

# New Pathogen and Insect Discoveries from the New Mexico State University Plant Diagnostic Clinic

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All About Discovery!

## Pecan Bacterial Leaf Scorch *Xylella fastidiosa*



In July of 2015, a sample submitted from an Arizona pecan orchard tested positive for *Xylella fastidiosa*. The sample exhibited symptoms of marginal leaf scorch and leaflet tipburn. Subsequently, the bacterium was confirmed in pecans in New Mexico, California and Texas. This is the first confirmation of this disease in pecans outside the Southeastern United States.

## Abstract

The New Mexico State University Plant Diagnostic Clinic (NMSU-PDC) provides diagnostic services for the state of New Mexico and serves as a support lab for the New Mexico Department of Agriculture (NMDA) and the National Plant Diagnostic Network (NPDN). The NMSU-PDC, an integrated clinic, processed over 11,000 disease, insect and plant identification samples between 2010 – 2015. The diagnostic capability of the clinic continues to improve and we now have the ability to offer advanced molecular diagnostics for new and regulatory pathogens. As a result of increased capability, we have identified several new pathogens or host-pathogen combinations, on average 5 per year, in New Mexico and the U.S. since 2010. Among the most interesting include: Bacterial Mosaic of Wheat (*Clavibacter michiganensis* subsp. *tessellarium*), Soil-borne Wheat Mosaic Virus (SBWMV), Buckeye Rot of Tomato (*Phytophthora nicotianae*), onion bulb rot (*Phytophthora nicotianae*), Eastern cottonwood trunk rot (*Phytophthora riparia*), Anthracnose of Sunflower Sprouts and Strawberry (*Colletotrichum acutatum*), Thousand Cankers Disease (*Geosmithia morbida*), Goss's Wilt of Corn (*Clavibacter michiganensis* subsp. *nebraskensis*), Phytophthora Blight of Bay Laurel (*Phytophthora tropicalis*), Late Blight of Tomato (*Phytophthora infestans*), Stem and Bulb Nematode of Garlic (*Ditylenchus dipsaci*), Pecan Bacterial Leaf Scorch and Bacterial Leaf Scorch of Shade Trees (*Xylella fastidiosa*). Several new insect pests have also been identified including: Honey Locust Agrilus (*Agrilus diffcilis*), a close relative of the Emerald Ash Borer, Brown Marmorated Stink Bug (*Halyomorpha halys*), Bagrada Bug (*Bagrada hilaris*) and Spotted Wing Drosophila (*Drosophila suzukii*).

## Stem and Bulb Nematode *Ditylenchus dipsaci*



These garlic bulbs, submitted by a home gardener in April of 2015, were found to be infested with stem and bulb nematode, *Ditylenchus dipsaci*. The infested plants were from one particular cultivar in an extensive garden of many cultivars and over 1,200 plants. This was the first confirmed occurrence of *D. dipsaci* on any host in New Mexico.

## Bacterial Leaf Scorch of Shade Trees *Xylella fastidiosa*



After the discovery of Pecan Bacterial Leaf Scorch in New Mexico, a survey for *Xylella fastidiosa* in landscape and native plants was conducted. In landscape plantings, the bacterium was found in Sycamore (A), Chinquapin Oak (B), Chaste Tree (C), Red Oak, Crape Myrtle, Rosemary, Ash, and Mexican Elder. In unmanaged ecosystems, the bacterium was found in Desert Willow, Mesquite, Apache Plume and Coyote Willow. The bacterium was also found in Salt Cedar, an invasive plant species.

## Phytophthora diseases *Phytophthora* spp.



Three new *Phytophthora* diseases were confirmed in the clinic over the last few years: *P. tropicalis* on bay laurel (A), *P. nicotianae* on onion (B), *P. infestans* on tomato (C), and *P. nicotianae* on tomato (D).

## Anthracnose of Strawberry and Sunflower *Colletotrichum acutatum*



*Colletotrichum acutatum*, the causal agent of anthracnose, has recently been found on two different hosts in New Mexico. It was found on field grown strawberries (A) and on edible sunflower sprouts in a controlled environment (B).

## Flatheaded Locust Borer *Agrilus diffcilis*



A First Detector noticed D-shaped exit holes similar to those caused by Emerald Ash Borer on a tree he presumed to be an ash. He immediately notified the NMSU-PDC. Our entomologist investigated the situation and identified the tree as honey locust and the insect as Flatheaded Locust Borer, a close relative of Emerald Ash Borer.