CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile for

Fusarium phyllophilum Nirenberg and O'Donnell, 1998

Pest Rating: B

Kingdom: Fungi, Phylum: Ascomycota,
Subphylum: Pezizomycotina, Class: Sordariomycetes,
Subclass: Hypocreomycetidae, Order: Hypocreales,
Family: Nectriaceae

Comment Period: 04/01/2025 through 05/16/2025

Initiating Event:

Fusarium phyllophilum was first detected in 2021 during a regulatory nursery inspection by Los Angeles County Agricultural officials, causing leaf rot on snake plant (*Dracaena trifasciata*). CDFA Plant Pathologist Albre Brown cultured the fungus and made the identification via DNA sequence analysis. A second regulatory nursery detection was made in 2025 in San Joaquin County. In 2023 and 2024, multiple detections of *F. phyllophilum* were made from shipments of *Dracaena* sp. from Florida and Costa Rica, and one shipment traced back to a nursery in San Diego County. This pathogen has not been through the pest rating process. The risk to California from *Fusarium phyllophilum* is described herein and a permanent rating is proposed.

History & Status:

Background: The genus *Fusarium* (Hypocreales, Nectriaceae), in the broad sense, holds many morphologically and phylogenetically diverse fungi, commonly found as air-, soil-, or waterborne saprobic organisms. They are also commonly isolated from dead or living plant material as endophytes and epiphytes. More than 1,400 *Fusarium* names are listed in the Index Fungorum and MycoBank databases. Many *Fusarium* spp. are important plant pathogens or secondary invaders with global distributions (Aoki et al., 2014). Some species are significant producers of mycotoxins or causes of human and animal diseases that are isolated from immunocompromised hosts (O'Donnell et al., 2009).

Members of the *Gibberella fujikuroi* species complex of *Fusarium* (section *Liseola*) are responsible for many economically important plant diseases, including bakanae disease of rice. Species within this complex are known for their production of toxic secondary metabolites such as fumonisins, moniliformin, and beauvericin mycotoxins. Nirenberg and O'Donnell (1998), using morphological and

molecular multi-locus analyses, described ten new *Fusarium* species belonging to the *Gibberella fujikuroi* species complex including *Fusarium phyllophilum.* The epithet refers to the pathogen infecting leaves. *Fusarium phyllophilum* is similar to but is not synonymous with *F. moniliforme* var. *minus* s. str. described from *Musa* in tropical America which produces conidia in long chains (Wollenweber, 1935). Reports of the pathogenicity of *F. moniliforme* on leaves of *Draceanea* or *Sansevieria* likely should be credited to *F. phyllophilum* instead (Jones, 1940; Gerlach, 1959; Chase, 1993). *Fusarium phyllophilum* produces short chains of conidia and no sporodochia.

Hosts: Aloe arborescens, *Dracaena deremensis* (*Dracaena fragrans*), *Dracaena parva* (*Sansevieria dooneri*), *Dracaena trifasciata*, *Gasteria excavata* (Farr and Rossman, 2025; CDFA PDR database, 2025; Kishi et al., 1999).

Symptoms: Leaf spots are initially water-soaked and form on the immature leaves of dracaenas and sansevierias. As the spots enlarge, they turn reddish-brown or tan and frequently have a yellow margin. Individual spots can be pinpoint size or as large as an inch depending upon the host plant involved. In cases of severe infection, the bud becomes infected and dies. Different cultivars and varieties of dracaenas vary in their susceptibility to the disease (Chase, 1993). Purple spots on aloe leaves were described by Kishi et al. (1999).

There are *Colletotrichum* sp. that cause leaf spots on *Dracaena* plants (Campoverde and Palmateer, 2012; Sharma et al., 2014). Diagnosis of *Fusarium* vs. *Colletotrichum* in the field is difficult and, in some situations, these two fungus genera may co-occur.

Transmission: From infected leaves or residues, *F. phyllophilum* produces asexual spores (conidia) which are dispersed by rain-splash or wind. This species is not known to produce chlamydospores and the sexual stage has not been observed.

Humid, wet, rainy weather is necessary for infection to occur. These requirements in particular may limit the occurrence of the pathogen in California fields and subsequently, the pathogen may be more of a problem under controlled environments of greenhouses. Conidia germinate, penetrate host tissue by means of specialized hyphae (appressoria), and invade host tissue.

Damage Potential: Fusarium leaf disease caused by *Fusarium phyllophilum* can result in reduced plant quality and growth. Estimates of yield/crop loss due to this pathogen have not been reported. Nursery production of potted host plants or in greenhouses is particularly at risk as nursery conditions are often conducive to infection by *Fusarium* species. In cultivated fields, disease development may be sporadic as it is affected by levels of pathogen inoculum and environmental conditions.

Worldwide Distribution: Italy, Germany, USA (Florida) (Farr and Rossman, 2025; CDFA PDR database, 2025).

Official Control*: Fusarium phyllophilum* is not listed as a harmful organism by USDA-PCIT or the European Plant Protection Organization. It is not a U.S.-regulated pest.

California Distribution: Los Angeles, San Diego, and San Joaquin counties, in nursery stock only.

California Interceptions: Del Norte, San Diego, and San Luis Obispo counties, on shipments of sansevierias from Costa Rica and Florida.

The risk that *Fusarium phyllophilum* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** Similar to other species of leaf-rotting *Fusarium*, *F. phyllophilum* requires humid, wet, rainy weather for conidia to infect host plants. This environmental requirement may limit the ability of the pathogen to fully establish and spread under dry field conditions in California. Limited regions with conducive climates within California could enable the pathogen to establish. In particular, *F. phyllophilum* could effectively infect and spread to host plants grown under conducive climate conditions in nurseries.

   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 includes plants in the genera *Aloe, Dracaena*, and *Gasteria*.

   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:** *Fusarium phyllophilum* reproduces with two types of asexual spores. No sexual stage has been found and chlamydospores are absent.

   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:** Damage has been observed in the form of leaf spots and rots, which could lead to a reduction in yield or rejection of nursery stock in situations where aesthetics are very important. Evaluate the economic impact of the pest on California using the criteria below.

Economic Impact: A, B, D

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: **3**
- 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: This disease could impact home/urban gardening and ornamental plantings.

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 *Fusarium phyllophilum:* Medium

Add up the total score and include it here. **11**
-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.

Fusarium phyllophilum has been found only during nursery inspections and with incoming shipments.

Evaluation is 'not established'.

Score: 0

-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* ***= 11***

Uncertainty:

Periodic surveys need to be conducted to confirm the presence/absence of *F. phyllophilum* in commercial and private production facilities within California. Subsequent results may alter the herein proposed rating for the pathogen.

Conclusion and Rating Justification:

Based on the evidence provided above the proposed rating for ***Fusarium phyllophilum*** **is B.**

References:

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Responsible Party:

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***Comment Period: 04/01/2025 through 05/16/2025**

***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.

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.

- 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.

Pest Rating: B