

Citrus huanglongbing (HLB) has been in Florida since 2005 and probably much earlier and is becoming worse. Many groves in South Florida are now severely affected and disease incidence is increasing in Central Florida. The recommended program of clean nursery stock, aggressive psyllid control with inspection and removal of affected trees seems to be working for those that began early and don't have a lot of neighbors ignoring the problem. But, many growers either didn't realize how serious the problem was, didn't discover they had a problem until it was too late, or didn't want to spend the money. In addition, many Central Florida growers who have low disease incidence still don't fully appreciate how aggressive the tree removal and psyllid control must be. We are now dealing with very mixed approaches and mindsets.

One of the first responses of the industry was to greatly increase research funding. The first round of funding was the shotgun approach, i.e., try to fund anything that has some hope and see what develops. A great deal of effort has been made to tap expertise outside of Florida as well as beyond citrus. "Someone out there in this big, wide world must have a magic solution that will get us out of this, right?" Sorry, guys, there ain't no silver bullet. Any hope for something like that is remote. Quit dreaming and get to work!

The solution to HLB may eventually be produced by research, but that will be a long time coming. The HLB situation is similar to diseases like malaria and AIDS (HIV) in the human population. The protozoan causing malaria and its mosquito vectors has been extensively studied and is much better understood than the *Liberibacter* causing HLB and its psyllid vector. Yet, the most effective controls are basically public health measures – mosquito control, insecticide-impregnated bed nets, patient isolation, and similar measures. Despite detailed knowledge of the virus causing AIDS, we still don't really have a "solution." No antiserum and the pharmaceutical products that are effective are too expensive for



HLB – a public health problem

By **L.W. Timmer**

the majority of the affected people worldwide. Most of the AIDS control has come from approaches that prevent its spread – use of condoms, sex and drug education, and changes in people's habits. If no magic solution has appeared for those important and heavily investigated issues, what makes you think that something will suddenly appear for HLB control?

We know the basic tenets of HLB control from experience in other countries and in Florida – disease-free nursery trees, detection and elimination of infected trees, and aggressive psyllid control. Fortunately, the Citrus Health Response Program and the subsequent legislation have provided us with the nursery trees grown in enclosures from disease-free budwood since January, 2008. The budwood source material for most of our plantings has been moved out of the citrus area by the Division of Plant Industry. I would hate to think of the situation if we still had field nurseries and vulnerable mother trees.

Most growers realized early on that good psyllid control would be necessary and focused on that hoping to prevent HLB spread. However, most probably did not realize the intensity needed to sufficiently reduce the populations and even fewer anticipated the importance of rigorous inspection and tree removal. It is absolutely essential to employ both aggressively for suc-

cess. But, if done properly, it works!

Many groves, especially in South Florida, are in a very difficult situation. Current incidence is too high for tree removal to be effective and replanting is probably futile. Classic rock and a hard place. I understand the desire of growers to keep trees, even infected ones, in place to obtain some profit from the groves to maintain a viable operation. But, all those trees will decline in the next five years. Then what? The only future I see for those areas is to remove citrus from large areas to reduce the inoculum load and to provide some separation from heavily infested groves and begin replanting. That will usually require cooperation among neighbors and some means to remove abandoned or poorly managed groves that are the sources of inoculum.

The various nutritional programs that make HLB trees look good are not likely to provide sustainable control. If trees must be maintained, aggressive psyllid control programs should be followed and badly affected, unprofitable blocks should be removed promptly to reduce inoculum and spread. There are no controlled experiments that demonstrate that any of those nutritional and other various concoctions are actually effective in prolonging tree life and maintaining yields. In addition, most of those programs are costly. If I were a grower, I'd put my money in psyllid control to try to slow spread to the remaining healthy trees rather than trying to maintain all of those HLB-affected trees.

I think the industry will have to live with HLB, but that doesn't mean we can live with all the trees infected and continue to be economically viable. All you need to do is to look at areas of Asia where HLB is endemic to know that they are not big citrus producers – Brazil and Florida are. At some risk, I'll venture some guesses as to what might happen to the industry short and long term:

FIVE YEARS

- Most trees affected by HLB in South Florida have declined now, pushed or abandoned.
- Early attempts to replant failed.
- Disease incidence in Central

Florida much higher; growers extremely worried.

- Production dropped to <100 million boxes.
- Plantings in South Florida with aggressive control surviving, but control is difficult due to high inoculum in surrounding areas.
- Nutritional and other treatments have not proven sustainable.
- Attempts being made to replant some large areas after removal of all citrus in the vicinity.
- Better information available for psyllid control; management programs have improved greatly; fewer sprays needed for psyllid management.
- Area-wide programs seem to be working; scouting more mechanized and efficient and well-trained crews widely available, but inspections are still done visually.
- Genetically engineered cultivars being planted experimentally; still not approved and are unproven.
- Prices for processed and fresh fruit excellent. HLB damage in Brazil and other areas reducing supplies. Grapefruit supplies also low; prices good.

20 YEARS

- Most citrus in the southern areas of the state has declined from HLB.
- Large companies have replanted extensive areas with citrus; still managing the groves with aggressive psyllid control and tree removal; most small growers have long since abandoned citrus except those in local coops for HLB management or adjacent to large growers with aggressive programs.
- Central Florida groves are mixed; some original plantings still survive due to intense management, but many now replanted.
- Resistant cultivars now approved for commercial planting and widely planted; doing well, but aggressive management of psyllids still needed to avoid development of resistant bacterial strains.
- Despite freeze danger, more citrus planted in more northerly areas like Pasco, Lake and Marion counties with lower psyllid pressure; more tangerines planted, seem to tolerate HLB better due to fewer flushes in these cooler areas.
- Most fresh fruit produced in high density plantings with windbreaks; most successful with large contiguous

plantings and intense management.

- Production of sweet oranges back to 100 million boxes and increasing.
 - Psyllid populations much lower due to better management; many HLB-affected trees now removed, decreasing inoculum and making control easier.
 - Production increasing, but prices still good. Citrus is a viable option; processing and fresh production increasing despite the intense management needed.
 - Growers fear competition from many other areas formerly limited by endemic HLB, e.g. Asia.
- Research will provide a lot of help and useful information, but is unlikely to produce a quick and long-lasting solution. If you're serious about staying in the citrus business, get with your neighbors and figure out how to keep HLB to a minimum in your area. Join cooperative efforts to remove abandoned and worse, badly managed groves, and residential trees. One thing works — reduce psyllids and infected trees. Forget the magic bullets! Get 'ur done, guys! Get 'ur done!

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