

# In the Loop

“Keeping You Informed About the Research Process”

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## Low Volume Sprays Improve Psyllid Management

### The Story of 24(c) Labels, Particle Size Distribution, Area Wide Sprays and A Pesticide Application Tool

#### Introduction

The tremendous impact of greening disease on citrus has been well documented in Florida. Every grower, packer, harvester, and processor feels the effect daily. The very future of the industry is in doubt. Management strategies are limited; many growers practice a “seek and destroy” approach where scouting identifies infected trees which are then removed as soon after detection as possible. Lab testing verifies the accuracy of the scouts. Other growers are treating infected groves with the application of nutritional sprays and a number of “products” to keep the trees productive. The one practice all growers, who are concerned with greening, implement is management of the Asian citrus psyllid, the vector of greening disease.

#### Situation

Greening management costs are escalating daily and the impact of the disease results in reduced yields. A price squeeze exists that is further intensified by reduced returns from fruit sales. One of the significant management costs is psyllid control. Multiple sprays are required with the goal to kill every psyllid in order to keep greening from moving from tree to tree. In an effort to eliminate psyllids and reduce costs, growers tried low volume spray applications. Highly mobile sprayers that deliver relatively low volumes of spray mix proved to be successful. These somewhat modified mosquito foggers delivered 1 (one) to 10 (ten) gallons per acre and could cover many acres per hour. Extension agents became aware of the practice and the success growers were having, namely satisfactory control at greatly reduced costs.

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The next step in the process saw extension working closely with UF/IFAS researchers to evaluate the effectiveness of low volume sprays to control psyllids. Researchers at the University of Florida CREC confirmed what growers knew, low volume applications were extremely effective in killing psyllids.

## Label Dilemma

Growers immediately were caught in a difficult situation. It was clear that low volume sprays would play a major role in controlling psyllids, but there were almost no products with labels that allowed for low volume applications! Growers were in a no win situation; don't use the effective control method or violate the pesticide law. The answer was to obtain Special Local Needs (SLN) labels from the Florida Department of Agriculture (FDACS). This label is known as a 24(c) label.

The IR-4 program agreed to help with the process to obtain 24(c) labels. IR-4 is a nationwide program that assists minor crop producers secure needed pesticide labels. The program has close ties to EPA, researchers, pesticide manufacturers and commodity associations. IR-4 Headquarters is located at Rutgers University and the Southern Region is located at the University of Florida. Their involvement brought experience and contacts to the effort. For example IR-4 was able to obtain the protocol for collecting and processing residue data from EPA. They were able to determine from EPA that application rates of 2 gallons per acre (gpa) would not require a more detailed registration process. Basically, applications at rates lower than 2 gpa are considered ultra low volume with more stringent labeling requirements. It is important to note that citrus growers are using low volume mist applications not ULV fogging. IR-4 contracted the application and collection of samples of targeted insecticides, which were prioritized by the growers. They then did the laboratory analysis to determine residue levels and prepared a report with their findings. This was all done in a remarkably short time, a record for IR-4, not matched during the entire existence of this program. With greening, time is certainly critical – growers don't have much as the disease can move and work quickly.

In order to allow IR-4 to move citrus to the top of the list, money was needed for contractors, lab supplies, and other "extra" expenses. Enter the Florida Citrus Production Research Advisory Council (FCPRAC). They moved quickly to approve the request for funding the IR-4 effort. The \$180,000 grant would cover costs for 3 (three) products (Mustang, Micromite, and Delegate). Chemtura paid for the residue analyses for Micromite. The 24(c) effort continued to build momentum. FMC, Chemtura, and

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Dow put together first class packages for their products. In addition, Valent, the manufacturer of Danitol, decided to submit a 24(c) request for a low volume label as well. Valent used the protocol and other background work from IR-4. As soon as the “box tax” money was approved, the FDACS pesticide office was contacted and brought into the picture. They were extremely cooperative and pledged to move the process along as quickly as they could. The team continued to grow and momentum built.

The approval process required UF/IFAS Pesticide Information Office and Entomologists to perform reviews which they did in a timely manner. This is an example how complete cooperation was evident; just one slip in the process would result in untimely delays. Meanwhile the Greening Task Force was keeping up with the process and providing the leadership necessary to move the effort forward quickly.

## The Details

Pesticide manufacturers actually develop the “package” to submit to FDACS. This package contains efficacy data. For the low volume labels UF/IFAS provided excellent data that clearly demonstrated the products were effective. Residue information showed low volume applications did not result in excessive levels of the insecticides on fruit. It should be noted that all products in the 24(c) process were labeled for use on citrus, the new labels simply allowed for application rates as low as 2 gpa. Residue information was provided by IR-4. The SLN packages contained letters requesting the label with the “why” questions being addressed. All trade associations (Florida Citrus Mutual, Indian River Citrus League, Gulf Growers, Peace River CGA and Highlands CGA) were strongly behind the effort. The FCIRCC provided grower support letters for the effort.

In order for FDACS to issue a 24(c) label there needed to be “an enforceable statement” on the label. Since drift was a prime concern with low volume sprays, FDACS required language relative to the size of the spray particles. This is a new concept to citrus growers as all previous spray applications had no label language relative to particle size. FDACS required all manufacturers to have labels limit application rates to 2 gpa and higher AND a restriction on average particle size. Those knowledgeable with particle size commented that the 90u value FDACS has required is a very reasonable value. Once the details were worked out and some questions answered, FDACS issued 24(c) labels for the 4 products mentioned above (Danitol, Mustang, Delegate, and Micromite). In addition, FDACS responded to a request from the Greening Task Force to look at existing labels for Agri-Mek, Malathion, Dimethoate, and Sevin to see if they could be

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applied at low volume rates. A written response was provided indicating that all could be used in low volume (2 to 3 gpa) applications. Once again this was a most helpful action by FDACS to assist growers with the decision of which product to use for psyllid control. By having eight or nine products with different chemistries, growers can now make intelligent decisions based on pest levels, previous products used, price, exposure concerns, etc.

### Application Equipment

Florida citrus growers have very little experience with low volume applicators. Through some contacts with manufactures of mosquito application equipment, it was learned that the USDA-ARS had a research team stationed at College Station Texas that was very knowledgeable in the low volume and aerial application equipment area. These agricultural engineers had worked with the US Department of Navy to evaluate mosquito control applicators. A request was made to USDA-ARS in Washington to have the College Station staff work with Florida growers. The response was quick and extremely helpful. Two scientists from College Station were in Florida almost immediately after the request to assess the situation and offer assistance. Within two months the College Station unit conducted tests with various machines and most of the labeled products. They then brought their equipment from Texas to Florida and spent 2 (two) days in the field testing grower equipment and providing printouts on the particle size distribution. These data will be extremely valuable as growers and manufacturers will make modifications to assure that all sprayers meet the label requirement of mean particle size of 90u. This USDA assistance has been invaluable and is just another example of how this agency is willing to do all they can to assist the Florida citrus grower. USDA is another strong player on the team.

### Proactive Approach

Realizing that drift is a major concern with low volume spraying, the Greening Task Force asked the Florida Automated Weather Network (FAWN) staff to work on a pesticide application tool that would assist growers with the decision to send sprayers to the field. FAWN is now in the process of developing a tool that will use actual wind speed data from a specific tower and National Weather Service (NWS) forecasted wind speed to draw an actual and predicted trace of wind speed. The graph will be on a background of red, yellow and green to indicate when would be unacceptable, marginal or good time to spray. It is anticipated this tool will save many unnecessary trips to the grove. The graph page will have a place for the applicator to record actual wind speed

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and direction at the time of application, thus providing excellent records to show the grower followed label directions and was making a strong effort to keep the pesticide on target.

## Area Wide Spraying

The increased effort to control psyllids did not stop with low volume labels. Indian River Citrus League and Gulf Growers have been very active in organizing area wide sprays. It has been a challenge to secure grower participants for regional efforts and it appears the task of a statewide spray will be impossible. As a result of the efforts for regional sprays, UF/IFAS has conducted aerial trials to learn which materials are effective. Experimental Use Permits (EUP) have been obtained from FDACS. Once efficacy data is available, 24(c) labels will be sought for aerial applications, thus giving growers another option for control at even further cost savings. Florida Citrus Mutual worked hard to find funding to assist growers and there may still be some opportunities for cost sharing.

## Results of the Total Effort

- a. FDACS rules that 4 existing labels allow for low volume application
- b. Four products obtained 24c labels for low volume use – IR-4 leadership and FCPRAC dollars
- c. Two products obtain EUP for aerial studies (which are underway)
- d. Several large area sprays are applied due to efforts of IRCL and Gulf Growers
- e. Extension agents hold (and will hold) meetings to inform growers of value/technique of low volume application
- f. USDA-ARS engineers set up research trial to evaluate particle size distribution for various materials/sprayer combinations
- g. ARS and Extension agents held 2 (two) “rodeos” where growers brought their sprayers to have particle size distribution determined
- h. FCPRAC provides dollars for Extension agents to obtain equipment to measure particle size, this will allow on farm assistance to growers
- i. FAWN developing pesticide application tool to assist growers with decision to send sprayer into the field – tool shows potential for drift
- j. Reduced pesticide application costs of at least \$40 million per year!!

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## Conclusion

It was a strong team effort to accomplish the items listed above. Not only was it a challenge to obtain labels and all the other items, probably the most amazing part was the short time frame in which so much was accomplished. The only way the tremendous amount of work could be done in a relatively short time was to have many organizations and people committed to the effort. It is difficult to list everyone and each agency, company or association that made the effort a success. Please note all the various organizations listed above, each made a significant contribution.

To complete the story one needs to look at the grower's main objective with low volume spray applications, namely to reduce costs. With the opportunity to use low volume sprays, growers should be able to reduce application cost approximately \$25 per spray. Assuming most growers will use low volume an average of 4 times a year, a savings of \$100 per acre per year will result. A reasonable guess as to the number of acres under psyllid management would be 400,000 to even 500,000 making the annual savings for the Florida citrus grower at least \$40 million. The numbers could be even higher.

## Prologue

The body of this report mentions the key organizations involved with the project. However there were two key individuals that deserve special accolades. Bob Johnson, a private consultant and veteran researcher, made the spray applications and collected the fruit samples to be analyzed and was a source of information, suggestions, encouragement, and tireless energy. Jerry Newlin as Chairman of the Greening Task Force and member of the box tax council was the champion and cheerleader of the effort. The Florida citrus grower owes both a tremendous "thank you" for their effort with the entire program.

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