

Forest Health Alert: Koa Wilt Fact Sheet

Introduction: Koa wilt is a fungal disease infecting native koa trees and is caused by the pathogen *Fusarium oxysporum f. sp. koeae*, which was first described in 1980. Infection by this pathogen causes a vascular wilt disease that can be lethal to koa seedlings and trees. High mortality rates in koa plantations have been attributed to this disease, and the pathogen has also killed adult trees in native forests. The occurrence of koa wilt has been verified at several locations on each of the four major islands of Hawaii. It is unknown whether the disease evolved here in Hawaii or was brought in with non-native acacia species (the disease also infects Formosan koa). Although it is seed-borne, it is unknown how it spreads in the environment. The potential economic and environmental impacts of this disease on plantation and natural forests could be quite significant.



Dead koa from Koa Wilt disease



Crown dieback on koa sapling

Symptoms: Koa wilt enters the trees or seedlings through the roots and attacks the vascular system causing chlorosis, stunting, wilting of the foliage of the crown, crown dieback, and in some cases death. In addition, stem lesions occur with pronounced bleeding of sap on saplings and older trees. This tree sap often becomes discolored and has a strong, yeasty smell.

Current Research: An on-going survey is identifying the geographic distribution of koa wilt across the state. Knowing where it occurs will help us understand which environmental factors such as rainfall, temperature, and soil conditions are likely to contribute to susceptibility to the disease. Scientists are also investigating the interaction with other pathogens found on koa trees.

Future Management: Field trials using different koa families indicate that genetic resistance to this disease occurs in nature. By inoculating healthy koa seedlings with the disease, we hope to accelerate the development of disease-resistant planting stock for koa. Effective koa wilt management will also include cultural practices that enhance sanitation in forest seedling nurseries, seed collection, and field planting. These methods for controlling koa wilt are still being investigated.



Shoot dieback of infected tree



Wilted koa seedling



Ruptured stem with fermented sap

How landowners and natural resource managers can help:

- Report seedlings or trees that have koa wilt symptoms (see contacts below).
- Do not collect seed from unhealthy trees because they are likely to harbor the koa wilt pathogen.
- Safe seed collecting and handling protocols are still being developed. However the current best recommendation is to plant stock from local seed collected from healthy trees from the same areas where plantings are to be located.

An informational website will soon be available.

For further information please contact:

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