FOR MORE INFORMATION: www.ars.usda.gov/Monitoring-and-Mitigating-the-Spread-of-Plant-Disease/

MONITORING AND MITIGATING THE SPREAD OF PLANT DISEASE

ARS is committed to controlling plant diseases to protect our food security and ensure an adequate supply of non-food crops for feed, fiber, energy, and horticultural uses. Plant diseases have significant impacts on yields and quality, resulting in billions of dollars in economic losses and management inputs each year to crops, landscapes, and forests in the United States. Effective control of plant diseases requires an understanding of the biology of disease-causing agents. The following FY 2020 accomplishments highlight ARS successes in identifying and studying the spread of plant diseases.

Predicting the spread of two severe citrus diseases by hurricanes. Asiatic citrus canker (ACC) and citrus black spot (CBS) are severe impediments to international trade of citrus. ARS researchers in Fort Pierce, Florida, adapted a previously developed model to predict where the 2017 Hurricane Harvey (in southeast Texas) and Hurricane Irma (in southwest Florida) may have spread ACC and CBS, respectively. Regulatory agencies and advisory committees in Florida and Texas have since partnered with the USDA Animal and Plant Health Inspection Service to deploy surveys for early detection of these diseases in both states.

Identification and movement of a nematode causing beech leaf disease (BLD) in North America. ARS researchers in Beltsville, Maryland, and collaborators identified and described a new subspecies of foliar plant-parasitic nematodes found in leaves of beech trees near Cleveland, Ohio. This nematode, which transmits BLD, is of international concern because it is a suspected invasive species from Asia, where it causes relatively minor damage. These results are important to pathologists, arborists, and regulators of domestic and international trade who want to contain this nematode and reduce its destruction.

New bacterial plant pathogen of onions. Onion production in New York is valued at more than $39 million. Losses due to bacterial diseases can be up to 75 percent in infected fields. There are currently no pesticides that are effective on bacterial rots. ARS scientists in Ithaca, New York, discovered a new bacterium species responsible for an onion disease in New York state that was not previously known to exist in the United States. This information is useful for USDA's Animal and Plant Health Inspection Service for monitoring the introduction and spread of plant disease-causing bacteria in the United States.

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First report of grapevine red blotch virus in Idaho. ARS scientists in Parma, Idaho, in collaboration with University of Idaho and commercial grape growers, documented the presence of grapevine red blotch virus (GRBV) in Idaho commercial vineyards. The disease may delay fruit ripening and therefore reduce wine quality for some varieties in some regions. GRBV had not been previously reported in commercial Idaho vineyards. Multiple years of sampling and testing for GRBV in Idaho indicate limited spread. The grape industry can use these findings for making vineyard replanting decisions.