

**April 2004 Vol. 22 No.2 Citrus Center Newsletter**  
**FRUIT BLOOM LATE THIS SEASON**

March and early April brought good rains to the Valley, negating the demand for precious irrigation water. Not only that, the reservoir levels are above 60 percent of conservation capacity for the first time in longer than I like to remember. Too, substantial rains above Falcon over the weekend should result in additional increases into that reservoir when the next status report is tabulated.

Bloom has been late this season—due mainly to sustained cooler weather during February and March. Flowering of navels and round oranges was a good two weeks later than it has been in recent years. Grapefruit bloom is also running a couple of weeks late, which causes some concern that sheepnosing could become more prevalent this season. While the exact cause or causes of sheepnosing have not been determined, it does seem to be more problematic when high temperatures occur during early fruit development. Obviously, a later than normal bloom pushes the early fruit development period into a time when temperatures are usually much higher.

A heavy fruit set will have some attenuating effect on the extent and severity of sheepnosing, as it is usually most severe on overly vigorous trees which have a lighter fruit set. Hopefully, growers are well attuned to the problem and possible remedial actions. The most significant action that growers can implement is the use of split applications of nitrogen fertilization, i.e., applying only about two-thirds of the annual amount pre-bloom and waiting until early May to assess fruit set to determine the need for additional fertilizer. A light set dictates that no additional fertilizer be applied, as additional nitrogen on a light crop will result in excess vigor and will exacerbate the severity of sheepnosing.

**Julian W. Sauls, Ph. D.**  
Professor & Extension Horticulturist

**MITES ABOUND**

As we head into the new season, recent orchard inspections reveal that mites are abundant on citrus throughout Valley. In fact, early season infestations of citrus rust mite (CRM) are some of the heaviest I have seen in recent years. Still the Valley's #1 citrus pest—these small (1/200 inch) yellow, wedge-shaped mites are detected only with aid of a hand lens of 10X power or greater. CRM are especially prevalent on leaf under surfaces and on last season's unpicked fruit (particularly grapefruit) in the interior tree canopy. CRM will almost immediately target and move onto the new developing young fruit crop. Growers need to be especially alert to the CRM situation in their orchards and initiate timely chemical control measures to prevent early season mite feeding injury on the new fruit.

The Texas citrus mite (TCM) and the citrus red mite (RdM), are also being found in many orchards. For those not familiar with these spider mites—TCM are oval, greenish yellow, with irregular green spots along the side of the body: RdM have a globoid, red body, with long prominent bristles. Adults of both species have four pairs of legs, while newly emerged immatures have only three pairs of legs. Both TCM and RdM are mainly foliar feeders—easily spotted on upper leaf surfaces and most prevalent along the mid-vein and leaf margins. Chlorotic yellow spotting (stippling) on the leaves is indicative of spider mite feeding injury. Defoliation especially from the top of the tree canopy can result from heavy mite infestations. When damage is severe whole terminals may be devoid of leaves. Spider mite feeding injury on fruit is seldom seen, although very high

mite infestations can cause 'rind silvering'—similar to early season CRM feeding injury on grapefruit.

False spider mites (FSM) are also present in some orchards, but not in high numbers. FSM are flat, pear-shaped, dull to bright red in color and ca. 1/100 inch in length—also, requiring a hand lens for detection. FSM are mainly being found on last season's unpicked grapefruit, and especially in areas on the fruit rind scarred by insects or wind. An on-going orchard monitoring program for FSM is definitely warranted, since building infestations can move onto and damage developing fruit. FSM feeding causes fruit spotting, referred to as 'nail-head' rust—which generally appears in mid-late summer and makes the fruit marketable only for juice.

A new guide listing currently labeled and recommended chemicals for citrus mite and insect control will soon be available to aid growers in planning this season's pest management program for their orchards.

## **J. Victor French**

### **RECENT VISITORS**

The Functional Food lab hosted a large group of visitors from a number of universities who were attending a Remote Sensing Workshop at the USDA-ARS Center; some have previously visited the Citrus Center and jumped at the chance of visiting it again: Aref Kalanteri, Amber Doillette, Sharon Davis, Wilbert Long, Djavid Djavadi, G. Jagannadham (Virginia State University); Shoba Sriharan (W. Virginia State University), Wendy Zhang, Lionel Lyles (Southern University, LA); Francisco San Juan, Wanda Gooden (Elizabeth City State University); Richard Swearington (Heritage College); Glendora Carter (Jarvis Christian College) and Lloyd Mitchell (University of N. Dakota).

Ing Juan Luna Salas and Dra Svetlana Myartseva (Univ. Aut. Tamaulipas) visited the entomology lab; they have a particular interest in the parasitoids of blackfly. Other recent visitors were Robert Crocker (TDA, Austin), Lyndon Almond (Bayer), Jeff Glass (Eden Bioscience), and Eva Subido & Kenneth Zimmerhansel (Gowan).

### **RETIREMENTS**

Two long-serving employees at the Citrus Center recently retired. **Santiago (Jim) Villarreal** began working here in September 1970 as Dr Pete Timmer's technician in the plant pathology lab. When Pete moved to Florida, Jim became Dr Victor French's technician and stayed in his lab for the next 30 years. Over the years his increasing knowledge on citrus pests, pesticides, statistical analysis of trial data and photography proved invaluable; so much so that Vic is looking to re-hire him part-time later in the year!

**Adrian Duran** joined the center in August 1975 as one of the mechanics. For the past several years he has resided in the mobile home on the West Farm at Mission. His presence there served as a tremendous aid in maintaining security. He reliably took care of the West Farm, and we depended on him a great deal. He also assisted in auto repairs back here in Weslaco when needed.

We thank both Jim and Adrian for the many years of dedicated service, and wish them well in the next phase of life.

**John da Graca**

## WHY HAS MY SWEET ORANGE TURNED SOUR?

This is a question we get quite often from homeowners from many parts of the state. “All the fruit on my Washington navel orange tree turned sour. I hammered a rusty nail into the bottom of the trunk or insertion of a seed from a *good* Washington navel orange fruit into the trunk to reverse the problem”. The truth is, none of these techniques work and the sour fruit will not become sweet.

It is common to notice sour orange trees in dooryards in the Valley and elsewhere in south Texas. These trees were once produced edible fruit but subsequently produced turned sour fruit. The reason for this change can be explained by understanding the make up of a citrus tree and other fruit trees for that matter. The tree is composed of two parts – the top portion (referred to as the **scion**) and the bottom component (see pictures below) referred to as the **rootstock**. This is achieved by processes called budding or grafting done in a nursery to maintain horticultural characteristics of all fruit trees. In many cases, a mark indicating the union between a scion and rootstock is visible above the soil surface upon close examination of the trunk (see figure below). Normally, scions would be more sensitive to diseases, soil factors, and changes in environmental conditions. Rootstocks, on the contrary would be more tolerant to the above conditions. The reason for grafting or budding is to raise a ‘sensitive’ scion for fruit production on a ‘tolerant’ rootstock. This combines the desirable characteristics of both parts.

A normal citrus tree exposed to freezing temperatures could lose its scion without damage to the rootstock. Therefore, a freeze can kill the top part, leaving the rootstock alive. This rootstock will flush next spring and produce branches that bear fruit— this will be sour orange, not the sweet of the original scion. Sometimes you may get a combination of both sour and scion branches. A sour branch can be distinguished from the scion branch if both are present because of the difference in their appearance. However, if you have only the scion, you may need a trained person to identify it. Your local nurseryman would be able to help you. It is possible to graft onto an existing scion branch or consider replacing the tree with a new one.



Left – Newly-budded citrus tree in a nursery showing a pronounced budunion .  
Right – A four-year-old tree in the field showing a less pronounced budunion.

**Mani Skaria**

## INTERNATIONAL CITRUS CONGRESS

The 10th Congress of the International Citriculture Society was held in February in the Moroccan city of Agadir. Eliezer Louzada and John da Graca both attended the meetings and made presentations on their work. Louzada presented two papers on his lab's gene identification research, and participated in a meeting of the international citrus genome

group. Da Graca presented two posters, on one tristeza virus characterization and another on new grapefruit variety development. Some of Erik Mirkov's work on the tristeza resistance gene from trifoliate orange was presented by his Californian collaborator, Mike Roose.

Morocco shares an aspect of citrus cultivation with Texas - 98% of its trees are on sour orange. A paper from Italy reported that they have the same dependence on sour orange, and that native species of aphid (i.e. not the brown citrus aphid) are spreading tristeza virus and decline is becoming a major problem.

Other papers presented of interest to Texas included:

- a new non-toxic product from California (AGRI 50) has proved effective against whitefly species on other crops, and is now showing promise against California red scale without harming beneficials. Could this help in controlling citrus blackfly?
- a new method to detect viroids (exocortis, cachexia) was described which may be applicable to our budwood certification program.
- Sudden death - a new devastating disease in Brazil. This disease kills trees on Rangpur lime rootstock and resembles tristeza decline. Texas does not use this rootstock, but some potential rootstocks are susceptible (eg. Volkamer lemon). The cause remains unknown, but one suggestion is that it is a tristeza variant. This disease illustrates how new problems are continually appearing.

The next international congress will be held in China in 2008.

**John da Graca & Eliezer Louzada**

### **GREG PANZER RECEIVES SPECIAL RECOGNITION POSTHUMOUSLY**

At a recent Recognition Banquet of the College of Agriculture and Human Sciences in Kingsville, Greg Panzer was honored posthumously with a Special Recognition from Dr. Ron Rosati, Dean of the College and Dr. Rumaldo Juárez, President of the University. Greg, who for many years served as the Computer Resource Person for the Citrus Center, was recognized for his dedication to the Citrus Center during his adult life. Greg passed away on Christmas Day last year, at the early age of 52. He was particularly recognized for his tireless efforts to assist the faculty, staff and students at the Citrus Center with computer-related challenges. The Special Recognition was presented by Dr. Rumaldo Juárez, President of the University. I was honored to receive two copies of a framed certificate, one to be presented to his family and the other to hang in a new computer room that upon completion will be named in his memory. The recognition read as follows:

*Special Recognition  
Presented in Memory of*

*Greg Panzer*

*for his dedication, devotion and personal involvement during his adult life to the mission of the Texas A&M University-Kingsville Citrus Center, and in particular for his passion in helping faculty, staff and students excel in their pursuits.*

*Presented this 7<sup>th</sup> day of April, 2004 and signed by both Dr. Ron Rosati and Dr. Rumaldo Juárez*



President Juárez presents to José Amador a framed certificate of the Special Recognition from Dr. Ron Rosati and Dr. Juárez in memory of Greg Panzer for his lifetime dedication to the Citrus Center

**José Amador**

### **A NEW REDDER GRAPEFRUIT FOR TEXAS?**

On Thursday, March 11, we were visiting some orchards at the Center when one of us (EL) noticed some bright red fruit on a Rio Red tree. On closer inspection we found three such fruit, all with good shape and firm to the touch, on the branch which was about 2 ft long. The fruit had a peel color similar to that of a ripe tomato. We picked one fruit, and brought it back to the lab where it was cut in half. The flesh had the same intense red color and was uniform. The taste was also excellent.

At the TCM Mid-Year meeting two weeks later, we displayed the second fruit, and showed the third fruit to the Center's Advisory Committee when it met one week later. On both occasions samples were offered for tasting.

Twenty sour orange seedlings have been budded with tissue from this branch, and some material has also been topworked to orchard trees. The few seed in the fruit, as well as aborted seed, have also been collected for propagation.

It is far too early to predict whether this will turn out to be the next Texas red variety to hit the grapefruit world, but it is certainly the reddest we have seen so far; its lycopene content is now being determined. We will have to wait and see what the trees that are being propagated now will produce; hopefully good, consistent yields of marketable size and shape.



**Eliezer Louzada & John da Graca**