Texas AgriLife Extension Service

Texas PD Notes

JANUARY, 2010 VOLUME 6 ISSUE 1

7th Annual Texas PD Research Symposium Returns to Flat Creek, March 2nd , 2010

Ten years ago, when the Texas A&M Pierce's Disease Task Force started applying for grants and conducting local research, nobody, and I mean nobody thought how far down the path we would be to sustainable disease management as we now are. Several new research fronts offer exciting possibilities to real management of this disease and as we all look forward to a final management solution to the risk posed by Pierce's disease to commercial viticulture in Texas, help us celebrate Texas Independence

Day by attending this year's PD research symposium at Flat Creek Estates. This year, we are thrilled to annouonce Andy Walker as our keynote speaker and have given him an extended speaking slot before lunch in this year's symposium. Andy will discuss genetic breakthroughs his program has found in developing resistant grape varieties, the process of hybridization, selection and evaluation as well as the future of developing and growing PD resistant grapevines. He is simply the best at what he does and is widely recognized as an approachable, eloquent speaker.

Dr. Andy Walker, Grape Breeder at U.C. Davis is Keynote Speaker at 2010 Texas PD Symposium

After eight years of funding, we are at a place where we see Pierce's disease as being manageable in low and moderate risk areas with cultural practices. They work, and with diligence, growers can grow susceptible varieties with nominal disease impact. Speakers this year will review cutting edge management technologies , offer insight as to the impact of the disease in lower risk areas such as the high plains, and discuss the future of research and production practices.

For Eastern and Coastal Bend areas of Texas, new high quality resistant varieties are poised to elevate the status of wine industry in these high risk areas.

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2010 Texas PD Research Symposium, cont.

Although historically there have been a number of grape breeding programs that have sought to develop PD resistant varieties, the breakthroughs by Andy Walker's program at U.C. Davis may well take this limiting disease out of the grape growing equation. In addition to Andy Walker's review, this year's symposium includes presentations on:

- **What do Xylella Infections on the High Plains Really Mean?- David Appel**
- **Neonicotinoid Insecticides, Material Selection, Rates and Timing – Jim Kamas**
- **PD 101 : Reviewing the Basics– Lisa Morano**
- **Panel Discussion on Current & Future Recommended Management Practices**
- **Using Trap Crops to Help Manage Vectors– Mark Black & Noel Troxclair**

We would like to cordially thank Rick & Madelyn Naber for once again extending their hospitality in hosting this year's conference. Registration Starts at 8:30. Conference runs from 9-4 with social hour to follow. Registration fee for this year's conference is $40 and includes catered lunch, and wine social. $50 registration at the door (until filled). On-line registration runs from February 2-26 Registration, map and more details available online at:https://agrilifevents.tamu.edu/index.cfm Event Name: 2010 Texas PD Research Symposium

Lisa Morano Helps Convince Andy to Come Speak at the Texas Symposium

Pierce's Disease in Oklahoma – How Does it Relate to the Texas Epidemic?- David Appel

The following information on the discovery of Pierce's Disease (PD) in Oklahoma comes from posters, presentations and discussions at regional meetings of the National Plant Diagnostic Network. There are also some excellent websites noted below where more information concerning the recent discovery can be found. Given the proximity of Oklahoma to Texas, it is worth analyzing some aspects of the disease in the two states to see if some insights to PD might be gained. Like the northern grape growing region of Texas, Oklahoma was presumed to be too far north to be threatened by the PD pathogen, *Xylella fastidiosa*. The first hint that this may not be the case came in 2004 when an American elm growing near Stillwater tested positive for Bacterial Leaf Scorch (BLS), caused by *X. fastidiosa* (see website of the American Phytopathological Society http://www.apsnet.org/pd/searchnotes/2006/PD-90-0108B.asp).

Molecular analysis of DNA from symptomatic petioles on the tree indicated it was the elm/mulberry strain (*X. fastidiosa* subsp. *multiplex*) of the pathogen. Although the find was reconfirmed the following year in the same tree with ELISA, they were unable to isolate the bacterium. Nonetheless, previous assumptions concerning the inability of *X. fastidiosa* to survive in the Oklahoma environment were dispelled. However a 2003 survey of 17 Oklahoma vineyards in 10 counties had failed to find PD. Vineyard establishment in Oklahoma has been increasing in the past decade to meet a growing demand for grapes from Oklahoma wineries, but there have been some limiting insect and disease problems. For example, the most serious disease has been black rot caused by the fungus *Guignardia bidwellii* (see website of the USDA http://www.reeis.usda.gov/web/crisprojectpages/213676.html.

Marginal leaf scorch, typical of Pierce's disease infection

Abscision of leaf blades with retention of petioles (match-sticking) is another symptom typical on Pierce's disease infected grapevines.

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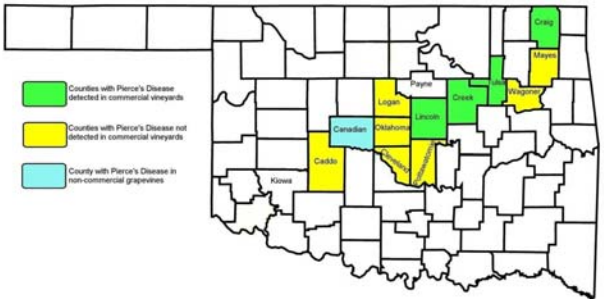
Pierce's Disease in Oklahoma , cont.



Map of Oklahoma showing the counties surveyed for Pierce's disease. Four counties tested positive (green), and in seven other counties, the pathogen was not detected. Canadian county (blue) is also included because PD had previously been confirmed there in non-commercial grapevines

It wasn't until 5 years later, in 2008, that PD was first detected in OK, but it was in the garden of a private residence rather than a commercial vineyard. The diseased grapevine was a 'Concord' variety in Canadian County exhibiting scorching typical of PD. The diagnostic method used was QRT-PCR, and the entire planting of 4 vines was eventually found to be infected (see website of the Oklahoma State University Plant Diagnostic Clinic http://entoplp.okstate.edu/pddl/2008/PDIA7-41.pdf). The source of the infection was not found. Following this discovery, a comprehensive survey during August – October in 2009 of 19 commercial vineyards in 11 counties was conducted. Plants with typical PD symptoms were the target of sampling, and QRT-PCR was again used in the diagnosis (see Figures 1 and 2, kindly provided by Jennifer Dominiak-Olson and Damon Smith of the Oklahoma State University Plant Diagnostic Clinic). Six of the commercial vineyards tested positive in 4 of the counties, representing a diversity of common varietals such as Merlot, Ruby Cabernet and Chardonnay. Further DNA analyses confirmed the identity as *X. fastidiosa* subsp. *fastidiosa*, the grape strain of the pathogen. Given the widespread incidence of the pathogen in some of the vineyards, it was concluded that the pathogen had been present for some time and was certainly overwintering there. Obviously, various strains of *X. fastidiosa* are able to survive farther north and in colder climates than previously expected. This observation has been made in the Texas High Plains grape growing region over the past 3 years as well, and has been the object of analysis in upper elevation vineyards in North Carolina and Georgia. An analysis of putative limiting cold temperatures in the Oklahoma counties where *X. fastidiosa* was detected indicate that from a cold temperature standpoint, those counties would be in the low- to moderate-risk categories. These same counties in OK are as far north as those in the Texas High Plains where the bacterium was recently detected. By many accounts, moderating climatic conditions may be making these formerly marginal areas more conducive to survival of the pathogen. The question of pathogen origin has yet to be settled for the Oklahoma situation, but just as in Texas, the potential for introduction of the pathogen in propagation materials has been raised. Although the Oklahoma industry is younger, the pathogen is already surprisingly widespread, just as it is in north Texas. Similarly, the status of vectors in both areas is the subject of ongoing research, although preliminary results in both locations indicate that there are resident sharpshooter populations present (see website of the USDA http://www.reeis.usda.gov/web/crisprojectges/213676.html). It is also interesting that attempts in Oklahoma to isolate the pathogen in pure culture have proven difficult, just as they have in northwest Texas. There was some speculation that perhaps this is due to strain differences in the Texas outbreak, but the widespread presence of the grape strain throughout Oklahoma makes this less likely. There are still many questions concerning the northern expansion in the range of PD that require continued research, but the evidence continues to point to a clear change in our assumptions concerning this important disease. ***Editor's Note: Pierce's disease was also diagnostically confirmed in Arkansas in 2006 and in Missouri in 2009.***

This publication may contain pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are possible. Questions concerning the legality and/or registration status for pesticide use should be directed to the appropriate Extension Agent / Specialist or state regulatory agency. Read the label before applying any pesticide. The Texas A&M University System and its employees assume no responsibility for the effectiveness or results of any chemical pesticide usage. No endorsements of products are made nor implied.

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