CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal for

Pseudomonas syringae pv. *apii* (Jagger) Young, Dye & Wilkie 1978

Northern bacterial blight of celery

Pest Rating: C

Comment Period: 05/01/2025 through 06/15/2025

Initiating Event:

This pathogen has not yet been evaluated through the pest rating process. It is considered a pest of concern for California's export seed programs. This document assesses the risk posed by *Pseudomonas syringae* pv. *apii* (Psa) to California and proposes a permanent rating.

History & Status:

Background:

California leads the nation in celery production with 23,000 harvested acres valued at $380M (CDFA Ag Statistics, 2022/23). Celery is grown year-round on the central coast with the top producing counties Monterey, San Benito, Santa Barbara, San Luis Obispo, and Ventura, with seasonal production in the low deserts in Riverside and Imperial counties (Lazicket al., 2012).

This pathogen was first described in 1921 affecting celery in New York State. It is referred to as "northern bacterial blight" to distinguish it from a similar disease, "southern bacterial blight", caused by *Pseudomonas cichorii* (Thayer and Wehlburg, 1965). The first report of the disease caused by Psa in California on celery was made in 1989 (Koike and Bishop, 1990), and on fennel in 2010 (Jardini et al., 2012). It spread rapidly and has become a significant disease in coastal growing grounds where, under conditions favorable for the pathogen, it causes considerable necrosis of the foliage (Greer et al., 2024).

Hosts: Apium graveolens var. *dulce* (celery), *Foeniculum vulgare* (fennel), *Petroselinum crispum* (parsley) (Koike and Bishop, 1990; Jardini et al., 2012; Bozkurt et al., 2015).

Symptoms: Initial symptoms of the disease are water-soaked spots that are visible from both sides of the leaf. Leaf spots are small (2 to 5 mm) and are usually limited by leaf veins, resulting in an angular, square, or rectangular appearance. Lesions later become necrotic and can coalesce, producing extensive damage, with leaves rapidly turning brown, drying out, and becoming papery and tan (Little et al., 1997; Greer et al., 2024).

Transmission: Psa is a seedborne pathogen. From a low incidence of contaminated seed, large bacterial populations can develop on the young plants in transplant greenhouses, where the high humidity and moist conditions favor infection and rapid spread. Transplants carry the disease into the field (Little et al., 1997). Widespread severe symptoms do not continue to develop in fields unless the crop is irrigated with sprinklers or experiences frost during its growth. Long-term survival can occur through persistence in undecomposed celery residues (Greer et al., 2024).

Damage Potential: Under conditions favorable for the pathogen (free moisture), bacterial leaf spot lesions may coalesce and cause considerable necrosis of the foliage, reducing plant growth and yield. In the field, the disease is usually found where sprinkler irrigation is used or only on the older leaves beneath the plant canopy, which experience longer periods of wetness and less sun exposure. Severe disease symptoms are more frequently found in the late spring and summer growing season (May to July), when celery grows rapidly and leaves are succulent (Little et al., 1997; Greer et al., 2024).

Worldwide Distribution: Asia: *Indonesia, Turkey*. North America: *Canada, United States* (California, Delaware, Florida, Indiana, Michigan, Minnesota, New York, Ohio). South America: *Brazil* (CABI, 2025).

Official Control*: Pseudomonas syringae* pv. *apii* is on the EPPO's A1 list for Egypt (EPPO, 2025). It is on the USDA PCIT's harmful organisms list for Australia, Egypt, Israel, Mozambique, Panama, Peru, and the Philippines (USDA-PCIT, 2025).

In California, *Pseudomonas syringae* pv. *apii* is considered a pest of concern in export seed programs for peppers and tomatoes. CDFA's Phytosanitary Field Inspection Manual requires that mother plants undergo inspections before the end of the last complete cycle of vegetative growth.

California Distribution: Widespread in coastal celery-growing areas of California.

California Interceptions: none

The risk that *Pseudomonas syringae* pv. *apii* would pose to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** Records are limited to coastal regions where the disease is considered widespread. There are no records from the low desert where celery is grown seasonally (French, 1989; CDFA PDR database).

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 limited to celery, fennel, and parsley.

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:** Bacterial pathogens, under favorable conditions, can rapidly reach epidemic levels. The disease is seedborne and spread by splashing water.

Evaluate the natural and artificial dispersal potential of the pest.

Score: 3

- 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:** Large crop losses have been reported from this disease. It is a pest of concern for California export seed programs.

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

Economic Impact: A, B, C, D, G.

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:** none

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

Environmental Impact:

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: 1

- 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 *Pseudomonas syringae* pv. *apii:* 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)= **8**

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

Uncertainty:

California has records of *Pseudomonas cichorii,* another pathogen that can cause bacterial blight on celery but is not a pest of concern for export seed. Diagnosing *P. cichorii* vs. Psa cannot be done in the field.

Conclusion and Rating Justification:

Based on the evidence provided above the proposed rating for ***Pseudomonas syringae* pv. *apii* is C.**

References:

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Responsible Party:

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***Comment Period: 05/01/2025 through 06/15/2025**

***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: C