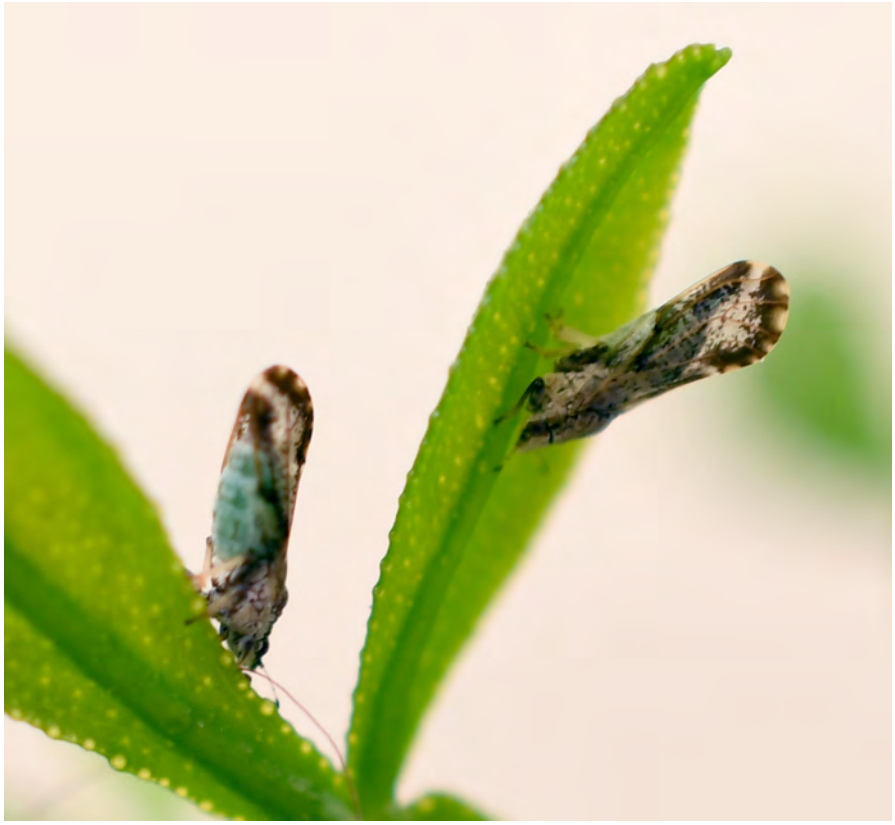

The ABCs of psyllid management

By Lukasz L. Stelinski and Jawwad A. Qureshi

Getting rid of Asian citrus psyllids (ACP) from your grove is almost like trying to remove the sand from a beach. You can make a huge noticeable impact, but getting every last grain of sand will be impossible. What makes the prospect of ACP management so complex is achieving it in a manner that's both economical and environmentally sustainable. Below is a recap of the basic steps that should facilitate the job.

HIT THEM WHEN THEY'RE DOWN

ACPs need flush to lay eggs and for the young nymphs to develop. In the past, the majority of the flushing occurred during fairly predictable time frames such as major flushes in the early spring and late summer. Predicting flushing has never been as simple as that during the summer rainy season, particularly for younger trees. HLB has complicated things even more, causing vast changes to flushing cycles of infected trees.

Nonetheless, the winter cold period, primarily January and February, is the time when the majority of mature trees are not producing new growth. This is a time when ACP reproduction is restricted most and when populations decline. Growers can exploit this ecological weak link that nature provides. This is the time of year to treat your grove with one or two winter-season insecticide sprays.

The chemicals to consider using during this time of year are in the 3A (pyrethroids) and 1B (organophosphates) mode of action (MOA) groups. The decision to spray once or twice will depend on psyllid populations. If ACP counts are near zero, there is no need to spray a second time. These insecticides have quick knockdown and are harsh. This is the time of year when populations of biological control agents are the lowest, so collateral damage caused to natural enemies will also be low.

ROTATE MODES OF ACTION THROUGHOUT THE YEAR

ACP resistance to insecticide can be prevalent. It can be induced by failing to rotate MOAs only once. In other words, spraying the same MOA back-to-back can initiate development of resistance, particularly if the area had a population of insecticide-resistant ACP for that MOA in the past.

Rotating five different modes of action in sequence can prevent the problem entirely. For growers in an area where neonicotinoid resistance is present currently, apply the following sequence of modes of action to reverse the problem: 1) pyrethoid, 2) organophosphate, 3) diamide, 4) insect growth regulator, 5) butanolide and 6) neonicotinoid. Following renewed use of the neonicotinoid, remember to apply four different modes of action in sequence before you spray it again. Another tactic to reduce the potential of resistance developing is spraying only when needed. In this manner, the frequency of sprays should decline.

LET THE PSYLLIDS TELL YOU WHEN TO SPRAY

The basic tenet of integrated pest management is to apply a control measure only when the benefit of doing so exceeds the cost. The decision to spray an insecticide should be one that's made when insect populations are high enough that taking the action to control will pay off in greater crop yield.

In groves where HLB is endemic, results to date suggest that reducing psyllid damage on those trees can enhance yield. This is likely because psyllid damage causes further stress to trees already suffering from decline. If the ACP population (and resulting damage) is below a certain point, it does not pay to take a control measure.

A useful initial threshold to try is 0.2 psyllids per sampling tap. Scouting 10 trees in a block at 10 random

locations using a tap sample, and taking an average of the number of psyllids from those 10 trees on a per tap basis, should give a reliable estimate of the psyllid population. If your average count is less than 0.2 psyllids per tap, think about saving yourself a psyllid spray. This threshold was developed based on research in mature sweet orange in South Florida under conditions of near 100 percent HLB infection. Current research is being initiated to determine if this threshold (or others) is similarly reliable in different varieties, tree sizes and parts of the state.

Reducing sprays will promote populations of the natural enemies that kill psyllids.

REAP THE BENEFITS OF BIOLOGICAL CONTROL

Biological control agents are in groves doing their work by killing and eating psyllids throughout the year. The best method of improving biological control is not getting in its way. Reducing sprays will promote populations of the natural enemies that kill psyllids. There are various cultural control techniques available now that may help maintain natural enemies while fighting ACP.

Spraying crop borders instead of whole grove sprays (particularly during times of low flush) can reduce ACP hot spots and population outbreaks with less impact on the population of natural enemies in the grove. Most ACP are located on grove borders, and that is where infestations initiate. If you see psyllids soon after a spray, it's likely that a local infestation occurred after the insecticide residual activity ceased, and the entire grove is not infested. In this situation, it's best to scout to confirm that the local infestation is on the border. Spray the problem area or focus efforts on the border rather than hurrying another grove-wide insecticide application.

Other methods of protecting grove borders include planting windbreaks and protecting replanted trees on grove borders with individual protective covers. If replanting groves, consider laying down UV-reflective mulch fabric below the seedings. These mulches are thought to disorient adult ACP and reduce ACP infestations when trees are replanted as solid sets.

Using the above discussed winter sprays to target a weak link in the ACP biological cycle and making use of a spray threshold should further reduce the need to spray while increasing the workload for natural enemies. Let them do their fair share.

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