TEXAS A&M UNIVERSITY-KINGSVILLE
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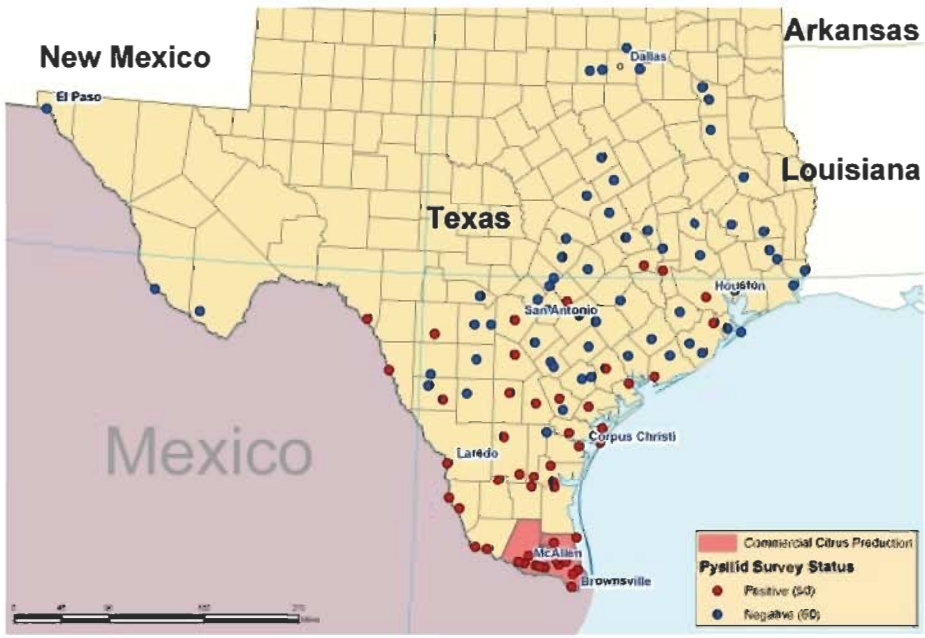
Season's Greetings

CITRUS PSYLLID AND GREENING SURVEY

During 2006, scientists from the Citrus Center have been conducting a survey across Texas to determine how widespread the Asian citrus psyllid has become since it was first observed in Weslaco in 2001, and if there is any evidence for the presence of citrus greening disease. We discovered that citrus is being grown in dooryards as far west as El Paso, and as far north as Fort Worth. While we are pleased that there are so many people who like citrus so much they want to grow their own, the chances of someone unknowingly introducing a new pest or disease is increased.

We found psyllids all across south Texas. The most westerly find was in Del Rio. Other major locations were in San Antonio and in several places in Houston. Psyllids were also found along the Gulf Coast up to Port Lavaca and Palacios. There were also some psyllid finds in nurseries west of Houston and in Alvin. However, none was found in the areas in east Texas bordering Louisiana. The map shows where citrus was located, and which places had psyllid present. It appears that the psyllid finds were mainly close to major highways, possibly indicating that human movement of plants may be playing a role in dispersal.

No symptoms with clear greening-like appearance were found. However leaf samples from over 300 trees from across the state, from commercial orchards, nurseries and dooryard trees, were sent to the USDA-AMS laboratory in Gastonia NC for molecular diagnosis for greening. None tested positive. In addition, psyllids from various locations were



Map courtesy of
David Bartels
USDA APHIS PPO CPHST

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also tested for the presence of the greening pathogen – they were also negative.

The survey was funded by USDA-APHIS-PPQ and made easier as a result of the assistance we received from many people, including extension agents, landscape operators, and property owners. We gratefully acknowledge this support and cooperation.

During Fall, some Weslaco Center personnel visited Florida to observe greening symptoms in different citrus varieties and locations. The disease appears to be widespread and the situation in the future could become very serious. It is imperative that Texas does all it can to protect itself against this disease.

John da Graça, Victor French, Mani Skaria and Mamoudou Sétamou

CITRUS CENTER GRADUATE STUDENTS DEFEND THESES

The Citrus Center has been actively recruiting graduate students since 1996, and since then 31 theses have been defended. Most have been MS degrees through Kingsville, but five PhD students have graduated through College Station, including two from the cooperative PhD program with Kingsville. Here are reports of the latest three students to complete their degrees.

Graduation of Mr Ram Mohan Uckoo From TAMU-Kingsville

Ram Uckoo graduated in Decembert 2006 from Texas A&M University-Kingsville with a Masters degree in Plant and Soil Science. Ram Uckoo came to TAMUK from Hyderabad, India where he received his Bachelors degree in Agricultural Science. Ram's thesis work, under the direction of Dr. Shad D. Nelson, was performed at the TAMUK Citrus Center South Farm on 'Irrigation and Fertilizer Efficiency in South Texas Grapefruit Production' with water conservation projects in collaboration with the Harlingen Irrigation District and citrus growers throughout the Rio Grande Valley. He published one manuscript in the Subtropical Plant Science Journal (Vol. 57:23-28) on his thesis work and has another paper in progress for publication. Ram was honored to receive a 'Pathways to the Doctorate' research assistantship and accepted into the Cooperative Horticultural PhD program between TAMU College Station and TAMU-Kingsville. He is currently working under the direction of Dr. Bhimu Patil at the Fruit and Vegetable Improvement Center in College Station and working on the discovery of new phytonutrients in grapefruit. Ram will return to TAMUK and the Citrus Center to work with Dr. Nelson and continue his PhD research program in summer 2007.

Shad Nelson, PhD
Associate Professor of Agronomy
Texas A&M University-Kingsville

Liz B. Vela Successfully Defended Her MS Thesis

Liza B. Vela, a graduate student at the Biology Department of the University of Texas PanAmerican, Edinburg successfully defended her thesis in November, 2006. This is another example of a mutually beneficial cooperation between UT PANAM and the Texas A&M University-Kingsville Citrus Center. Liza conducted her research work for the thesis at the Citrus Center with Dr. Mani Skaria. In addition, she interacted well with other staff and faculty at the Citrus Center. Her studies with 18 isolates of the Citrus tatterleaf virus (CTLV) demonstrated certain anatomical changes in the stem, particularly of the vascular tissue which seem to be associated with CTLV infection. Healthy Swingle citrumelo, Carrizo, and Troyer citrange rootstocks each exhibited normal round stems with well-developed xylem tissue. In contrast, CTLV-infected plants generally exhibited distortions or compressions of the stem and a deleterious effect of xylem tissue. These trends were characteristic of CTLV infection. The rootstocks that Liza studied are particularly important because of their resistance to *Citrus tristeza virus*.

Mani Skaria

Another Student Graduates in Biotechnology

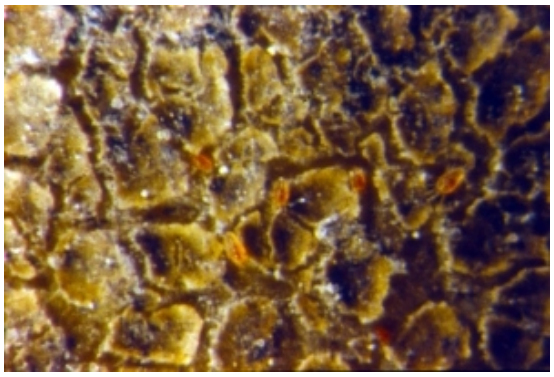
Claudine de Bona a native of Brazil, arrived at Texas &M University 4½ years ago to pursue her PhD degree under the advisement of Drs. Eliezer Louzada and Creighton Miller. From the beginning she demonstrated interest in biotechnology and specifically in somatic hybridization by protoplast fusion. Claudine spent 2 years in College Station

Claudine See Page 3

FALSE SPIDER MITES ON THE REBOUND

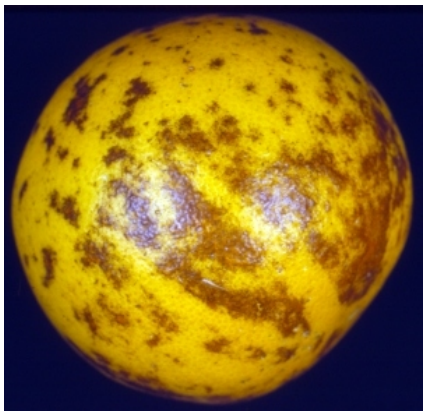
False spider mites (FSM) are traditional long standing pests of Valley citrus. FSM are red and slightly larger than the rust mite. Infestations tend to build in the interior tree canopy and all too often go undetected until "leprosis-like" spotting, commonly referred to as nail head rust, appears on the fruit rind. The damage is more prevalent on grapefruit than on oranges and associated with feeding injury by two FSM species—*Brevipalpus californicus* and *B. phonenicis*. More recently a third FSM species—*B. obovatus* has been identified, but it is yet to be proven that its feeding also causes fruit spotting (J.V. French and J. daGraca, Citrus Center Newsletter, Vol 21, 2003).

Mid to late season infestations of FSM have been fairly high, with nail head rust observed on grapefruit in some Valley orchards. While the damage is mainly cosmetic, it can seriously affect fresh fruit marketability. Unfortunately, Kelthane MF® (dicofol) one of the more effective chemicals for spider mite control has been removed from the market. Growers will have to incorporate an alternative miticide into their spray program e.g. Comite EC®, Danitol 2.4 EC®, Envidor 2 SC® or Vendex 50W®.



False spider mites on fruit lesion 30X

Jesús Mata Jr., a recent graduate in biology from the University of Texas Pan-American, has undertaken a research project for his masters degree at the Citrus Center on false spider mites. He will be involved in collecting and developing cultures of the three FSM species. These will then be utilized to identify specific genetic markers (genotyping) for each species. This would enable rapid FSM species identification of field collected samples and any associated fruit damage. His research will provide long needed data on population dynamics of the three *Brevipalpus* spp in Valley orchards, and whether all can cause fruit spotting. Results of Jesús's studies will be forthcoming in future Newsletter articles. This research is partially funded by the Texas Citrus Producers' Board



False spider mite feeding injury on grapefruit

J. Victor French, Mamoudou Sétamou, Eliezer Louzada and John da Graca

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taking her courses,and 2 ½ years ago she came to the Citrus Center to do her research. She did an excellent job and produced several somatic hybrids of grapefruit plus gamma irradiated sweet orange. These hybrids could never be produced by conventional sexual hybridization, and they have great potential to help produce sweeter grapefruit. Additionally, Claudine produced cell lines of grapefruit and Murcott tangor containing additional chromosomes of a citrus wild relative called *Swinglea glutinosa*. These cell lines could be a first step to create radiation hybrid panels to help gene mapping efforts.

Claudine defended her thesis on 4 December, 2006, and is heading back to Brazil to start a research program on medicinal plants.

Eliezer Louzada

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