

CITRUS CENTER

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NEWSLETTER

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NEW CITRUS PEST CONTROL GUIDE

The new 2007/2008 Guide listing the registered chemicals recommended for citrus pest and disease control will soon be available to growers. The new guide has been expanded considerably not only listing chemicals used to control traditional long standing insect/ mite pests and diseases, but also to include chemicals available for control of citrus psyllids, thrips and root weevils. Added to the list is Admire Pro[®] (Imidacloprid) replacing the former Admire 2F formulation, applied as a tree trunk or soil drench gives effective control of scale insects, citrus leafminer, citrus psyllid and blackfly. Assail 70WP[®] (Acetamiprid) is added for control of citrus leafminer and thrips. Also, added is Capture 2EC[®] (Bifenthrin), which when applied as a soil drench beneath the tree canopy provides effective control of root weevil larvae (neonates). Recently, Mustang Max[®] (Seta-Cypermethrin) was given a Section 18 Crisis Exemption Registration most specifically to control *Diaprepes* root weevil adults in Texas citrus orchards. Malathion 57 EC[®] is listed as an alternative pesticide for suppression of armored and soft scales and thrips.

Envidor 2 SC[®] (Spirodiclofen) highly effective for the control of citrus rust mite and spider mites, is now listed on the new guide. It is important to note that Envidor is restricted to one spray application per season in Valley orchards. Citri-King[®] (citrus oil) a possible alternative to petroleum spray oil appears for the first time on the guide. While it alone provides some initial knockdown of spider mites, brown soft scale, citrus leafminer and citrus psyllids its greatest potential is as an additive in tank mixes with Envidor, Agri-Mek EC[®] (Abamectin) and Micromite WGS[®] (Diflubenzuron)—increasing the efficacy and extending the residual effectiveness of these miticides. Adding significance to this was recent loss of the Kelthane MF[®] (dicofol) registration—a long standing miticide for spider and rust mite control.

No new chemicals for citrus disease control have been added to the new guide. However, it is important to note that Enable 2F[®] (Fenbuconazole) fungicide now has a full registration for greasy spot and melanose control on Texas citrus.

While the listing of several additional chemicals has expanded the new guide, it can still be folded and made pocket size for convenience to the grower. The 2007/2008 Citrus Orchard Pest Control Guide has been printed and is available at the Texas A&M University-Kingsville Citrus Center.

J. Victor French, Mamoudou Setamou, Mani Skaria and Boris Castro

DR RASMUSSEN APPOINTED DEAN IN KINGSVILLE

Dr Allen Rasmussen, interim Dean of the College of Agriculture, Natural Resources and Human Sciences, has been formally named as the new Dean by the Texas A & M System Board of Regents.

Dr Rasmussen obtained his BS and MS at Texas A & M, and his PhD in Range Science at Texas Tech where his dissertation was on prescribed burning on ashe juniper. After a period in the private sector, he joined the Department of Rangeland Resources at Utah State University. In 2002 he joined our College in Kingsville as Assistant Dean, becoming Associate Dean in 2004. When Dr Rosati resigned as Dean in 2006, he became interim dean.

Although his field of expertise is somewhat removed from citriculture, he has developed a strong interest in the Citrus Center, regularly attending Advisory Committee meetings, and working tirelessly in support of the request for funding for the new building and other programs.

We congratulate Allen on his appointment, and look forward to working under his leadership.

UPDATES ON TRISTEZA AND GREENING

The recent discovery of tristeza-infected trees in the California Citrus Clonal Protection Program is of concern to Texas since we have obtained many of the varieties in the Texas program from California. At the Lindcove Station in California, 44 trees in the field collection were found to be infected, and four more in the screen-protected area. All our field trees are tested annually, and again this year none was found to be carrying CTV. As a consequence of the California finds, we have now implemented a policy to suspend orders from the CCCP while California resolves the CTV situation, and in future no introduced selections will be planted out in the Texas foundation block until they have been re-tested for CTV.

Citrus greening finds continues to be reported from new locations in Florida – 23 counties have now been confirmed as having infected trees. The 2007 surveillance in Texas is getting underway; we are currently training an initial group of four people we have hired on funding received from USDA-APHIS-PPQ – these surveyors will concentrate on the Lower Rio Grande Valley (both commercial and residential citrus), and will also survey further afield as we did in 2006 to determine the spread of the psyllid and whether greening has become established. USDA-APHIS-PPQ is also providing additional support to hire extra people to concentrate on residential properties in and around Corpus Christi – a few psyllids collected there late in 2006 and tested in a USDA lab gave possible positive results, although a subsequent intensive door-to-door survey by the USDA-APHIS with lab tests on all psyllids collected failed to find any insects carrying the greening pathogen. Nevertheless, we need to monitor the area closely in case the disease does in fact exist at a low level, and we may be able to detect it before it spreads further.

Meanwhile, we are taking steps to ensure that the Center maintains a source of disease-free budwood. Construction of an insect resistant screenhouse which will house potted trees of all the virus-free varieties has begun at the Citrus Center, and plans are well advanced for converting an existing structure on the university campus in Kingsville to an insect-resistant facility for maintaining a back-up collection of the citrus varieties.

John da Graça

NEW GRADUATE STUDENTS AND EMPLOYEES

The Citrus Center is hosting four new graduate students, two in pathology and two in entomology. In addition, three new people have been hired to work on a psyllid survey. Three of the students are from Andhra Pradesh state in India: Shilpa Marepally, Vamsi Reddy, and Yona Netha. Shilpa will be working on the “**Molecular identity and infectivity of an *Olpidium*-like fungus in citrus psorosis-diseased grapefruit trees on sour orange rootstock.**” Vamsi will be working on “**Gene expressions in sour orange and C-22 rootstocks and Rio Red grapefruit challenged with a soil-borne pest and a disease.**” Yona will be studying the “**Host plant effects on the bionomics of Asian citrus psyllid.**” The fourth student is Delfino Rodriguez from Lyford, Texas and he will be studying the “**Efficacy of systemic pesticides in the control of citrus pests as affected by water stress levels.**” The graduate studies of these students will be supervised by the Citrus Center faculty and Dr. Shad Nelson, Chair of the Department of Agronomy and Resource Sciences, TAMU-Kingsville.

The recent employees hired are José Luis Perez, Lee Roy Rock, Joshua Hinojosa, and Rene Soza. Jose has worked at the Citrus Center prior to his recently completed MS degree program in College Station in Dr Patil’s lab; Lee Roy is completing his MS program at Kingsville under Dr Nelson; Joshua is a Valley resident and a student at Rice University, Houston, and Rene Soza is a Valley resident with many years citrus experience at the Texas Department of Agriculture. They all are involved in a citrus commodity survey program on exotic pest and diseases of citrus in the Valley and elsewhere, especially citrus greening and psyllids.

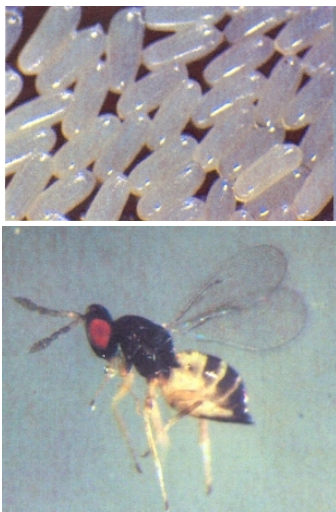
Mani Skaria, Mamoudou Sétamou, J. Victor French, and John da Graça

FIRST RELEASE OF *DIAPREPES* ROOT WEEVIL PARASITOIDS IN TEXAS

Since its initial discovery in South Texas in November 2000, the *Diaprepes* root weevil (*Diaprepes abbreviatus* [L.]) has been a quarantined pest. A rigorous eradication program funded by the Texas Department of Agriculture was implemented—with chemical pesticides applied when a certain number of adult *Diaprepes* are caught in Tedders traps. Although this eradication program has been successful in reducing the number of the *Diaprepes* root weevil

See *Diaprepes* Page 3

caught in traps and prevents its spread outside the quarantine area for the past five years, the continuous detection of the weevil is worrisome and calls for a more aggressive strategy. The need to implement other pest suppression strategies along with chemical application was recognized by a panel of scientists from the Citrus Center and the Texas Cooperative Extension (TCE). The release of a wasp parasitoid that attacks the eggs of Diaprepes has been suggested as a viable strategy. Not only does this biological control agent allow for targeting this pest in places where application of chemical pesticides is problematic, such as in residential areas, they offer the possibility to control another development stage of the root weevil and thus hold promise as an IPM tactic. We obtained a permit from USDA APHIS PPQ Pest Detection and Management Laboratory, Edinburg TX (Permit No P526P-07-04678) for the release of the wasp parasitoid, *Quadrastichus haitiensis* that has proven to provide at least moderate levels of parasitism in Florida, Puerto Rico and other Caribbean and West Indian islands. This egg parasitoid was obtained from the USDA-ARS Subtropical Insects Research Unit, U. S. Horticultural Research Laboratory in Fort Pierce, FL and introduced into Texas in May 2007. Once received, sealed shipments of adult parasitoids were brought to the USDA APHIS PPQ quarantine laboratory where they were opened to ensure they were free of any contamination prior to their release in the quarantine area. Thus far, 27,000 parasitoids have been released this year, and additional releases are planned in the near future. Evaluation of the parasitoid establishment will be conducted starting this fall through a joint collaboration between scientists of the Citrus Center, TCE, and USDA APHIS PPQ.



Diaprepes root weevil wgs(g) and the wasp *Quadrastichus haitiensis* that parasitizes these eggs

Mamoudou Sétamou, J. Victor French and Boris Castro

TWO STUDENTS WHO STARTED AT THE CITRUS CENTER GRADUATE FROM THE VEGETABLE AND FRUIT IMPROVEMENT CENTER, TEXAS A&M UNIVERSITY

Jose Luis Perez was born and raised in McAllen, Texas. He received his Bachelor's in biology from University of Texas Pan-American at Edinburg, Texas. During his college days he was constantly in search for a job that he would enjoy doing every day. In that search he got an opportunity to do an internship at the Citrus Center with Dr. Patil in June 2003. Little did he know that the experience he would gain from this summer job would change his career plans completely. He continued to work with Dr. Bhimu Patil until he graduated in December 2004, and he got to meet many interesting and brilliant people involved in the betterment of human health through the consumption of citrus products. Furthermore, he got to interact with people from several other areas of agriculture. For a while he worked at the Citrus Center as research specialist in plant pathology with Dr. Mani Skaria. During this time he had the opportunity to attend several professional meetings, and had the honor to meet and interact with Congressman Kika de la Garza, which with advice from professors at the Citrus Center, convinced him to continue his higher education. In August 2005 he started his Master's program in horticulture at Vegetable and Fruit Improvement Center, Texas A&M University under Dr. Patil and conducted research on "health benefits of citrus, mainly cancer prevention, with a goal to increase the consumption of fresh citrus fruits". It has been reported that the consumption of fruit and vegetables decrease the chances of contracting certain kinds of cancers. The impact of his research could potentially increase the consumption of citrus. Furthermore, since the Texas citrus production is mainly for the fresh fruit market, Texas citrus growers and general consumers will benefit from this research. He graduated from Texas A&M University with a Master of Science in Horticulture in May 2007. Recently he joined the Citrus Center as a research assistant. This is the best example which demonstrates agriculture is not just soil and mud, but also has other fields which involve our life.

Raj Girenavar completed his Bachelor of Science degree in Agricultural Sciences from University of Agricultural Sciences, Dharwad, India. Then he was awarded with a Junior Research Fellow Scholarship from the Indian Council of Agriculture Research for his Master of Science. He

See Students Page 4

joined the Citrus Center in January 2003 and worked on a unique research project of grapefruit juice induced drug interaction under the direction of Dr. Patil. Grapefruit has been shown to affect the metabolism of many medications, increasing the risk of toxicity and adverse effects. Several prominent medications are known to interact with grapefruit including statins, antiarrhythmic agents, immunosuppressive agents, and calcium channel blockers. Large scale isolation of furocoumarins is major progress in the study of grapefruit drug interactions, a major problem faced by the grapefruit industry. He has developed methodologies to isolate, quantify and optimize furocoumarins, which are involved in the drug interaction with several medications. He has also worked on inhibition of gut enzymes involved in drug metabolism (Cytochrome P450 isoenzymes) with grapefruit juice and its bioactive compounds. This work on grapefruit juice will be the stepping stone for the studies involving changing doses of the affected medications along with grapefruit. He will be graduating this August 2007 with a PhD degree in Horticulture. He has re-

ceived several awards and grants and for his academic and research achievements. He published several peer reviewed papers in reputed journals and received several scholarships.

Bhimu Patil
Director VFIC
College Station

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