Citruslines

The Mission of UF/IFAS is to develop knowledge in agricultural, human and natural resources and to make that knowledge accessible to sustain and enhance the quality of human life.

Winter 2011

January, February & March

UF UNIVERSITY of FLORIDA
IFAS Extension
Lake County Extension

Upcoming Events
http://cfextension.ifas.ufl.edu/calendar.shtml

Crop Cold Protection Class	**Tavares**	**Jan. 5th**
International HLB Conference	**Orlando**	**Jan. 10-14th**
Indian River Citrus Show	**Fort Pierce**	**Jan. 19th & 20th**
CHMA Volusia & Osceola/Brevard Co.	**Deland/Deseret**	**Jan. 25th**
Private Applicator Review and Exam	**Tavares**	**Feb. 8th**
Agricultural Labor Update	**Tavares**	**March 3rd**
Mature Citrus Mentors	**Tavares**	**March 31st**

I hope everyone has had a great holiday season and Santa brought you everything you wanted. It is hard to believe that it is not officially winter yet (as of the date that I am writing this). We just came through two major freeze events, which reminded the older and wiser growers of 57' and 62'. Here's to hoping that this weather pattern is not a trend for the upcoming winter. So much for the warmer drier weather predicted this winter season. It is early to assess the possible damage, but so far reports seem favorable in our area. Tree leaf freezing points are dropping and trees are definitely dormant. A recent thought I had is with HLB spreading, more resetting of groves in future is likely, which will require more frequent use of water for cold protection.. Well enough of cold weather talk, I hope that you have a wonderful and blessed year!

COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF FLORIDA, INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES, Larry R. Arrington, Director, in cooperation with the United States Department of Agriculture, publishes this information to further the purpose of the May 8 and June 30, 1914 Acts of Congress; and is authorized to provide research, educational information, and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions, or affiliations. Single copies of extension publications (excluding 4-H and youth publications) are available free to Florida residents from county extension offices. Information about alternate formats is available from IFAS Communication Services, University of Florida, PO Box 110810, Gainesville, FL 32611-0810.

Other events of possible interest

Southeast Fruits and Vegetable Conference	Savannah, GA	Jan. 6th-9th
Central Florida Blueberry Growers Meeting	Tavares	Jan. 18th
Agritunity	Bushnell	Jan. 29th
Central Florida Blueberry Growers Meeting	Tavares	Feb. 15th
4H Citrus Tree Project at Central Florida Fair	Orlando	Feb. 26th

RNAi a future tool in the fight against Asian citrus psyllid?

Have you ever heard of RNAi before? No? I had not either until this past August. Type it into an internet search engine and see what comes up. I just did and over 21,000,000 million results. However, to be fair I should search by RNA interference which is what RNAi stands for, that narrows it to over 2 million hits. So why all this interest in RNAi? RNAi is a system of living cells that take part in the regulation of genes. RNA typically turns on certain types of gene functions, for example metabolism of food. What RNAi does is interferes with the RNA molecules that turn on the genes needed for metabolism.

So let's say you found the gene that regulates Asian citrus psyllid's ability to digest food. Once you found the RNA that "turns on" that gene, you could design smaller RNA molecules to interfere with the RNA that regulates genes for metabolism. The small RNA would basically cut up the larger RNA, which would not allow it to function properly. This would lead to the psyllid not being able to regulate metabolism, thus the psyllid would starve to death. The nice thing about RNAi is that it is so specific in its function that it does not effect other organisms. This is a tool that could kill psyllids and yet could literally be ingested by humans without effect. Don't forget you eat and drink RNA and DNA every day. All plants and animals contain RNA and DNA.

RNAi research is actually one of the top priority research projects of the Citrus Research and Development Foundation. I recently heard Dr. Wayne Hunter a USDA scientist speak on the subject of RNAi for psyllid control. Dr. Hunter has previously created a RNAi which helped honey bees over come the IAPV virus which is thought to be linked to Colony Collapse Disorder. The RNAi material that he helped develop recently was approved by the USDA for use in commercial bee hives. That is great news, because whenever they have a RNAi which will control psyllids, it should be a little easier to get approval for its use. Dr. Hunter has hinted that he may already have an RNAi that does the trick, but warned that there is a lot of work still to be done. The CRDF has multiple RNAi projects that are already funded. You can browse all of the CRDF research projects at: http://research.citrusrdf.org/reports/ by type RNAi into the search all fields box.

This is just one area of new science which is being utilized. There are many other promising results coming from the Florida citrus industry's efforts (your money) to find solutions to HLB. It may just be that in the process of searching for the cure to HLB that we develop new scientific processes and tools that improve overall fruit productivity and controlling current and future pest and disease problems. Maybe if we can get through these tough times we might just say that HLB turned out to be a blessing in disguise?

Citrus Low Volume Applicator Calibration Rodeo for Low Volume Pesticide Application Equipment

A collaborative effort between UF/IFAS Extension Service, the USDA ARS and FCPRAC
9:00 AM – 3:00 PM
Polk County Extension Service, Bartow, February 3, 2011 (Thursday)
Southwest Florida Research & Education Center, Immokalee, February 4, 2011 (Friday)

What's this about?

The United States Department of Agriculture's Agriculture Research Service (USDA ARS) has a research team from Texas that specializes in agricultural equipment calibration. These experts will be in Florida to assist with the calibration of low volume sprayers to determine spray particle size distribution during application. Low volume sprayers are generally considered to apply less than 10 gallons per acre.

Who should participate?

Anyone that has or operates a low volume spray applicator and is interested in determining their equipment particle size distribution should participate in this free event. A confidential printed report will be provided to the operator of the tested equipment.

Why is particle size important?

Several of the commonly used pest control materials state specific droplet size requirements on their label. Applicators are required to comply with all sections of the pesticide label to be in compliance with labeling requirements. Spray particle size also has a significant impact on spray disposition within the tree and potential success in controlling targeted pests.

How do I sign up for the event?

Please contact either Steve Futch or Jane Wilson at 863-956-1151 to schedule a time to bring in your spray equipment to one of the above locations to be tested. Scheduling appointment times will help minimize excessive waiting time at the calibration event. Twenty minute appointments are limited and will be scheduled on a first call basis. Equipment tested needs to be free of any pesticide or pesticide residue at the time of testing.

CHMA SPRAY EFFORTS & UPCOMING MEETINGS

Local growers and I have begun forming Citrus Health Management Areas (CHMA's). **The goal of the CHMA is to coordinate the timing and ensure the proper rotation of pesticide mode of action to obtain the best psyllid control possible while minimizing the potential for pesticide resistance development. Growers can use any application method they desire (aerial, low-volume, speed sprayer) so long as these goals are achieved.**

The CHMA's for these areas are click below to access map:

- South Lake/West Orange Approximate Commercial Citrus Acreage 5,665 acres

  Contact: Glen Beck (407) 760-7270

http://www.crec.ifas.ufl.edu/extension/chmas/sw_orange_chma.htm

Next Planned spray week: January 17th-21st Mode of Action: Pyrethroid

- Green Swamp Approximate Commercial Citrus Acreage 7,856 acres

  Contact: Bill Lennon (407) 719-5496

http://www.crec.ifas.ufl.edu/extension/chmas/green_swamp_chma.htm

Next Planned spray week: January 24th-28th Mode of Action: Pyrethroid

- Central Lake/North Orange Approximate Commercial Citrus Acreage 6,286 acres

  Contact: Ben McLean (352) 267-4848

http://www.crec.ifas.ufl.edu/extension/chmas/north_orange_chma.htm

Next Planned spray week: January 31st-Feb.4th Mode of Action: Pyrethroid

- North Lake/South Marion Approximate Commercial Citrus Acreage 3700 acres

  Contact: Ryan Atwood (352) 343-4101

http://www.crec.ifas.ufl.edu/extension/chmas/s_marion%20_chma.htm

Next Planned spray week: Feb.7th-11th Mode of Action: Pyrethroid

The first CHMA effort was made by the South Lake/West Orange CHMA. Over 4,000 acres were sprayed in a week's time with similar pesticide mode of action. The hope is to have all CHMA's spray on the above dates for a dormant psyllid control. In addition we are in the process of forming a Volusia Co. CHMA and an Osceola/Brevard CHMA. There will be a meeting held at the Volusia Co. Extension office on January 25th from 10AM till Noon to discuss the Volusia Co. CHMA with Dr. Michael Rogers and I. Later that day we will have a similar meeting for Osceola/Brevard Co. CHMA from 2PM to 4PM. If you are a citrus grower or care taker for groves in these areas please make sure that you start participating in these CHMA's. I believe that it is critical to your future success!! Please sign up at: http://chmaosceola.eventbrite.com

Agricultural Labor Update March 3rd 9:45-Noon

We will be having a meeting in Tavares at the Lake County Agricultural Center. Schedule is as follows:

9:45-10:00 Check In

10:00-10:30 What Agricultural business owners need to be aware of when it comes to employing Agricultural Labor- Immigration and Customs Enforcement

10:30-11:00 Current issues for Agricultural labor and H2A program -Mike Carlton FFVA

11:00-11:30 Payroll Service what they can provide-Jeff Futch National Employment Services

11:30-12:00 Practical experience with H2A-Adam Pate Dundee Citrus Growers Association

12:00-12:30 Lunch –Sponsored by National Employment Services

Please register so that we know who much food we need. You can know register online at: http://aglaborupdate.eventbrite.com

Mature Citrus Mentors (Old Timers) March 31st 11:00-1:30

Did you work the grove with a hoe growing up? Do you remember the 62 freeze? Then you maybe considered an Old Timer. This year we will again be reuniting with old friends and transferring knowledge from our citrus industry elders. If you are an Old Timer please plan on joining us at the Lake County Agricultural Center in Tavares starting at 11 AM. Jim Ellis will be our speaker and will showing off his label collection. There will be a BBQ lunch provided, cost is $20. Registration is required. Please register with Maggie Jarrell at 343-4101 by **March 28th**.

Private Agricultural License Review & Exam Feb. 8th 8:30-4:00

A pesticide license is required by any persons who apply or supervise the application of restricted use pesticides for agricultural production. This certification requires a passing grade of 70% on the General Standards and Private exam. This certification must be renewed ever 4 years either by testing or by 8 CEU's.

There will be a review and exam in Tavares on February 8th. The review starts at 8:30 AM. There is a $20 charge for the class. It is advisable to purchase the "Applying Pesticides Correctly" and "The Private Applicator Training Manual" from the IFAS bookstore on-line at www.ifasbooks.ufl.edu or by calling 800-226-1764. The manuals are also available through the Lake County Library System.

The private agricultural license itself costs $100 which does not have to be paid until after you pass the exam. To register please send in the sign up sheet located at the back of the newsletter or use eventbright: http://lakeotandprivate.eventbrite.com/

Coordination of Free Abandoned Grove Removal

This past month I attended a biofuels meeting in Osceola County that was coordinated by Bill Vasden Jr. the owner of USCJO. I recently had sent out a flyer from USCJO for free grove removal. A few of you called USCJO and they said the acreage was too small. I wondered if they were truly a legitimate business and serious about their offer. After speaking with Bill and hearing what he is trying to accomplish I think they are trying to offer a win-win situation. I offered to USCJO to coordinate an effort of interested property owners that may have a smaller abandoned grove that they are looking to have cleared. If I can get a significant acreage that is close enough together USCJO said they would be willing to come and clear the groves, like they are offering for larger abandoned groves. If you have or know of someone with an abandoned grove and you are interested in this opportunity ,please contact me. For more information see the following link: **http://freeclearing.com/**

Since I also took the time to learn about what USCJO is trying to accomplish I thought I would share this information as well. The federal government is trying to find alternative fuel sources. The military is (airforce) leading the way and has a mandate that by 2020 they will be using 50% biofuels for their jets. Camelina is a seed crop that is grown out west in great quantity and is the feed stock of choice for converting its oil to jet fuel (a 50/50 blend with traditional jet fuel). Camelina does not tolerate warm temperatures so places like Montana during the summer months are ideal. However the places where they do grow the crop in the summer, they have some really nasty winters. So the supply of oil is limited in the winter time, thus comes in Florida. Like many crops Florida growers of Camelina get a premium because they can grow Camelina when other areas of the U.S. cannot. The crop takes between 60-90 days to grow, with the possibilities of two crops per year. So can you make money growing it? Mr. Vasden stated that an acre in S.W. Florida would potentially yield between 75-125 gallons of oil per harvested crop. The seed is harvested with a combine and dropped into a fertilizer hopper. Once the hopper is filled it is taken to the press (actually presses are portable on backs of semi-trailers), the oil is extracted in the field and pumped into a waiting semi truck. The oil is measured and the price per gallon is paid right then in the field for $4.50 a gallon. The price is much higher for a gallon in Florida than out west due to the fact we are the only place producing oil at that time. Mr. Vasden has joined with some other growers who have been or are starting to grow these biofuel crops. The cooperative is called Florida feedstock growers:**http://www.floridafeedstockgrowers.com/**

One of the stated advantages about growing Camelina is that the stubble that is left over after harvesting the seed can be used to graze cattle and would be available during a time of the year when forages are scarce. Seems to me that anyone in the pasture/cattle business should take time to research this potential opportunity. To find out more about Mr. Vasden and his company:

Pictures of recent Extension Activities

I included pictures of recent activities to your extension program. If you have not been coming, I wanted to show you what you have been missing!

Below: Tim Willis shows the original HLB positive tree that was found at McKinnon Corp. citrus grove in 2005. The tree was looking very healthy and was loaded with

Upper right: Emergency first aid instruction for farm workers was full of "hands on" instruction. The City of Tavares fire chief gave lively instruction on how to properly handle emergencies if or when they should happen.

Lower right: The Department of Transportation came out for the second year in a row due to the popularity of the first year's instruction. They answered question on properly and legally securing loads on trailers. They also gave other insights on how to make sure you safely transport agricultural equipment.

Lower left: We had a great turnout for Dr. Payne's "The Future of IFAS" talk. The new V.P. of IFAS took time out of his extremely busy schedule to introduce himself to local growers and receive feed back from you! I personally was very impressed as were many of you. I think we are in good hands.

Flower Bud Induction Overview and Advisory updates available From Dr. Gene Albrigo –CREC Horticulturalist

Overview of flower bud induction in Florida – Citrus flower bud induction starts in the fall and usually is completed by early January. Low temperatures first stop growth and then promote induction of flower buds as more hours of low temperatures accumulate (below 68 degrees F). A period of high temperatures in winter can then initiate bud differentiation which after sufficient days of warm springtime temperatures leads to bloom. The meteorologists predict that this winter in Florida will be an ENSO-El Niño year, below average temperatures and higher than average rainfall. Under these conditions, more than enough hours of low temperatures below 68 degrees F. usually accumulate to induce a high level of flower buds. Conditions that can interfere with good flower bud induction include: 1) several warm periods interrupting the induction process or 2) the previous crop was exceptionally high or 3) leaf loss from hurricanes, freezes or other causes (canker) were excessive and tree recovery was not complete. Excessive leaf loss leads to low carbohydrate levels in developing buds which reduces their ability to become flower buds. Except for a few trees with freeze damage, none of these adverse conditions appear to be in play for the coming season's flower bud induction.

Under normal Florida weather conditions but with a moderate to heavy previous crop, sufficient flower bud induction should be achieved when total accumulated hours of low temperatures exceed 800 hours below 68 degrees F. If the crop load is light, sufficient flower bud induction may occur after 700-750 hours of accumulated low temperatures. A warm period of 7 to 12 days, with maximum temperatures > 80 to 85 degrees F., can trigger growth (bud swelling) if a minimum total hours of low temperatures have accumulated (300-400 hours below 68 degrees F). Later in the winter when the accumulated cool temperature induction hours are high, fewer days and lower daytime highs (75 degrees F.) are required in a warm period to stimulate growth of buds.

Some flower buds will be induced in the range of 300 to 450 accumulated hrs < 68 degrees F. Warm events just after these levels of induction result in weak flowering intensity, and therefore many buds remain that can be induced by later cool periods, or these buds may sprout as vegetative shoots if warm weather continues and the trees are well watered. The first situation results in multiple cohorts of flower buds developing to different bloom dates. The second condition leads to low flowering-fruit set and excessive spring vegetative growth. During the years from 1963 to 2003, multiple blooms occurred in over half of the years. Historically, the time period in which an early warm period (7-12 day) can lead to an initial low number of buds growing and flowering is roughly mid-November to mid-December. Then additional flower buds developing later results in multiple blooms. Presently, the only management tool available to eliminate or reduce the chance of multiple blooms is sufficient drought stress to stop growth. This water stress may be provided by stopping irrigation well before these predicted warm periods occur.

If the warm periods are of the typical 7 to 10 day duration, a coincident short period of drought stress will have little impact on current crop development or quality. Sufficient drought stress may be interpreted as leaf wilt observed by 10 or 11 am, but leaves recovering by early the next morning. If no rains interrupt a drought stress condition in citrus trees, buds will not grow in response to high temperatures. If a warm period has passed, trees again can be irrigated to minimize current crop stress. Although no weather prediction is guaranteed, rains in the winter usually come on the fronts for cool periods. Sufficiently cool temperatures after a cold front rain will usually prevent growth even though soil moisture is adequate for growth. Since winter rains usually occur just before cool temperatures, the chances that drought stress will prevent an early flower bud differentiation event are reasonably good for many warm periods. Even so, growers in some growing districts have often found it difficult to maintain winter drought stress.

For more information on flower bud development and current updates go to:

http://www.crec.ifas.ufl.edu/extension/flowerbud/2011/11_18_10.htm

Current Status: In spite of projections that this is a La Nina year, the weather has been very cool with projections for another week with highs below the threshold for induction, <68 o F. This means that another 168 hours will be added to the current 540 to 830 accumulated cool hours from southern to northern citrus areas. The minimum hours in southern areas will therefore be about 700 at the end of another week (December 13th), which is near the minimum required for an economic bloom if the current crop is low to moderate.

In order to improve the induction level beyond a minimum, trees should remain at rest for at least another two weeks after that. With any help from the weather, even trees in the south should have been exposed to at least 900 hours of inductive temperatures. Remember, watch the weather reports and if daytime high temperatures are projected to go back up into the 80 degree range after next week and before January 1st be sure that soil moisture is low to avoid initiation of bud growth.

If cool temperatures continue past this week, flower enhancing sprays may not be needed in most cases. The exceptions could be trees with a heavy crop and/or weak root systems due to high water levels this past summer and fall. More about this next report, but if you anticipate this need be sure you have the urea or phosphorous acid product on hand or readily available from your supplier.

Run the model with your grove conditions here: http://www.hyalina.com/bloom/model.jsp

Olives and Pomegranates; Potential crops for Florida?

It seems that many landowners are looking for alternative crops these days. Two that seem to have a lot of "buzz" or interest from local growers are pomegranates and olives. Pomegranates are sold for both fresh and juice consumption. Recently, I was in a wholesale grocery store where they were selling pomegranates for 12.99 for box of six pieces of fruit. Wow that's not to shabby a price. Same thing could be said about olive oil, as they have been calling it "liquid gold" in California. Obviously when crops are bringing good prices in other states, Florida growers are going to take notice.

One of the problems is that we (IFAS/UF) just don't know how these crops perform in commercial production systems in our state. There are some interesting facts or information that could lend itself to both of the crops mentioned. For instance, the largest planted variety of Pomegranates in California is called "Wonderful". Wonderful was a select brought to California in 1898 from of all places Florida! There are a number of Pomegranate trees grown in our state for dooryard production, which produce fruit. Is the fruit of good quality? Do they yield sufficiently to justify expenses?

From my limited observations pomegranates definitely are going to need timely applications of fungal and insect control to yield good fruit. Will it be clean enough for fresh market consumption? I don't know. Will the exterior be as pretty as California fruit? Most likely not. Would pomegranates grown in Florida have better juice quality? Not sure, but one would think we could produce plentiful juice.

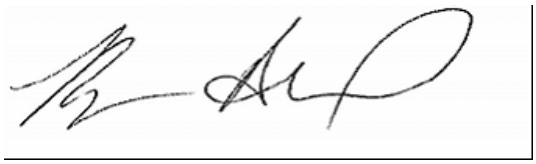
There also are some dooryard grown olives. Olive production maybe similar story to blueberry production for Florida. They recently have developed new olive varieties which are low chill and have good production (not proven in Florida). A study conducted by Texas A&M suggests that maybe we have a climate which can produce these low chill cultivars. A handful of growers have planted small acreages to determine the feasibility of olive oil production. However, olives can be prone to fungal issues, how will that play out in Florida? What will the fruit yields be? Similar questions as the pomegranates. One thing I am sure of, where there is a will there is a way. Growers are innovative people, if there is money to be made on these crops, you will find the way. I personally am trying to stay up-to-date on as many of these alternative fruiting crops as I can. I hope to have reports in the future as to whether or not there seems to be any potential for the Florida agricultural community. In the mean time if you are interested in experimenting with some of these crops let me

Lake CEO/IFAS/UF

The Vision for the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is to increase and strengthen the knowledge base and technology for:

- Expanding the profitability of global competitiveness and sustainability of the food, fiber, and agricultural industries of Florida.
- Protecting and sustaining natural resource and environmental systems.
- Enhancing the development of human resources.
- Improving the quality of human life.

Lake County Agricultural Center
1951 Woodlea Rd.
Tavares, FL 32778



HLB Photo Series

The Florida Citrus Agents have begun an HLB photo series where we take pictures of HLB infected trees around the state and post the pictures to the web. Photos in this series are collected on a monthly basis. The objective is to track the progression of HLB infected tree condition over time at multiple locations around the state. To view the photos click on link below:

http://citrusagents.ifas.ufl.edu/hlb_photos/index.htm

- Central Citrus Area (Polk)
- Gulf Citrus Area (Glades, Hendry, Charlotte, Lee, Collier)
- North Central (Lake, Orange, Osceola)
- North West citrus area (Pasco/Hernando)
- Peace River (Hardee, DeSoto)
- South Ridge (Highlands)
- St. Lucie (Indian River Area)

The 2011 Florida Citrus Show educational program is set and promises to provide all of the state's citrus growers an abundance of information important to their businesses. The Show will be held at the Havert L. Fenn Center in Ft. Pierce on Jan. 19-20, 2011. The program will feature the latest research on greening, black spot, canker, and sweet orange scab. In addition, growers will learn what they need to know in the face of new EPA nutrient criteria standards. Nutritional programs to help keep groves productive also will be highlighted, along with new advanced production systems.

Finally, many industry suppliers will be exhibiting their products, services, and technologies. No doubt Florida citrus growers will learn a lot and benefit by attending the Florida Citrus Show.

Click here to see the full program of the Florida Citrus Show.

Click here to register for the Show online.