TEXAS A&M UNIVERSITY-KINGSVILLE

# CITRUS CENTER

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# NEWSLETTER

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## SEASON'S GREETINGS

## BENEFICIAL MITE ON TEXAS CITRUS

*Galendromus helveolus* (Chant) is one of the most prevalent predaceous mite species found on Texas citrus. This beneficial mite is a predator of citrus rust mite, citrus red mite, and Texas citrus mite. However, there is no published information about the effectiveness of *G. helveolus* against false spider mite (FSM)—another important pest mite species on Texas citrus. Therefore, research is underway to determine its potential as a biological control agent for FSM. Reported are the results of preliminary predation experiments.

*G. helveolus* has four motile developmental stages: larva, protonymph, deutonymph and adult—all of which were found to feed on FSM. Larvae newly hatched from the eggs are translucent and colorless. After feeding on FSM, the predaceous mites become bright red. We found that one individual immature predaceous mite consumed an average of: 31 eggs, 54 larvae or 23 nymphs. It took 4 to 5 days for the immature predaceous mites to develop to adulthood. One individual adult predaceous mite consumed an average of: 165 eggs, 370

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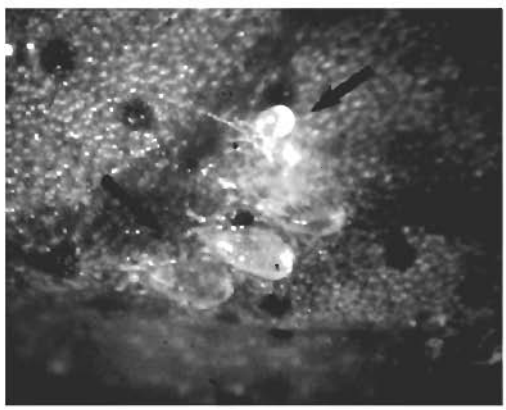

Figure 1. Predaceous mite adult and eggs (arrows)

## SHAD D. NELSON-NEW ASSISTANT PROFESSOR OF AGRONOMY

Dr. Shad D. Nelson has been recently hired as the new Assistant Professor of Agronomy position at Texas A & M - Kingsville. This position carries a 75% teaching appointment and 25% research appointment at the Citrus Center. Dr. Nelson's educational and research background are diverse and cover a broad knowledge of soil, plant, and water sciences. His doctorate was in soil chemistry from the Univ. of California-Riverside, and received MS and BS degrees in agronomy and horticulture science from Brigham Young University located at Provo, UT. He was most recently working for the USDA-ARS in Fresno, CA and Gainesville, FL performing research on alternatives to methyl bromide in horticulture crop production (tomatoes, strawberries, squash, and eggplant). In California, his colleagues and he performed pioneering research in the area of drip fumigation, where emulsified soil fumigants are being evaluated for their ability to control pests in pre-plant, raised-bed plasticulture. Delivery of volatile chemical alternative to methyl bromide through irrigation lines may result in safer, more environmentally conscience pest-control methods for soil-fumigated crop production. Dr. Nelson also has experience in volatile soil-gas emissions, ground and surface atmosphere sampling techniques, and couples this experience with resultant crop yield and plant growth.

Dr. Nelson's research activities have centered upon environmental concerns regarding current agriculture practices, in order to find cost-effective management practices that will maximize crop production while preserving environmental resources. The majority of Dr. Nelson's work has dealt with the fate and transport of inorganic and organic agricultural compounds in soil and water systems, and

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merging this knowledge with field crop production methods. His desire is to continue similar research avenues in Texas to evaluate irrigation, fertilization, and pest control methods in southern Texas citrus production. He expresses interest in the monitoring of inorganic and organic compound fate and transport in citrus agriculture soils under varying irrigation systems.

Dr. Nelson is living in Calallen, TX with his wife, Tina Nelson, and his two daughters Chyanna (7) and Chylee (4). The parents decided to name their children in a way such that every schoolteacher will mispronounce them, as Chyanna is said "Ki-anna" and Chylee is "Ki-lee". Tina received her BS degree in Spanish and a Masters degree in Linguistics with a TESOL certificate. She teaches English as a second language for college-age students at the community college and university level. Dr. Nelson is a third generation soil scientist as his grandfather, Adrian Nelson, worked for the Soil Conservation Service in Oregon, Washington, and Idaho. His father, Sheldon Nelson, is a Professor of soil physics at Brigham Young University. He has always been surrounded by academics as both parents are involved in education and after seeing the quality of life his family has enjoyed, Dr. Nelson also decided to pursue a doctorate degree to teach at the college level as well. Dr. Nelson can be reached at 361-593-3953 or e-mail: shad.nelson@tamuk.edu

**Shad D. Nelson, Ph.D.**
Texas A & M - Kingsville

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larvae, or 81 nymphs. Both immature and adult predaceous mites seldom fed on adult FSM. An adult *G. helveolus* lives for 14 to 18 days, and each female lays 8 to 14 eggs.

The susceptibility of *G. helveolus* to some commonly used miticides/pesticides was also tested in laboratory. Preliminary results showed that *G. helveolus* was tolerant to Micromite and Agri-Mek, with no significant mortality being found when exposed to the chemical residues. Vendex and Kelthane were intermediate, with the residual killing effects lasting 2 days after spray. Nexter and Vydate were very toxic, with the mortality recorded until 6 days after spray.

The preliminary experiments showed that *G. helveolus* is an effective biological control agent for FSM. It can be obtained from commercial insectaries and suppliers such as Biotactics, Inc. (Riverside, CA) for release in commercial orchards. To protect this predaceous mite species, it is imperative that selective miticides/insecticides be applied in Citrus Integrated Pest Management (IPM) Programs.

**Tian-Ye Chen & J. Victor French**

## INTERNATIONAL CITRUS VIROLOGY MEETING HELD IN CYPRUS

The 15th Conference of the International Organization of Citrus Virologists (IOCV) was held in Paphos, Cyprus in November. The IOCV was formed in 1957, and meets once every three years in a different citrus growing parts of the world. Seventy delegates from 25 countries attended the meeting in Cyprus, and there were over 100 scientific presentations. The largest number dealt with tristeza, and while there is increasing understanding of the virus and the diseases it causes, it still remains the cause of major losses in many places; one paper described recent devastation in Jamaica. As is often the case, new diseases and viruses were described including citrus leaf blotch virus in Spain, and 'sudden death" in Brazil, a disease of unknown cause.

From Texas, John da Graca, Erik Mirkov and graduate student Caroline Herron attended. Three presentations of their work on tristeza and the resistance gene in trifoliate orange were made, and da Graca also co-authored a poster from South Africa on tristeza virus population changes in red grapefruit trees. Mani Skaria was also scheduled to attend, but was unable to go, however two posters of his on tatter leaf virus and psorosis were displayed.

Dr da Graca was elected to be the next Chairman of IOCV to serve the 2004-2007 term. The next conference will be held in Monterrey, Mexico in November 2004, preceded by a tour of the Lower Rio Grande Valley.

**John da Graca**

Three successive IOCV Chairmen, Pedro Moreno, Pat Barkley and John da Graca and conference organizer Anastasia Kyriakou visiting Roman ruins in Paphos.

## COSTS OF PRODUCTION AND LAND PRICES

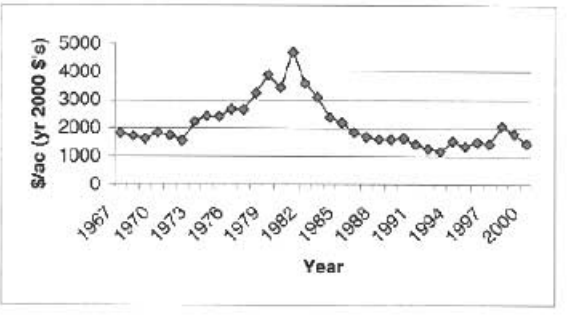
In the last newsletter I had collected prices paid to citrus producers at the packing house door from 1984 to 1998. Economic theory suggests that as prices increase producers will respond with increased supply. This information can be used to begin to place boundaries around costs of production of citrus. Costs of production share in common a feature with the unhappy families of the Russian novelist Leo Tolstoy. He observed that unlike happy families, which are all alike, unhappy families each has a unique story to tell. Soil quality, the location of the orchard in the landscape which will effect microclimate and insect populations, age of trees, size of orchard, management expertise are all factors that will effect costs of production and make for a unique story about orchard costs.

In order to provide useful information about costs of production economists develop average estimates and then look for ways that each particular case will deviate causing costs to be above or below the average case. The packing house price and supply quantities are a first step in getting an average estimate. It is sort of like knowing the boundaries of the land on which a ball park sits. It tells you where the action is but not what it is.

To get one step closer to the action, we begin to break-out input costs and test if they are important. In the most general case we think land, labor, management, and capital are the four big cost items in production. While last time I speculated that land prices would be important based on the large amount of rural land development we are seeing, looking at the land prices (Figure 1) makes me think differently.

Expressed in year 2000 prices (detrending inflation) between 1967-2000 reveals that land prices peaked in 1981 just shy of $5,000/acre and dropped back to a value averaging near $1,500/acre since. Next time I'll test for the influence statistically and see what other inputs may be driving citrus production costs. More information on real estate and land costs can be found at the web site for the Texas A&M Real Estate Center at http://recenter.tamu.edu.

**Gary McBryde**
Agricultural Economics
Texas A&M - Kingsville




## "MOLD & QUALITY OF HUMAN HEALTH" COURSE OFFERED AT THE CENTER

Dr Mani Skaria will be teaching a course entitled "Mold & the Quality of Human Health" at the center this month. The course will run from December 17 to 21; classes will be 2-5 pm on Dec. 17-20, and 9 am-12 noon on Dec.21. It is a one-credit course through Texas A & M University-Kingsville for undergraduate and graduate students, but it is also open to members of the public who are interested. The class will meet in Classroom 158 at the Texas Agriculture Experiment Station, and will be transmitted by videoconference to students in five other sites around the state.

The course will cover many aspects of mold, including its origin, classification, nutrition, reproduction and growth, and then attention will turn to allergies to mold, occurrence in homes and public buildings, case studies and management of the problem. Dr Skaria has invited other experts to give guest lectures.

To register, please contact Jessica Canales at the University in Kingsville (Tel. 361-593-2132 or jessica.canales@tamuk.edu). For course information contact Dr Skaria directly (956-968 2132; m-skaria@tamuk.edu)

**Mani Skaria**

## CITRUS FIELD DAY

Despite somewhat cool weather, about thirty people attended the citrus field day in November. With the theme of Citriculture in the 21st Century, they were shown research and other activities of the center's personnel including new pests, new breeding techniques such as chromosome and gene transfer, and studies on potential health promoting compounds in citrus. We also demonstrated standard propagation practices, pest and disease control, farm equipment and the certified budwood program.

## VISITORS TO THE CENTER

Recent visitors to the Center have been Dr Mario Rocha-Pena (INIFAP, Monterrey), Dr Arturo Diaz Franco (INIFAP, Rio Bravo), Dr Juana Coronado Blanco & Dr Enrique Ruiz Cancino ( Universidad Autonoma de Tamaulipas, Cd. Victoria), J.Abel Toledo & Drew Palrang (Bayer), Dr Robert Haygood & Benny Martinez (Dow), Kenneth Zimmerhanzel (Gowan) and three growers/enthusiasts from east Texas, Louis Weldon, John Panzarella and Larry Tishler.

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. Articles appearing in the Newsletter may be reproduced, in whole or in part, without special permission. Newspapers,periodicals and other publications are encouraged to reprint articles which would be of interest to their readers. Credit is requested if information is reprinted.



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