

# Citrus Center



Weslaco, Texas

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NEWSLETTER

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## North Farm Demonstration & Research Irrigation Park

*Shad D. Nelson and  
John da Graça*

The Texas A&M University-Kingsville Citrus Center North Farm located in Monte Alto is undergoing extensive renovation with



View of North Farm Orchard

the installation of a new irrigation system. The purpose of the irrigation system is to create a new Demonstration & Research Irrigation Park (DRIP) where irrigation studies can be performed at one central location with established mature grapefruit and Valencia orange citrus trees (tree age: 7 yrs old) and field day demonstrations can be provided to growers. The newly established irrigation system will allow for replicated studies to assess the

impact of various irrigation methodologies, such as single vs. dual line drip; microjet sprinkler spray placement; and narrow border flood irrigation in side by side comparisons in the same soil type. The system will allow for detailed water metering for assessment of varying water quantity impacts on citrus yield and fruit quality. We

**Continued on Pg. 2**

## FEATURES

-  North Farm Irrigation...pg. 1
-  Food Safety Course...pg. 2
-  Research Internship...pg. 2
-  New Research Associate..pg. 3
-  Juice Pools...pg. 4
-  Raspberry Ant...pg. 5
-  President's Ball...pg. 6
-  Bridging with the Industry...pg. 7
-  Citrus Pest Update...pg. 8
-  Custom Crafted Table...pg. 9



Irrigation Line being installed

### DRIP Cont'd from Pg. 1

anticipate the DRIP North Farm to assist the citrus growers to better anticipate how to maintain high citrus production using various irrigation systems in anticipation of future years of drought or population growth contribute to restricted or limited irrigation water supplies. We appreciate the generous donation from Rio Farms for the establishment of the DRIP North Farm so that such studies can be forthcoming for the benefit of citrus producers in the Lower Rio Grande Valley. The irrigation system installation was funded primarily by Texas A & M University-Kingsville (Higher Education Assistance Fund), supplemented by Citrus Center fruit sales, and USDA grant funds to Texas Water Resources Institute and the Rio Grande Basin Initiative.



### A New Graduate Course, Food Safety & Plant Biosecurity Offered

*Mani Skaria*

Acute and life-long diseases result from eating contaminated food. The symptoms of food poisoning range from diarrhea to cancer and even death. According to the World Health Organization reports, food and water-borne disease take a toll of about 2.2 million people of which 1.9 million are children, world-wide. Food safety is a major concern in the United States too. Agricultural producers, policy makers, stakeholders, consumers and everyone involved in production, distribution and consumption of food should be aware of food safety principles and procedures.

**Plant biosecurity** is a major responsibility of all of us whether in agribusiness or not. Newly established pests and diseases are

a major threat to our food and fiber supply. Plant biosecurity involves strategies and risk management of infectious diseases, quarantined pests, invasive pests, modified organisms, and biological weapons in natural or managed ecosystems. Prevention and proactive management of risk factors are part of it.

I am glad to announce a brand new course, **Food Safety and Plant Bio Security**, a graduate course (PLSS 6390) through the Department of Agriculture, Agribusiness, and Environmental Sciences of TAMU-Kingsville, August 24 to December 15, 2011. It is a 3-credit hour course with 15 weeks of exciting topics that cover a wide range of aspects related to Food Safety and Plant Biosecurity. This is an internet (Blackboard) class; the students meet Tuesdays and Thursdays 2-3.15 pm. The syllabus lists a wide range of subject matter information. In addition to lectures, each week will feature a guest speaker who is an authority in his/her field.



### Preparing the Scientists of Tomorrow: Research Internship for High School Students

*Eliezer S. Louzada and H.S. del Rio*

The Citrus Center Biotechnology laboratory has been for the last 10 years providing hands-on research experience for undergraduate students from the Rio Grande Valley, in cooperation with the University of Texas Pan-American, in an attempt to channel them to agricultural science careers.

The program has been funded by the USDA-Hispanic Serving Institutions Education Grants Program, and more than 60 students were trained in agricultural biotechnology. More than 50% of the students

*Continued on Page 3...*

### *Internship, cont'd from pg. 2*

entered graduate education and currently 11 students are in doctoral degrees. This has been one the most effective undergraduate research program in US.



Four years ago Dr. Louzada decided to start a research training program targeting high school students to spark, at early stage, the desire for agricultural science research. A summer camp was initiated to provide hands-on research for undergraduate students and train science teachers in research. Furthermore, a separate high school internship was initiated to provide five weeks research experiences for high school students. Currently, 45 students and eight science teachers have participated in the summer camp, and an additional six high school students received five weeks of research training in 2010. Six others are being trained during summer 2011.

The biotech lab recently provided \$104 K in scholarships for students to enroll at Texas A&M-Kingsville in Fall 2011. Our main objective in this program is to close the gap in education for our local Hispanic students. We are glad that are succeeding in our endeavor.

### **New Research Associate of the Plant Physiology Lab**

***Juan Carlos Melgar***

Ayako Kusakabe joined the Citrus Center in May as Research Associate in the Plant Physiology lab. She is originally from Japan, but came to the US to pursue



**Ayako Kusakabe (left) working with graduate students Francisco Melgosa (left), Diego Garza (right) and research technician Rafael Lopez (center).**

her education. She received a Bachelor's Degree and a Master's Degree in Soil and Water Science from the University of Arizona, and a Master's Degree in Horticultural Science from the University of Florida, working at the Citrus Research and Education Center in Lake Alfred. Her seven years of experience in citrus research covers issues related with deficit irrigation methods, nutrition management and drought and salinity stress in sweet orange trees (Navels and Valencias) and grapefruit trees. She has a strong passion for citrus in general and for grapefruits in particular, especially in these areas of stress physiology, nutrition and irrigation management.

In the Plant Physiology Lab at Citrus Center, she is assisting in research projects and conducting lab and field experiments, as well as supervising graduate and visiting students. In the short time she has been with us, Ayako has already met some of the citrus growers from the Valley, and has started working with two graduate students from Citrus Center and collaborated with one student and one researcher from Texas AgriLife. She is eager to meet with everyone related to the Citrus industry in the Valley. At your next visit to the Citrus Center, please, stop by her office or the Plant Physiology Lab at Citrus Center and welcome her.







## Juice Pools 101

**Julian Sauls**, *Texas AgriLife Extension and Research Center, Weslaco*

Texas Citrus Exchange recently completed the sales of grapefruit and orange juices and by-products from the 2009-10 crops. Checks to the participating packinghouses were sent in early June, so growers should have received juice return checks by now. I have heard a couple of questions suggesting that many growers don't fully understand the process by which packinghouse eliminations are converted into juice checks.

First, let's go back to basics. All packinghouses (I think) charge a shrinkage on whatever fruit they bring in, usually five percent of the total tons. That volume of fruit is gone, period, as if it never existed—so forget about it. The remaining 95 percent of the harvest goes through the packing line where it is ultimately graded, sized and packed, with some being eliminated, and you are credited for the carton equivalents of fresh packout and tons of eliminations. The eliminations go to processing.

Some of the fruit that reaches TCX is rejected, primarily because it is unsound (damaged or rotting), which amount is deducted from the volume that the packer sent. How the packer handles this cull factor is something you would have to discuss with the packer. At any rate, the sound fruit is weighed and processed, byproducts are extracted, some juice is concen-

trated, some is kept as single strength, some is blended with other juices and all of it is sold over the next year to year and a half or more

You (through your packer) participate in the juice process, which means that you share the risk of low juice prices and high production costs in exchange for the potential gain from higher juice prices and lower production costs. That also means that you must wait for the pool closing in order to receive full payment for your juice fruit. The alternative to participation is for TCX to simply buy the fruit as it comes in, but you can be sure that the price paid would be sufficiently low to attenuate the risk of paying too much and then seeing production costs go up and/or the value of juice and by-products go down.

Finally, when all juice and by-products returns are in and all costs of processing, storage, and sales are deducted, the net money is divided by the total tonnage of fruit involved. For the 2009-10 season, the result was about \$99.686 per ton for grapefruit and \$112.619 per ton for oranges (the number goes out five decimal places).

But your juice check wasn't that big, was it? Of course not—don't forget that you were credited for the spot price (\$40 per ton for grapefruit, \$56 per ton for oranges) at the time your fruit was sent to TCX; and the juice pool payout represents the total return, so checks from TCX were for the balance (about \$59.68 for grapefruit and \$56.62 for oranges).

Each participating packer pays a service fee to TCX for each ton at delivery. After rebates for volume processed, the service fee on the 2009-10 tonnage was \$6.71. It is reasonable to assume that the packer passed the service fee through to you—either when it was incurred or in the final payout.

Finally, not all eliminations go to TCX. Indeed, according to TVCC data, TCX received only 84.1 percent of the grapefruit eliminations and barely half (50.4 percent) of the orange eliminations during 2009-10. Obviously, TCX juice pool closings represent only the fruit that TCX processed—the rest is between you and your packer.





## Crazy Raspberry Ant Found in the Rio Grande Valley

**Raul Villanueva**, Texas AgriLife Extension and Research Center, Weslaco

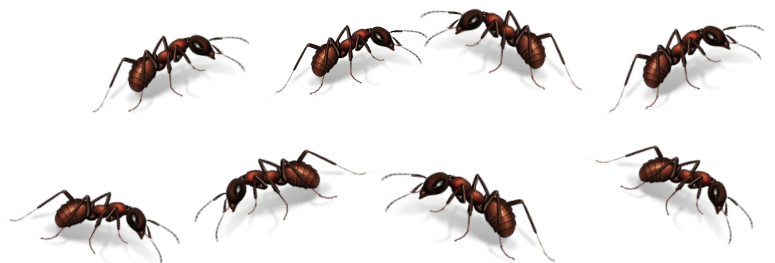
In August of 2010, I was called to a residence in the outskirts of Weslaco where they were having a problem with ants. There were large numbers of dead and live ants in the floor near the walls, under beds, behind furniture and appliances (see picture) in the interior of this residence. Also, a great numbers of live ants were observed in the lawn outside the house. This family was battling with this problem for at least 3 months. Pest exterminators were hired who used the usual chemical products for ant control but the problem persisted. This ant species was identified by a TAMU specialist from College Station as **the crazy Raspberry ant**. People have known about the native crazy ants for a long time because they seem to move erratically in a random foraging pattern compared with the marching ant species that follow a trail.

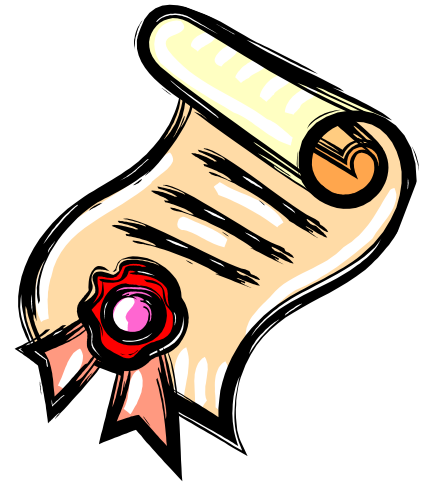


Large numbers of Crazy Raspberry ants in a residence

However, the crazy Raspberry ant is a **new invasive species** that was found in the Houston area (Harris Co.) in 2002. This ant was named after Tom Raspberry who first noticed this invader. The taxonomic identification of the ant is still in debate due to its close similarity to the Caribbean crazy ant, *Nylanderia pubens* and is temporarily named *Nylanderia* sp. near *pubens* until a proper identification is completed. These ants are reddish brown with a body size of approximately 1/8 inch for workers.

Crazy Raspberry ants can threaten human dwellings. They invade residences and rapidly increase their population. Furthermore, they are attracted by electrical equipment such as PCs, air condition units, and refrigerator where they can damage equipment and produce short circuits. Although, Crazy Raspberry ants do not have stingers, they are capable of biting. The bite can cause a sharp pain that quickly fades. Instead of the fire ants stinger, Raspberry crazy ants possess an acidopore on the end of the abdomen, which can excrete chemicals for defense or attack. Because this is an invasive species that lack natural enemies in Texas, Crazy Raspberry ants can also have an impact in the natural ecosystem where they can displace native ant species, other arthropods and even can affect bird nesting due to its colonization of trees and shrubs. The expansion of this ant continues, this ant was found in another residence in Brownsville (Cameron Co.) and in the Corpus Christi (Nueces Co.) by the beginning of 2011. Pesticides used to control fire ants or other ant species are not effective. However, there are pesticides available to control the Raspberry crazy ant but can only be used by certified exterminators and not readily available to consumers. For more information go to: [http://urbanentomology.tamu.edu/ants/exotic\\_tx.cfm](http://urbanentomology.tamu.edu/ants/exotic_tx.cfm)





Barbara (left) and Jimmie (right) Steidinger, honorees with Dr. Steven Tallant (center), University President.

## Awards and Recognitions

### *John da Graça*

At the annual University President's Legacy Ball in March, Barbara and Jimmie Steidinger were inducted into the Legacy Society to recognize their generous establishment of a scholarship fund for graduate students at the Citrus Center. Two members of the Center's Advisory Committee, Mark Fryer and Tommy Garcia, and their wives were in attendance.

Jimmie Steidinger received further recognition at the College Awards ceremony in April when he was named Friend of the College. He was unable to attend, and his plaque was received on his behalf by Dr José Amador, Emeritus Center Director. At the same event, Dr Mamoudou Sétamou received the Senior Faculty Research Award, and the Citrus Center graduate student award was won by Aditi Satpute, who is studying under the guidance of Dr Mani Skaria.

The university also held its annual service awards ceremony in Kingsville in April. Several Citrus Center employees were recognized for their loyal service:

Daniel Davila (35 years)

Mike De Anda (30 years)

Fred Longoria (30 years and University Employee of the year for staff )

Jose Ledesma (15 years)

Maribel Reyes (15 years)

Lucio Aguila (10 years)

Dr Shad Nelson (10 years).



Also honored were retirees Marilyn Ambros, Elias Hernandez and Cuco Rodriguez.

**Congratulations to All.**





## **Bridging with the Industry**

*Mani Skaria and John da Graça*

The Citrus Center has a long history of serving the Texas citrus industry from the very beginning of the Center in 1948. We have an advisory Committee that meets to discuss and review the research and transfer of technology activities at the Center. In addition, the industry leaders are heavily involved in finding resources, defending financial crisis, and infra-structure development.

**Bridging with the Industry** is a new program that the Citrus Center faculty has established to strengthen the service bond between the Center and the Texas Citrus Industry. In this program, we invite resource people from the local industry to the Center for a 2-3 hour interaction with the faculty, staff and students. We had our first meeting on June 16, 2011. Our first guest was Mr. Jud Flowers, owner and operator of the Lone Star Citrus, a family owned/operated business started in 1978. Since then, the family has diversified from planting trees and growing the crops to processing and packaging the fruit. Today they operate a state of the art packing facilities in Edinburg, Texas. Lone Star fruit is sold in Texas and in many retail grocery stores across the nation in addition to their fine quality exports to Asia and Europe. They also sell gift fruit citrus.

Our first guest visit started with a welcome meeting where the invited guest spent 30 minutes with the Center Director, Dr. John da Graça and Dr. Mani Skaria. The purpose of an introductory meeting was to identify how, where, when, and what special services that the Center may be able to offer to help the specific aspect of the business of the invited guest. This meeting included a light working lunch of the trio. This was followed by a tour of the newly built greenhouse for the virus-free budwood program and the Center facilities. In the afternoon, Mr. Flowers met with a group of 18 people including students, staff and faculty. It

was an excellent stage for question and answers. The students and staff briefed their research areas. Mr. Flowers was delighted to hear about various problem-solving research works going on at the Center. The students asked some pertinent questions for which he shared first-hand information based on his practical knowledge. Answering questions from students, Flowers pointed out that the need for more easy peeling citrus varieties, labor issues, and drug interaction of grapefruit are some of the challenges that the industry has to overcome. The logistics of delivering sectioned grapefruit in a timely manner is another hurdle that the industry faces regarding value-added grapefruit that comes in ready to eat packages. Mr. Flowers is confident that the future is bright for citrus in the Valley. The three-hour interactions with Mr. Flowers turned out to be a rewarding experience for all attendees. We expect our next guest soon.

**A possible outcome:** Several of our growers, including our guest had indicated a phenomenon of the Rio Red grapefruit – it starts to decline after about two decades. I personally have observed this; however, I also have seen Rio Red trees in some blocks growing very well- in fact, too big. An initial discussion with the faculty, and some industry folks, and USDA scientists have resulted in an enthusiastic support for a graduate student to study the possible reasons of this phenomenon, specifically linking data from soil conductivity, pH, organic matter, tree decline, and infra-red technology, and soil-borne pest and diseases such as fungus *Phytophthora* and citrus nematode, *Tylenchulus semipenetrans* – all aimed at a practical solution(s).





## Citrus Pest Update: Recent Rains

### Favoring Pest Development

*Mamoudou Sétamou*

Insect and mite population growth and development are strongly influenced by factors such as temperature and humidity. With the recent rains after a long spell of drought, climatic conditions have become ideal for the rapid increase of many pest populations in citrus groves.

#### *Citrus rust mite*

In recent weeks, increases in of rust mites are being observed in some groves. To prevent significant damage on fruit, growers are exhorted to monitor their groves and take action if needed. It is important to remember that effective control of mites depends on how soon miticide applications are made. Many mite species such as the citrus rust mite—that is a pest that causes significant qualitative damage—have a very low threshold. Thus, spray application should be made when the mite population is starting to increase. I generally recommend spraying for rust mites whenever 20% of fruit sampled are infested. But this threshold can even be lower, when any fruit or leaf sampled has 5 mites or more per sq. cm of lens area, growers should initiate spray applications under the current optimal weather conditions for mite population development. ***Always remember that mite control is a numbers game, and the lower the mite numbers at the time of spray, the better the outcome.*** We should work toward managing mite populations, than trying to play control catch-up with their populations.

#### *Asian citrus psyllid*

The much needed rains have also stimulated production of profuse new flush shoots, which is turn is increasing citrus psyllid population. The coordinated areawide dormant spray applications

done in November 2010 and again in February 2011, coupled with the extremely long period without rain have kept psyllid populations lower than in the same period in previous years. This is very positive news in our battle to reduce the risk of citrus greening disease. But we should continue being proactive by preventing any significant increase of psyllid populations in our groves. ***It is time again to spray for psyllids!***

#### *Citrus mealybug*

Citrus mealybug infestations are also being recorded in many groves. It is important to note that citrus mealybug is controlled most effectively with insecticides during early stages before protective wax secretions and sooty mold form. Because of the protective wax, mature mealybugs are highly resistant to contact pesticides. Mealybugs are also effectively controlled by many natural enemies. One natural enemy known as the mealybug destroyer (*Cryptolaemus montrouzieri*, Fig. 1) is very voracious, destroying all life stages of mealybug. This predator is commercially available, and we recommend growers to consider this option of control, especially in areas where wet ground conditions do not permit rapid spray applications.



**Figure 1. Mealybug destroyer ((*Cryptolaemus montrouzieri*), a predator of citrus mealybug.**



## Custom Crafted Conference Table at Citrus Center *John da Graca*

During the construction of the new Citrus Center building, we were asked to select furniture for the conference room. Several of us are familiar with the magnificent table in the conference room of the Caesar Kleberg Wildlife Institute building in Kingsville made out of mesquite. This table was also viewed by Texas Citrus Mutual President Ray Prewett, who made inquiries on behalf of the Citrus Center to see if the citrus industry would be interested in sponsoring a table. The Citrus Foundation and Valley Ag Insurance agreed to fund the project.

The Citrus Center table was made by the same craftsman who made the mesquite table in Kingsville - Francis Goertz of Goertz-Werkz, Richardson TX. Francis came to the Center in July 2010, selected pecan trees growing on the Center's South Research Farm that were scheduled for removal. Rather than destroy the trees, they were harvested for this project. After discussions with him about what wood to use, and some design brainstorming, it was decided to use pecan wood for the legs and top, and to have an inlay displaying a red grapefruit cut in half. The logs



were then transferred to a sawmill in Edinburg where they were sawn by Mike Beukes, who is a TCM employee stationed at the Citrus Center to monitor psyllid populations as part of the area wide management program. Francis then transported the boards north for curing. He then spent over 500 hours building the table. For the red grapefruit, he used African Redheart wood, with grapefruit wood at the center and for the segment membranes. Bird's eye maple was used for the albedo. The colors are natural.

The finished table was delivered in April. The legs were placed in position, and then connected with the cross beams, and the table top was then secured in place. On May 23, the Foundation held a meeting around the table - Dr Rex Gandy, Provost of Texas A & M University-Kingsville, and Dr Allen Rasmussen, Dean of the Dick & Mary Lewis Kleberg College of Agriculture, Natural Resources and Human Sciences, were in attendance and they expressed their appreciation to the Foundation and to Valley Ag for funding the table. All who have seen it agree that it is a unique and beautiful work of art.



**Continued on Page 10**



Using Nature's Gift...



..to create a masterpiece





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**Thank You!**

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