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Talk Story with CBB Researchers
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"Infection and Severity of Coffee Leaf Rust,
Hemileia vastatrix (Berk & Br.), and their Relationship to
Weather Variables in Four Locations in Puerto Rico**"**

Summary

Coffee leaf rust is a plant disease that harms coffee leaves in warm, humid weather. The first report of this plant disease was in 1869 from Sri Lanka and Southern India, and it was first found in Puerto Rico in 1903 on a shipment of coffee seedlings from Java.

Coffee leaf rust is caused by the fungus *Hemileia vastatrix* (Berk & Br.). It is an obligate parasite of *Coffea* sp, which means that this fungus cannot grow without a living coffee plant as a host. The disease produces dusty orange lesions on coffee leaves. These lesions spread spores to both other sites on a leaf and onto other leaves, creating more lesions in a polycyclic fashion. The spores drift to other coffee plants to affect more leaves; many lesions can result in defoliation and significant losses of coffee production. For example, in Central America, up to 70% of coffee farms have been affected, and 1.7 million jobs in the coffee growing were estimated to be lost, based on yield reductions from defoliated trees. Disease management uses copper-based fungicides as well as plant resistance. Many coffee farms in Puerto Rico may have a mixture of varieties, and some of these coffee varieties may have partial resistance to coffee leaf rust.

This research project was done to observe weather variables in relation to disease severity. Four locations were chosen to place weather stations, ranging from 1167 ft to 2618 ft elevation. The weather stations were used to measure dew point, precipitation, relative humidity and temperature. The infection rate and severity rate were recorded based on observed lesions. The data was analyzed to determine the correlations between weather variables and observations of plant disease, to see if there were significant explanatory variables. Infection rate was correlated with temperature, precipitation and dew point. Severity was correlated with precipitation, relative humidity, and dew point. As relative humidity increased, infection rate and severity increased. As expected, the locations have differences in infection rate and severity.