

Citrus Center

Weslaco, Texas

Volume 31 No. 2

NEWSLETTER

Fall 2013

Citrus Canker Found in Louisiana – What does it mean for Texas?

John da Graça, Madhu Kunta and Mamoudou Sétamou

Citrus canker is a highly contagious and severe disease of citrus caused by a bacterium, *Xanthomonas axonopodis* cv. *citri*. It causes lesions on fruit, leaves and twigs, causing significant crop losses. It is easily spread by wind and rain, and infection can be enhanced

if there is citrus leafminer feeding damage on the leaves at the time of infection.

In June of this year, three young sweet orange trees growing in a park in New Orleans LA were found with classic canker symptoms; laboratory diagnosis confirmed that they had canker. Delimiting surveys were conducted, and one additional tree was found in a nearby residential property. All the infected trees were destroyed. However, the pathogen had already spread, and by September over 300 new finds were confirmed in different parts of the city, and well as in the neighboring Jefferson parish.

Citrus canker was introduced into the US states of Texas, Mississippi, Alabama and Florida from Asia on infected trifoliolate orange seedlings and Satsuma trees in the early 1900s. In Texas, symptoms were first noticed in 1911. The federal government initiated an eradication campaign in 1915 in these states, as well as in Louisiana, South Carolina and Georgia where the disease had spread to. This campaign was successful, with the disease being eliminated in Florida by 1927, Louisiana by 1940, while in Texas the last confirmed find was in Corpus Christi in 1943.

Canker reappeared in Florida in 1986, declared eradicated in 1994, but rediscovered in 1995. This time, eradication was not achieved, partially due to dramatic spread by several hurricanes in 2004.

FEATURES

-  Citrus Canker in Louisiana....pg.1
-  Mani Skaria Retires...pg.3
-  New Citrus Nursery Regulations...pg.3
-  Friend of the College...pg.4
-  Mari Reyes retires...pg.4
-  Awards Banquet...pg.5
-  Mike Perez Joins Citrus Center...pg.5
-  Graduates...pg.6
-  Visiting Scientist...pg.7
-  New Plant Pathologist at AgriLife...pg.8

Some historical photographs found at Texas A & M University in College Station show canker symptoms on citrus from several locations, including Kingsville in 1915. There was also one newspaper report of infected trees being removed in Donna in 1920. Although canker is most severe in areas with higher rainfall, it clearly can occur in the drier areas of south Texas.

We recently published a review of citrus canker in the USA, with special reference to Texas, in *Subtropical Plant Science* and included some of these old photographs:

http://www.subplantsci.org/SPSJ/v64%202012/SPS64_08%20SKARIA%20AND%20DA%20GRACA_GALLEY%20FINAL_PDF.pdf

The Citrus Center conducts a continual survey funded by USDA-APHIS for exotic pests and diseases, and canker is one we are on the lookout for. Thus far, no infected tree has been confirmed in Texas. However, the new outbreak in Louisiana does raise serious concerns, since citrus is grown quite extensively in dooryards and small orchards along the Gulf Coast from the Louisiana border through Houston and surrounding areas down to Corpus Christi.

One of the most susceptible citrus species is grapefruit, which makes up 70% of the commercial citrus production in Texas. In addition, the industry here is aimed at the fresh fruit market, and fruit with canker lesions is not marketable. Citrus canker is something that cannot be allowed to become established in Texas. We urge all growers and homeowners to call the Citrus Center, the Texas Department of Agriculture or USDA-APHIS if they suspect the presence of canker. If you can take a photograph and send by email, one of the agencies will make arrangement to visit the site to collect samples in a manner which minimize the risk of further spread, and have them tested in the laboratory.

In this newsletter we include photographs of typical canker symptoms to help identify suspect trees. Young lesions on leaves are raised and pustular on both leaf surfaces, but especially the lower surface. The lesions later become corky with raised margins and sunken centers. There is also a characteristic yellow halo around the leaf lesion which tends to disappear as the lesion ages, but note that other pathogens can also cause a halo. On the fruit, lesions are up to 1 mm deep, but are otherwise similar.



Citrus Canker lesions on a citrus leaf.



Citrus canker lesions enhanced by citrus leafminer activity. (Photo credit to Dr. M. Dewdney, Extension Specialist, Univ. of Florida, IFAS, Lake Alfred)



Citrus canker on Grapefruit. (Photo credit to Dr. M. Dewdney, Extension Specialist, Univ. of Florida, IFAS, Lake Alfred)



Dr. Skaria and Dr. Steven Tallant, TAMU-Kingsville University President, at the university retirement function.

Dr. Mani Skaria Retires

John da Graca

At the end of March, Dr Mani Skaria, Professor of Plant Pathology, retired from TAMUK after 25 years service.

Dr Skaria was born in the State of Kerala in India. He studied at the University of Kerala, receiving both the Bachelor's and Master's degrees. He came to the USA to pursue his PhD degree in plant virology at Purdue University in 1979 under Dr R. M. Lister, graduating in 1984. He then worked for Washington State University and the US Agency for Aid and Development, and spent some time working on citrus diseases in Jordan. In 1988, he was hired as an assistant professor at the Citrus Center.

During his years in Texas, he worked on all the diseases which occur here, including Phytophthora root rot, greasy spot, melanose, post harvest fungal problems, nematodes, scab, Ganoderma, tatter leaf virus, citrus viroids, and was author or co-author on 40 scientific papers. For several years, he managed his own citrus orchards, and learned what issues the Texas growers face on a daily basis. He was also very active in the American Phytopathological Society, serving on several committees. His discovery of *Citrus tristeza virus* in a citrus nursery in Texas was instrumental in establishing a mandatory budwood certification program for Texas.

Although he was hired as a full-time researcher, he always had a passion for teaching, and began supervising graduate student research in the mid-1990s, chairing or co-chairing 19 committees over

the years. He later requested, and was granted a 25% teaching appointment, and developed several internet-based courses, receiving the College Senior Teaching Award in 2010.

He conceived the idea of micro-budding citrus on very young rootstock seedlings, and showed that these trees began fruiting at about 2 years old. By planting such trees at high density, growers would be able to turn a profit in a shorter time frame. He has now created a company which will implement these ideas on a commercial scale, with a particular emphasis on Persian lime production, a fruit in high demand.

We thank Mani for his contributions to the citrus industry, the Citrus Center, and the University, and for his friendship over the years, and wish him every success in his new venture. Our best wishes also go to his wife, Annie, and their two children.



New Citrus Nursery Regulations for Texas

Mark Van Ness and John da Graca

In May the Texas Legislation passed an amendment to the Agriculture Code that establishes a certified citrus nursery program for any nursery stock propagated for sale, movement, or own use within the "Citrus Zone" (the eight county area in deep south Texas recognized by the Texas Department of Agriculture (TDA) as the area for commercial citrus production). The new law took effect on September 1, 2013, and the rules to administer the new law will be adapted by TDA by October 1, 2013. This law was enacted to ensure that both the Citrus Budwood Certification Program and any Citrus Nurseries that propagate and grow trees will have their nursery stock protected from citrus pathogens, including Huanglongbing (Citrus greening disease) which is spread by the Asian Citrus Psyllid.

Any citrus nursery propagating trees (including planting and growing rootstock, budding and grafting trees) must have their nursery stock enclosed in approved insect-resistant structures that have been certified and inspected by TDA. Certi-

fied citrus nurseries propagating citrus must obtain certified budwood for use in propagating their nursery stock. The citrus nurseries will be inspected periodically by TDA, and will include inspection of the structures, nursery stock, and propagating records. All nurseries will apply for certification and will be certified on an annual basis. Application and certification fees, as well as administrative penalties for any violations of the rules. Specific procedures for implementing the rules are being developed cooperatively by TDA and the Citrus Industry Regulatory Workgroup.



Ray Prewett - Friend of the College

John da Graca

At the annual Dick & Mary Lewis Kleberg College of Agriculture, Natural Resources and Hu-

man Sciences awards banquet in Kingsville in April, Mr Ray Prewett, President of Texas Citrus Mutual, was named the 2013 Friend of the College. He was recognized for his strong support of the College and the Citrus Center in particular. He continues to be an active advocate for the Center, particularly during sessions of the Texas legislature. He has worked closely with all faculty at the Center over the years on every aspect of the citrus industry. He is a frequent traveler to Washington DC where he works with colleagues from Florida and California for federal support for the nation's citrus. Ray has received recognition from other groups, and it is fitting for the College to express its appreciation for his work as well.

The Citrus Center congratulates Ray for this honor.

Mari Reyes Retires

John da Graca and Terry Gonzales

Maribel (Mari) Reyes, retired from the Center at the end of May. Mari, joined the center in May 1996 as Purchasing Clerk. Her position was later upgraded to Administrative Assistant III. She developed and maintained excellent friendly relationships with key colleagues in Kingsville and local vendors, which the Center benefitted from greatly. At the Center, her smile, friendship and willingness to help were appreciated by all.

Mari, thank you for all your hard work, and we wish you an enjoyable retirement. We will miss you.



Staff and Student Awards at College Banquet

John da Graca

At the College awards banquet, two people from the Citrus Center were recognized. The College Staff Award was presented to **Eric Gonzalez**, Database Specialist. In the short time Eric has been employed at the center, he has impressed everyone with his efficiency, knowledge of accountancy and computers, and his willingness to help everyone. The Citrus Center graduate student award was presented to **Cecilia Lott**, a master's student in Dr. Louzada's laboratory. She is studying the transformation of tomato for resistance to *Phytophthora* as a model for citrus.



(Top) Eric receives Staff Award from Dr. Allen Rasmussen, Dean of the College. (Below) Cecilia receives Student Award.



Michael Perez Joins the Citrus Center

John da Graca

Michael Perez was hired as an Administrative Assistant II in May, filling the vacancy left by Mari Reyes. He was born in McAllen, but has lived in Donna all his life. He worked for the City of Weslaco for 23 years, first in Purchasing where he worked with Terry Gonzales (now Assistant to the Director of the Citrus Center), and then transferred to Municipal Court where his supervisor was Mari Reyes before she moved to the Citrus Center! He took early retirement from the city in 2011, and then worked part-time for Home Depot until he was hired at the Center. We welcome him to our family, and wish him many happy years with us.



Latest Masters' Graduates

Eliezer Louzada, Juan Carlos Melgar, Madhu Kunta and Mamoudou Sétamou

At the May and August Commencement ceremonies in Kingsville, three more graduate students supervised by Citrus Center faculty graduated with their masters degrees. In May, **Carolina de la Garza** and **Francisco Melgoza** received their degrees. For her research project, Carolina studied the distribution of the HLB bacterium, *Ca. Liberibacter asiaticus*, in the leaves and roots of citrus and orange jasmine under the supervision of Drs. Louzada and Kunta. She has now begun her studies at the Texas A & M Veterinary School in College Station. Francisco was supervised by Dr Melgar, and studied freeze tolerance in citrus for his thesis. He is currently enrolled in the Master of Business Administration at the University of Texas Pan-American, aiming to get more experience to apply for jobs in agricultural/agrochemical companies.

At the August ceremony, **Charlene Farias** received her master's degree. She works at the Texas A & M AgriLife Center in Corpus Christi in the lab of Dr. Mike Brewer who invited Dr Sétamou to co-supervise her research project on native corn resistance to corn earworm and fall army worm. Congratulations to our latest graduates who join an illustrious group of alumni. Good luck to all for your future careers.

Visiting Scientist from Turkey

Juan Carlos Melgar



Dr. Mehmet Ali Demiral is a researcher and professor of plant nutrition at the Adnan Menderes University (Aydin, Turkey) and has spent the last three months at the Citrus Center. Dr. Demiral has been working on the relations between nutrition, drought and salinity stress in plants for the last 10 years. Some of the latest research he has led in his lab include the use of foliar-applied plant growth regulators to improve stress tolerance in olive and fig trees, including proline and glycine-betaine. The excellent results obtained in these species and the possibility of a partnership with the Citrus Center made us start thinking of developing a research to assess the effectiveness of the application of plant growth regulators in grapefruit trees irrigated with saline water. We are still working on the project but first results show that foliar applications of proline are very effective in increasing salinity tolerance of citrus. Furthermore, an interaction with the rootstock has been observed since the first weeks of the study: foliar applications seem to be more effective in grapefruit trees on C-22 than on sour orange. We hope to finish this study by the end of September and disseminate these results soon.



Above: Francisco Melgoza

Left: Carolina de la Garza

Texas A&M AgriLife Hires New Extension Plant Pathologist for the Valley - Dr. Olufemi Alabi

John da Graca

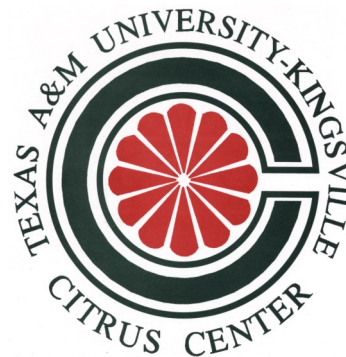


Dr. Olufemi (Femi) Alabi recently joined the faculty of the Texas A&M University Department of Plant Pathology & Microbiology on August 19, 2013 as an Assistant Professor and Extension Specialist located at the AgriLife Research and Extension Center, Weslaco, Texas. Femi's responsibilities will include providing leadership and coordination for extension plant disease management for South Texas and maintenance of active interaction with growers and other professionals involved in agriculture in the Rio Grande Valley. Femi's program will focus on diverse cropping systems critically significant to the productivity and sustainability of South Texas agriculture, including diseases of fruits and vegetables, citrus, and potatoes.

A Nigerian national, Femi earned his bachelors and masters degrees in Nigeria from Obafemi Awolowo University, Ile-Ife and the University of Ibadan, Ibadan, respectively. After working briefly at the Virology and Molecular Diagnostics Laboratory of the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria, Femi earned a Ph.D. degree in Plant Pathology at Washington State University (WSU) in December, 2009. His doctoral degree was focused on the epidemiology, molecular detection and genetic diversity studies of selected viruses in-

fecting cassava and wine grapes. Subsequently, he worked as a Postdoctoral Research Associate at WSU's Irrigated Agriculture Research & Extension Center, Prosser, WA focusing on the epidemiology, molecular diagnosis, genome characterization, genetic diversity studies and impact assessment of viruses infecting grapevines. Femi is a member of the Virology and Tropical Plant Pathology Committees of the American Phytopathological Society.

The Citrus Center joins others in welcoming Femi to the Valley, and looks forward to collaborating with him.



**312 N International Blvd
Weslaco, TX 78596-9027**

Phone: (956) 447-3360

Fax: (956) 969-0649

<http://citruscenter.tamuk.edu>

Thank you!

**A special thanks goes to
Rosanna Elizondo-
Villarreal
for the design and
layout of this
newsletter.**

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 part or in whole, 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 or the exclusion of the other products that may also be suitable.