California Pest Rating Proposal for

Podosphaera pannosa (Wallroth) de Bary

Rose powdery mildew

Current Pest Rating: Z

Proposed Pest Rating: C

Domain: Eukaryota, Kingdom: Fungi,
Phylum: Ascomycota, Subphylum: Pezizomycotina,
Class: Leotiomycetes, Order: Erysiphales,
Family: Erysiphaceae

Comment Period: 04/16/2026 through 05/31/2026

Initiating Event:

This pathogen has not been through pest rating process. The risk to California from *Podosphaera pannosa* is described herein, and a permanent rating is proposed.

History & Status:

Background: The powdery mildew fungus *Podosphaera pannosa* (syn. *Sphaerotheca pannosa*) is a major problem for roses worldwide. *Podosphaera pannosa* belongs to a group of obligate biotrophic fungi, meaning it depends entirely on living host tissue to grow and reproduce. The fungus forms a characteristic white, powdery coating on leaves, stems, and buds, which can lead to distorted growth, reduced photosynthesis, and an overall decline in plant vigor.

Although most often found on roses, *P. pannosa* is also capable of infecting other plant genera in the family Rosaceae, including species of *Prunus* (such as cherries, plums, and peaches) and, more rarely, outside of Rosaceae, attacking Myrtaceae. Reports of infection on Eucalyptus may reflect either a broader host range than traditionally recognized or the presence of closely related host-adapted strains. These cross-host occurrences highlight the ecological flexibility of the pathogen and its potential impact beyond ornamental roses (Agrios, 2005; CABI, 2026).

Podosphaera is a genus in the family Erysiphaceae. The genus was formally described by Kunze in 1823. The genus *Sphaerotheca* was absorbed into *Podosphaera* in 2000 following revisions proposed by Braun and Takamatsu and based on rDNA ITS sequences (Takamatsu et al., 2010). *Podosphaera*

pannosa on roses and on peach represent two distinct biological races, often considered formae speciales, which is supported by ITS sequencing (Leus et al., 2006). *Podosphaera pannosa* is recognized not only as an important plant pathogen but also as a useful system for studying host-pathogen interactions, fungal specialization, and disease management strategies across a range of economically and ecologically important plants.

Hosts: Catharanthus roseus (Madagascar periwinkle), *Corymbia citriodora* (lemon-scented gum), *C. coggygria* (smoke tree), *Eucalyptus benthamii* (Camden white gum), *E. camaldulensis* (red gum), *E. dunnii* (Dunn's white gum), *E. saligna* (blue gum), *E. urophylla* (Timor white gum), *Eucalyptus* sp. (gum), *Forsythia* sp., *Prunus armeniaca* (apricot), *P. cerasus* (sour cherry), *P. domestica* (plum), *P. dulcis* (almond), *P. laurocerasus* (cherry laurel), *P. lusitanica* (Portuguese laurel), *P. persica* (peach), *P. persica* var. *nucipersica* (nectarine), *P. africanum* (African cherry), *Rosa acicularis* (prickly wild rose), *R. arvensis* (field rose), *R. banksiae* (Lady Banks' rose), *R. canina* (dog rose), *R. centifolia* (cabbage rose), *R. chinensis* (China rose), *Rosa* sp. (Farr and Rossman, 2026).

Symptoms: *Podosphaera pannosa* attacks leaves and flowers of roses, and grows abundantly on the pedicels, sepals, and receptacles of roses, especially when the flower buds are unopened (Horst, 1983). Symptoms of powdery mildew can be seen on the terminal leaves of shoots, which are covered in powdery, white fungal growth. Leaves become misshapen and puckered, and develop powdery, white spots. In the fall, black cleistothecia are sometimes visible. Symptoms on *Prunus* spp. are similar, but in addition to leaf infection, they can include white, circular, powdery spots on young fruit, often resulting in brown, rusty, or russeted, corky scars as the fruit matures. The current year's twigs can be stunted in growth, and the lateral buds that differentiate into blossom buds may be destroyed (Adaskaveg et al., 2015; Ogawa and English, 1991). Different strains of *P. pannosa* exist with varying host specificity (Leus et al., 2006).

Transmission: Powdery mildews produce masses of spores (conidia), which become airborne and spread to other plants. While most other fungi require free water in the form of dew, guttation, rain, or water from overhead irrigation for germination and infection, powdery mildew spores require no external moisture for germination. Conidia of powdery mildew die in water. Spores may be dispersed, however, by splashing water. This species can produce cleistothecia with ascoma and ascospores that act as primary inoculum, although this is more common in colder climates. *Podosphaera pannosa* can overwinter as infections inside buds and perennate to produce conidia, providing a source of spores for new infection the following spring (Horst, 1983). Worldwide spread of the disease has occurred due to the trade in nursery stock and propagative materials such as cuttings and budwood (CABI, 2026).

Damage Potential: Varieties and cultivars of stone fruit and roses differ in their susceptibility to powdery mildew. Roses grown in greenhouses for cut flower production require frequent fungicide applications to manage epidemics. When *P. pannosa* infects the fruits of peaches and nectarines, there can be large yield losses. Up to 20% losses have been reported in susceptible peach varieties in the San Joaquin Valley (Ogawa and Charles, 1956). Grove (1995) reported crop losses reaching 50% on Japanese plums, apricots, nectarines, and peaches. *Podosphaera pannosa* is an important pathogen in

greenhouses and clonal hedges of *Eucalyptus* spp. in Brazil, where it causes leaf and shoot distortion, shoot discoloration, and growth reduction that results in production losses (Fonseca et al., 2017).

Worldwide Distribution: This pathogen is very widely distributed, with records in Asia, Africa, Europe, the Americas, and Oceania (CABI, 2026).

Official Control*: Podosphaera pannosa* is on the EPPO's A1 list for Egypt. It is on the USDA PCIT's harmful organism list for Guatemala, Nicaragua, Panama, and the Republic of Moldova (USDA PCIT, 2026).

California Distribution: Statewide with official records from Alameda, Imperial, Kern, Los Angeles, Orange, Sacramento, San Diego, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Solano, Sonoma, Stanislaus, and Yolo counties (CDFA PDR database, 2026).

California Interceptions: none

The risk that *Podosphaera pannosa* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** Powdery mildews are favored by warm days and cool nights and moderate temperatures (68 ° to 86 °F). Leaf temperatures above 90 °F reduce disease incidence. Shade or low light intensities, as well as high relative humidity (greater than 95%), favor disease development. Greenhouse conditions are often ideal for the development of powdery mildew epidemics.

   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 different families, including Rosaceae and Myrtaceae.

   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:** The fungus reproduces with multiple spore types that are primarily windborne. It does not infect the seed and does not have a vector.

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:** Powdery mildew is a major pathogen of roses grown for cut flowers. It can cause large losses to susceptible stone fruits in California.

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:** Susceptible varieties require frequent fungicide applications to prevent infections with powdery mildew.

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

Environmental Impact: D, 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: 3

- 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 *Podosphaera pannosa:* 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.

Evaluation is 'High'.

Score: -3
-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* ***= 8***

Uncertainty:

Prunus can be infected by multiple species of powdery mildew. Identification to species requires an expert mycologist.

Conclusion and Rating Justification:

Based on the evidence provided above the proposed rating for ***Podosphaera pannosa*** **is C.**

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cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

***Comment Period: 04/16/2026 through 05/31/2026**

***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.

Proposed Pest Rating: C
