

Citrus Center



Weslaco, Texas

Vol.28 No.2

NEWSLETTER

April 2010

Recent Citrus Black Spot Disease Report from Florida

Mani Skaria

Situation: One more exotic citrus disease found in Florida. This time, it is citrus black spot (CBS), found in Collier County, Florida, March 8, 2010. Citrus black spot is a fungal disease caused by *Guignardia citricarpa*. It causes serious necrotic lesions on fruit and makes it unsuitable for fresh fruit market.

Suspected fruit were collected by members of the Citrus Health Response Plan (CHRP) survey team in Florida from a Valencia orange grove. There were over 100 trees with fruit symptoms of CBS. The owners had picked all the fruit for juice since infected fruit has no juice quality issues. The researchers and the regulatory agencies conducted conventional and advanced diagnostic laboratory techniques, and based on the results, the pathogen was confirmed as *Guignardia citricarpa*. In addition, the presence of *G. citricarpa* was subsequently confirmed by the USDA-APHIS, Beltsville, MD, April 7, 2010. In plant pathology, a process called Koch's postulates have to be fulfilled before the status of an organism is established as the pathogen. Koch's postulates have not been yet established for the CBS in Florida. The specific steps to be completed are: 1) isolation and culturing of the organism, 2) inoculation and disease development in healthy fruits, and 3) re-isolation and culturing of the organism. It is expected to take 6-8 months for the Koch's postulates to be completed, based on my personal communications with Dr. Tim Schubert, plant pathologist and biological administrator of the Florida Division of Plant Industry (DPI). USDA-APHIS continues to monitor fruit arriving at 17 juice processors and the Florida DPI crew has completed a 7 mile arc around the CBS grove. Lemon trees are more sensitive to *G. citricarpa*; however, this does not mean that we are safe from CBS in

Texas. CBS can affect all commercial citrus cultivars.

First in North America: This is the first report of this pathogen in North America. In South America, both Argentina and Brazil have black spot and this new report from Florida constitutes a major jump in the geographical range of the pathogen. It is endemic in many Asian and African countries.

Impact and Ways to Control: Black spot will cause serious fruit blemish and reduced yield. However, it does not affect fruit quality. Since Valencia is a late season orange; there are plenty of small, immature fruit on infected trees along with mature fruit. Therefore, secondary spread of the disease from mature fruit to immature fruit in the field can happen easily. The disease can be controlled by fungicides containing copper and strobilurins. Florida citrus growers already use these fungicides for the control of other diseases and therefore, a chemical control approach is not difficult. In addition to chemicals, a cultural practice of removing and/or disking under the fungal fruiting bodies on decaying leaves on the orchard floor can be an effective management strategy. In fact, it would be a necessary practice to reduce the inoculum pressure in the early stages of the disease epidemics in Florida.

And for us in Texas? This disease is another exotic pathogen that we have to be on the look out for. Our industry is aimed at the fresh fruit market and the highest impact of the disease is on fruit grown for this market. Our growers should therefore be familiar with the symptoms. The following pictures were kindly provided to me by Dr. Tim Schubert, Florida DPI. In addition, we have secured the reagents for the PCR test to detect CBS pathogen efficiently, if any suspected symptoms are found.

See Black Spot Page 2

Black Spot from Page 2



Figure top. Valencia fruit lesions 1-5 mm diameter, irregular distribution

Bottom left. Close up of a fruit lesion

Bottom middle. A more virulent symptom on Valencia orange

Bottom right. Fruit symptoms as seen on a tree

A Friend of the Citrus Industry Honored

Mani Skaria

Juan M. Garcia, Executive Director of the Texas State Farm Service Agency received the Hall of Honor Alumnus award, at the Dick & Mary Lewis Kleberg College of Agriculture, Natural Resources & Human Sciences for 2010. A native of Lyford, TX and a 1976 graduate from the then Texas A&I University Kingsville, he was the guest of honor at the recent awards function in Kingsville chaired by dean, Dr. Allen Rasmussen, attended by students, staff, faculty and Provost Dr. Rex Gandy.

Mr. Garcia was appointed by Agriculture Secretary Tom Vilsack to serve as Texas FSA Director in the Obama Administration. As FSA Texas state director, Mr. Garcia oversees more than 1,700 staff and over \$1 billion annually.

Juan has been a supporter of the citrus industry. He has been bringing disaster relief via the citrus tree assistance program (TAP) after the 1989 freeze and even after hurricane Dolly in 2008. He lived in Edinburg,

TX before relocating to College Station. According to Mr. Ray Prewett, President of Texas Citrus Mutual in Mission, TX, "Juan has been a strong advocate for the citrus industry. He understands our industry and has worked hard to make FSA program work for us."

Congratulations!

Tacho Leal Retires



Anastacio Leal (left) talking to former Farm Superintendent Bert Davis

Anastacio (Tacho) Leal retired on Dec. 31, 2009, and the Center expressed their thanks for his long service in maintaining our facilities at a luncheon in March attended by him and several members of his family.

Tacho was first hired in August 1982 as a Journeyman Helper I. His position was later reclassified first as a General Repairman I and then as a Maintenance Repair Worker II. On March 1, 1999, Mr. Leal was promoted to Superintendent Building Maintenance and Construction. During his time here he left his mark on all buildings at the center – since they were mostly old structures, his expertise at keeping them in a useable condition was invaluable. Not only could he fix the plumbing, electrical and structural problems that arose, he is highly innovative, and designed and constructed numerous research items such as cages and insect traps, which could not be obtained commercially. During his last year of service, he designed and built a new workshop within one of the sheds because of the planned demolition of the old workshop.

We will all miss him, and wish him well in his retirement.

Barnacle Scale, a Growing Problem in Some Valley Orchards

M. Sétamou

While scouting for citrus pests, several orchards across the Lower Rio Grande Valley were found to be infested with barnacle scale, *Ceroplastes cirripediformis* Comst. Generally, this scale seldom reached population levels sufficient to cause economic damage because it is effectively controlled by many beneficial insects and pesticides used for the control of other citrus pests. The presence of many pin-sized holes on the body of scales is a sign of natural control provided by parasitoids as these holes are their exit holes after feeding and killing the scale. However, high numbers can be found in some orchards due to the disruption of natural enemies or simply because of local outbreaks. In these situations, it is important to maintain plant vigor through good water and nutrient management and use integrated control approaches. At times insecticide applications may be warranted to control barnacle scale.

Description and Behavior of Barnacle Scale

Barnacle scale is an unarmored coccine scale-insect which occurs upon citrus-trees in the Valley and somewhat resembles a very small barnacle, thus the popular and the specific name of “barnacle scale” (Figure 1a). Barnacle scale resembles the Florida wax scale, *Ceroplaster floridensis* Comst. (Figure 1b), but specific characteristics of the adult female and the immature stages make it easy to identify the barnacle scale and discriminate it from other scales.

The mature female is reddish brown and fits closely under a waxy covering also known as test. A spine-like process extends through the test at the anal end of the body. The test is divided into distinct angular plates, six on the side, and one on top for a total of 7 plates (Figure 1a). **A very apparent central nucleus or spot is found on each plate, except the anal plate that has two spots.** On Florida wax scale, this spot is not very apparent. Mature barnacle scale female measures 5 mm long, 4 mm wide and 4 mm high and is bigger than the Florida wax scale.

The adult female lays 100 or more reddish brown eggs beneath its body. Brown crawlers (baby scales) hatch from the eggs and migrate from the under their mother onto foliage and twigs where they will start feeding. On leaves, crawlers prefer the upper surface along the midrib. While developing crawlers secrete wax that accumulates on their body. All nymphal and adult stages of the barnacle scale are motile, except the adult female that remains immobile when depositing eggs. It takes about three months for the life cycle to be completed. While feeding, barnacle scales produce copious amounts of honeydew that attracts ants and constitutes a growth medium for sooty mold fungus.

Control of Barnacle Scale

In the Valley, initial infestations occur in early spring (March-April), and it is important to monitor barnacle scale populations and take action in areas of heavy infestations to prevent subsequent economic damage. Several insecticides registered for Texas citrus can be used for effective control of barnacle scale. These include carbaryl (Sevin 80 S), imidacloprid (Provado, Alias, Merit), thiamethoxam (Actara, Flagship), dinotefuran (Safari), acetamiprid (Assail), bifenthrin (Talstar), beta-cyfluthrin (Baythroid), methidathion (Supracide), pyriproxyfen (Esteem), malathion (Malathion), chlorpyrifos (Lorsban 4E, Chlorpyrifos 4E, Yuma). Horticultural oils comprising petroleum spray oils, neem oil, fish oil, citrus oils and some insecticidal soap (M-pede, Safer’s soap) can also provide good control. For an effective and long term control to be achieved, it is important to take action at the beginning of infestations.



Figure 1: Barnacle (A) and Florida wax (B) scales

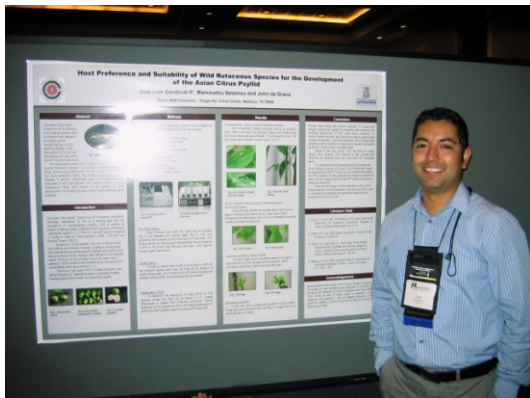
Awards and Recognitions for Citrus Center People

John da Graca

Recently several Citrus Center faculty, staff and students received recognition for their work and service. At the annual Dick & Mary Lewis Kleberg College of Agriculture, Natural Resources & Human Sciences Awards Banquet in Kingsville, Dr Mani Skaria received the Senior Teaching Award for his development of on-line classes, and Justin Tanner received the Citrus Center graduate student award.



April is also the time for the annual service awards luncheon in Kingsville. Four employees of the Citrus Center received their 20-year service awards (Teresa Gonzales, John Watson, Refugio Rodriguez and Arturo Torres), and one his 10-year award (Ramon Medrano).



Orlando, FL was the site in March of the Minorities in Agriculture, Natural Resources and Related Sciences (MANNRS) conference. One of our students, Jose Sandoval III, won second place in the poster competition. He is studying the host range of the Asian citrus psyllid among native citrus relatives under the guidance of Drs da Graca and Setamou.

Graduation of Three PLSS Students

Shad D. Nelson

Three graduate students in the Plant and Soil Science (PLSS) program will receive their Master of Science degrees in May 2010. Juan M. Raygoza, Raul R. Hinojosa, and Madahy Romero all had projects tied to the TAMUK Citrus Center, it's faculty, staff and facilities. Drs. Shad D. Nelson and Mamoudou Setamou served in advisory roles as Thesis Chair and Co-chair to these students.



Juan Raygoza's thesis was entitled 'Effects of Organic Production on *Diaphorina citri* Dynamics of and Nutrient Absorption of Citrus Trees'.



Raul Ray Hinojosa's thesis was 'Aldicarb Degradation in Flood Irrigated South Texas Soils in Relation to Asian Citrus Psyllid Control, *Diaphorina citri* Kuwayama'.



Madahy Romero's thesis was 'Impact of Altering Sugarcane Harvesting Methods on Atrazine Adsorption to Sugarcane Leaf Litter'.

See Graduates Page 5

Graduates from Page 4

Their future looks bright as all three have employment or continued plans for higher education after graduation. Juan Raygoza has a passion for sustainable agriculture and is employed in the organic citrus industry in the Valley. Ray Hinojosa has already taken a job with the USDA-Natural Resource Conservation Service in Oklahoma as of February, 2010. Madahy Romero will start a Ph.D. program in the Soil and Crop Sciences Department at TAMU College Station in August 2010. All three students performed excellent work and are an example of the high quality students that represent well the Hispanic community and future leaders as proponents to agriculture. We wish them well in their careers and appreciate the supportive contributions from the Texas Citrus Producers Board, the Rio Grande Basin Initiative, USDA-Hispanic Serving Institute grants and TAMUK Citrus Center assistantship funds for their continued funding support to allow these students the opportunity to succeed in achieving this important goal.

Address comments or inquiries to Newsletter Editor, Texas A&M University- Kingsville Citrus Center, 312 N. International Blvd, Weslaco, Texas 78596 or, in the case of signed articles, directly to the staff member named. Articles appearing in the Newsletter may be reproduced, in whole or in part, without special permission. Newspapers, periodicals and other publications are encouraged to reprint articles which would be of interest to their readers. Credit is requested if information is reprinted.

Mention of a trademark, proprietary product, or vendor does not constitute a guarantee or warranty of the product by the Texas A&M University-Kingsville Citrus Center and does not imply its recommendation to the exclusion of the other products that may also be suitable.

Phone: 956-447-3360 Fax: 956-969-0649



Texas A&M University-Kingsville
Citrus Center
312 N. International Blvd
Weslaco, TX 78596