Fall production considerations

By Stephen Futch, Gary England, Tim Gaver, Tim Hurner, Chris Oswalt and Mongi Zekri

While we still have a month or more of hot summer weather, now is the time to complete summer production practices and begin to think about tasks that should be completed in the fall season. These tasks should center on current and future production practices to maximize citrus production and optimize tree health as we approach the winter season. This article will focus on many of the standard grove operations that many may consider as routine. However, some groves may need special practices to correct or improve current problems not specifically addressed in this article.

Practices outlined in this article will include nutritional programs, weed management, resetting, pest and disease management and irrigation.

CITRUS NUTRITION

Citrus growers should evaluate their nutritional programs by inspecting their groves to determine if any deficiencies are visually seen on tree foliage. After visual inspection and review of current fertilizer programs, growers should confirm their observations with tissue and soil testing.

Leaves used in tissue testing should be from 4- to 6-month–old spring flush leaves from similar age trees of the same rootstock and scion combination collected in the summer during the months of July through August. Tissue testing is useful to determine the nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), manganese (Mn), zinc (Zn), iron (Fe) and boron (B) content in the leaves. Leaves that have recently been sprayed with nutritional materials should be washed to remove surface contamination via standard leaf washing methods. Since not all labs will wash the leaves prior to processing the sample, it would be advisable to inquire with the lab about its leaf-processing procedures prior to submitting samples.

Soil analysis is effective for measuring soil pH and extractable nutrients (P, Mg, Ca and copper (Cu)). Knowing these levels will be helpful to formulate and improve fertilization programs. Soil samples should be collected at the end of the rainy season and before the fall fertilization. This sample should consist of soil cores taken to a depth of 8 inches at the dripline of 15 to 20 trees and within the area wetted by the irrigation system. The area sampled should be the same blocks where tissue samples were collected.

Consistency in collecting these samples on an annual basis is important to show trends or historical data that will help evaluate the effectiveness of nutritional programs. Since all labs do not use the same analytical procedures, one should be very careful in comparing multiple years of data if different labs were used to analyze the samples.

From your soil-sampling results, you should be able to fine-tune your phosphorus application requirements. If the soil test for P is in the high or very high range, do not include any P in the fertilizer. If the soil test for P is in the low range, apply eight pounds P_2O_5 per 100 boxes produced. A grove producing 600 boxes per acre would then require 48 pounds P_2O_5 per acre.

For potassium and magnesium, the rates of K and N should be equal. If the soil test indicates that Mg is in the medium or low range, apply Mg fertilizer at a rate equal to 20 percent of N. Curtail Mg application if tests show that Mg is in the high range.

Iron deficiency has been found to be one of the most difficult deficiencies to correct, especially on calcareous soils.

Foliar applications of Fe are not recommended because they are not effective and risk leaf and fruit burn. The most reliable means of correcting Fe chlorosis in citrus is by soil application of iron chelates. Citrus rootstocks vary in their ability to absorb Fe. Trifoliate orange and its hybrids (Swingle and Carrizo) are the least able to do so.

Soil application of Zn is neither an economical nor an effective way to correct Zn deficiency. Zinc should be applied to foliage when young leaves are almost fully expanded.

On acid soils, Mn can be included in dry fertilizer. However, foliar spray applications are more effective and efficient for citrus trees grown on either acid or alkaline soils.

Foliar spray applications of B have also been found much safer and more efficient than soil application. Boron solubility in the soil is reduced at soil pH below 5 and above 7. Foliar sprays containing B may be applied during the dormant period through post-bloom, but preferably during early flower development.

In addition to the above-mentioned tissue and soil testing, growers should evaluate the amount of fertilizer that has been applied this year. It is recommended that growers apply at least 70 percent of the year's total fertilizer requirement prior to June, with the remaining 30 percent applied in the fall after the end of the summer rainy season. Total fertilizer calculations should include nutrients from all sources, be that foliar, soil-applied or material applied via the irrigation system.

For more information on citrus nutritional requirements, tissue and soil testing, refer to 'Nutrition of Florida Citrus Trees,' SL253. This publication is available on the Web (http://edis.ifas.ufl.edu/ss478) as well as at many UF-IFAS county Extension offices.

WEED MANAGEMENT

It has been clearly demonstrated that weeds can affect tree growth and subsequent yields by either altering the spray pattern of microsprinkler irrigation systems or intercepting soil-applied chemicals (fertilizer and agricultural chemicals). Weeds can also interfere with harvesting operations and potentially increase harvesting costs. After an early frost, dead weeds can also increase the risk of fire damage to the trees if ignited. Additionally, groves with heavy weed cover can be several degrees colder than groves without excessive vegetation in the row middles.

While most groves are currently

Infusion of Research Dollars Welcome News

By Michael W. Sparks

When the industry's massive research push against HLB started several years ago, Florida Citrus Mutual committed to unearthing sources outside of grower taxes to help fund it.

There's been great success whether through U.S. Department of Agriculture (USDA) block grants or federal and state appropriations. Millions of non-grower dollars have been garnered to fund citrus research projects to go along with the $51 million growers have spent out of their own pockets.

Add one more victory to the list. Last month Florida Citrus Mutual learned that the USDA will fund $11 million for citrus disease research over the next four years. Through an aggressive lobbying campaign, the USDA realized that stopping HLB is crucial to the future of the $12 billion domestic citrus industry and the 100,000 jobs it supports. Kudos to the USDA for stepping up to save this vital industry.

The money will be awarded between now and 2014, with $2 million going to ARS-Fort Pierce immediately and the rest coming from a USDA competitive grant program. Our industry told the USDA that we deeply appreciate this initial quick infusion of desperately needed research funding.

The hope is that less money will have to be diverted from the industry's marketing programs and ease the tax burden on growers. That's the true benefit of this funding.

A stakeholder board comprised of producers and scientists from the leading citrus-producing states including Florida, California and Texas will oversee and evaluate the funding and research. U.S. Agriculture Secretary Tom Vilsack will appoint the board members.

The entire Florida congressional delegation, as well as key state legislators, have been very supportive of our effort to find research dollars. However, U.S. Sen. Bill Nelson (D-FL) has really led the charge. He has been working overtime to bring this issue to the attention of the USDA.

Nelson has reaffirmed his commitment to establishing a permanent citrus research trust fund financed through a portion of the tariff on imported orange juice.

According to the Congressional Budget Office, that legislation could generate $118 million over five years for research against invasive citrus pest and diseases. The $11 million announcement is great news, but the Citrus Disease Research Trust Fund is a critical long-term source of funding to help fight HLB and other non-native citrus diseases that haven't reached U.S. soil yet. We are going to work hard to get it done.

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being mowed as compared with cultivation in the 1970s, the complete elimination of weeds from the row middle is not necessary or cost effective. Growers should strive to minimize their potential negative effects by suppressing weed growth throughout the year and especially prior to harvest of the fruit crop.

Fall is also a great time to re-evaluate your under-the-tree canopy weed management programs. Chemical weed control programs will vary from location to location within the state and may even vary within a grove based upon soil conditions. Programs usually consist of pre- or post-emergence programs or a combination of both. Pre-emergence herbicide programs are usually applied two to three times per year, and the fall season is a great time to clean up any weed escapes that may have occurred during the earlier season applications.

Additional care should be taken during the fall to minimize herbicide contact with any fruit as it approaches maturity with some commonly used post-emergence herbicide products. Various post-emergence products, when applied in a manner that allows contact with low-hanging fruit, have been shown to cause fruit drop. This action can be minimized by ensuring that the herbicide boom is properly shielded, and the off-center nozzle on the end of the boom is directed away from the low canopy of the tree.

For more information on weed management, see the Florida Citrus Pest Management Guide or visit http://edis.ifas.ufl.edu.cg013 on the Web.

RESETTING

Over the years, most growers have strived to keep vacant tree spaces occupied by a reset tree to maintain production over the long-term of the grove. However, some growers are questioning the ability to bring these newly planted reset trees into production when confronted with the presence of a large number of huanglongbing (HLB)-infected neighboring trees. If replanting trees into mature plantings, additional care must be taken to keep these young reset trees properly protected from psyllids with the use of both systemic and foliar applied pesticides.

The fall is also a good time of the year to evaluate the number of trees that will be required to be replanted in the next year or two. This past year, many growers have been finding it difficult to locate sufficient replacement trees due to limited nursery supply and the higher-than-expected demand for resets that has been coupled with higher fruit prices. Growers should consider contracting nursery trees for future needs to ensure sufficient supply for desired planting schedules.

PESTS AND DISEASES

Everyone in the Florida citrus industry has become very aware of the Asian citrus psyllid and the role it plays in vectoring citrus greening or huanglongbing (HLB). Growers are uniting in forming Citrus Health Management Areas (CHMAs) to reduce psyllid populations over a wider geographical area. These CHMAs are being developed and promoted in each area by local team leaders who assist in coordinating targeted sprays to suppress psyllid populations.

During the fall, most CHMAs will be scheduling coordinated sprays in each established area. The sprays will be posted for each CHMA, which can be accessed at http://www.crec.ifas.ufl.edu/extension/chmas/index.shtml on the Web. It is important that growers participate in these coordinated psyllid suppression efforts as growers can collectively achieve better psyllid suppression than they can by their own individual actions.

Various citrus mites can be problematic in the fall, especially on fruit intended for fresh markets. For fresh fruit, sprays in October are common to prevent mite damage on the fruit surface. When fruit is damaged, it can lower fruit grade, reduce fruit size and may lead to increased fruit drop.

Citrus black spot is isolated in several locations in southwest Florida. While all citrus is susceptible, sweet oranges — especially mid- to late-maturing types such as Valencia — are highly susceptible. Leaf symptoms are rarely seen, but fruit symptoms will vary widely ranging from spots on the fruit surface that vary from black to brick-red in color. These symptoms will be more frequently found on the sun-exposed portion of the fruit surface and more easily seen as the fruit nears maturity. Symptoms were seen in 2010 as early as October, but the majority of symptoms on Valencia were observed in late March. It is important to look for unusual symptoms in your groves so that if black spot is present, a control program can be planned for next year.

Phytophthora brown rot is a localized problem usually associated with restricted air and/or water drainage. It commonly appears from mid-August through October following periods of extended heavy rainfall. It can be confused with fruit drop due to other causes at that time of the year. Skirting of the tree reduces the opportunity for soil-borne inoculum to contact fruit in the lower canopy. The edge of the herbicide strip should

be maintained just inside of the tree dripline to minimize the exposure of bare soil to direct impact by rain. This will limit rain splash of soil onto the lower canopy. In groves with a historical problem, minimizing fruit drop is essential. Usually a single application of Aliette, Phostrol or ProPhyt before the first sign of brown rot symptoms is sufficient to protect fruit through most of the normal infection period. If the rainy season is prolonged into the fall, a follow-up application of either systemic fungicides or copper in October may be warranted.

Phytophthora foot rot results from infection of the scion near the ground level, producing bark lesions, which extend down to the bud union on resistant rootstocks. Root rot occurs when the fibrous roots' cortex is infected, turns soft and appears water-soaked. In groves with a history of foot rot, consider tolerant or resistant rootstocks for replanting. Trees should be planted with the bud union well above the soil line and should be provided with adequate soil drainage. Prolonged trunk wetting, especially if tree wraps are used on young trees, should be avoided by using early to midday irrigation schedules. Fire ant control prevents their nesting under wraps and causing damage to tender bark. For susceptible rootstocks, fungicides may be applied to young trees on a preventive basis for foot rot. For other rootstocks, fungicide treatments should commence when foot rot lesions develop. Foot rot fungicide programs should be continued for at least one year for tolerant rootstocks, but may continue beyond that for susceptible stocks. In mature groves, the decision to apply fungicides for root rot control should be based on yearly soil sampling for the disease.

IRRIGATION

As our summer rains begin to taper off, the fall period is an excellent time to check irrigation systems (including servicing engines and fuel supplies) and emitters to ensure they are in optimum working condition. This timely evaluation will prepare the system for use when our temperatures begin to turn cold and irrigation is utilized for freeze protection.

In addition to checking your irrigation system, a quick review of the Florida Automated Weather Network (FAWN, http://fawn.ifas.ufl.edu) can be beneficial in scheduling irrigation as well as offering cold-protection tools and recommendations about when to shut off your system when it is used for cold protection.

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