

Citrus Notes

**Polk County Extension Service**

PO Box 9005, Drawer HS03 • Bartow, FL 33831-9005
(863) 519-8677, Ext. 108 • wcoswalt@ufl.edu

Hillsborough County Extension Service

5339 County Road 579 • Seffner, FL 33584-3334
(813) 744-5519, Ext. 131

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*Dear Growers,*

Don't forget about the "2008 Annual Meeting of the Florida State Horticultural Society" to be held at the North Fort Lauderdale Marriott in June 2008. Soil-applied imidacloprid is an effect control for the Asian citrus psyllid in young citrus trees. Check out the article on the comparison of different soil application methods. It is irrigation time. We have a few conditions to look out for when evaluating irrigation system performance in the irrigation article. If you missed the "Greening Summit" at the 2008 Florida Citrus Growers Institute you can view the presentations at our Citrus Extension Agent website at: <http://citrusagents.ifas.ufl.edu/>

Enjoy the issue,

Chris Oswalt
Citrus Extension Agent
Polk/Hillsborough Counties
863-519-8677 extension 108
P.O. Box 9005, Drawer HS03
Bartow, FL 33831-9005



Annual Meeting of the Florida State Horticultural Society (FSHS)

Just another reminder about the 121st annual meeting of the Florida Horticultural Society to be held June 1 - 3, 2008 at the Ft. Lauderdale Marriott North. The meeting and associated presentations on Monday afternoon include a focus on citrus greening. Rooms are still available at the FSHS discounted rate and you can still register at <http://www.fshs.org/>. The following is a listing of the presentations to be made on citrus greening:

Monday Afternoon Sessions

1:30-5:00

C – Workshop: Greening, Canker, and Psyllid Management

- 1:30 **How the Florida Citrus Production Research Advisory Council Works Together with Other Industry Organizations for Solutions to the Greening Crisis**, Steve Rodgers, Ecostat, Inc., Highland City, FL. [C8]
- 1:45 **Metabolite Profiling of Healthy and Huanglongbing-infected Citrus Leaves: Work in Progress**. Juan M. Cevallos, José I. Reyes De Corcuera, CREC, UF/IFAS, Lake Alfred, FL. [C9]
- 2:00 **Means and Pathways for Long-range Movement of Citrus Greening in Florida**. Susan Halbert, Manjunath Keremane and Chandrika Ramadugu. Division of Plant Industry, Florida Department of Agriculture and Consumer Services, LaBelle, FL. [C10]
- 2:15 **Real-Time PCR Increases Efficiency and Sensitivity for Testing Citrus Budwood Source Trees**, Peggy J. Sieburth, Karen Nolan, Richard Dexter and Steve Alderman. Bureau of Citrus Budwood Registration, Division of Plant Industry, Department of Agriculture and Consumer Services, Winter Haven, FL. [C11]
- 2:30 **Greening Effects on Fruit Size Distribution in a Citrus Tree**. Tim Spann, CREC, UF/IFAS, Lake Alfred, FL and Chris Oswalt, Polk County Extension, Bartow, FL. [C12]
- 2:45 **Progress in Manipulating Citrus Defense Pathways in Favor of Citrus Resistance Against Greening and Canker**. Abeer Adhed Khalaf, Vicente J. Febres, Frederick G. Gmitter and Gloria A.

Moore. CREC, UF/IFAS, Lake Alfred, FL. [C13]

- 3:00 Citrus Section Business Meeting
- 3:15 Break
- 3:30 **Greenhouse Investigations on the Effect of Guava on Infestations of Asian Citrus Psyllid in Citrus**. D.G. Hall, T.R. Gottwald, N.M. Chau, K. Ichinose, L.Q. Dien, and G.A.C. Beattie. [C14]
- 3:45 **Evaluation of Low-volume Application Technologies for Psyllid Control: Initial results**. Ryan Atwood, Lukasz Stelinski and Masoud Salyani., Lake County Extension, UF/IFAS, Tavares, FL, and CRCEC, Lake Alfred, FL. [C15]
- 4:00 **Impact of Insecticidal Control on Asian Citrus Psyllid and its Natural Enemies**. A. H. Jawwad, H. Qureshi, Alejandro Arevalo, and Philip A. Stansly. SWFREC, UF/IFAS, Immokalee, FL. [C16]
- 4:15 **Dynamics of Mortality Factors of the Citrus Psyllid in South Florida**. Jorge E. Peña, R.E. Duncan and Josep A. Jacas. CREC, Lake Alfred, FL. [C17]
- 4:30 **Streptomycin Controls Citrus Canker in Brazil and Florida and Reduces Risk of Copper Phytotoxicity on Grapefruit**. J.H. Graham, CREC, UF/IFAS, Lake Alfred, FL; R.P. Leite, Jr., Instituto Agronômico do Paraná, Londrina, Paraná, Brazil; and, H.D. Yonce, KAC Agricultural Research, Inc. Deland, FL. [C18]
- 4:45 **Combating Huanglongbing and Canker via Genetic Engineering of Citrus**. M. Dutt, A. Omar, V. Orbovic, G. Barthe, J. Gmitter, M. Vasconcellos, C. Dunning and J.W. Grosser. CREC, UF/IFAS, Lake Alfred, FL. [C19]
- 5:00 End of Afternoon Sessions



Considerations for Soil-Applied Imidacloprid Applications

One of the current recommendations contained in the 2008 Florida Citrus Integrated Pest Management Guide for control of the Asian citrus psyllid (ACP) on young citrus trees (less than 6 feet tall) is a soil application

of imidacloprid insecticide. Controlling the ACP is a cornerstone in any program for reducing the spread of citrus greening disease. The current recommendation calls for the application of the labeled amount of imidacloprid insecticide in a metered dose applied to the base of the tree trunk at the soil line (drench). There have been some questions on other types of application methods using soil-applied imidacloprid. Two of the most common questions are injection through the irrigation system and applying through a herbicide boom.

Earlier studies indicated that the application of imidacloprid through the irrigation system does not provide nearly the needed level of control as the base of the tree application. Other considerations with applying the insecticide through the irrigation include application in mixed age blocks and dilution of the insecticide when injected through the system. Due to these constraints and the lack of efficacy of this type of application, we do not currently recommend this method.

A recent paper published in the 120th volume of the Proceedings of the Florida State Horticultural Society by Dr. Michael Rogers and Dalia Shower, studied efficacy of the application of imidacloprid through a herbicide boom compared to a base of the tree (drench) application. Equal rates of imidacloprid were applied as either a soil drench at the base of the tree or through a herbicide boom application in a 6 by 6 foot square pattern with the treated young tree in the center. Trees were 2 year-old Earlygold on Swingle citrumelo grown on a ridge soil. Imidacloprid was applied at 8 ounces of finished spray solution per tree at a 14 ounce/acre rate for both methods of application. Applications were made in the first week of April and psyllid counts began two weeks after the application and continued weekly for 4 weeks (total study length 6 weeks).

Psyllid populations in the herbicide band application were never significantly better than that of the untreated control. This demonstrates under these conditions there was no benefit from this type of imidacloprid application in controlling ACP.

Evaluations of the drench treatment of imidacloprid indicated significant control of ACP for the duration of the study. Even at the conclusion of this study (6 weeks after application) ACP counts in the drench treatment were at essentially the same low level as 2 weeks after the initial application of imidacloprid.



Getting the Most from Your Irrigation Dollar

This is the time of year when citrus irrigation becomes critical for enhancing citrus yields. Many factors affect the performance of a citrus irrigation system and with fuel prices high it becomes even more important to troubleshoot possible problems that may be affecting irrigation efficiency. Periodic maintenance of the irrigation system is critical to the optimum performance of said system. The following reviews some, but certainly not all potential causes of poor system performance. Irrigation systems have three major components: the pump/power unit, filtration and poly tubing/emitters.

The power unit, whether electric or engine driven, needs to be checked out and or serviced prior to the onset of the irrigation season. Pumps on the other hand are a little more

difficult to evaluate. Irrigation systems are designed to operate a maximum efficiency, but over the years wear will affect the performance of the pump to deliver water to the irrigation system. You may notice that pumping pressures and or flow rates may suddenly be reduced when running the system at normal power unit speed. This could be indicative of changes in the well condition rather than a reduction in performance over time as in pump wear. One well condition factor that



could affect pressure and flow would be an increase in the height of drawdown when the pump is

operating at optimum speed (rpms). Pumps are designed with a predetermined lift from the water in the well to the well head. Changes or increases in this height will



ultimately affect pump pressure and flow due to the increase in power needed to lift this water. If the static level of the water in the well drops appreciatively and pump drawdown approaches, the pump cavitation can occur resulting in excessive wear of the pump impellers. Another factor that could affect performance causing pump problems would be adding additional emitters to the irrigation system when replacing trees. No doubt the irrigation system was designed to deliver water to a know number of emitters at a flow and pressure. In groves where declining trees are removed and replaced with 2 or sometimes 3 trees for one removed, there is an in-

crease in water requirement for those additional emitters. This increase in the water flow requirement will affect the performance of the irrigation system resulting in lower system pressures and sub-optimum performance. Since going into a well is never cheap, if you suspect pump problems consult an irrigation/well specialist to help you to determine the best course of action to follow.

Filters are used to remove particulates from irrigation water prior to entering the sub-mains and emitters. These particulates can be either organic (algae or biological) or inorganic (sands or debris). There are two types of filters are commonly used in Florida. Media filters are used for both well and surface water applications. Screen filters are commonly used for well water systems. Filters can and will affect the performance of the irrigation system. Regardless of the filter system used it is important to monitor the performance of your irrigation filters. The most common way to monitor filter performance is to measure the drop in pressure (psi) across the filter. Depending on filter type and water flow, one would expect there to be a measurable drop in pressure across the filter. This drop in pressure could be as low as 1 psi or as high as 8-10 psi. It is important to inspect and clean filters prior to beginning of the irrigation season. Recording the pressure on both sides of the filter and calculating the psi loss across a clean filter will ensure that you have an accurate measure from which to determine not only pump performance but also filter performance. If after running the irrigation system the pressure loss across the filter exceeds the normal operating range, then the filter may need to be back-washed and or cleaned. Long term operation of an irrigation system with high filter pressure differentials can result in pump's power unit to loose efficiency due to an increase in power (and fuel consumption) required to pump the same quantity of water at higher pressures. The fre-

quency of which the filter must be cleaned can reveal something about efficiency of the filtration system. If the filter needs frequent cleaning, then there could be problems with water quality in the well. This could be due to well construction or a collapsed well resulting in an increase in sand or debris. This discussion assumes that the filter and filtration has been properly sized for the flow rate and operating pressure of the irrigation system.

Main lines, sub-mains, Polyethylene tubing and micro-sprinkler emitters ultimately deliver irrigation water to individual trees. These components become progressively



smaller in size down to the orifice of the micro-sprinkler. With the decrease in physical size and

corresponding decreases in flow rates, these components can become potential areas of debris and sand accumulation. This can become more severe if other pump and filtration factors reduce the flow and therefore reduce the velocity of water in the system piping. This decrease in flow rate allows for accumulation particulates that normally would be flushed out of the system to remain trapped in lines near the end of the irrigation system.

This particulate accumulation reduces flow and decreasing pressure resulting in inadequate and non-uniform distribution of water through the micro-sprinklers. If the system is not periodically flushed the debris can begin plugging micro-sprinkler emitters increasing overall pump pressure. This will result in an overall reduction in irrigation system efficacy.

These are just a few of the many conditions that can affect irrigation system performance. Knowing the specifics of your irrigation systems can help you troubleshoot unexpected decreases in system performance during this critical time of the year.



Pesticide News and Information

On March 19th, the EPA notified the FDACS that it had issued the section 18 specific exemption for the use of thiophanate (Topsin®) to control post-bloom fruit drop and stem-end rot in citrus. The exemption expires on March 19, 2009. (FDACS letter of 3/26/08).