TEXAS A&M UNIVERSITY-KINGSVILLE

CITRUS CENTER

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PRESIDENT JUAREZ VISITS CENTER

The new President of Texas A & M University-Kingsville, Dr Rumaldo Juarez, paid his first visit to the Citrus Center on September 20, (see photo page 4) just a month after assuming his position. He addressed all employees and staff in the auditorium, visited with each of the scientists to learn about their programs, toured the Center and the Experiment Station, and met with members of the Citrus Center Advisory Committee and Texas Citrus Producers Board over lunch. He committed himself to support the center and the citrus industry, praising the excellent work being done. He was especially pleased with the cooperative programs which have been established with the two University of Texas schools in the Valley.

NEW TEXAS CITRUS IPM GUIDE

A new Integrated Pest Management (IPM) Guide for Texas citrus is now available to growers. Subjects covered in the Guide include—TX citrus history, IPM guidelines, arthropod (mite and insect) management, disease management, orchard floor (weed) management and developing citrus IPM strategies. The written text in each section is supplemented by excellent color photographs and charts. Dr. Juan Anciso, Citrus IPM Specialist with the TX Cooperative Extension, served as project coordinator for production of the new Guide, which was supported by a grant from the Texas Department of Agriculture. He is to be commended for a job well-done. Other authors include: Drs. Julian Sauls and Rodney Holloway, Horticulturist and Pesticide Specialist, respectively, also with the TX Cooperative Extension; and Drs. Mani Skaria and Victor French, Plant Pathologist and Entomologist, respectively, TX A&M-Kingsville Citrus Center. It is listed as Bulletin B-6121 and can be ordered ($10 per copy) from the Texas Cooperative Extension, Distribution and Supply, P.O. Box 1209, Bryan, TX 77806.

J. Victor French

THE "OTHER RED" GRAPEFRUITS

Texas is known worldwide as the source of the main dark pink and red grapefruit varieties now grown in many parts of the world. The **Thompson Pink** and **Foster Pink** were brought here from Florida early in the 20th century. Natural mutations (budsports) were found on some Thompson Pinks, and these gave us the **Fawcett Red**, which in turn produced the **Henderson**, and the **Ruby Red** and **Redblush**, the latter two being described as indistinguishable. The Ruby Red in turn produced a darker budsport which was named **Ray Ruby**. A Foster budsport produced the **Hudson**, and Dr Richard Hensz created the **Star Ruby** by irradiating seed of this seedy dark red variety. Later he irradiated budwood from **Ruby Red**, producing the non-commercial **A & I 1-48**, which then produced a budsport, which was named **Rio Red**. In terms of redness, the Star Ruby is the darkest.

Red grapefruit industries in other states and countries have benefitted from these Texan varieties. Ruby Red is the main variety grown in Florida, Star Ruby is grown in California, Israel, Cyprus, South Africa, Australia, Cuba, Argentina and elsewhere, and some Rio Reds are grown in Mexico, Argentina, and some other places. Citriculturists in some of these places have continued the practice of selecting new red grapefruits. In Florida, a seedling from Henderson produced a darker red fruit, and was released under the name **Flame**. In South Africa, a nucellar Star Ruby was selected which does not suffer the erratic bearing problems reported in Texas, and they found a Ray Ruby seedling with darker fruit, called **Nelruby**. In Argentina, two Ruby Red budsports with darker red fruit have been found and developed - **Oran Red** and **Rouge La Toma**.

Flame and Rouge La Toma have been described as having color intensities close to that of Star Ruby, while Nelruby is said to be as red as Rio Red. It would be interesting to see how these varieties would perform in Texas. As a start, we have obtained virus-free Flame budwood, and will be planting some

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Grapefruit from Page 1

trees in the coming year. Seed of some of the others have been imported.

Rio Red has become the main variety grown here, with no new potential varieties being found or developed since its release. It is the interest of the Texas citrus industry to see if any varieties found elsewhere, or in Texas itself, would perform even better than the Rio. We recently discovered a number of new mutations in some A & I 1-48 trees. These, and some chimera seedlings of different sources are now being propagated at the Citrus Center for evaluations.

John da Graca

CITRUS RUST MITES ON THE REBOUND

Recent heavy rains have made conditions ideal for rapid buildup of citrus rust mite (CRM) infestations in orchards across the Valley. Exploding CRM populations (ca. 7 days per generation) can cause late season fruit russeting to appear in as short a period as 2-3 weeks. Orchards need to be monitored rigorously and growers should implement a fall cleanup miticidal spray before incipient CRM infestations are allowed to build to high population levels. Vendex 50 WP®, Agri-Mek EC® tank mixed with 0.5-1.0% petroleum spray oil, or Nexter 75 WP® are three miticide options to consider. Based on several efficacy trials conducted at the Citrus Center—Nexter 75WP should not be tank mixed with petroleum oil, because residual CRM control is shortened by 2-3 weeks. The rain is great for our citrus, but be on the lookout for pesky rust mites!

J. Victor French

SOIL SALINITY

The overall shortage of irrigation water in the last several years, combined with the general reduction in annual rainfall amounts, has not been the best of situations for salinity attenuation in area orchards. As a rule, the salinity of irrigation water is in the range of 700 ppm or higher–while that of rainfall is nominal. The salinity of most well water that is occasionally used in Texas citrus ranges above 1000 ppm.

Normally, leaching rains occur in May to June and again in September, which basically carries existing soil salts down through the soil profile and out of the root zone, thereby reducing overall soil salinity to levels that are about as low as we can expect. When leaching rains do not occur, salinity levels increase to the point that growth and yield are negatively impacted. In addition, the presence of hardpans or compacted soil strata reduces water penetration into the profile, further increasing soil salinity levels.

Among the first indications of a potential salinity problem is very slow percolation of rainfall or irrigation water in the grove, i.e., the orchard floor stays wet longer than normal. As salinity worsens, the trees begin to experience smaller leaf size, and may begin to exhibit dieback of small twigs in the outer canopy. The dieback occurs because salts accumulate in the younger twigs, ultimately reaching toxic levels. The overall tree appearance is "hard" rather than lush and healthy.

The long-term effect of excess soil salinity is a decline in production–but it does not occur all at once. Because annual ups and downs in citrus production are more or less normal and common, especially given the occurrence of a slight tendency to alternate bearing in most varieties grown in the Valley, you have to examine trends over several seasons. If overall production has been declining for the last several seasons, despite your best efforts to maintain adequate irrigation and fertilization, you might consider pulling a soil sample for salinity analysis.

Pull about 10 to 20 soil cores to the one-foot depth at random across the orchard. Place them in a clean bucket, mix the cores thoroughly, then fill a gallon size sealable plastic bag with the mixed soil and discard the remainder. Take or send the sample to the testing lab of your choice and request a saturated-paste extract for salinity analysis.

Basically, yields begin to decline significantly at salinity levels exceeding 1.6 dS/m (deci-Siemens/meter or mmhos/cm), which is about 1120 ppm. Obviously, reduced growth of roots and shoots, decreased flowering and smaller leaves occur before yield declines are apparent–and long before typical symptoms of tipburn, marginal necrosis or bronzing of the leaves occur.

If the salinity level of the saturated-paste extract is nearing the critical level, additional samples in one-foot increments to 4 or 5 feet of depth should be considered to further delineate the extensiveness of the problem. If the problem is due to the inadequacy of leaching, it can be corrected by supplying extra irrigation water or by the occurrence of 4-5 inches of rain, such as many orchards received in September. If the problem is because of a hardpan or compacted soil layer, the solution is deep chiseling to break the pan and permit water percolation into the soil profile. Yes, chiseling will break off a lot of roots, but they will grow back–the alternative is to simply watch the orchard continue to decline.

Julian Sauls Ph.D.
Professor & Extension Horticulturist

COMPARING TOTAL GRAPEFRUIT PRODUCTION IN TEXAS, CALIFORNIA, AND

In the last newsletter I mentioned that I thought there were some economic forces at play that would help strengthen Texas grapefruit prices. Forecasting prices is particularly hazardous, but its significance seems to draw us towards it. To make an analogy, economic forecasting is a bit like trying to guess low tide when there are big storms pushing in tidal surges. Any particular storm may well over ride the effect of the moon on the tides, so how well we do depends on our knowledge of the storms. Likewise, the economy has some regular forces, but there are all these storms that crop up messing with the regularity that lurks underneath it all.

One of the big forces driving economic prices is relative supply and prices of substitutes (other citrus). Since the 1989-1990 freeze, Texas has been slowly building up its production of grapefruit while California and Florida have let theirs fall (Figure 1). To graphically illustrate this I used the peak and low point from 1978-2001 to set the maximum production at 100 percent and the minimum production to 0 percent for California, Florida, and Texas. So for example, you can see that between 1990-2001 Florida was at its maximum output in 1990, and has fallen by roughly 60 percent last year. Also, California is at its lowest production level in 2001 for the 23 years in the time period. Texas on the other hand, has gained roughly 45 percent since the last freeze. These changes put Texas and California at about the same production output, and Florida at about 2.6 times the Texas output.

Now, what does all this mean for prices? Well there are two other storms out there that we need to recognize, but I think the news is good. First, per capita consumption has dropped from about 20 lbs per year per person since 1971 to about 15 lbs in 2000. Population growth, however, has increased the total demand even with the per capita slip. Also imports, which I have not been tracking could be stirring up the water. All in all though, Texas has been actively gaining market share. We likely have done so through somewhat lower Texas prices. But, there comes a time when once you get the market share the price rises in your favor. As the Texas production appears to be leveling off, my guess is stronger prices are in the future. Hopefully, the sooner future rather than the later future. Next time I'll try to give an idea of how imports are effecting our prices.

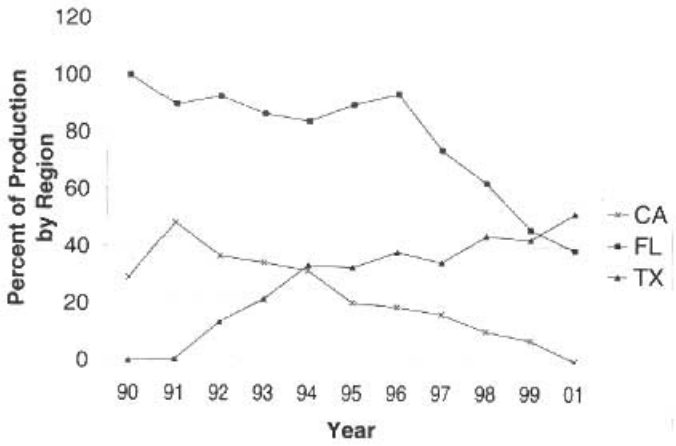

Figure 1. Texas, California, and Florida production scaled so that maximum (between 1978-2001) is 100 percent and minimum (same period) is 0 percent for each region.

Gary McBryde
Agricultural Economist TX A&M Kingsville

SATSUMA ROUND TABLE IN UVALDE

Dr Larry Stein (A & M Research & Extension Center, Uvalde) and Dr Jerry Parsons (TCE, San Antonio) recently organized a 'Satsuma Round Table' in Uvalde at which they introduced two Satsuma varieties, Miho and Seto. Seed of these two satsumas were brought to Uvalde from Japan in 1984. Trees were propagated both as cuttings and grafted on sour orange, and by last year had produced three crops enabling good fruit evaluation. They concluded that both were desirable for Texas, and they invited a number of nursery operators from Houston and east Texas, as well as the three of us and a local nurseryman, to attend a promotion. At the round table gathering, Julian Sauls gave a talk on citrus propagation, and the benefits of the virus-free program (see picture). Craig Kahlke reported that he had tested both varieties for tristeza, and they were negative, and he answered a number of questions.

After a tour of the planting, the nurseries were invited to collect material free as a one-off offer. The Miho variety has also just been released from the California virus-free program, and we have ordered budwood for the Texas program. Until it has been entered into the foundation block, we will propagate the Uvalde Miho source, as well as the Seto - in the meantime, nurseries can get tristeza-free budwood from Uvalde.

John da Graca, Craig Kahlke & Julian Sauls

UNDERGRADUATE INTERNATIONAL STUDENT STUDYING CITRUS ROOT HEALTH

Murat Seyran, a B.S student at the Department of Plant Pathology and Entomology at the Ege University, Izmir, Turkey is doing an internship with Dr. Mani Skaria. He started his project in early August and will return to Turkey in October, 2002. He is studying the root health characteristics associated with *Citrus psorosis virus*. His project is generating some interesting new information surrounding psorosis virus. Recently, Seyran and others at the Citrus Center made a front page article on "Farming with Science: Weslaco Researchers Look for Solutions to Growers' Problems" in the Valley Morning Star. After completion of his degree work in Turkey, Murat plans to return to Weslaco to pursue MS studies at the Texas A&M University-Kingsville.

Mani Skaria

TAMUK President Dr. Rumaldo Juarez meets Murat Seyran during his visit to the Center.

VISITORS TO THE CENTER

Recent visitors to the Citrus Center have been Drs Juan Vega, Martin Hernandez Torre, Jorge Moreno-Cuevas & Mario Moises Alvarez (Monterrey Tech., Mexico), Dr V.K.Moorthy (Varanashi Research Foundation, India), Dr Wanda Collins (USDA Plant Sciences Institute, Beltsville), Randy Birdwell (Texas A & M Real Estate Center), Mr. Joe Mitchell, (BASF Corp.), Mr. Norihiko Mimori, (Nissan Chemical Corp. Indiana Research Station), Mr. John Aleck, & Mr. John Braun, (Valent USA Corp.), and Mr. Kimitoshi Umeda, (Sumitomo Chemical, Japan). Sumitomo is the parent company for Valent USA Corp.

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.

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