



Leaf Spot of Beach Morning-Glory

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Each morning-glory (*Ipomoea pes-caprae* subsp. *brasiliensis*; *pōhuehue*) is a hearty, vigorously creeping vine found just above the high-water mark on sandy Hawaiian beaches. Its thick green leaves are notched at the tips and resemble the impression of a goat's foot (*pes-caprae*). Flowers are convex in shape and dusky pink (Neal 1991). The vine forms roots at the stem joints, which stabilize beach soils and minimize erosion by wind and water. Landscapers install beds of this ground-covering plant in commercial, residential, and resort landscapes in Hawai'i.

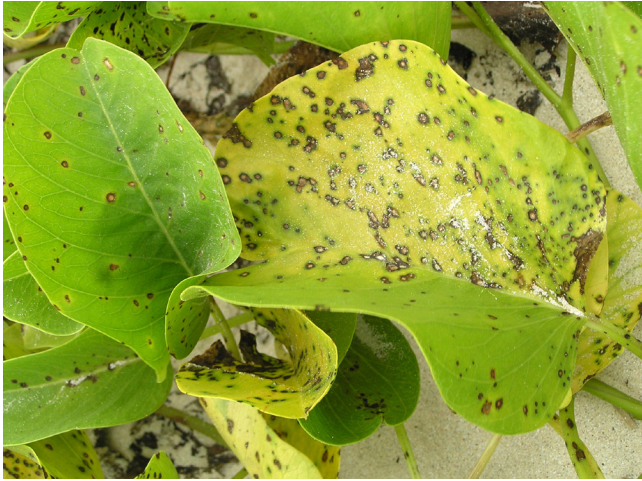
In early 2013, a landscaping contractor planted a large bed of beach morning-glory on the University of Hawai'i at Mānoa campus. All of the plants displayed the typical symptoms and signs of a leaf spot disease common to this host throughout Hawai'i. The disease is caused by species of the fungus *Cercospora* (Raabe et

al. 1981). Here we discuss these plant pathogens, describe and illustrate the typical leaf spot symptoms, and suggest integrated management practices for reducing disease incidence and severity.

Pathogens and Hosts

- The following two species of *Cercospora* are known to cause leaf spot of beach morning-glory in Hawai'i: *Cercospora alabamensis* G.F. Atk. (Stevens 1925), which infects beach morning-glory.
- *Cercospora ipomoea* G. Winter (synonyms: *Cercospora batatas* and *Cercospora bataticola*), which infects beach morning-glory and *Ipomoea purpurea* (purple, tall, or common morning-glory) (Raabe et al. 1981, Underwood 1897). In 2003, *C. ipomoea* was re-named *Passalora bataticola* (Crous and Braun 2003).





Disease Symptoms

These symptoms described below occur widely on beach morning-glory in Hawai'i. However, the incidence and severity of symptoms at a specific location may be sporadic and weather-dependent. Extended periods of rainfall and high humidity favor infection, as well as disease development and spread.

- Leaf spots with tan centers and darkly colored margins, approx. 1–4 mm in diameter, numerous, scattered over leaf surface, may coalesce to form blighted areas on leaves
- Leaf yellowing
- Leaf curling
- Premature leaf death and defoliation
- Spots on petioles

Disease Management

Effective management of the disease may be achieved through integrating the following practices.

- Sanitation: Remove fallen, symptomatic leaves from the area, as the pathogen can survive on dead leaf tissue.
- Increase air movement in the canopy by removing and destroying heavily symptomatic leaves. Thin out the plant canopy to improve aeration and promote drying of the leaves. Avoid growing beach morning-glory near windbreaks that prevent the leaves from drying rapidly after rainfall.

- Avoid irrigating plants with overhead sprinklers, especially in plant nurseries.
- Keep plants well fertilized. Diseases caused by *Cercospora* species often develop more rapidly and are more severe in plants lacking essential elements, especially nitrogen and potassium.
- In landscapes, intercrop beach morning glory with other non-susceptible ground covers such as *ilima* (*Sida fallax*).
- Grow plants in full sunlight rather than shade.
- Avoid using symptomatic plants in landscapes where the disease is not present.

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References

- Neal, MC. 1991. In Gardens of Hawaii. Bernice P. Bishop Museum, Special Publication 50, Bishop Museum Press, Honolulu HI.
- Raabe, RD, Conners, IL, and Martinez, AP. 1981. Checklist of Plant Diseases in Hawaii, Including Records of Microorganisms, Principally Fungi, Found in the State. Hawaii Institute of Tropical Agriculture and Human Resources, College of Tropical Agriculture and Human Resources, University of Hawai'i, Information Text Series 022.

- Stevens, FL. 1925. Hawaiian fungi. *Bernice P. Bishop Museum Bulletin* 19:1–189, pl. 1–10.
- Underwood, LM. 1897. A preliminary list of Alabama fungi. *Bulletin of the Alabama Agricultural Experiment Station* 80:1–283. <http://books.google.com/books?hl=en&lr=&id=KBMmQAAMAAJ&oi=fnd&pg=PA111&dq=%22Cercospora+alabamensis%22&ots=6csB7g0CFj&sig=9cE1Z4rCH52O4IQsUKRXx0sblgM#v=onepage&q=%22Cercospora%20alabamensis%22&f=false>
- Wagner, WL, Herbst, DR, and Sohmer, SH. 1999. *Manual of the Flowering Plants of Hawai'i*. University of Hawai'i Press, Bishop Museum Press, Honolulu, HI.