



**New cucumber research to address an old nemesis** →



The disease anthracnose, caused by the fungus *Colletotrichum orbiculare*, has likely been on Guam from the start of the cultivation of this popular crop; however, it wasn't until 1979 that it was officially reported.

Using gene sequencing, California Dept. of Food and Agriculture Plant Pest Diagnostic Center confirmed Guam's anthracnose pathogen and identified its strain as CBS 570.97+LARS73. Spots or lesions of the disease are easily seen on leaves but also occur on stems and fruits. These spots produce copious amounts of spores, which are easily spread across a field by wind driven rain. In addition to spreading the disease, it is within drops of water that spores germinate and infect the plant.

Dr. Robert Schlub launched a project in 2017 to reduce the impact of anthracnose on Guam through the identification and promotion of resistant cultivars. Dr. Schlub's approach is to screen for resistance by inoculating seedlings and then rating their disease severity level. He says, "The advantages of using seedling inoculation over natural field screening include less experimental error and less required space and labor." The project's objectives include the following: selection of test cultivars, year-one, authoritative identification of Guam's anthracnose pathogen, year-two, and screening of cultivars and relay of findings to Guam farm community, year-three.

During this first year, Extension Associate Meghan Borja solicited the opinion of University of Guam Cooperative Extension & Outreach agents, researchers, and local growers regarding which cucumber cultivars to include in the seedling screening trial. This resulted in the identification of five varieties commonly used amongst local farmers. Fifteen additional varieties were selected based on seed company information such as seed cost and availability, tolerance or resistance to anthracnose, fruit type, and high temperature hardiness. Through experimentation it was determined that an inoculum spore concentration of 40,000/ml was best suited for lesion development and that inoculum harvested from leaf lesions was preferable to those collected from agar cultures. Preliminary results indicated that some of the test cultivars do exhibit resistance or tolerance to Guam's anthracnose pathogen.

Also involved in the project is Dr. Brian Marx of Experimental Statistics at Louisiana State University. He provided input into the experiment design of the trial and will be providing analyses of the data.

Further reading:  
Schlub, R.L. 2014. Guam Cucurbit Guide, A guide to production and IPM practices for melons, cucumber, and squash on Guam. Guam Cooperative Extension Service University of Guam, Mangilao, Guam.



Extension Associate, Meghan Borja, examines cucumber leaves for the fungus *Colletotrichum orbiculare*.

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