



CENTRAL COAST AGRICULTURE HIGHLIGHTS

JUNE 2011

SANTA BARBARA COUNTY UC COOPERATIVE EXTENSION

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Nutrient Management Meeting

Thousand Cankers Disease: A Threat to the Walnut Industry

A new pathogen is killing black walnut trees in California and poses a potential threat to the commercial walnut industry

HEATHER SCHECK, PLANT PATHOLOGIST, SANTA BARBARA COUNTY AG COMMISSIONER

Thousand Cankers Disease (TCD) was first recorded in Davis, CA in June 2008; however, it was probably in the state for several years prior to that. The disease has been confirmed from Los Angeles County in the south up to Sutter County in the north. TCD is also known to be present in Colorado, Idaho, Oregon, Utah, and Washington, plus the southeastern US.

The newly described fungal pathogen has been named *Geosmithia morbida* sp. nov. It is spread by a tiny bark beetle, the walnut twig beetle (WTB), *Pityophthorus juglandis*. Whereas *Geosmithia* sp. are common saprobes associated with bark beetles attacking hardwoods and conifers worldwide, *G. morbida* is the first species documented as a plant pathogen. The fungus lives as a symbiont with the beetle and is not known to spread any other way than with the movement of the WTB.

WTB is believed to attack all species of walnut; however, TCD has primarily been a problem on black walnut trees. Most often killed are two California native species of black walnut, *Juglans californica* and *J. hindsii*. Eastern black walnut, *J. nigra*, and hybrids of that species or hybrids of California native walnuts such as



Geosmithia morbida in pure culture

the Paradox hybrid (*J. hindsii* x *J. regia*), which are important rootstocks for commercial walnuts, have also shown symptoms of TCD. English walnut, *J. regia*, the primary commercial species grown for nuts, was confirmed to have TCD in Santa Barbara County (Lompoc and Buellton) in the fall of 2010. Trees showed branch dieback and general symptoms of decline. A research team from UC Davis confirmed that TCD has killed black walnut trees in our area as well.

Although previously not considered a pest insect, WTB's apparent new association with the fungus now makes it a pest of concern. The fungal pathogen *Geosmithia* colonizes and kills the phloem of walnut branches and stems, and causes the formation of small, oozing bark cankers.

Hundreds or even thousands of small fungal cankers develop in the branches, below the surface, around beetle galleries. They coalesce and eventually kill the cambium but these cankers are not highly visible and disease progress is slow. This makes disease diagnosis very difficult.



Small bleeding spots from TCD on English Walnut branch

Disease symptoms: Early yellowing of foliage and leaf drop, progressive branch decline or dieback over 2-3 years from the top down, small beetle holes in live branches which when shaved off show evidence that the cambium has been damaged, tree death not associated with obvious causes such as physical damage, stem cankers, root rot, collar rot, or trunk rot.

Management: Diseased trees or parts of trees should be removed from the orchard as quickly as possible to reduce beetle reproduction. No fungicides or insecticides have been shown to be effective in preventing or curing TCD.

WTB is believed to have 2 to 3 generations a year in California and the adults can fly. WTB does not appear to be attracted to stressed or injured branches or trees. Beetles introduce the fungus into the phloem during construction of feeding and reproductive galleries.

Geosmithia morbida colonizes and kills the phloem. Dead tissue is limited to this part of the tree and the fungus does not penetrate woody tissues to cause other types of wood rots. Secondary saprophytic fungi may opportunistically colonize the wood beneath cankers. Please report any possible detections on walnut trees to your Agricultural Commissioner's office or to your local University of California Cooperative Extension office. Presence of the pathogen can be confirmed by laboratory testing.

References:

Kolaik M. et al. Mycologia, 103(2), 2011, pp. 325-332. *Geosmithia morbida* sp. nov., a new phytopathogenic species living in symbiosis with the walnut twig beetle (*Pityophthorus juglandis*) on *Juglans* in USA

Garvey, K. UC Davis researchers target thousand cankers disease. <http://ucanr.org/news/?uid=1297&ds=191>

<http://www.thousandcankerdisease.com/>



www.twitter.com/calstrawberries

www.twitter.com/calveggies

Blogs:

<http://ucanr.org/blogs/BlackberryGrowerNotes/>

Information of interest to blackberry growers or others

<http://ucanr.org/blogs/BlueberryGrowerNotes/>

Production and marketing information of interest to blueberry growers

<http://ucanr.org/blogs/NotasdelProductordeArándano/>

Información de producción y mercadeo en español para productores de arándano

<http://ucanr.org/blogs/strawberries-vegetables/>

Information on production and pest management practices for strawberries and vegetables

<http://ucanr.org/blogs/pestnews>

Information on various pests for growers and public.

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Downey Mildew of Basil

SURENDRA DARA, STRAWBERRY AND VEGETABLE CROPS ADVISOR
UC COOPERATIVE EXTENSION-SANTA BARBARA AND SAN LUIS
OBISPO COUNTIES

Basil plants that originated from a central coast nursery were recently found infected with downy mildew pathogen, *Peronospora belbahri* in a home and garden store in California. This is a new pathogen that can cause serious damage to culinary and ornamental basil plants.

Symptoms include yellowing of the area between the veins on the upper leaf surface and growth of fungal mycelia and purplish grey spores on the lower surface. Yellowing on the upper leaf surface can be confused with nutritional deficiency, so careful examination of the lower side is important.



Fungal spores on the lower side of the basil leaf

Photo by: Heather Scheck,
Santa Barbara County Ag Commissioner Pathologist

Basil downy mildew was first reported in the United States in 2007 in Florida and in several eastern states by 2008. It was also found in California by 2009. Infected seeds and plants are main sources of infection. Growers should try to obtain clean seeds. Spores can be dispersed by wind and close spacing and overhead irrigation can also aid in the dispersal of the inoculum.

Regular monitoring of the fields for early detection of the infection and timely application of the fungicides is important for managing this disease. Proper ventilation and temperature control in the greenhouses is also critical as prolonged leaf wetness, high humidity, and cool weather promote the disease development.

For additional information about the disease and management guidelines go to:

<http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html>



Vegetable Pest, Disease, Nutrient and Nutrient Management Meeting!

Tuesday June 21, 2011
Shepard Hall, Santa Maria
Public Library
421 S McClelland St. Santa Maria , CA

Register (free) by June 14th on line at
<http://ucanr.org/vegetablemeeting>.

Meeting Agenda

8:30 am-Registration

9:00 am-Regulatory Update
Susan Bryant, Deputy AG Commissioner,
Santa Barbara County

9:20 am-Update on Diseases Affecting Coastal
Vegetable Crops
Steve Koike, Plant Pathology Advisor, UCCE
Salinas

10:00 am-Nutrient Management in Vegetable
Crops
Richard Smith, Vegetable Crops and Weed
Science Advisor, UCCE Salinas

10:40 am-Evaluation of Insect Repellents, Barriers
and Mulches, as Methods to Control Cucumber
Mosaic Virus of Bell Peppers
Joe Nunez, Vegetable Crops Advisor, UCCE
Bakersfield

11:20 am-Water Management in Lettuce
Water Management in Lettuce
Michael Cahn, Irrigation and Water
Resources Advisor, UCCE Salinas

Noon-Meeting adjourns

2.0 DPR AND 3.0 CCA CE CREDITS
HAVE BEEN APPROVED