

CITRUS CENTER

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WESLACO, TEXAS 78596

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NEWSLETTER

Vol.21 No.6

SEASON'S GREETINGS

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JULIAN GONZALEZ

On December 3rd we lost one of our retirees. Julian Gonzalez joined the Citrus Center in January 1971 and worked as a Farm Worker until his retirement in August 1985. The Citrus Center sends sincere condolences to his wife, Juliana and family.

A NEW INVASIVE VINE ON CITRUS

A local citrus owner recently brought to my attention an invasive vine that he has been battling for sometime in his two groves near Weslaco. In visiting the groves I was surprised to see whole tree canopies covered with broad leafed woody vines. Moreover, numerous native trees and shrubs along a nearby irrigation canal were also shrouded by a similar labyrinth of vines. Since the vine species was unfamiliar to me, I sought the help of two well known scientists and experts in identification of Valley plants—Dr. Robert I. Lonard, Dept. of Biology Univ. of Texas-Pan American, Edinburg, TX and Mr. James H. Everitt, USDA-ARS, Weslaco TX. They identified the species as *Cissus sicyoides* (Vitaceae), a perennial vine native to tropical Mexico, Central America, and the Caribbean. Some-

times called 'waterwhite treebine' or 'bejuco loco'—this vine species has not been previously reported in Texas.

The leaves of *C. sicyoides* are large, succulent and broadly rounded or ovate—often 2 to 3 times the size of citrus leaves. The inflorescence is a densely flowered yellow cyme that extends from the leaf



axils. The small green fruit gradually develops into a succulent black or purple berry that resembles a small grape. Clusters of the fleshy, grape-like fruit were often visible on the vine shrouded citrus and nearby native plants like chinaberry, Chinese tallow, papaya and even an oak tree. Migratory birds feed

See Vines Page 2

TWO STUDENTS GRADUATE FROM DR. LOUZADA'S PROGRAM

On November 12, graduate students Madhura Babu Kunta and Julio Cesar Hernandez defended their master's degree theses at the Citrus Center and will graduate this December. Both students were under the advisement of Dr. Louzada, and performed excellent research. Kunta studied gene expression in juice vesicles of mandarin and grapefruit. He isolated two very important genes involved in plant response to stress, and proved that the genes are functional. He is currently being considered for a technician position at Baylor College of Medicine in Houston, and he has also received an offer to study for his PhD at Texas A&M in College Station. Julio studied genes that are triggered as a result of challenging trifoliate orange with the Citrus tristeza virus. He isolated several genes that might be involved in plant defense to this pathogen. Julio is currently employed as a technician at Baylor College of Medicine in Houston. We congratulate Kunta and Julio for so important accomplishments.

We expect that three additional students will be defending their thesis by the end of May 2004.

Eliezer Louzada



Madhura Babu Kunta



Julio Cesar Hernandez

Vines from Page 1

on the berries and are undoubtedly capable of disseminating the seed.

It was noted that woody vines in the trees often sprouted forming numerous purplish-green tendrils that extended through the tree and rooted beneath the canopy. Vines pulled from the trees and left on the soil surface were also observed to sprout, re-root and develop as tender new plants. Thus, destruction of any removed vines by burning would appear to be imperative. Herbicides are currently being evaluated for control of *C. sicyoides*, with test results to be reported later. We are currently unaware of any biological agents that may be used to control this new invasive vine species or of its tolerance to cold temperatures. More information on *C. sicyoides* will be forthcoming in future Newsletters.

J. Victor French



MESSAGE ON MESSENGER®

Messenger® is a commercially available product derived from a protein called Harpin. In nature, this protein is produced by certain bacteria, some of which cause plant disease. For example, the causal agent of fire blight disease of apple and pear, *Erwinia amylovora*, produces harpin. So also do strains of *Escherichia coli* which normally inhabit animal intestines. This protein is believed to induce some natural defense in plants, commonly known as **systemic acquired resistance** or SAR.

In the past couple of years, I have used Messenger in field studies involving postharvest fruit decay, citrus nematode management and fruit yield and quality. My experience so far is that Messenger seems to provide control of certain postharvest fruit rot such as green mold and sour rot.

Fruit yield from Messenger-treated grapefruit was substantially higher than non-treated trees. The most striking impact was on grapefruit packout studies. Fruit packout of "Rio Red" grapefruit from Messenger treated trees were 2 ½ times better than control trees with no Messenger treatment. This level of difference translates to a substantially higher increase in net return. The trend in postharvest decay control and substantially improved fruit pack out indicate that Messenger may become an important tool for better quality citrus production. We plan to repeat this study over a period of time. However, the overall trend seems to be very positive.

Mani Skaria

NEW MEMBERS OF THE BUDWOOD PROGRAM TEAM

The Center recently hired two new employees for the Budwood Program, now under John Watson's care. They are Cesar Medelez, whose job will be to run the virus testing in the lab and the greenhouse, and Jesse Caballero, who will assist in running the greenhouse and nursery. Neither of them are strangers to the Weslaco center as they were both previously working at the Experiment Station. Another new hire as a part-time nursery worker is a very familiar face, Adolfo Munoz. He retired from a full-time position in January after 20 years service. His expertise and knowledge is valuable to us, and we are happy to welcome him back.



Adolfo Munoz



Cesar Medelez



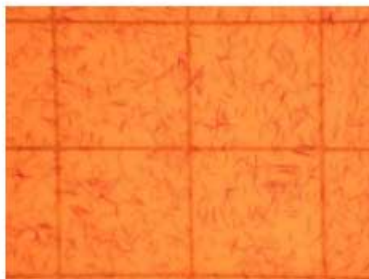
Jesse Caballero

A MODIFIED NEMATODE ASSAY

Citrus nematode, *Tylenchulus semipenetrans*, is an important pest in the Lower Rio Grande Valley. It feeds on young roots, and feeding by a large number of nematodes often results in general decline of tree health, fruit yield and size. Trees seldom die from citrus nematode; however, they will be debilitated, and the effect on citrus tree is often referred to as "slow decline." Sour orange, the predominant rootstock used in Texas is susceptible to this nematode. The greatest concentration of nematodes in the soil is in the upper one foot. A typical life cycle of citrus nematode starting from an egg to egg can be 1 to 2 months. Soil infested with nematode should be avoided or require management strategies.

The level of citrus nematode in the soil is normally assessed by a technique called the **Baermann funnel extraction**. This technique is convenient; however, not very efficient or accurate. Normally, active juvenile nematodes in 100 cm³ wet soil are made to migrate to the bottom of a tube containing water and nematodes in a small portion of water sample is counted and a population level in 100 cc soil is assessed by extrapolation from the number obtained. In an improved technique that was developed in our laboratory, we collect the entire water, stain the nematodes, and vacuum filter them through a nitrocellulose membrane. The nematodes are evenly distributed on the filter paper. This technique provides a more accurate estimation of nematodes in soil. Moreover, the membrane can be stored for months, we have so far stored them for 6 months without any loss.

Mani Skaria, Hongqin Miao, and Venkat Dannana



Citrus nematode larvae filtered on a membrane filter

RECENT VISITORS TO THE CENTER

The Citrus Center welcomed some visitors from outside the Valley recently. They were Dale Scott (TDA, Austin), Carol Motlock (USDA-APHIS-PPQ, Waco), Robin Ross & Bernard Ollson (Eden Bioscience), Joe Mitchell (BASF), and three citrus enthusiasts from Houston - John Panzarella, Victor Patterson & Louis Weldon.

DR. PATIL RECEIVES AWARD

Dr. Bhimu Patil recently received another award. At the recent annual meeting of the Crop Science of America in Denver he received the "Association of Agricultural Scientists of Indian Origin Young Scientist Award". He was presented with a certificate at a function of the Association in recognition of his achievements.

Congratulations, Bhimu



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