

## California Pest Rating Proposal for *Colletotrichum perseae* Sharma and Freeman, 2017

**Avocado anthracnose**

**Current Pest Rating: Q**

**Proposed Pest Rating: B**

Kingdom: Fungi, Phylum: Ascomycota,  
Subphylum: Pezizomycotina, Class: Sordariomycetes,  
Subclass: Hypocreomycetidae, Order: Glomerellales,  
Family: Glomerellaceae

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**Comment Period: 06/30/2025 through 08/14/2025**

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### Initiating Event:

In May 2025, a Santa Barbara County agricultural inspector submitted a sample of dragon fruit (*Selenicereus* sp.) with necrotic spots on the segments as part of a regulatory nursery inspection for pests. CDFA Plant Pathologist Wei Belisle isolated *Colletotrichum perseae* in culture and confirmed the diagnosis with multigene sequence analysis. This is the first detection of this species on this host and the first detection in California. She assigned it a temporary Q-rating. This pathogen has not been through the pest rating process. The risk to California from *Colletotrichum perseae* is described herein, and a permanent rating is proposed.

### History & Status:

#### Background:

California is the leading avocado-producing state in the US, with 95% of the nation's avocado production (10% of global production). The 2024 California avocado harvest was 364 million pounds, and there were 52,500 planted acres. California's coastal microclimate allows for year-round avocado harvests, with a typical tree yielding approximately 60 pounds of fruit per year. The top producing counties are Ventura, San Diego, Santa Barbara, Riverside, and San Luis Obispo. California avocados have maintained a premium price over imports, with a 10% price advantage in the state and a 26% advantage in the 2024 season (CDFA Ag Stats, 2025; California Avocado Commission, 2025). Dragon

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fruit is grown on a small scale on limited acres in southern coastal California, primarily for the fresh market, often sold through specialty stores and local farmers' markets.

The genus *Colletotrichum* contains many species that cause destructive diseases on a wide variety of agricultural crops, often causing leaf spots and postharvest fruit rots. Species of *Colletotrichum* are also important because of their use as model organisms (Dean et al. 2012). Species-level identification of this genus is complex and challenging. In the past, species were often named for the host they were first identified on, but many *Colletotrichum* species are now known to have wide host ranges. Species cannot be separated by distinct morphological traits, and they can have tremendous variation in pathogenicity, depending on the host. Some hosts may be parasitized by multiple species of *Colletotrichum*, and some species of *Colletotrichum* are known to have dozens of hosts (Cannon et al., 2012). While they can act as endophytes, saprophytes, and necrotrophs, they most commonly act as hemi-biotrophs, which cause disease under some conditions.

Historically, many isolates of *Colletotrichum* (teleomorph *Glomerella cingulata*) were classified as either *C. acutatum* Simmonds ex Simmonds or *C. gloeosporioides* (Penzig) Penzig & Saccardo. Both are now known to be species complexes. The *gloeosporioides* species complex has approximately 40 closely related species, for the most part comprising plant pathogens, but some species act primarily as endophytes (Liu et al. 2015). *Colletotrichum perseae* is in the *C. gloeosporioides* complex. It has a very limited number of hosts to date but has been confirmed from four continents (Farr and Rossman, 2025, CDFA PDR database, 2025).

**Hosts:** *Persea americana* (avocado), *Vitis vinifera* (grape), and potentially *Selenicereus* sp. (dragon fruit) (Farr and Rossman, 2025; CDFA PDR Database, 2025).

**Symptoms:** Anthracnose is characterized by the appearance of sunken, rounded, necrotic black lesions along with the formation of salmon-orange colored sticky conidial spore masses (Freeman et al., 1996). Infections expand rapidly on the fruit skin and into the pulp, causing rot. Lesions usually appear after fruit harvest and during ripening, but symptoms may form on the unripe fruits while they are still on the trees. These fruits may drop pre-maturely. Symptoms are more difficult to detect on avocado cultivars with dark colored skins. Leaf and stem symptoms, generally spots or blight, are rarely seen except under very humid conditions (Nelson, 2008).

*Colletotrichum perseae*, along with other *Colletotrichum* spp., have been isolated from grapes with ripe-fruit rot (Yokosawa et al., 2020).

**Transmission:** Infections of avocado occur in the orchard when conidia move with splashing rain. After landing on fruit, they germinate, form appressoria, but remain quiescent until fruit ripening after harvest (Binyamini and Schiffmann-Nadel, 1972). In Israel, the conidia quiescently infect fruit during the wet winters (Sharma et al., 2017). In tropical regions, *Colletotrichum* spp. survive between fruiting cycles on dried avocado leaves and twigs, either in the plant canopy or on the ground (Nelson, 2008). Plants for planting and fresh fruits are the main entry pathways for this fungus to move to new areas.

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**Damage Potential:** Avocado fruits that appear to be free of blemishes before they ripen, may quickly develop necrotic spots from latent fungal infections during fruit ripening. Anthracnose is the most severe postharvest disease of avocado in Hawaii and is more severe in areas with high rainfall (Nelson, 2008). *Colletotrichum*-induced anthracnose is a major disease of avocado in Turkey, causing significant losses in fruit (Bozoğlu et al., 2024). In Israel, avocado fruit that sets during the winter is seriously affected by post-harvest anthracnose fruit decay, with both shelf life and marketability of avocado fruits significantly reduced (Sharma et al., 2017). In Japan, Yokosawa et al., 2020, reported that *C. perseae* was weakly virulent when inoculated on ripe grapes.

**Worldwide Distribution:** Israel, Japan, New Zealand, Turkey (Farr and Rossman, 2025; Bozoğlu et al., 2024).

**Official Control:** *Colletotrichum perseae* is not a regulated pest.

**California Distribution:** Isolated from dragon fruit in a nursery in Santa Barbara County (see 'initiating events').

**California Interceptions:** none

The risk that *Colletotrichum perseae* would pose to California is evaluated below.

## Consequences of Introduction:

- 1) **Climate/Host Interaction:** This disease has been reported in Mediterranean and tropical climates.

Evaluate if the pest would have suitable hosts and climate to establish in California.

**Score: 2**

- Low (1) Not likely to establish in California, or likely to establish in very limited areas.
- **Medium (2) may be able to be established in a larger but limited part of California.**
- High (3) likely to establish a widespread distribution in California.

- 2) **Known Pest Host Range:** The host range is narrow compared to other *Colletotrichum* spp., with avocado, grape, and potentially dragon fruit.

Evaluate the host range of the pest.

**Score: 2**

- Low (1) has a very limited host range.
- **Medium (2) has a moderate host range.**
- High (3) has a wide host range.

- 3) **Pest Reproductive Potential:** *Colletotrichum perseae* spreads with conidia, asexual spores that are produced in mass numbers, that move with rain splash.
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Evaluate the natural and artificial dispersal potential of the pest.

**Score: 2**

- Low (1) does not have high reproductive or dispersal potential.
- **Medium (2) has either high reproductive or dispersal potential.**
- High (3) has both high reproduction and dispersal potential.

- 4) Economic Impact:** Anthracnose is a significant disease of avocado fruit, lowering crop yield and value. It is not a quarantine pest.

Evaluate the economic impact of the pest on California using the criteria below.

**Economic Impact: A, B**

- A. The pest could lower crop yield.**
- B. The pest could lower crop value (including increasing crop production costs).**
- C. The pest could trigger the loss of markets (including quarantines).
- D. The pest could negatively change normal cultural practices.
- E. The pest can vector, or is vectored, by another pestiferous organism.
- F. The organism is injurious or poisonous to agriculturally important animals.
- G. The organism can interfere with the delivery or supply of water for agricultural uses.

**Economic Impact Score: 2**

- Low (1) causes 0 or 1 of these impacts.
- **Medium (2) causes 2 of these impacts.**
- High (3) causes 3 or more of these impacts.

- 5) Environmental Impact:** Anthracnose can be damaging to home orchards.

Evaluate the environmental impact of the pest on California using the criteria below.

**Environmental Impact: E**

- A. The pest could have a significant environmental impact such as lowering biodiversity, disrupting natural communities, or changing ecosystem processes.
- B. The pest could directly affect threatened or endangered species.
- C. The pest could impact threatened or endangered species by disrupting critical habitats.
- D. The pest could trigger additional official or private treatment programs.
- E. The pest significantly impacts cultural practices, home/urban gardening, or ornamental plantings.**

**Environmental Impact Score: 2**

- Low (1) causes none of the above to occur.
- **Medium (2) causes one of the above to occur.**
- High (3) causes two or more of the above to occur.

**Consequences of Introduction to California for *Colletotrichum perseae*: Medium**

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Add up the total score and include it here. **10**

-Low = 5-8 points

-Medium = 9-12 points

-High = 13-15 points

- 6) Post-Entry Distribution and Survey Information:** Evaluate the known distribution in California. Only official records identified by a taxonomic expert and supported by voucher specimens deposited in natural history collections should be considered. Pest incursions that have been eradicated, are under eradication or have been delimited with no further detections should not be included.

Nursery detections are not normally counted towards establishment.

**Evaluation is 'not established'.**

**Score:**

**-Not established (0) Pest never detected in California or known only from incursions.**

-Low (-1) Pest has a localized distribution in California or is established in one suitable climate/host area (region).

-Medium (-2) Pest is widespread in California but not fully established in the endangered area, or pest established in two contiguous suitable climate/host areas.

-High (-3) Pest has fully established in the endangered area, or pest is reported in more than two contiguous or non-contiguous suitable climate/host areas.

- 7) The final score is** the consequences of the introduction score minus the post-entry distribution and survey information score: (Score)

**Final Score:** *Score of Consequences of Introduction – Score of Post Entry Distribution and Survey Information = 10*

### **Uncertainty:**

At least 26 *Colletotrichum* species, representing five species complexes, have been identified causing avocado anthracnose worldwide (Bozoğlu et al., 2024). This highlights the importance of continuous surveillance, accurate pathogen identification, and a thorough understanding of *Colletotrichum* species, as some, but not all, species are of regulatory significance for California and our trading partners. This species may already be present in California, as prior to 2017, it would have been called *C. gloeosporioides sensu lato*.

### **Conclusion and Rating Justification:**

Based on the evidence provided above, the proposed rating for *Colletotrichum perseae* is **B**.

### **References:**

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### Responsible Party:

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**\*Comment Period: 06/30/2025 through 08/14/2025**

### \*NOTE:

You must be registered and logged in to post a comment. If you have registered and have not received the registration confirmation, please contact us at [permits\[@\]cdfa.ca.gov](mailto:permits[@]cdfa.ca.gov).

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### Comment Format:

- ❖ Comments should refer to the appropriate California Pest Rating Proposal Form subsection(s) being commented on, as shown below.

#### Example Comment:

Consequences of Introduction: 1. Climate/Host Interaction: [Your comment that relates to “Climate/Host Interaction” here.]

- ❖ Posted comments will not be able to be viewed immediately.
- ❖ Comments may not be posted if they:

Contain inappropriate language which is not germane to the pest rating proposal;

Contains defamatory, false, inaccurate, abusive, obscene, pornographic, sexually oriented, threatening, racially offensive, discriminatory or illegal material;

Violates agency regulations prohibiting sexual harassment or other forms of discrimination;

Violates agency regulations prohibiting workplace violence, including threats.

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- ❖ Comments may be edited prior to posting to ensure they are entirely germane.
- ❖ Posted comments shall be those which have been approved in content and posted to the website to be viewed, not just submitted.

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**Proposed Pest Rating: B**

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