

Using a Multipronged Approach to Combat Coffee Leaf Rust in Hawai'i

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Lisa Keith (Lisa.Keith@usda.gov), Blaine Luiz, Lionel Sugiyama, Tracie Matsumoto
USDA Agricultural Research Service, Hilo, HI, United States



Introduction: Coffee is one of the most economically valuable specialty crops for which Hawai'i is famous and is produced commercially on six islands by over 1,470 growers. Hawai'i's coffee industry, conservatively valued at \$100M per year [1], is at risk due to the recent arrival of coffee leaf rust (CLR) caused by the obligate parasitic fungus, *Hemileia vastatrix* [2].

Materials/Methods: Various aspects of research are being utilized to safeguard Hawai'i's coffee industry against *H. vastatrix*, including rapid detection methods (Fig. 1), fungicide testing (Fig. 2), variety screening (Fig. 3), and results from surveys of potential fungal antagonists (Fig. 4).

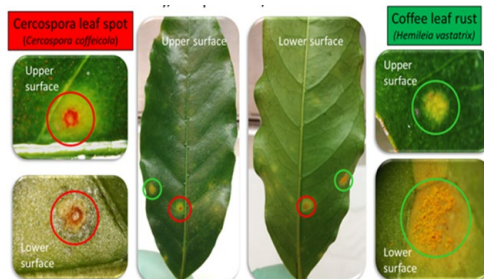


Figure 1: Visual aid for early detection



Figure 3: Screening for CLR resistance



Figure 4: Mycoparasite survey



Figure 2: Fungicide field trial

Results: CLR was first reported on Maui in late October 2020, discovered in Kona on Hawai'i Island in early November 2020, and rapidly spread throughout the state. High spore load, ease of dispersal and the environmental heterogeneity across Hawai'i's coffee-growing landscape, combined with differences in management practices, high production costs, and labor shortages will make CLR control extremely difficult.

Conclusions/Perspectives: All coffee genotypes grown on a large scale in the state are susceptible to CLR and few chemical and biological control products are approved for use. CLR threatens not only the yield and quality of Hawai'i-grown coffee, but also the economic viability of the industry and preservation of cultural heritage. An integrated approach is needed to control CLR in Hawai'i.