

A glimmer of hope on the HLB front lines

Cooperative Producers keep greening disease under control

By Megan Dewdney and Jim Graham

The Cooperative Producers, Inc (CPI), Ranch One Cooperative, Inc. (ROC) and Cooperative Three, Inc. (C-3), are the 7,300-acre grower-owned Cooperative Groves, located in Hendry, Collier and Lee counties of Southwest Florida. The membership consists of the Citrus Marketing Association, Dundee Citrus Growers Association, Haines City Citrus Growers Association, Hickory Branch Corporation, Hunt Bros. Cooperative, Latt Maxcy Corporation, Waverly Growers Association and Winter Haven Citrus Growers Association — all part of the Florida's Natural Growers Cooperative family. Even though the membership is made up of several fresh fruit packers, the majority of the fruit is destined for the Lake Wales processing facility. Michael S. Murphy, the chief executive officer and executive vice president, and Thomas F. Kirschner, the director of grove operations, have been successfully attempting to manage Huanglongbing (HLB or citrus greening) in their groves since the discovery of the disease in Florida and they appear to be keeping it under control.

The three groves are large plantings under a single HLB management policy, making it a good place for a case study to assess whether aggressive disease management can be successful. It is also close to Southern Gardens, where some of the first commercial finds of HLB were made; so it is known that the disease has been in the area for several years and disease pressure is very high. The structure of the company can create some management challenges, since the grove is divided into 20 140-acre parcels with individuals owning deeds to the property. Murphy and Kirschner are in charge of the day-to-day grove management decisions, including pest and pathogen control regimes. As in any good business, they must keep operations as economical as possible for the owners.

From the time HLB was identified and confirmed in Florida, Murphy and Kirschner were concerned about the health of their groves. In 2005, they toured Southern Gardens groves with Tim Gast to see the effects of the disease firsthand and learn about Southern Gardens' efforts to control the disease. Initially, they felt that the disease management program was too expensive for their grove operation, but a psyllid control program was implemented nonetheless. At first, the psyllid control program was based on trial and error while they explored the best timings as more research data became avail-

able from neighboring growers and IFAS. Psyllid control was announced to the board in April 2006 as a necessity to stay in business for the long term; that was before the disease had been detected in the cooperative groves.

"We didn't know exactly what a psyllid control program meant, but we knew we had to do something to combat the disease," Murphy said. The managers took a trip to São Paulo, Brazil to visit several citrus growers and learn from their experiences. It was described as an eye-opening experience that highlighted the seriousness of the disease for the industry; they returned to Florida with a renewed sense of urgency. The next few months were spent learning about the disease and planning a strategy. One of the benefits of their trip was that the psyllid program was refined and intensified immediately. "We developed an aggressive HLB management program learned from our visit to Brazil with a Florida twist that is still being tweaked today," Murphy said. "We knew we had to push hard to try and get ahead of the disease if we were going to be successful, but we also realized cash flowing the groves was also important for the smaller grower."

A control program was proposed to the board in an emergency meeting called to discuss disease options and the board unanimously voted in favor of allowing the management adequate financial support to implement an aggressive HLB management program. There are certain control options that are more difficult under the cooperative structure. For example, removing an entire block to do solid reset planting as advised by a visiting Brazilian consultant is not feasible because the individual owner would be impacted negatively, affecting the owner's ability to cash flow the property for several years. Other large growers may opt to average the losses over several acres.

CONTROL PRINCIPLES

The program is based upon the fundamental principles known to control the disease — chemically controlling psyllids and scouting for and removing infected trees. The psyllid control plan for mature trees that is currently in use at the cooperative groves includes a board-mandated Temik® program for all acreage. Foliar pesticide sprays are applied throughout the year as needed. Ideally, broad spectrum insecticides (pyrethroids, organophosphates) are applied before

flush emerges and then a softer control agent (abamectin, diflubenzuron) is used once flush is present. The groves also have been part of an area-wide aerial spray program with their neighboring growers. As a group, the growers of the area have managed to spray across 20,000 acres in a 10-day period. To make sure that psyllid control is adequate, Kirschner and his supervisors regularly scout for psyllids. Surveying consists of yellow sticky traps and “Tap” sampling, but their preferred method is surveying young flush for the presence of adults, eggs or nymphs.

Management developed a survey program to scout for disease symptoms with a combination of training through IFAS extension programs as well as getting hands-on experience with scouting crews from Southern Gardens. Managers felt it was essential to get the field experience because seeing disease pictures was not sufficient to reliably identify the disease. Some scouts have remained with the company from the beginning of the HLB epidemic and are now entrusted to identify whether a tree has HLB based on symptoms.

One of the biggest HLB management challenges is getting scouts into a block in a timely manner. Scouting is an inherently slow process, but there are other factors like budget, harvesting timetables, tree pulling and resetting which are also factored into decisions for when a block is scouted. A survey crew is made up of four to six scouts using pickup trucks with elevated platforms and four-wheeled utility vehicles. The groves are scouted four times a year on average and six times a year in a highly infected block.

The average age of trees at the Cooperative Groves is between 17 and 23 years, planted around the time the groves were established, but the groves have some younger plantings as a result of tristeza and Asian citrus canker eradication. The younger blocks (mostly 6 to 8 years old) were first scouted in spring 2006 before management knew the disease was present in the grove. Management had discussed a tree health issue in a particular block, trying to determine what was causing the nutrient deficiency, only to determine it was the site of the Ranch One’s first documented finding of HLB. “The grower had lost his grove due to the mandatory 1,900-foot Asian Canker rule, decided to replant, only to have the disease detected in the grove five years later,” Murphy said. “Needless to say, we have been very sensitive to this

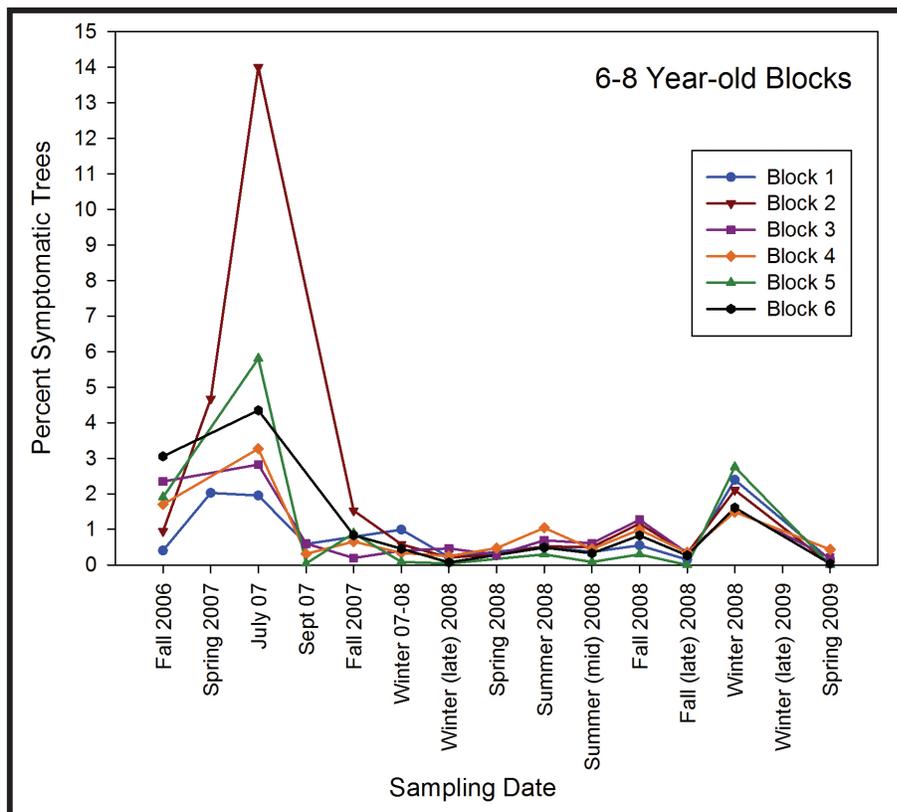


Figure 1. The percent symptomatic trees found in the 6-8 year-old blocks at the Cooperative Producers, Inc. groves from each scouting interval.

particular grove’s disease status due to the past circumstances.”

As with many groves, HLB is not the only problem that affects tree mortality. Trees are still lost from blight, canker control procedures, drought, freeze damage and Phytophthora — to name a few. In some blocks, blight still kills more trees than HLB. Tree removal is an important component of the HLB management program at the Cooperative Groves, but if fruit is close to maturity, management may decide to wait to harvest the tree before removal. Harvest of symptomatic trees will often be expedited and psyllid control in that block will be increased until the tree is removed. Trees do not remain in place very long after harvest. Removal is one of the greatest expenses because of the equipment, time and fuel required. Ideally, if HLB-infected trees could be eliminated in place, they would not interfere with normal grove operations and then dead and dying trees would only have to be removed in advance of resetting.

RESETTING

Resetting is an important component of the Cooperative Groves HLB management strategy. Because of the change in nursery regulations and production practices due to canker, the cooperative groves were not able to

reset many trees for three years. They now have nursery trees contracted, but are still catching up with replanting. The groves will have reset more than 100,000 new trees by the end of the summer since 2006.

There is an aggressive psyllid management program for the resets. The resets receive an imidacloprid application five to six times a year. To stay within label rates per acre, only the resets receive those applications. In addition to imidacloprid, resets get the regular foliar pesticide program, although the Cooperative Groves sprayers are equipped with “Tree See” eyes so that the new trees receive an appropriate quantity of control agent. The resets are very labor-intensive because of the young tree program; they receive special weed control and time release fertilizer applications. Management estimates it costs an average of \$165/acre to reset one of its groves with an 8 percent tree loss.

Huanglongbing management at the Cooperative Groves is expensive and time-consuming, but is it worthwhile? From the fall 2006 initial HLB survey in the young blocks (6 to 8 years-old), up to 3 percent of the trees were found to be symptomatic (Fig. 1). The finds peaked in the second survey (summer 2007) with 14 percent of trees symptomatic in the most severely affected

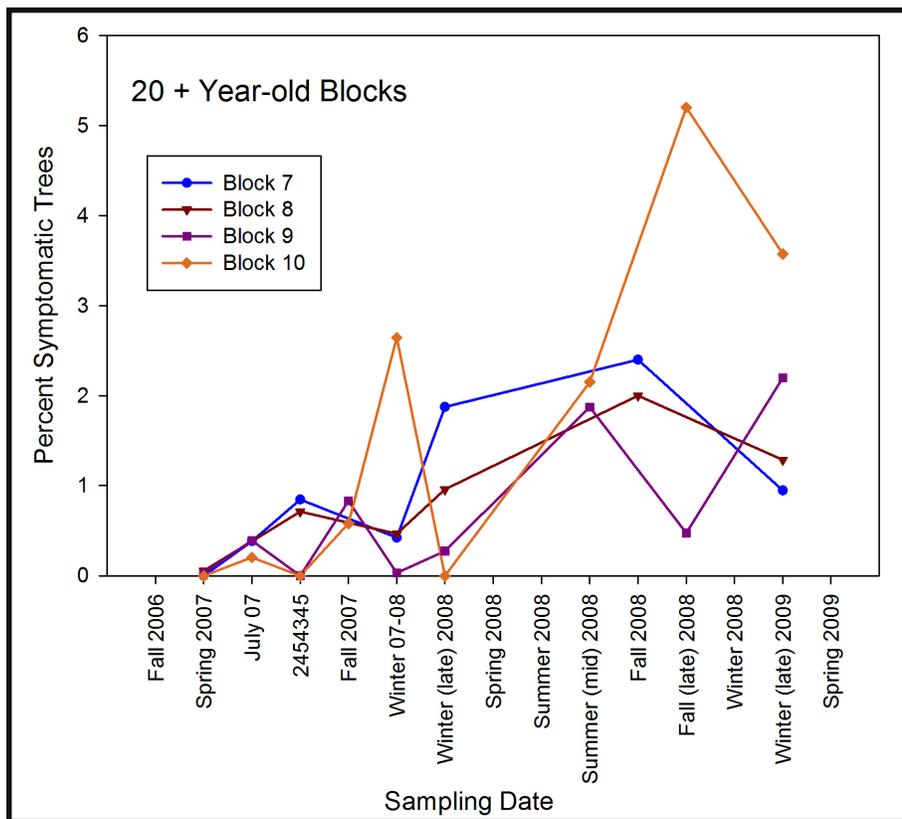


Figure 2. The percent symptomatic trees found in the 20+ year-old blocks at the Cooperative Producers, Inc. groves from each scouting interval.

block. By Fall 2007, the percent of symptomatic trees was below 2 percent annualized, where it has remained until winter 2008-2009 when numbers crept back up to 3 percent on an annual basis. Block 2, which had the worst disease incidence, has a total of 22 percent trees infected up to now. The most recent survey found less than 1 percent of the trees to be symptomatic.

The disease appeared first in the young blocks and then in the older blocks. In those older blocks, the percentage of symptomatic trees has not reached the levels seen in the younger blocks (Fig. 2). Grove management has observed that the disease appears to progress faster in young trees. The

symptoms are more pronounced on the young trees identified by the scouts than on the older trees. The first symptoms in the older trees (20-25 years-old) were not seen until the summer of 2007 and the percent of symptomatic trees has stayed relatively low thus far.

Management feels that the timing is a key component to getting ahead of the disease. The quick reaction of the management team and the board's response have led to the successes the Cooperative Groves have seen so far. "You have to take the emotion out of the equation and act on instincts or, to put it in simple terms, you can't pull a bull down by its tail; you have to grab it by the horns," Murphy said. Aggres-

sive psyllid control and tree removal has helped reduce the number of newly symptomatic trees in the groves.

Managers are under no illusions that they have beaten HLB, but they are attempting to manage it. They are most confident about the effectiveness of the psyllid control program. However, to complicate matters, some neighboring groves are under management plans that vary from very aggressive control programs to limited control programs, so managers must be constantly vigilant for psyllid pressure. In contrast, the weakest part of the HLB management program is the timely removal of symptomatic trees. Despite the shortcomings of the tree removal program, managers have seen low disease levels since the summer of 2007. They also are well aware that psyllids are highly mobile and can move from grove to grove.

Even though the incidence of HLB symptoms has been kept low under the Cooperative Grove management, managers are striving to find new and better things to add to their regimen. They are working with IFAS researchers on a high-density grove planted at 350 trees/acre. They are testing multiple rootstocks with micro-jet fertigation and dry fertilizer treatments. In the young blocks that have HLB, they are experimenting with a nutritional spray regimen based on grower Maury Boyd's program (see "Scientists investigate cocktail maintaining HLB-infected trees", June 2009 Citrus Industry). They have noticed that while they are still finding newly-infected trees in these blocks, the trees keep an overall healthy appearance, unlike before initiation of the program.

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