

Surveying and Mitigating Red Ginger Decline

The Situation

Red ginger (*Alpinia purpurata*) production in the state has been decreasing over the past five years. From 2014 to 2018, roughly one-third of the farms that reported income from red ginger no longer report that income, implying that these operations no longer grow red ginger substantially.



A severely infected plot of recently transplanted ginger

One of the reasons for this decrease in ginger production could be the difficulty of producing ginger due to a severe disease in ginger stands. Growers in east Oahu began reporting severe dieback in their ginger fields around 2014. Since then, these reports have spread throughout the island. This decline symptom was linked to several viruses in early identification efforts, as well as the possibility of other pathogens. The incidences of the decline symptoms have increased since 2019.

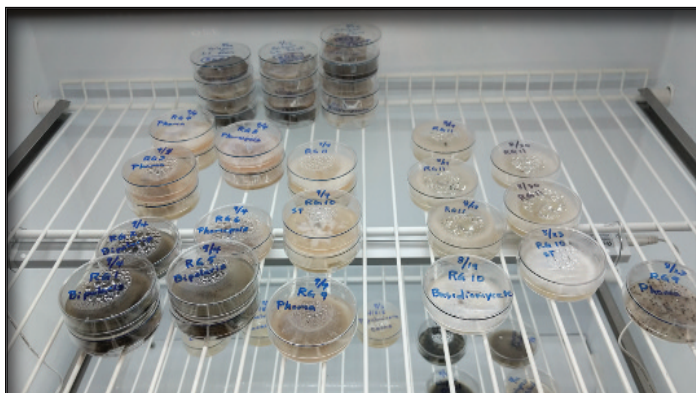


Extension agent Jari Sugano at a grower's field in Kaneohe, assessing and discussing ginger decline with the grower

This disease severely reduces crop vigor and makes the red ginger fields virtually unprofitable.

Cooperative Extension's Response

In April 2019, a grant was awarded to the University of Hawai'i at Mānoa with the explicit purpose of identifying and characterizing the causal agents of the pathogen as well as surveying the state for the prevalence of these



The first isolations of fungal pathogens found on symptomatic ginger tissues

pathogens and developing mitigation strategies for the decline symptoms. Several collaborators have been working on statewide surveying for viral, fungal, and bacterial pathogens infecting *Alpinia* and related ginger species in symptomatic fields.

Stakeholder education has also been occurring to inform growers of the disease characteristics and management practices to mitigate the issue. Seminars and grower consultations have occurred in order to disseminate this information.

Impact/Outcomes

Six viruses have been identified in ginger fields that are showing decline symptoms. One virus has never been identified in ginger before. Two new viruses have been identified since April 2019. Viral pathogens have been detected on O'ahu, Kaua'i, and Hawai'i Island.

Bacterial pathogens have not been identified in symptomatic plant material. Bacteria have been determined to not be a primary causal agent.

Several fungal pathogens have been identified consistently in symptomatic plant material. Four of these fungi have failed Koch's postulates for pathogenicity and are not

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considered primary causal. Currently, plants are being grown for more pathogenicity testing.

A total of 524 industry stakeholders have been educated on the disease identification, characteristics, and management based on the current knowledge at conferences



Seminar on red ginger decline to the landscape and nursery industries at the 2019 Landscape Industry Council's Annual Conference

and seminars. Many more of the general public have been informed of this disease during public outreach days, including CTAHR Day, Ag Day at the Capitol, and the Hawai'i Farm Bureau's Hawai'i State Farm Fair.

A *Better Management Strategy* extension publication is currently under review for electronic and hardcopy distribution.

A [video](https://www.youtube.com/watch?v=jLtr6KLI9s) (youtube.com/watch?v=jLtr6KLI9s) outlining the current understanding and management of the virus was produced and is available on YouTube and social media of the ornamental extension program.

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