Reducing psyllid populations during key periods pays dividends

By Lukasz L. Stelinski and Jawwad A. Qureshi

Asian citrus psyllids (ACP) are at the mercy of their host (citrus) for survival. They need flush to lay eggs and for the nymphs to develop.

Prior to HLB, the majority of flushing had been fairly predictable and occurred in the early spring and late summer. The occurrence of flush in young trees is less predictable during the summer rainy season. Although HLB infection has affected the predictability of major flushes, the winter cold period in January and February remains a time when most mature trees have little or no significant new growth. This is a time when ACP reproduction is most restricted and when populations naturally decline.

SPRAY TIMING

Application of a broad-spectrum insecticide during the winter months has become a well-known technique for managing psyllids. Previous research has demonstrated that if ACP populations are effectively reduced during the dormant winter period, it is easier to keep them down with subsequent sprays later in the season.

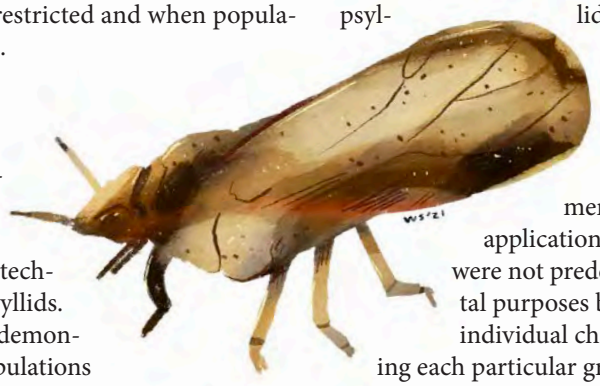
Interest has grown in making psyllid management in Florida more sustainable. Even though HLB is endemic and prevalent in Florida, managing psyllids can help improve yield by decreasing stress to trees caused by psyllid feeding. In new plantings, after individual protective covers are removed, reducing psyllids may help delay HLB infection and help trees grow by reducing injury caused by feeding psyllids.

To make psyllid management more sustainable and less costly, there may be times of the year when growers choose to hold off from spraying. Also, there may be other times that growers choose to target for spraying to get the most bang for the buck.

APPLICATION COMPARISON

The dormant season is one of those special times to target psyllids with sprays. University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) researchers recently observed and documented the importance of an effective dormant season application. Psyllid populations and associated citrus flushing were monitored in two separate commercial grove operations. The operations differed in dormant season and growing season spray applications yet were located in close proximity to one another.

Figure 1 (page 25) shows the comparison of psyllid populations in the two groves. Grove 1 lacked an effective dormant season application. Grove 2 had an effective dormant season treatment applied. The different application schedules in this example were not predetermined for experimental purposes but were made because of individual choices and constraints facing each particular grower involved.



Five insecticide sprays were made at both groves during the course of the monitoring. The rotation at Grove 1 consisted of Movento, Timectin, Minecto Pro, Timectin and Micromite. The rotation at Grove 2 was Exirel, Movento, Agri-Flex, Minecto Pro and Apta. The presence of feather flush at the beginning of 2020 was associated with high counts of ACP adults at both groves. In Grove 1, Movento was sprayed during the dormant season. This spray occurred more than 10 days after budbreak, because of the difficulty in timing the spray in between harvest and bloom. Grove 2 received an Exirel spray during the dormant period. As it turned out, Grove 1 did not receive an effective dormant season application, while Grove 2 did.

Grove 2 was then sprayed only four more times. This was sufficient to keep ACP near a 0.2 psyllids/tap threshold for the remainder of the

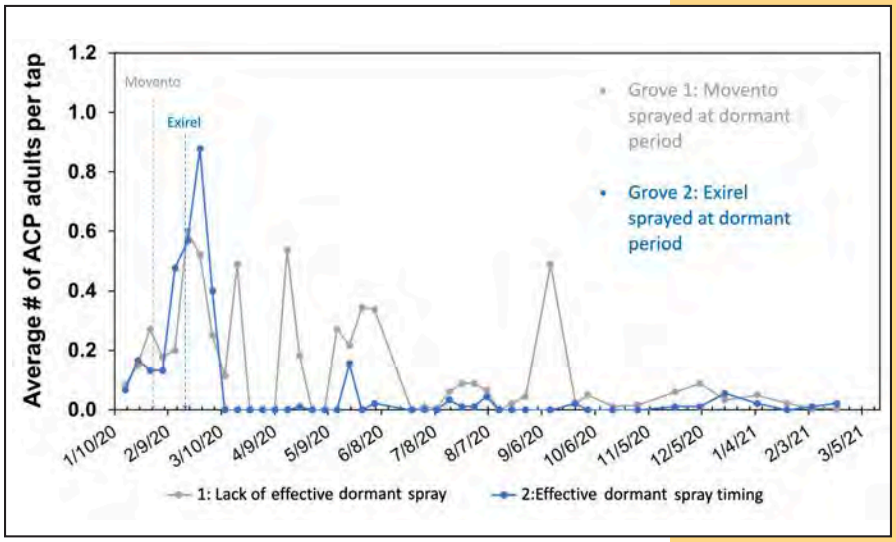


Figure 1. Asian citrus psyllid adults were counted by tap sample at two Central Florida groves with different insecticide rotation programs.

season. In Grove 1, however, it was not possible to maintain ACP near the 0.2 ACP/tap threshold despite four more insecticide sprays.

In analyzing the effectiveness of each pesticide used in the Grove 1 rotation, the dormant season Movento spray was found to be the least effective insecticide applied in that rotation program. After application of Movento, there was no effect on the number of ACP adults counted in trees. When similarly analyzing the effectiveness of each pesticide used at Grove 2, the Exirel spray during the dormant season was found to be the most effective insecticide in that rotation program. After Exirel was applied, ACP adults were eliminated from treated trees for more than 30 days. ACP populations remained low (less than 0.2 ACP/tap) throughout 2020.

When comparing the two rotation programs, significantly more ACP adults were observed in plots in Grove 1 that did not have an effective dormant season spray than plots in Grove 2 where an effective dormant season spray was applied. These results highlight the importance of applying the right insecticide, in this case Exirel, during the dormant winter period and soon after initial budbreak of the first seasonal flush.

Although there were several differences between the spray programs in the example described above that may have contributed to the overall differences in psyllid populations between these two groves, there is no question that there was a significant difference in the effectiveness of the dormant season spray between these two groves. Otherwise, initial flushing and psyllid populations in these two operations were similar because they were located in the same region. This initial dormant season spray may have set the stage for success (or failure) to keep psyllids down the rest of the season.

DORMANT SEASON DECISIONS

When making a dormant spray, it is important to spray a chemical that will effectively kill adults. This spray is intended to prevent egg laying by overwintering adults during that initial spring flush. Some chemicals to consider are those in the 3A (pyrethroids), 1B (organophosphates) and 28 (diamides) mode of action groups.

The decision to spray once or twice during the dormant period will depend on psyllid populations. If ACP counts are near zero after the first spray (in January or early February), there will likely be no need to spray a second time until later in the season. However, if psyllids begin to reappear once the flush begins to set, it will be useful to knock them back with a second dormant spray.

These insecticides have quick knockdown and often affect a broader spectrum of insects. However, 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 lower in the dormant period than during other times of the year.

For more specific information regarding products and rates, consult the 2021-2022 Florida Citrus Production Guide (https://edis.ifas.ufl.edu/publication/CG101).

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