

Citrus



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NEWSLETTER

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It's Time for Coordinated Dormant Sprays Against the Asian Citrus Psyllid

Mamoudou Sétamou and John da Graça

The threat to our citrus industry from citrus greening is not going to go away; in fact it is getting worse with the spread of the disease in Mexico. This year it has been found in several states on the Pacific coast, just 500 miles from the Lower Rio Grande Valley. Citrus greening has not been detected in Texas so far, so it is either totally absent or is present at very low levels. Our main weapon against it now is to attack the vector, the Asian citrus psyllid. If the population is kept as low as possible, the spread of greening will be significantly impeded.

The psyllids overwinter as adults. There is no reproduction during this time because there is no new citrus flush to lay eggs on. They survive by feeding on mature leaves, and are thus at their most vulnerable time. It makes sense to spray in November to knock down this adult psyllid population, and then to spray again in January just before the spring flush. The November spray will probably kill most of but not all the psyllids, and the January spray will further reduce the population. Very few psyllids will then be around to lay eggs on new flush shoots in February as the spring flush cycle gets underway..

Since psyllids are flying insects, it is important for citrus growers to coordinate their sprays with others in their area. If one grower sprays his/her orchards, and the neighbors do not, psyllids will just re-infest. The life cycle of the psyllid is about 2 weeks, and this is the ideal window for all spraying to be done. However, with the start of the harvest season, and with some citrus farms covering hundreds of acres, this will be challenging. So, we are recommending a 3-week window, and encouraging all spraying to be done between November 1 and No-

ember 21. The January spray should be done during the second half of that month.

To facilitate this endeavor, a voluntary area wide program was initiated in January 2010, and many growers and grove care managers attended a meeting at the Citrus Center to learn about it. The program is being coordinated by the Citrus Center, Texas Citrus Mutual, USDA-APHIS-CPHST, Texas AgriLife Extension and the Texas Department of Agriculture. Growers were invited to participate voluntarily, and many signed up - in fact, those who did volunteer care for 58% of the Valley's citrus acreage. In late January 2010, many applied a first dormant spray.

During October, meetings were held in each of the six Citrus Pest Management Areas established to help coordinate this program to advise on the November spray dates, application methods and registered pesticides. Several attendees commented that they observed low psyllid populations during the year, one which had abnormally high rainfall and resulting citrus flushes which should have favored psyllid reproduction.

Three application methods are available - ground airblast, ground low volume and aerial. Whichever is used, label rates for the pesticides must be strictly followed - make sure that the rate of chemical applied per acre is the same. For the November spray, the following pesticides are suggested - Baythroid XL (registered for airblast and aerial only), Danitol, Mustang and Malathion 5. REI and PHI should be taken into consideration.

A meeting was also held for organic and sustainable practice growers. the principals are the same, just the approved sprays are different.

If anyone has questions, please contact either John Worley at TCM (956-484-1772/457-9141) and Mamoudou Setamou (956-447-3370/472-3346).

If you have not participated in the program so far, it is not too late to join. Together we can and must win the war.

The Citrus Center Welcomes Dr Melgar, our New Plant Physiologist



Dr Juan Carlos Melgar joined the faculty of the Citrus center in September. He comes to Texas from Spain where he completed his PhD in Crop Production and Protection focusing on environmental stress physiology in fruit trees at the Universidad de Córdoba (Spain) in 2006. After that, he worked as a Postdoctoral Research Assistant at the Citrus Research and Education Center/University of Florida for almost three years. Before moving to Weslaco, he worked as a Research Associate at the Department of Plant Physiology at CSIC in Zaragoza (Spain).

His research experience covered issues related with salinity, drought and cold stress, mechanical harvesting stress, mineral deficiencies, excess of light and flowering physiology in different fruit tree species (citrus, olive, peach and pear trees). He keeps close relations and collaborations with several international research teams in US, Spain, Italy and Colombia. His current planned research lines at the Citrus Center will cover citrus tree physiology and nutrition. Dr. Melgar has 14 refereed journal publications and 3 non-refereed publications.

We are delighted to welcome Juan Carlos to Weslaco, and invite citrus growers to meet with him so he can plan his research for your benefit.

A Tribute to Paul Parker (1948-2010)



Valley agriculture, including the Citrus Center, lost a leader and friend this past July when Paul Parker died suddenly. Since 2003, Dr Parker was Laboratory Director of the USDA-APHIS-CPHST at Moore Field, near Edinburg, overseeing significant change in the emphasis of the facility, and leading multiple scientists in national pest and disease management programs of importance to U.S. agriculture. Prior to this appointment, he worked as a plant pathologist at the laboratory there since 1981.

Paul was born in Massachusetts, and after gaining his PhD from Michigan State University, he joined the USDA in 1977. During his time in the Valley, he established close ties with the Citrus Center, and as Director facilitated close cooperation between scientists at both centers. This is illustrated, for example, by the current collaborative program on area wide management of the Asian citrus psyllid. After his appointment as Director, he continued his research activities, and frequently visited Florida where he was involved in research on citrus canker. Paul frequently visited the Citrus Center, and was a regular guest at meetings of the Advisory Committee where he gave updates on activities at the USDA-APHIS-CPHST laboratory.

Paul will be missed and remembered by all, and we extend our condolences to his wife, Eng, and her family.

Goodbye to the Old Home, Hello to the New - Building Dedication Scheduled for December 15

In August, the new Citrus Center was ready for faculty, staff and students to move in. The move went very smoothly, thanks to cooperation from all, including help from the Skanska folk. Amongst the first areas to resume operations was the HLB diagnostic lab, and the TTVN classroom. While everyone was settling in, operations began to demolish the old building which had been the Citrus Center's home for over 60 years.

Skanska and their subcontractors are busy now with finishing off some areas in and around the building, and they will complete the work by the end of November. The Dedication Ceremony for the new building has been scheduled for Wednesday, December 15. Several state, university, community and industry leaders have indicated that they plan to attend.



Goodbye old friend, and Thank You



From behind the rubble, the new appears



Students hard at work in one of the new laboratories



Ready for business

“Seek, You Will Find” Applies to Sweet Orange Scab

M. Skaria, M. Kunta, J. V. da Graca and M. Setamou

A great proverbial statement “those who seek me diligently find me” truly applies to sweet orange scab (SOS) in Texas and elsewhere in the country. SOS is a disease of citrus that can result in serious economic damage. The disease is caused by the fungal pathogen, *Elsinöe australis*. Texas was on the map of the US citrus industry and the USDA APHIS PPQ in the summer of 2010 when an initial finding of SOS made at the TAMUK Citrus Center was officially confirmed. Leaf and fruit samples, from a lemon tree located on a residential property near Houston, were forwarded to the USDA APHIS PPQ Molecular Diagnostics Laboratory (MDL) in Beltsville, MD for diagnostic testing and confirmation. This was the first finding of SOS in the U.S. Since then, the Citrus Center team has reported additional findings to USDA from a small orchard in Orange County – also was officially confirmed. Samples were also submitted to USDA APHIS PPQ CPHST National Plant Germplasm Biotechnology Lab (NPGBL) in Beltsville, MD for confirmation of the identity of the pathogen.

A technical working group (TWG) was formed in August and a meeting was held via teleconference. TWG members represent scientists and regulatory personnel. Participants and observers were introduced and the charge to the TWG was outlined at the teleconference held on August 13, 2010.

SOS has been confirmed in several samples from Hidalgo County and SOS status in other counties in the Rio Grande Valley is expected soon. SOS has been confirmed in other parts of Texas and in at least 14 parishes in Louisiana. I believe that we have had SOS for a long time, undetected. A newly available PCR technique simply made the diagnosis possible. Therefore, SOS may be found in many hitherto unreported places if sought diligently.

A published information on this disease had indicated that SOS does not infect leaves and it causes only fruit symptoms. Many scab lesions detected in Texas in the past had both fruit and leaf symptoms. Moreover, mature lesions of SOS do not readily produce conidia. Because of these, it seems that many SOS were undetected until a PCR technique was employed.

About SOS

Like some other fungal pathogens, theoretically, it is possible to eradicate early infections; however, there are no known historical attempts to eradicate SOS elsewhere

The biology and epidemiology of the pathogen are not well-described. Infections can be seen on fruit, leaves and stem. Infection begins on young tissue.

Natural spread seems to be limited. Based on a related pathogen *E. fawcettii* that causes sour orange scab, conidial infections can occur at a distance of 30 meters from a severely diseased lemon tree while trap plants placed 400 meters away from any known inoculum source showed no infection. *E. fawcettii* produces spindle-shaped conidia that can be air-borne for short distances, whereas *E. australis* produces only hyaline conidia. Thus, the ability of *E. australis* to spread should be even less (Pete Timmer, 2010 *personal communication*).

The most likely spread is by people transporting infected plant material

Infected tissue may develop symptoms in one week, especially under warm, moist conditions

It is possible to misdiagnose the disease. The table below shows a comparison of different diseases with SOS

Removal of infected trees is desirable in areas closer to commercial trees. Buck-horning is a practical alternative to manage disease spread.

Fungicides can be used to protect developing fruit from SOS infection.

A clean nursery stock production in roofed nurseries is the best management strategy, avoid overhead irrigation in nurseries

The fruit damage is superficial and it does not cause any effect on people.

Disease & Causal Agent	Symptoms
Sweet Orange Scab (SOS), <i>Elsinoe Australis</i>	Mostly found on sweet orange but also cause disease in grapefruit, lemons, satsumas and others. Scabs on both sides of leaves, about 2 mm diameter. Fruit lesions are circular, flat, show cracks around lesions, Scabs look distinct.
Common scab or sour orange scab. <i>Elsinoe fawcetti</i>	Lesions are single or irregularly grouped, show wart-like growth, scab lesions found grouped.
Citrus Canker <i>Xanthomonas axonopodis</i> pv. <i>citri</i>	Symptoms on leavers and fruit, lesions are raised, show a water-soaked ring or halo
Melanose <i>Diaporthe citri</i>	Light brown to dark, raised pustules, feels like a sand paper when rubbed with finger or on face. Fried-egg symptom and tear stain on fruit.

The USDA APHIS PPQ has a website that contains important information on this disease. The site address is:

http://www.aphis.usda.gov/plant_health/plant_pest_info/citrus/downloads/sweet_orange/SOS-Training.pdf

The following figure compare typical SOS with sour orange scab.



Plant Pest Information website, USDA APHIS PPQ

http://www.aphis.usda.gov/plant_health/plant_pest_info/

Field identification guide, USDA, APHIS, PPQ

http://www.aphis.usda.gov/plant_health/plant_pest_info/citrus/downloads/sweet_orange/FieldIdentificationGuide-SweetOrangeScab.pdf

Texas Vegetable Association Recognizes Dr Amador



At the annual Texas Produce Convention on South Padre Island this past August, the Texas Vegetable Association presented the TVA President's Award to Dr Jose Amador, the former Director of the Texas AgriLife Center and the Citrus Center.

The TVA President's award is only given to scientists who the industry recognizes as having made significant lifetime contributions to the industry. This is not annual award, and is only given in exceptional circumstances. TVA felt that Dr Amador deserved the award, since he had devoted over 40 years to the vegetable industry, first as an extension plant pathologist and then as Center Director. During his career, Dr Amador fostered close cooperation between scientists at the Texas A&M Research Extension Center in Weslaco, the Citrus Center and the

USDA laboratories in the Valley, as well as all the vegetable, row crop and citrus growers. The citrus industry recognized him earlier this year when he was elected King Citriana.

Congratulations, Jose

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