# Area-wide psyllid sprays in Southwest Florida

***Figure 1.*** *Specially-equipped, fixed-wing aircraft provide a rapid, effective and inexpensive alternative for application of dormant sprays against Asian citrus psyllid in large groves during late fall and early winter.*

## *An update on the cooperative program aimed at controlling the HLB vector*

**By Phil Stansly, Alejandro Arevalo and Mongi Zekri**

We have now completed the second year of a cooperative area-wide management program for the Asian citrus psyllid in Southwest Florida. The program was organized through a collaborative effort by the Gulf Citrus Growers Association (GCGA), the Citrus Health Response Program (CHRP) of the Florida Department of Agriculture and Consumer Services' Division of Plant Industry (FDACS-DPI), the University of Florida-IFAS (UF-IFAS) Hendry County Extension Service and the UF-IFAS Southwest Florida Research and Education Center Immokalee. The goal is to unify citrus growers in the region to form a united front for managing the Asian citrus psyllid (ACP), the vector of Huanglongbing (HLB) or greening disease of citrus.

The program was described in the October 2009 *Citrus Industry* magazine. So far, efforts have focused on area-wide application of insecticides during the "dormant" season following fall flush and prior to spring flush. The objective is to prevent entry of overwintering psyllids into the spring flush where they would otherwise reproduce freely on an unlimited resource and later spread the disease in search of young flush for food and egg-laying. The role of the GCGA has been to organize and promote this voluntary program in the region, while FDACS-DPI and CHRP have assisted by monitoring psyllid populations before and after the treatment period. These data, along with those provided by some of the growers, have been used to assemble the results presented here.

Adult ACP was monitored during October/November (pre-treatment) and May (post-treatment), employing for the most part 100-stem tap samples per block — 10 taps (one tap per tree) in each of 10 locations. Here we present data from 240 blocks in 23 groves sampled during the 2008-09

**Table 1. Number of aerial sprays, number of groves, and total acreage sprayed during two seasons in SW Florida.**

| 2008-2009 | | |
|---|---|---|
| # Sprays | # Groves | Total acreage |
| 1 | 36 | 49,228 |
| 2 | 7 | 22,688 |
| Grand Total | 43 | 71,916 |
| **2009-2010** | | |
| # Sprays | # Groves | Total acreage |
| 1 | 35 | 56,618 |
| 2 | 10 | 7,081 |
| 3 | 3 | 9,481 |
| Grand Total | 48 | 73,180 |

season and 248 blocks in 18 different groves during the 2009-10 season. Fletcher Flying Service of Immokalee and Thomas Summersill Inc. of Belle Glade provided records from applications made using their fixed wing aircraft (Figure 1, page 6). Additional information on ground applications and other practices directed against ACP and HLB were reported through grower surveys conducted together with the Hendry County Cooperative Extension Service.

## ACREAGE SPRAYED

The total area receiving at least one aerial application increased slightly this last dormant season (November through mid-February) to more than 73,000 acres from just less than 72,000 acres the year before (Table 1). Fewer acres were sprayed twice last dormant season than the previous year, although a significant area was sprayed three times this year, making the average number of sprays greater for the 2009-10 dormant season. Although we do not have an exact count of the number of acres sprayed by ground during the dormant season, we estimate at least 35,000 acres based on surveys. Virtually all the active citrus acreage in the region was treated at least once last winter.

## INSECTICIDES USED

Danitol (fenpropathrin, a pyrethroid) and Imidan (phosmet, an organo-phosphate or OP) were the most used products both years, although not in the same order (Table 2). Imidan tended to be sprayed more in late fall and Danitol as well as Mustang, another pyrethroid, in winter. This is appropriate use of these products since

**Table 2. Insecticides applied by air for ACP control in citrus during the last two dormant seasons in SW Florida.**

| 2008-2009 | | |
|---|---|---|
| Product | Acreage | % area |
| Danitol | 62,654 | 66.2 |
| Imidan | 15,790 | 16.6 |
| Sevin | 7,500 | 7.9 |
| Mustang | 5,660 | 6.0 |
| Dimethoate | 3,000 | 3.2 |
| Total | 97,914 | 100.0 |
| **2009-2010** | | |
| Product | Acreage | % area |
| Imidan | 42,969 | 43.3 |
| Danitol | 19,029 | 19.2 |
| Mustang | 13,933 | 14.0 |
| Dimethoate | 10,351 | 10.4 |
| Sevin | 8,000 | 8.1 |
| Malathion | 4,758 | 4.8 |
| Agrimek | 184 | 0.2 |
| Total | 99,224 | 100.0 |

pyrethroids deactivate quickly at high temperatures, so they are better suited for the winter, whereas the OPs are most active during hot weather, allowing rates to be lowered. Danitol and Mustang have one-day PHIs (preharvest intervals), so they interfere minimally with harvesting operations compared to seven days for Imidan and Dimethoate. Depending on products used and distance to an air strip, applications with fixed winged aircraft may be done for as little as $10 per acre.

## ACP POPULATIONS

The average number of adult ACP sampled over all blocks in May 2009 was 0.64±0.14 adults per tap, a small increase over the pretreatment average of 0.40 ± 0.06 ACP per tap four months previously (Figure 3, page 8, green bars). In contrast, populations in untreated blocks jumped from 0.9 ± 0.10 to 15.1 ± 12.9 per tap over the same interval, a 17-fold increase (Figure 3, white bars). Even better results were seen in 2010, with the average of 0.19 ± 0.06 in May 2010 actually below the low pre-treatment average of 0.21 ± 0.03 ACP per tap (Figure 3, red bars). These are excellent results, considering that there was time for at least three generations of unimpeded psyllid reproduction beginning in late

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February with the first spring flush until evaluations in late May. Without dormant sprays, we would expect this reproduction to result in high populations such as was seen in the untreated blocks, with widespread movement of the disease a likely consequence. It is also worth noting the downward trend over the last two seasons (green bars vs. red bars), indicating area-wide decrease in overall psyllid populations.

## FUTURE PLANS

There is no doubt that cooperative dormant sprays have been a success in Southwest Florida and should be implemented in citrus statewide. However, calendar spraying throughout the year would not be a sustainable solution to the psyllid problem for various reasons: (1) psyllid nymphs and eggs are hard to control in young flush, (2) loss of beneficial insects and mites would likely result in outbreaks of secondary pests such as leafminers, scales and mites, and (3) the cost of calendar sprays would be excessive. Instead, we hope to organize area-wide scouting with the objective of tracking psyllid populations throughout the region, pinpointing problem areas, and assisting growers in making informed decisions on a block-by-block basis during the growing season. We are also investigating the feasibility of area-wide mass release of the parasitic wasp, *Tamarixia radiata,* to enhance biological control of this pest.

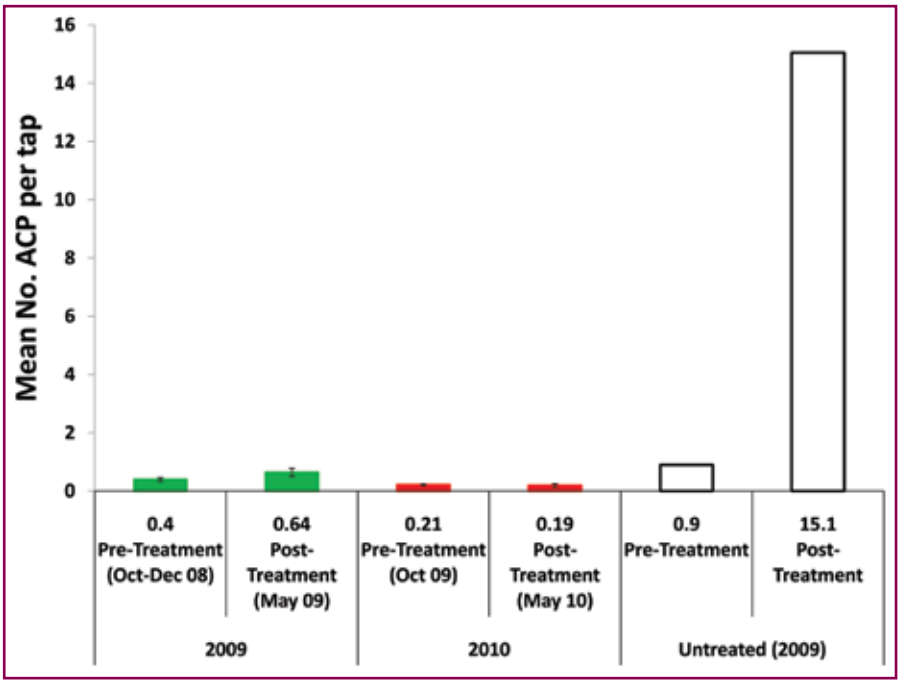


***Figure 3.*** *Overall populations of adult ACP during 2009 and 2010 in 240 and 248 treated blocks of citrus respectively and during 2009 in two untreated blocks.*

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*Phil Stansly and Alejandro Arevalo are with the UF-IFAS Southwest Florida Research and Education Center, Immokalee; Mongi Zekri is with the Hendry County Cooperative Extension Service.*

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Cell: 772-473-4142
**kelleragsales@aol.com**

**Luis Martinez**
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