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CITRUS CENTER SADDENED BY JIM VILLARREAL'S PASSING

It is with saddened hearts we say goodbye to a close friend and fellow Citrus Center colleague, Santiago (Jim) Villarreal. Jim passed away suddenly on August 30th. After 35 years of dedicated service as a Research Technician, at first with Dr Pete Timmer in Plant Pathology and then with Dr French in the Entomology Department, Jim retired in February, 2004. He always enjoyed his work and being such an active individual, he quickly became bored in retirement and was rehired part time, again providing his vast experience and assistance to the many citrus entomological-related projects. He was so knowledgeable on citrus pest identification and chemical control, orchard spray methods, recording and analysis of trial data, and report writing. Jim was also an outstanding photographer and looked to by all the center faculty and staff when pictures were needed. He particularly enjoyed taking pictures of citrus "bugs," and contributed so many great insect and mite photos used in research and extension publications. His photos of false spider mites and damage on citrus were featured in a recent article in *Experimental and Applied Acarology*.

Jim had such a friendly and easy outgoing personality, and will be deeply missed by all of us at the Citrus Center. He is survived by his beloved family: son, Adam Villarreal (Senior Program Analyst at the Citrus Center); his daughter-in-law, Rosanna Elizondo; parents, Oscar and Aurora Villarreal; brother, Homer Villarreal; sister, Hilda Gonzalez; and grandson, James Villarreal.

J. Victor French

Jim Villarreal

CITRUS GREENING DISEASE IN FLORIDA

Recently, a very serious disease, citrus greening, (known officially as citrus Huanglongbing from the Chinese "yellow dragon disease"), was found in south Florida. The first find was in a pummelo tree which may have been illegally introduced from Asia. An intense survey is now being conducted, and lab tests have confirmed over 60 infected trees, mainly in dooryard properties.

Greening is caused by three species of a bacterium called *Candidatus* Liberibacter. Initial leaf symptoms include a blotchy mottle and vein yellowing on mature leaves, and zinc-deficiency-like symptoms on young leaves. These leaves can also be small and held upright. Fruit are small, lop-sided and their seed are

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aborted. The fruit have a bitter taste, and do not color properly, hence the name 'greening'. There is also excessive fruit drop, twig die-back, and tree decline; the Asian form caused by *Cd.* L. asiaticus, can cause eventual tree death.

The disease is transmitted by species of citrus psyllids. Asian greening, and its vector, *Diaphorina citr*i, are more heat tolerant than the African form (caused by *Cd*. L. africanus) and its vector, *Trioza erytreae*. The former are thus found in lower lying hot areas.

Fig. 1 Leaf Mottle associated with greening

Until recently, greening was known only in large areas of both Asia and Africa. *D. citr*i has been in Brazil for many decades. It arrived in Florida in 1998 and Texas in 2001. Although not considered a serious pest by itself, its ability to transmit greening alerted the industries of these areas to be on the look-out for the disease. In 2004, greening was confirmed to be present in Brazil – an interesting twist was that while a few trees carried the Asian form, most were infected with a new species, *Cd.* L. americanus, which induces symptoms identical to the Asian species. And now we have confirmation of Asian greening in Florida.

Fig.2 Fruit with greening symptoms - lopsided and green on one side

Generally, mandarins and sweet oranges are more severely affected, but all types of citrus are susceptible. The symptoms on the pummelos in Florida are severe, and may affect grapefruit similarly. Attempts are being made to eradicate the disease in Florida. Texas needs to hope that the eradication programs are successful, and that Texas will take all measures to prevent introduction of the disease. The psyllid has already become established, and our conditions are ideal for the Asian form of greening.

John da Graca

YOUNG MAN'S JOURNEY FROM HIDALGO TO COLLEGE STATION VIA WESLACO CITRUS CENTER

Like many young people, Jose Luis Perez from Hidalgo, TX had the perception that agriculture was watering plants and driving a tractor. This changed in June 2003 when he was hired by Dr. Bhimu Patil at TAMUK Citrus Center as a student intern. Jose soon started purification of citrus limonoids, a group of compounds found to have positive effects on several human health conditions. Jose says, "During this time, I reinforced what I learned in my organic and biochemistry courses and learned many other things that are not taught in the University lecture halls." He learned how to work in a team, developed critical thinking skills, and began to appreciate the impact of agriculture on human lives. This new appreciation prompted him to pursue a career in agriculture. He graduated in December 2004, from the University of Texas Pan-American with a BS in biology and minor in chemistry. At that time Dr. Patil moved to College Station and Jose was hired by Dr. Mani Skaria in citrus pathology. Jose acknowledges, "Here I was able to put what I studied into practice and also learned many important things. Dr. Skaria taught me a lot about professionalism, mycology, plant pathology, but the most important lesson of all was about my career. He gave me very good advice

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on how to make important decisions that I had to make during the time I worked for him. Beside the things I learned in the lab, he also helped me focus my goals and pushed me in the direction to achieve them."

Jose started his graduate studies in horticulture in August, 2005, working again under the direction of Dr. Patil in the Vegetable and Fruit Improvement Center, College Station. He will be researching the physiological and biochemical properties of the citrus compounds that he purified as an intern. After finishing his education at College Station, he would like to pursue a career with the USDA and return to the Valley to educate his fellow Hispanics on the importance of agriculture and the major role the hispanic culture has played in it. Jose stated that one of the highlights of his internship at the Citrus Center was the honor of meeting and spending some time with Congressman Kika De La Garza at a conference in Louisiana. The conversations inspired him with the meaning and the role Hispanics play in Agriculture.

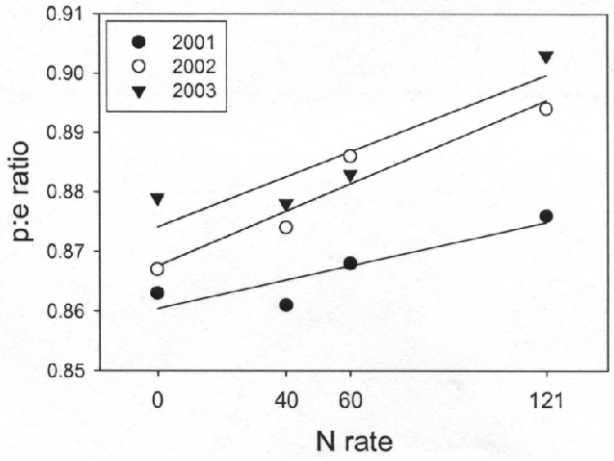
The people at the Citrus Center wish Jose great success in his graduate program and his future goals. South Texas needs more young people like Jose to become inspired and return to the Valley to make an impact.

Mani Skaria

NITROGEN APPLICATION AFFECTS FRUIT SHAPE

A problem sometimes found in Valley citrus is fruit elongation, or an increase in the length from top to bottom compared to the central diameter. Sometimes this phenomenon can become so severe that it results in a condition known as sheepnosing which reduces the quality and value of the fruit. There are a number of ideas about what causes this to happen, but little data had been available so far to support these ideas.

A study has been underway since 2001 to evaluate various aspects of citrus fertilization, including rate of N application. Rio Red grapefruit yields in this study have increased with increasing rate of N applied up to about 60 lbs N/acre, but then remained unchanged at higher N rates. However, increasing N application also increased elongation as demonstrated by the increase in the polar to equatorial (p:e) ratio as shown in the figure. This pattern continued at rates up to 121 lbs N per acre, the highest rate applied in this study. This suggests that while excess N application has no beneficial effect on increasing yield, it can have a detrimental effect by affecting fruit shape.



Proper fertilization now becomes all the more important. Too little N results in lost production. Too much, however, results in unnecessary expenses, contamination of runoff going into the Arroyo Colorado and the Laguna Madre, and poorer fruit quality.

Bob Wiedenfeld
Texas Agricultural Experiment Station
Texas A&M University Research & Extension Center

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