TEXAS A&M UNIVERSITY-KINGSVILLE

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NEWSLETTER

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ESTEEM® REGISTERED FOR CITRUS

Esteem 0.086 EC® (Product of Valent USA Corporation) recently received an EPA registration for use on Citrus and Almonds. Esteem is labeled for control of California red scale, black scale, and brown soft scale at a rate of 17 fluid ounces per acre (50 grams ai); and citrus whitefly, citrus blackfly and citrus leafminer at 8 to 10 fluid ounces per acre (24-30 grams ai). Esteem's active ingredient, Pyriproxyfen, is an insect growth regulator that interferes with immature insect development and adult emergence. Esteem spray applications are best timed to appearance of early stage (1st and 2nd instar) immature insects newly emerged from the egg stage. It is important to note that Esteem is slower acting and does not kill immediately upon insect contact like commonly used Oganophosphate insecticides like Lorsban®, Ethion® and Supracide®.

Esteem has been included in chemical screening trials at the Citrus Center for several seasons, demonstrating excellent activity against the aforementioned insect pest species. 1999 trial results confirmed earlier test findings. These data showed that Esteem (13.5–17 ounces per Acre) tank mixed with 0.5% NR 435 spray oil, provided quicker knockdown of California red scale (CRS) than did similar Esteem rates applied without oil (> 83% vs <64% CRS mortality at 7 days post-spray). However, by 21 days post-spray—>91% CRS mortality was recorded in all Esteem treatments.

Moreover, our trials indicate that Esteem is easy on beneficial insects e.g., *Aphytis* spp parasites of armored scale insects , and lady beetle (Coccinellid) predators of aphids, mealybugs and soft scales. Esteem's registration also provides growers with a much needed alternative scalicide/insecticide that will be an important aid in managing insect resistance to heavily used pesticides.

J.Victor French

DR. ROBERT F. LEYDEN AND SANTIAGO DOMINGUEZ

It was with a saddened heart that we learned of the passing of Dr. Robert Fullerton Leyden at his home in Kerrville on December 22, 1999. Robert Leyden served the Citrus Center as Professor of Soil Science and Citrus Nutrition for some 30 years, before retiring in 1984. His research essentially pioneered many of the now commonly accepted practices used in citrus orchard management—principally in the areas of chemical weed control, nitrogen fertilization, micro-jet irrigation and water conservation, and freeze protectant devices. In 1997, Robert was honored as the recipient of the prestigious Arthur T. Potts Award given annually by the Rio Grande Valley Horticulture Society. Our deepest sympathies go out to Robert's beloved wife, Betty, and their three children (5 grand children)—daughters Darlene (Lott) and family of Weslaco; Denise (Harbison) and family of Fallbrook, CA.; and son Steven of Oak Harbor, WA.

Dr. Robert L. Leyden will be long remembered for his many contributions and untiring dedication to the Texas Citrus Industry and Citrus Center. He will be missed by friends and colleagues throughout the Valley and at the Citrus Center.

The Center also lost another retiree at the beginning of the year. We were saddened to learn that Santiago Dominguez, who worked here for 23 years from 1953 until 1976, including 13 years as Farm Foreman, passed away January 23. After retiring he continued living in Mercedes.

J. Victor French

TCM MID-YEAR MEETING

The 16th annual mid-year meeting of the Texas Citrus Mutual will be held at the Citrus Center on Friday March 24. Amongst the planned topics are marketing issues, food safety, pest management, crop insurance, water issues and a Florida perspective. Registration includes lunch and will be $25 for TCM members, $30 for non-members and $10 for spouses.

FERTILIZING RIO ORCHARDS

Two characteristics of Rio Red grapefruit orchards that warrant a little extra management are alternate bearing and sheepnosing. Everybody is aware of Rio's tendency to produce sheepnosed fruit, but not everybody has figured out that many Rio Red orchards are demonstrating alternate bearing tendencies.

Over the last half-dozen or so years, Rio production in even-numbered seasons has been lower than in previous (and following) odd-numbered seasons. For example, Rio production in 1997-98 was lower than in both 1996-97 and 1998-99, and it is down again in 1999-00. It follows that the coming season should an "up" year again.

At this point in the life of an orchard, most growers have settled into a fixed rate of fertilization year in and year out. However, that approach will normally result in increasingly greater swings in production between heavy and reduced crop years—and it will result in larger, coarser and more severely sheepnosed fruit in the reduced crop years. I am not claiming that nutrition causes sheepnosing— it doesn't—but excess vigor from excess nutrition will cause already sheepnosed fruit to become more severely sheepnosed.

Many growers fertilized a little heavier after the drought of 1998 to help the trees rebound from drought stress. The trees recovered nicely, but because the 1999-00 crop was reduced from the prior season, sheepnosed fruit puffed up like a balloon. The trees grew so vigorously in 1999 that the coming bloom and set should be very heavy. Most growers will use the same amount of nitrogen again this season, so most of the nutrition will go toward maturing the heavy crop, growth will be reduced and the bloom and set in spring, 2001, will drop back again. And so the cycle continues.

The prudent fertility program would be to apply only about two-thirds of the annual nitrogen pre-bloom, then wait until May to ascertain the extent of set. If set is normal, apply the other third of the nitrogen; if it's heavy, include that third and an additional 20-30 pounds. Conversely, if the set is light, reduce the second application by 20-30 pounds.

Yes, I know that the split application costs a little more than the one-shot approach. The idea is to optimize the nutrition program to produce consistent crops of Rio grapefruit without worsening the sheepnose problem. Maybe we will ultimately be able to control sheepnosing—but we have determine what causes it first.

Because alternate bearing is a biennial cycle, growers should start thinking about nitrogen fertility in a biennial manner. If you look at the program above, you will quickly realize that a reduced application rate in one season and an increased rate in the next averages out to the normal rate over a two-year cycle.

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

JOSE MARTINEZ RETIRES

After 25 years of loyal service to the Citrus Center, our groundskeeper, Jose Martinez retired on January 7. The center hosted a luncheon for him and his daughter, at which he was presented with a watch and a certificate of achievement.

Jose Martinez (center) receives best wishes for his retirement from Center Director Dr. Jose Amador (left) and Deputy Director Dr. John da Graca (right).

FREEZE PROTECTION FOR FOUNDATION BLOCK

The 1999/2000 winter has so far been unusually mild, yet precautions were in place to protect the virus-free foundation block trees against a possible freeze. Each mother tree was individually covered by a double-layer plastic tent (in the foreground), while the multiplication trees were covered by row-length plastic tunnels (in the background). the temperatures inside the covers can be 10-15° F above the outside, so on those 80 degree days we had, flaps in the plastic were opened for ventilation.

By next year many of the mother trees will be too large to cover with plastic, so we are now installing an sprinkler system which will be used for future protection. Plastic will still be used in the multiplication rows. Some budwood should be available for sale to nurserymen from these rows this spring, but we remind you that the mother trees have not borne fruit yet, so we are not able to provide horticultural guarantees.

John da Graca & Craig Kahlke

Freeze Protection in the Foundation Block at the Citrus Center

COMPARATIVE FRUIT QUALITY OF MICROBUDDED AND CONVENTIONALLY GROWN TREES

More than 900 microbudded citrus trees were planted in an ultra-high density block near Edinburg from June to December 1997. These trees were younger and smaller at planting than conventionally grown trees. The microbudded trees grew well in the field several fruiting less than two years after microbudding. Since the trees had early fruit, we compared the quality of fruit from microbudded trees with fruit from eight-year-old, conventionally grown trees at the Citrus Center. 'Rio Red' grapefruit and 'Marrs' orange fruit were harvested on January 24, 2000 and analyzed for quality parameters such as juice weight, brix, percentage of acidity, fruit weight, diameter, firmness and peel thickness.

Results indicate that 'Rio Red' grapefruit from microbudded trees had lower acidity(0.71%) than fruit from conventionally grown trees (0.89%). However, the percentage of juice in fruit from conventionally grown trees was higher (Rio Red grapefruit 58.5 % and Marrs orange 57.1%) than fruit from microbudded trees (Rio Red grapefruit 51.4 % and Marrs orange 48.7%). The ratio of soluble solids (Brix) to titrable acidity (TA) was higher in microbudded grapefruit (11.3) compared to fruit from conventionally grown trees (10.6). The fruit weight, diameter, puncture pressure and peel thickness are given in the following table.

	Microbudded Rio Red Grapefruit	Conventionally grown Rio Red	Microbudded Marrs orange	Conventionally grown Marrs orange
Fruit weight (g)	560	492	223	192
Equatorial diameter (inches)	4.4	4.1	2.7	2.3
Polar diameter (inches)	4.0	3.6	2.6	2.2
Puncture pressure (Newtons)	2.2	2.1	2.4	2.0
Peel thickness (mm)	6.6	5.3	5.1	3.6

The total soluble solids (TSS) concentration was calculated by multiplying percent juice and soluble solids content (SSC) and dividing by 10. The TSS is a valuable indication for the juice industry because it expresses the total soluble solids in terms of kg per ton. Conventionally grown trees had a higher TSS compared to microbudded Marrs orange and Rio Red grapefruit. External peel color, internal fruit color and juice color were measured. Results showed that external peel color of microbudded grapefruit (hue angle=75.86) was redder than conventionally budded trees (hue angle=79.31). The results are averages of 10 fruit tested per parameter.

We caution our readers to note that this is result of a preliminary test conducted out of scientific curiosity because of the early fruiting of several microbudded trees. The fruit compared were grown in separate locations and the tree age also was different. A side by side comparison is the ideal one, however, we did not have such a set up.

Mani Skaria and Bhimu Patil

CITRUS FIELD DAY

The Center held a very successful field day on December 15. It was attended by over 160 growers and members of the public who were shown various aspects of our work. Faculty, research assistants and graduate students all had the opportunity to describe their work and answer questions. During the morning participants visited the virus-free foundation block, tristeza-tolerant rootstock trial and laboratory demonstrations of plant pathology, entomology, novel breeding technologies, nutriceuticals and molecular virology. After lunch, we visited the Edinburg Citrus Association packingshed to see the high pressure water removal of scale insects, and a high density planting of microbudded trees.

John da Graca

The Richard A. Hensz Auditorium packed with field day participants.

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