TEXAS A&M UNIVERSITY-KINGSVILLE

CITRUS CENTER

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WESLACO, TEXAS 78596

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NEWSLETTER

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SEASON'S GREETINGS

CITRUS ROOT WEEVIL IDENTIFIED

We have now confirmed the presence on Valley citrus of the sugarcane rootstalk borer weevil, *Diaprepes abbreviatus* (L.). Since citrus is an important host of this weevil pest species—hereafter, it will simply be referred to as the citrus root weevil (CRW). Three white, legless CRW larvae (grubs) were found in soil adhering to the roots of an orange tree removed from a mid-Valley orchard. These were confirmed as *D. abbreviatus* by Dr. Clayton McCoy, visiting weevil expert and Citrus Research Entomologist, University of Florida, Lake Alfred, FL. Subsequently, an adult CRW was caught in a black 'Tedders' trap which had been placed in the aforementioned orchard. The adult CRW (Coleoptera: Curculionidae) is ca. 3/4 inch long, with an elongated head 'snout,' long elbowed antennae, and distinct black striped hardened wing covers (elytra)—Figure 1. We had previously found pieces and intact CRW elytra in soil sifted from around roots of other declining and dead trees.

In addition to the CRW adult, we also trapped another adult weevil species—the small green leaf notcher—*Compsus* sp. (also see Figure 1). This is a traditional, long established minor citrus pest—generally found each spring feeding and causing distinct notching of new flush leaves.

Early next spring we plan to expand the CRW trapping program to include orchards throughout the Valley. This survey will provide much needed information on the emergence time and extent of the current CRW infestation. A modified 'Tedders' ground trap will be utilized, consisting of two triangular boards arranged in a pyramid shape with a cotton boll weevil trap top at the apex. Traps will be placed on the soil surface beneath the tree canopy, with higher preference given to orchards showing some tree decline and death (Figure 2). Adult CRW (and other weevil spp.) emerging from the soil generally climb the tree trunk into the canopy where they feed, mate and lay eggs. The emerging CRW adults instead climb the black Tedders trap and are caught in the clear plastic container atop the trap. No pheromone attractant is involved in trapping; thus, the traps are not highly efficient and require fairly high densities, i.e., 10-12 traps per acre.

To date, the majority of declining or dead trees were different types of oranges. Grapefruit trees seem to be tolerating the damage much better at this time. However, we have on occasion seen extensive feeding damage (channeling) on 'healthy' grapefruit tree roots and a couple of dead trees were found.

See Root Weevil Page 4

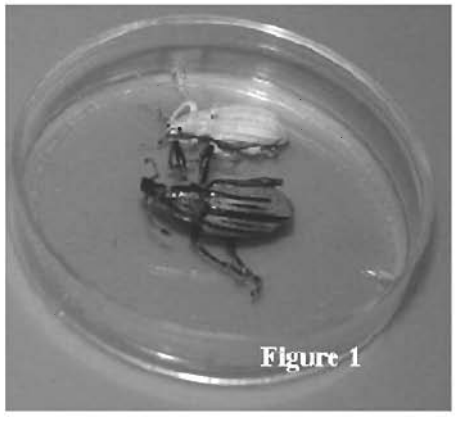

Figure 1

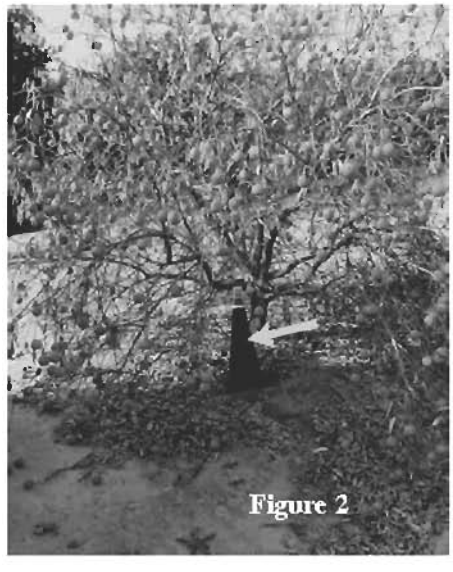

Figure 2

FIRST CITRUS CENTER BIOTECHNOLOGY GRADUATE STUDENT COMPLETES DEGREE

Mr. Dianren Xia, who arrived in Weslaco from China in January 1999 to pursue his Master's Degree at Texas A&M University-Kingsville, graduates this month in Kingsville. After taking several courses on campus to acquire a good background in molecular biology, he conducted a research project at the Citrus Center under the supervision of Dr. Eliezer Louzada. For his project, he compared genes expressed in green and mature Rio Red to isolate genes of horticultural importance for future use in genetic transformation. His long hours in the laboratory paid off, as he was able in just a few months to identify a gene active in mature fruit which could be valuable in future genetic research. The technique he used, called differential display, has been widely used in genetic studies on humans and animals, but in citrus plants there is only one report. Some of his results have already been submitted to an international journal, and a second manuscript is in preparation. In addition to working on his project, Dianren helped other students in the lab with their research.

From Weslaco, Dianren, together with his wife Yaping Tan and their new-born son Ryan, move to Houston where he will begin studying for his PhD degree at the M.D. Anderson Cancer Research Center. He will work on gene expression in cancer cells. We wish him and his family a successful future.

Eliezer Louzada

INTERNATIONAL CITRUS CONGRESS

The 9th Congress of the International Society of Citriculture (ISC) was held in Orlando FL December 3-7. More than 1000 delegates from around the world attended, and over 200 papers and 450 posters were presented. Weslaco was well represented, with eight scientists attending. Drs French, Skaria, Patil, Louzada, Tian, Mirkov and da Graca, and a recent graduate student, Yan Liu were there, and together presented a total of four oral papers and nine posters covering various aspects of the Center's work. A poster by Dr French on citrus leafminer, and one by Dr Patil on postharvest effects on functional compounds in grapefruit, were recognized as best posters in their respective categories. Other topics covered by our delegation included the virus-free budwood program, an overview of Texas citriculture, microbudding, chromosome transfer, identifying the tristeza resistance gene, and studies on citrus pectin and limonoids.

During the conference, a number of useful parallel meetings were arranged, including one attended by Drs French, Skaria and da Graca on the root weevils-Phytophthora complex affecting citrus in Florida, various Caribbean islands and now Texas. Dr. Louzada attended a Citrus Genome workshop. There was also a meeting of the Board of Directors of the International Organization of Citrus Virologists, attended by Dr da Graca, to discuss next year's congress in Cyprus and the possibility of holding the 2004 congress in Mexico, with a pre-congress tour to the Lower Rio Grande Valley.

Dr Patil convened a well-attended symposium on human health benefits of citrus, the first time this topic has been part of an ISC congress. After the congress he visited the new USDA-ARS center in Ft Pierce where he presented a seminar. On the same day, Dr da Graca attended a workshop on exotic insect-vectored citrus diseases at the University of Florida's Citrus Center in Lake Alfred, where he spoke on insect transmission of citrus greening disease.

A highly successful week where many useful contacts were made for future collaborative research, and the achievements of our scientists received recognition.

John da Graca

CITRUS MANAGEMENT COURSE

A Citrus Management Course will be offered at the Citrus Center beginning Thursday January 25, 2001. The class will meet each Thursday from 7:00-9:30 p.m. for 9 weeks, plus a Saturday morning field trip. Scientists at the Center will provide updates on the latest management practices:Dr. Victor French (integrated management of insect and mite pests); Dr Mani Skaria (management of citrus fungal, bacterial and nematode diseases); Dr. Julian Sauls (nutrition, irrigation, weed control); Dr John da Graca (virus diseases); Dr Bhimu Patil (postharvest issues); Dr. Eliezer Louzada (rootstocks).

Participants can qualify for Pesticide Applicator Continuing Education Units. There will be a course fee yet to be determined, but should be around $100, and anyone interested should contact the Citrus Center after January 2, 2001 at 956-9689-2132.

John da Graca

UNIQUE COURSE ON HUMAN HEALTH BENEFITS OF FRUITS AND VEGETABLES

In 1999 a highly successful course on human health benefits of fruits and vegetables, organized by Dr Bhimu Patil, was given from Weslaco by teachers from different institutions; 34 students from 9 centers around the state took the course. On January 16, 2001 the same course will be repeated, with 16 eminent medical, biochemical, nutritional and agricultural researchers and professors providing lectures from their institutions around the nation (Texas A & M University System, AMC Cancer Research Center in Denver, Johns Hopkins University, Ohio State University, Universities of Texas Pan American, Houston-Victoria, Illinois and Wisconsin) via interactive video-conference technology to studcnts at 10 locations. Each class will bc hcld on a Tuesday evening from 5:30 to 8:30 pm.

There has already been tremendous interest for the course, with students from University of Texas-M.D.Anderson School of Public Health, University of Texas Pan-American and Texas A & M University already registered. The College Station site is already full. Sites where the lectures will be received are Texas A & M and University of Texas locations in Weslaco, Kingsville, College Station, Stephenville, Lubbock, Victoria, Houston, Dallas, Edinburg, Brownsville and Corpus Christi. The course is suitable for both graduate and undergraduate students, teachers and professionals in various fields of medicine, nutrition, and agriculture.

The course will focus on recent studies which indicate that phytochemicals (naturally occurring compounds in plants) have the ability through their biological activity to prevent human diseases, including heart disease and certain cancers. One difference from the 1999 course will be less emphasis on chemistry-type lectures because of the multi-disciplinary background of the students. New features will be lectures on atherosclerotic cardiovascular lectures and how correct nutrition can prevent them, how soybeans have health benefits, how diet affects colon cancer, and how food processing affects the phytochemicals themselves, both negatively and positively such as the detoxification of enzymes by limonoid glucosides.

For more information, contact Dr Patil at (956) 968 2132 or at b-patil@tamu.edu, or you can visit the class web site at http://phytochemicals.tamu.edu.

Bhimu Patil

ADVISORY COMMITTEE HONORS DEAN

Dr. Charles DeYoung, Dean of the College of Agriculture and Human Sciences will retire at the end of the year. The Citrus Center faculty and staff, as well as representatives of the Valley citrus industry, recently expressed their appreciation to Dr. DeYoung for his support during the years he served as Dean. His office oversees the operation of the Citrus Center.

A native of Victoria, Texas, Dr. DeYoung received his B. S. degree in Wildlife Management from Texas A&M University in College Station and his M.S. degree in Biology from Texas A&I University in Kingsville. His Ph.D. in Range Science was from Colorado State University.

This is Charles's second term as Dean; he first served as Dean from 1979 to 1984, when he stepped down to become Director of the Caesar Kleberg Wildlife Research Institute. He was reappointed as Dean in 1991. Under his leadership, the College enrollment increased by 46% and it was transformed from a teaching college to a balanced program of teaching, research and service. Charles has been a staunch supporter of the Citrus Center during his two terms as Dean, but particularly during the last 10 years. Charles reorganized the administration of the Citrus Center to work in partnership with the Texas A&M Research and Extension Center at Weslaco. During his tenure as Dean, we saw a student housing facility and a new greenhouse added to the Citrus Center, in addition to extensive remodeling of the main building. He was instrumental in developing an initiative to request from the legislature that convenes in January resources to build a new Citrus Center. The possibility of this becoming a reality, particularly with the total endorsement and support of Marc Cisneros, President of Texas A&M University-Kingsville, is very good.

"Charlie has been exceptionally good to the Citrus Center in particular, but also to the citrus industry in general and we are very grateful; we are going to miss him", said Dwayne Bair, Chairman of the Citrus Advisory

Dwayne Bair(right) presents Charles De Young a plaque from the Citrus Advisory Committee and the Valley Citrus Industry.

See Committee Page 4

Root weevil from Page 1

The larger root mass of grapefruit trees compared to that of oranges trees may be compensating for the root damage caused by the insect feeding and *Phytophthora* infection. Dr. Larry Duncan, Citrus Research Nemalogist at University of Florida, Lake Alfred, FL is proposing a hypothesis that interference with water uptake is one of the reason(s) for rapid tree decline. We have observed *Phytophthora* root rot in tap roots of declining trees. A phenomenon associated with the water availability and moreover, the inability of the damaged roots to absorb the available water appears to be an important factor in rapid tree decline in Texas.

More information will be forthcoming in future Citrus Center Newsletters, not only on CRW trapping, but on the development and implementation of CRW/ *Phytophthora* root rot management strategies—chemical, biological and cultural.

J.Victor French and Mani Skaria

Committee from Page 3

Committee during a recent ceremony in Charles's honor at Kingsville. Together with Jimmie Steidinger, Ray Prewett, and Clay Everhard, he presented a plaque to Charles in recognition of his many contributions. A letter from Citrus Center faculty members was also presented to Charles expressing their appreciation for his support and encouragement.

Jose Amador

Jose Amador presents Dr. De Young a letter from faculty members of the Citrus Center expressing their appreciation

Subscriptions to the bimonthly Newsletter are $5 a year or $8 for two years. International rate is $7 a year. Make checks payable to Texas A&M University-Kingsville. 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.

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