneously at the distal end of the hypocotyl. More than one sufficient seminal root is required.

**`**

**t)** SOLANACEAE, NIGHTSHADE FAMILY I – Pepper, tomato, and husk tomato (p. 114)

…

**Root system:** A long primary root, usually with root hairs. Secondary or adventitious roots usually do not develop within the test period unless the primary root has been damaged.

SOLANACEAE, NIGHTSHADE FAMILY I – Pepper, tomato, and husk tomato

…

**Root system:** A long primary root, usually with root hairs. Weak, stubby, or missing primary root with sufficient secondary or adventitious roots. Secondary or adventitious roots usually do not develop within the test period unless primary root has been damaged.

**u)** TROPAEOLACEAE, TROPAEOLUM FAMILY (p. 120)

…

**Root system:** The root system consists of a primary root and secondary roots.

TROPAEOLACEAE, TROPAEOLUM FAMILY

…

**Root system:** The root system consists of a primary root and secondary roots. Weak, stubby, or missing primary root with two or more sufficient secondary roots.

**v)** MISCELLANEOUS AGRICULTURAL AND HORTICULTURAL (p. 126)

…

**GENERAL DESCRIPTION**

Seedlings are considered normal if they possess those essential structures that are indicative of its ability to produce a plant under favorable conditions.

MISCELLANEOUS AGRICULTURAL AND HORTICULTURAL

…

**GENERAL DESCRIPTION**

Seedlings are considered normal if they possess those essential structures that are indicative of its ability to produce a plant under favorable conditions. Sufficient secondary or adventitious roots can compensate for a missing or stubby primary root.

**w)** TREES AND SHRUBS II - Angiosperms with hypogeal germination (p. 129)

…

**Root system:** A long primary root with secondary roots.

TREES AND SHRUBS II - Angiosperms with hypogeal germination

…

**Root system:** A long primary root with secondary roots. A weak, stubby, or missing primary root with sufficient secondary roots.

**x)** TREES AND SHRUBS III - Angiosperms with epigeal germination (p. 135)

…

**Root system:** A primary root; secondary roots may develop within the test period.

TREES AND SHRUBS III - Angiosperms with epigeal germination

…

**Root system:** A primary root; missing or stubby primary root with sufficient secondary or adventitious roots; secondary roots may develop within the test period.

**4. HARMONIZATION AND IMPACT STATEMENT:** (ISTA/FSA/Canadian Methods & Procedures)

N/A

**5. SUPPORTING EVIDENCE:**

AOSA Rules for Testing Seeds - Volume 4

**6.** **SUBMITTED BY:**

David M. Johnston – RST/CSA Germination and Purity

Program Coordinator Seed Programs

Louisiana Dept. of Agriculture and Forestry

5825 Florida Blvd. – Suite 3004

Baton Rouge, LA 70806

Phone: (225) 952-8059

Email: [djohnston@ldaf.state.la.us](mailto:djohnston@ldaf.state.la.us)

Riad Baalbaki, PhD – CSA Germination

Senior Seed Botanist

California Department of Food & Agriculture

Plant Pest Diagnostics Branch

3294 Meadowview Road

Sacramento, CA 95832-1448

Phone: (916) 262-3292

Email: [riad.baalbaki@cdfa.ca.gov](mailto:riad.baalbaki@cdfa.ca.gov)

7. **DATE SUBMITTED:**

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