TEXAS A&M UNIVERSITY-KINGSVILLE

CITRUS CENTER

(956) 968-2132

WESLACO, TEXAS 78596

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NEWSLETTER

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CITRUS BLACKFLY ON THE INCREASE

In the October, 1991 Citrus Center Newsletter, I wrote that the citrus blackfly (CBF), long standing nemesis to Valley citrus growers, was again raising its ugly head. Judging by the number of recent calls from concerned growers, CBF is again on the increase, with infestations being reported mainly in mid and western Valley orchards. Growers immediately wanted to know about the availability of the two wasp parasites, *Amitus hesperidum* and *Encarsia opulenta*, so instrumental in the biological control of CBF. Several CBF infestation sites were scouted, but no parasites were identified. Therefore, Dr. Ru Nguyen, Entomologist and parasite rearing specialist with the Florida Dept. of Agriculture's Division of Plant Industry, was contacted. As in the case of our earlier CBF orchard outbreaks, Dr. Ru kindly responded with a shipment of both parasite species. These were subsequently released in a CBF orchard infestation site in Hidalgo county north of Mission.

More recently, Mr. Fred Karle, Sales Representative for Agro Distribution and long time Valley citrus grower, brought by some CBF infested leaves

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The wasp parasite, *Encarsia opulenta*, emerging from a citrus blackfly pupa.

PSOROSIS SYMPTOM OBSERVATIONS

Our recent field work on the *Phytophthora* and root weevil complex is making good progress, but while conducting surveys, we observed bark scaling in three sweet orange and grapefruit orchards. The incidence of bark scaling symptoms was low in two orchards, but high in the third.

The type of bark scaling was similar to the symptoms produced by *Citrus psorosis virus*. Symptoms of psorosis disease are normally associated with old-line cultivars and it is rarely found in newer cultivars, or in places with an effective virus-free budwood program. The symptoms are more pronounced on sweet orange and grapefruit cultivars.

Our new observations of psorosis symptoms were made in the Edinburg area. Isolated cases of psorosis symptoms have been previously noticed in dooryard citrus and in commercial trees elsewhere in the Valley. In general, the tree-killing freezes in the Valley in the 1980s had eliminated most trees with psorosis symptoms.

There is not enough evidence (at least in the United States) to believe that psorosis virus is spread

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Bark scaling symptom on the trunk of a sweet orange tree planted after the 1989 freeze.

THORN DAMAGE ON FRUIT - A NUISANCE

Citrus thorns are a nuisance to nurserymen, harvesters, and to some proud owners of dooryard citrus. I have received many fruit samples that were apparently damaged by thorns, however, they were commonly perceived by home owners to be bird pecking damage or disease.

Thorns in citrus are modified stems. They are commonly found in the axils of leaves next to the vegetative or flower buds, and are unbranched and pointed. The shape and the location of the thorns in the leaf axil make tree grafters uneasy, and slow down the speed of fruit picking. Recently, I have found that it also agonizes some avid citrus enthusiasts and causes them pain in their hearts because the thorns mechanically damage their precious fruit.

Wind constantly shifts the hanging fruit, rather like a pendulum swinging. The wind-driven movement of small young fruit would be more frequent compared to that of a mature and comparatively heavier fruit. When the fruit are pressed against thorns, the rind is damaged, often making scars and punctures. A close examination of the punctures shows that they have a triangular shape and they are tapered inside the rind tissue. Figures 1 and 2 show typical damage on a lime and a ponderosa lemon. Wounds on the rind open the door for fungal spores such as *Cladosporium* and *Alternaria* to develop, and they appear gray to dark. Such fungal growth may be confused with a disease, however, they are just opportunistic fungi. There are no effective solutions, however, but one can be thankful that the thorns in citrus are not as numerous as those on a rose plant which produces a multitude of thorns as extensions of the epidermal layer.

Mani Skaria

Figure 1. Thorn damage on Mexican lime.

Figure 2. Thorn damage on ponderosa lemon.

Figure 3. A close-up to show the triangular shape of the punctures. The damaged area showed growth of *Cladosporium* and *Alternaria* molds.

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collected from an orchard he monitors west of Edinburg. The CBF were found to be heavily parasitized, with numerous yellow *E. opulenta* adult wasps observed on the under surfaces of the leaves. This orchard and the aforementioned parasite release site, will serve as field insectaries for parasite increase. Hopefully, high numbers of parasites will be available for collection and redistribution into other CBF infested orchards. While the establishment of the parasites requires a fair amount of time, these beneficials have given more effective long term CBF control than through the use of chemical sprays. A bulletin describing *A. hesperidum* and *E. opulenta* and parasitism of CBF, is available and can be picked up at the Citrus Center library. More information on the latest CBF outbreak will be forth coming in future Citrus Center Newsletter articles.

J. Victor French

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by natural means such as insects, mites, pollen, etc. Therefore, for all practical purposes, the significance of psorosis is limited to the particular orchard where the disease is present.

Is it bad? Yes, in all normal cases, because psorosis debilitates the trees and reduces the yield. Moreover, it is an eyesore in all well-kept orchards. The good news for serious growers in the Valley is that the Citrus Center has budwood that is free from psorosis virus.

Mani Skaria, Hongqin Miao, Esiquiel Avila

FUNCTIONAL FOOD LAB IN CITRUS CENTER ATTRACTS STUDENTS

The functional food lab in the Citrus Center has been conducting research on several components of citrus for potential prevention of certain chronic diseases such as cancer and cardiovascular diseases. We have had three graduate students (Yan Liu, Jairam Vanamala and Jiaxing Li) and an undergraduate student (Marc Villalobos) conducting research on functional components and recently, the lab attracted several new students. **Mireya Rodríguez** is a student from Monterrey Tech, Mexico and she is undergoing training for six months on purification of citrus limonoids. Two new graduate students have joined the Ph.D. program. **Jun Yu** from Wuxi University of Light Industry, China is currently taking classes in College Station and he will be working on citrus limonoid effect on cholesterol reduction in collaboration with Dr. Rosemary Walzem, Department of Animal Science, Texas A&M University in College Station. Another student, **Shibu Paulose** is arriving this month from the University of Agricultural Sciences, Bangalore, India. He will be at the Citrus Center for Fall 2001 taking distance learning classes while working on his research project.

We have more students inquiring about the possibility of joining the lab soon for health benefits research.

Bhimu Patil

PRESIDENT CISNEROS STEPPING DOWN

The President of Texas A&M University-Kingsville, General Marc Cisneros, will be stepping down from the presidency on September 1. He has been President since September 1998, and during these past three years he has taken a strong interest in the Citrus Center, and the role the university plays in the Valley. He visited the center several times, and spared no effort in trying to obtain support from the legislature for new facilities for the center. He saw the opportunity for an increased role of TAMUK in the Valley, and wished to see teaching facilities here for use by all the university's colleges with the aim of complementing the activities of the University of Texas System. General Cisneros has accepted a position as chief executive office and executive vice president of the Kennedy Memorial Foundation, and will still have a strong interest in South Texas.

The Senior Vice-President and Provost, Dr Kay Clayton becomes the interim President pending the appointment of a new president.

John da Graca

CITRUS CENTER-BIOTECHNOLOGY LAB GRADUATES ANOTHER STUDENT

Ms. Margarita Rojas started her master's degree at the TAMUK-Citrus Center biotechnology laboratory about two years ago. She came from Colombia without any experience in molecular biology. After taking a year of courses at the main campus in Kingsville, she came to the lab in Weslaco for her research. Margarita is the kind of person who is a pleasure to have around; she is very friendly, and always smiling, she gets along with everybody. From an insecure student she grew to be an excellent researcher with abilities to perform molecular biology tasks with minimum supervision. This is why she has gotten four jobs offers so far from large research facilities in the Houston area. We are very confident that Margarita has a great future in a science career. We in the biotech lab would like to congratulate Margarita for her performance, great attitude, and brilliant future. She graduated in Kingsville on August 10, 2001.

Eliezer Louzada

VISITORS TO THE CENTER

Recent visitors to the Citrus Center have been:

Drs Alberto Mendoza Herrera and Rodolpho Acosta Leal (Centro do Biotecnologia Genomica, Reynosa, Mexico), Dr Shad Nelson (USDA-ARS, Fresno CA), Dr Albert Ayeni (Rutgers University NJ), Dr Bhaskar Bondada (University of Florida, Gainesville), Dr David Grueber (AgriQuality New Zealand), Mr Larry Barbery (Enviro Products), Mr Peter Bruno (BASF), Mr Al Dalrymple(Uniroyal), and Mr Drew Palrang (Bayer Corp.)

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