



## *Texas PD Program Enters 4th Year*

### **Introduction**

April 1, 2006 marks the beginning of the fourth year of research and extension activities designed to understand and help growers manage Pierce's disease in Texas. The 2006 allocation for these activities is once again \$1.2 million and in addition, the Texas APHIS office has budgeted approximately \$300,000 to manage and service trapping stations across the state. This issue of Texas PD Notes, written on the cusp of the fiscal year of this program is designed to give growers an overview of what the program is doing and how it functions.

### **Administration & Process**

The Texas Pierce's Disease Research & Extension Program is now under the direction of a three member administrative team. Dr. Kevin Heinz, department chair of Entomology has the lead roll in this group and is joined by Dr. Tim Davis, chair of Horticultural Sciences and Dr. Dennis Gross, chair of Plant Pathology & Microbiology. Last fall, the administrative team put out a call for proposals across the A&M system and included researchers from other cooperating institutions. On Tuesday, December 13th,

research and extension personnel seeking funding were given a chance to orally present their written proposals to the administrative team and members of the Texas PD Grower Advisory Board. Proposals were rated and prioritized and funding decisions were made. In March, 2006 APHIS and researchers met for a review prior to submission. The final plan of work and associated budgets will be reviewed by APHIS colleagues and administrators to ensure funded activities are needed, sound and do not duplicate other effort. Final approval is expected on or near April 1.

### **TEXAS PD NOTES IS PRODUCED AND EDITED BY**

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## *Texas Pierce's Disease Survey Activities*

There are currently two surveys taking place in Texas and their scope and direction are related but still entirely separate.

### **Insect Survey**

The insect survey is being conducted in approximately 50 vineyards across the state. This effort seeks to understand what potential vectors occur across the state, their relative abundance, and seasonality. Sticky traps are placed in and in some cases on the

periphery of vineyards across the state. Texas APHIS personnel are responsible for servicing these traps and making sure the cards are kept in good condition until they are delivered to researchers for counts and identification. This information is valuable in numerous ways. While vector presence does not necessarily constitute impending PD infection, this knowledge can help growers select sites with reduced PD risk. Under-

standing population dynamics, in other words when we expect these insects to appear in the vineyard is extremely important in the timely and responsible use of management tactics. APHIS personnel are working to complete a web-based vehicle for participating growers to receive timely data on insect activity in their vineyards and for the general public to receive regional insect activity data.

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## Survey Activities Continued

Because Glassy-winged sharpshooters are perhaps the most important and threatening vector, this program is working toward trappers uploading GWSS data in the field and for growers to have real-time data access to help in making management decisions.

### State-wide Vineyard Survey

Under the leadership of Ed Hellman, the State-wide Vineyard Survey is being implemented in the field by Penny Adams and Jacy Lewis. Training and software development began in

2004. Data collection last season was complicated by software problems, but these problems have been addressed over the dormant season. Activities will resume once enough vegetative growth is present on native plants so they can be accurately identified

This facet of the program is designed to visit each vineyard in the state that is one acre or larger. Data collected include location (GPS point), presence of PD and compilation of various geographical, viticultural and environmental

variables. This information should help us clarify where the disease actually exists, and perhaps explain how these variables impact disease risk. The use of global information systems can help us view variability across the state. These data are also extremely important in helping us calculate the economic impact of Pierce's disease on the Texas Grape Industry.



## Texas PD Applied Research Projects

### Natural Laboratory

Because PD is native to Texas, we are living and growing grapes in what amounts to the natural laboratory. Understanding the disease, its supplemental hosts, and the native vectors in this environment holds great promise in identifying a solution to the disease complex.

### Plant Pathology Effort

Plant Pathologists have taken on the task of understanding the pathogen across the state. Dave Appel has taken the lead on researching disease spread within vineyards. By selecting vineyards in different parts of the state and painstakingly mapping each vine, we gain a better understanding the rate and direction of disease spread. Through this work, we hope to be able to better advise growers on how to best manage their vineyards once PD has been positively identified. Appel has

also been involved in field trials of potential chemical agents to treat vines once they have been infected.

Mark Black has taken the lead on the identification of plants that serve as supplemental sources of the pathogen in the environment. Paired vineyards with and without PD were initially chosen for native plant surveys. This preliminary information along with exhaustive plant testing has led to the development of a list of potentially important plants in the disease complex. Black & Kamas are also involved in inoculated potted vine studies to investigate the impact of the soils from the Hickory Sands area of the Hill Country on pathogen survival.

Lisa Morano has taken lead initiative on understanding the genetic variable of *Xylella* in Texas. Understanding and perhaps exploiting genetic weaknesses hold promise in

ultimately solving this disease problem. Lisa has also been active in development of new diagnostic tools and understanding how Pierce's disease behaves in the Texas Gulf Coast or what Lisa calls the "hot zone".

A new colleague in both the epidemiology and pathology effort has been Blake Bextine. As a post-doc, Blake gained national notoriety in Tom Miller's lab at Riverside California where they explored genetic diversity of *X.fastidiosa* and investigated paratransgenic approaches to pathogen control. Starting last fall, Blake has assumed a research and teaching position at the University of Texas at Tyler. We all are glad Blake is back in his native state and has joined our Pierce's disease research team working with both pathologists and entomologists.



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INDUSTRY.*

***Research Effort, continued*****Entomology Effort**

Lead by Forrest Mitchell, the entomology group is working to identify which xylem feeding insects serve as important vectors of Pierce's disease. Understanding the basic biology of these insects will provide important information on how to avoid sites prone to high vector numbers and on the cost-effective timing of management practices.

Isabelle Lauziere has led the effort in insect rearing, an important and necessary component in understanding vector basic biology. Her efforts in vineyard surveys and in the identification of natural enemies of vectors has also been noteworthy. Isabelle has taken the lead in the relocation of the rearing facilities from the USDA station in Mission to the developing

facility in Fredericksburg.

Starting last year, Julio Bernal and his students joined the efforts to work with the naturally occurring enemies of sharpshooters. Noting that late season egg masses of GWSS are highly parasitized, this exploration may yield important information on how to limit population numbers, especially in urban areas where insecticide inputs are unwarranted and undesirable. Complimented by the efforts of John Goolsby's Agriculture Research Service group in Weslaco, sharpshooter enemy surveys are also being conducted across the state. The ARS group is also investigating the impact of groundcover type and management on sharpshooter populations as well as other novel approaches to vector manage-

ment.

**Horticulture Effort**

Because of our close relationship with the grape industry, both Kamas and Hellman are involved in cooperative efforts with many of the other researchers. Other projects include evaluation of commercially important rootstocks under high PD pressure, identification and collection of new PD infections, planning and collaboration with entomologists and pathologists. One new project for this year seeks to understand the mechanism of PD survival of native Texas grape species. Last summer's seed collections from three *Vitis* species will be grown, artificially inoculated and then examined to determine plant response.

**Texas PD Rootstock Trial**

This collaborative effort between Black, Kamas and another new member of our group, Josh Stevenson will help shed light on how our native vines stay alive after infection. Stevenson received his PhD from University of Texas in Austin in Botany and later worked in Tom Rost's lab in Davis, California. Rost's group has been instrumental in understanding mechanisms of Pierce's disease transmission in grapevines and analyzing *Xylella* movement in xylem pathways. Josh now has a teaching position at Texas A&M International in Laredo and has latitude to work on research of his choosing. Josh is another welcome and valuable member of the team.

**Mark Your Calendars**

**3rd Annual Texas Pierce's Disease Symposium**  
**Tuesday, May 23rd 2006**  
**Flat Creek Estates**

*In conjunction with the Grower Advisory Board, a date, time and a place for this year's conference has been confirmed. Topics and Speakers have been prioritized. Logistics are now being planned. More information to be posted on the List Server and the Texas Web Site as they develop*

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