

CITRUS CENTER

(956) 968-2132

WESLACO, TEXAS 78596

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NEWSLETTER

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SEASON'S

GREETINGS

ASIAN CITRUS PSYLLID UPDATE

The Asian Citrus Psyllid, *Diaphorina citri* Kuwayama, was identified on citrus and orange Jessamine (*Murraya* spp) in Texas in September, 2001 (Citrus Center Newsletter, Vol. 19, October, 2001). Since the initial find, *D. citri* has spread throughout the Valley, mainly as a damaging pest of nursery citrus and young orchard plantings. The adult psyllid is easily recognized by its mottled brown wings and body held at a peculiar 30 degree angle when observed on foliage. The nymph is flat, yellow orange, with distinct red eye spots, and short black antennae—wing development is evident on later stages. Both adults and nymphs target new flushes, with shoot and leaf development often affected—especially by feeding of heavy infestations of nymphs.

Shortly after *D. citri* was found in Texas I submitted the paper work for a permit to import and release *Tamarixia radiata* (Waterston), a beneficial wasp parasite that has been effective against the psyllid in Florida. But I was denied the permit by USDA-APHIS until an environmental risk assessment could be conducted. Surprisingly, the parasite has recently been found in the Valley—undoubtedly introduced with the host psyllid. It was identified in a psyllid infestation on nursery trees at the Citrus Center by Dr. J.P. Michaud, a visiting biological control expert from the University of Florida's Citrus Research and Education Center, Lake Alfred, FL. Surveys will be conducted to determine if the parasite is wide spread and potential for controlling *D. citri* in Texas.

A spray trial was conducted on nursery trees at the Citrus Center comparing several chemicals for efficacy against *D. citri*. Treatments were applied by handgun sprayer and included: Nexter 75W[®] (pyridaben) at 3.3 oz and 4.0 oz/100 gal; Danitol 2.4EC[®] (fenprothrin) at 8 fl oz/ 100 gal; and Provado 1.6F[®] (imidacloprid) at 5 fl oz/ 100 gal. Danitol 2.4EC[®] gave the quickest knockdown of

both nymphs and adults, but by 7 days post-spray all treatments were providing effective control. At 21 days post-spray low numbers of psyllid adults began to re-infest foliage in the Nexter and Danitol treatments, while no adults were observed on trees sprayed with Provado. Several Valley citrus nurserymen have reported excellent long term (≥ 60 days) psyllid control on containerized citrus with Admire 2F (imidacloprid) applied as a liquid soil drench at the recommended rate of 0.75ml per cubic foot of soil or potting media. More information on chemical and biological control of Asian Citrus Psyllid in Texas will be forth coming in future Citrus Center Newsletters.

J. Victor French

ANNUAL INSTITUTE OF THE RIO GRANDE VALLEY HORTICULTURAL SOCIETY TO BE HELD 1/21/03

The 57th Annual Institute of the Lower Rio Grande Valley Horticultural Society will be held January 21, 2003 at the Hoblitzelle Auditorium of the Texas Agricultural Experiment Station in Weslaco. Registration will start at 7.30 a.m. The program will include: New developments in fruit trees, vegetables, and ornamentals. A keynote speaker will address Agricultural Research and Education in the 21st Century. Invited talks, poster presentations, the keynote speech, and an award ceremony, followed by lunch will conclude the morning session. The Institute will also have an evening session specifically for the homeowners and their interest in horticulture. We encourage you to join the Lower Rio Grande Valley Horticultural Society. Annual membership fee is \$15. For more information, please contact the Citrus Center at (956) 968-2132 or visit us at 312 North International Blvd., Weslaco, Texas.

Mani Skaria

LATE SEASON RAINFALL IMPACTS CITRUS BROWN ROT DISEASE

A good rain is always welcome, especially in a water shortage area such as the Lower Rio Grande Valley. We have received a total of 19.62 inches of rainfall in Weslaco between January and November, 2002. However, the rainfall distribution was not even, 75% of rainfall occurred in the months of September, October and November. For citrus growers, this means that the 2002 rainfall occurred during the late stages of fruit development. In general, several citrus orchards in the Valley show an unusually high incidence of mature fruit drop. We observed that in many cases, the majority of fruit drop was from the lower branches. This disease is caused by the growth of the fungus *Phytophthora* in fruit as a result of rain splash and/or wind, under wet conditions. *Phytophthora* fungus is normally found in soil, and usually causes foot rot and feeder root rot. In general, the incidence of brown rot is considered low in the Valley; however, this year is an exception. We have seen evidence of this phenomenon this year in dooryard grapefruit trees in Corpus Christi too. In a recent laboratory exercise, we isolated *Phytophthora* from 1 in 20 fruit buttons of fallen grapefruit from lower branches.

Infected fruit rind develop a brown discoloration; however, fruit may feel firm. Eventually, fungal mycelia grow as a white mat, under wet conditions. Infected fruit (but with no symptoms) may get packed in the packinghouse. This leads to the spread of brown rot to other fruit in packed containers and the loss can be high. It is too late to introduce cultural practices in the field this season; however, the following is useful information:

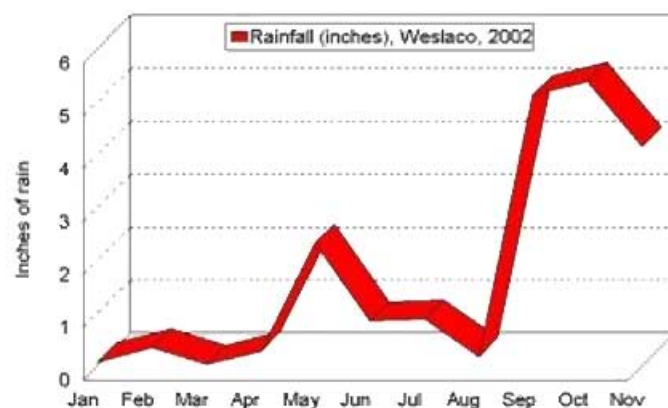
MULTI-DISCIPLINARY COURSE ON FOOD FOR HEALTH ATTRACTS THREE MORE LAND GRANT UNIVERSITIES BEYOND TEXAS

The unique course "Phytochemicals in Fruits and Vegetables to Improve Human Health" developed by Bhimu Patil had made a major impact in 1999 and 2001 by attracting 32 and 49 students, respectively. Due to the heavy demand and successful funding from USDA-IFAFS, the course will be expanded to beyond Texas in Spring 2003. Dr. Patil's invited seminars at Purdue University in November 2002 and Michigan State University in August 2001 resulted in three more land grant Universities outside of Texas requesting to expand this course to their respective universities. In 1999 and 2001, undergraduate and graduate students as well as members of the general public from ten locations (involving five universities) in Texas (College Station, Kingsville, Weslaco, Dallas, Houston, Victoria, Stephenville, Lubbock, Edinburg, Brownsville) received the direct benefit from this first-of-a-kind course. In spring 2003, students from Purdue University, Michigan State University, University of Wisconsin, and University of Texas at Austin will be

Maintain proper soil drainage
Keep the ground free from weeds
Remove low-hanging branches
Do not pick fruit touching the ground
Apply copper fungicide to lower branches
Store packed fruit at low temperature
Orchards with heavy fruit drop should be treated (pro-active for next year) spray with Aliette or Ridomil to increase tolerance to *Phytophthora* infection of root and trunk

Mani Skaria & Robert Wiedenfeld

Figure. 1. Rainfall (in inches) received in Weslaco between January and November 2002.



registering for this course. Preliminary information indicates at least 8-10 students from each university will register. While this will add additional work for Dr. Patil, he has decided to have as many students as possible to convey the message of prevention to students which will impact consumer in due course. In previous years, the general public attended this course and interacted very well with students during the discussion part of the class. Dr. Patil requests that if any one is interested to attend the course, contact him immediately at 956-968-2132 (E-mail: b-patil@tamu.edu). The course information (syllabus, schedule and lecture notes-password protected) is available in web site <http://phytochemicals.tamu.edu>.

Bhimu Patil

GARY McBRYDE RESIGNS

Dr Gary McBryde has resigned from his position as Professor of Agricultural Economics in Kingsville. He will be leaving Kingsville at the end of December to take up an appointment with the USDA in the Packers and Stockyard Administration of the Marketing Regulatory Program in Washington DC.

Gary, who has been with Texas A & M University-Kingsville since 1990, was appointed interim Assistant Center Director in 1998, and held this position for a year. During this time, he energetically became involved in the citrus industry of the Valley. More recently, he again began working with the industry when his appointment was altered to give him a quarter-time research position at the Citrus Center.

We thank Gary for all his contributions, and wish him well in his new venture. Gary extends his thanks to all in the industry he met, and invites anyone who visits Washington to visit him.

John da Graca

CENTER SCIENTISTS' RECENT ACTIVITIES

Some of the scientists of the Center have recently been receiving invitations to give talks, all of which show the recognition the center continues to enjoy:

Bhimu Patil received several invitations to speak at professional society meetings and land grant universities. He spoke on the alterations in functional components in citrus caused by mineral elements at the "Fertilization Effects on Functional Foods" symposium in Indianapolis in November, and gave a seminar at Purdue University. Then he traveled to San Diego where he chaired a session of the International Nutraceutical and Food Conference and gave a paper on Functional Food Education.

John da Graca visited South Africa in November, primarily for a vacation, but also took time to visit scientists who work on citrus at the Institute of Tropical & Subtropical Crops in Nelspruit, and the University of Pretoria where he was invited to give a seminar on agriculture in south Texas.

Victor French & John da Graca were invited to attend a workshop in Lake Alfred, FL in December organized by USDA-APHIS-PPQ on citrus leprosis virus. This serious disease causes major losses in Brazil, and is spreading through Central America. It is spread by false spider mite which already occurs in the US.

Mani Skaria was invited to present a talk on "New Developments in Citrus Diseases" at the Texas Plant Protection Conference in College Station in December.

Another recent traveler was **Craig Kahlke** who spent two weeks in the lab of Dr Mario Rocha-Pena at UANL in Monterrey, Mexico, learning techniques for rapid viroid detection. He will be able to apply this to the screening of trees in the budwood certification program.

John da Graca

ANOTHER STUDENT GRADUATES FROM FUNCTIONAL FOOD LAB

Mr. Jiaying Li, graduated this fall with his masters degree from Texas A&M University in College Station. His research entitled "**Citrus Limonoids: Seasonal Changes and their Potential in Glutathione S-transferase Induction**" was supervised by Bhimu Patil and Leonard Pike. His research was conducted at the Citrus Center and at the University of Texas-Pan American in Dr.Ahmad's laboratory.

Mr. Jiaying Li was born and grew up in the northern China. Both of his parents are well educated, and therefore he developed interest in science at an early age. After completing his undergraduate degree in China, Li worked as translator there for few years before deciding to go back to basic scientific research to explore novel functional compounds which can prevent or even cure cancer.

He joined Bhimu Patil's lab in 2000 and he showed very keen interest in working with citrus limonoids and health benefits. After his dedicated and unusual interest, he graduated in December 2002.

In his studies he investigated the seasonal changes of citrus limonoids and also determined the induction of beneficial enzyme, glutathione transferase enzyme (GST), by citrus limonoids. The phase II enzymes such as GST are used to detoxify certain toxic compounds in the body. His research demonstrated that certain limonoids can induce GST in specific organs indicating that limonoids may help prevention of certain types of cancer.

Bhimu Patil



SHORT COURSE: CITRUS PRECISION ORCHARD MANAGEMENT

A short course entitled **A Citrus Precision Orchard Management** will be offered at the Texas A&M University-Kingsville Citrus Center, Weslaco from February 13 to April 24, 2003. The class will meet each Thursday from 7 to 9.30 p.m for 11 weeks and a Saturday morning field trip. The field trip will be on March 15. Scientists at the Citrus Center and the Cooperative Extension Center will update the latest management practices in pest and disease control, irrigation, nutrition, postharvest problems, and economics. Moreover, we will also address developments in the areas of citrus and human health, latest breeding techniques, and developments in other citrus producing areas. Participants can qualify for Pesticide Applicator Continuing Education Units. The fee for this course is \$ 125 payable by check or money order. Anyone interested should contact the Citrus Center at (956) 968-2132 or visit us at 312 North International Blvd., Weslaco, Texas.

Mani Skaria

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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