

Ornamental Research News

Central Florida Research and Education Center

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ENTOMOLOGY

Preliminary Method for Screening Silverleaf Whitefly Populations
for Resistance to imidacloprid (Marathon)

Dr. L.S. Osborne, Entomologist

Excessive use of pesticides, use patterns and growing conditions in the production of ornamental plants have been responsible for causing insect resistance to many pesticides.

There is a need to develop a simple and reliable method to screen populations of silverleaf whiteflies for their susceptibility to imidacloprid (Marathon) for use in a resistance management program.

Squash (*Cucurbita pepo*) is a preferred host for silverleaf whitefly, and the feeding of only a few immature whiteflies can result in the silvering of leaves on the infested plant. In an environment where whiteflies are present, we have determined that young silverleaf whiteflies do not survive on leaves of squash seedlings grown in 4-inch plastic pots and drenched with 25 ml of a solution containing 7.5 ppm imidacloprid (= 0.1875 mg/pot) and, therefore, the leaves will not turn silver. This indicates that the silverleaf whitefly is being controlled by this low rate and, thus, is susceptible to the pesticide. The labeled rate for this size pot is approximately 104mg/pot or 53 times greater.

Seedlings treated with less than 7.5 ppm will be fed upon by young silverleaf whiteflies and subsequently exhibit the characteristic silvering for which the whitefly is named. To date, we have only evaluated 3 populations of silverleaf whitefly with this method; however, we feel that treated and non-treated plants, when placed in a greenhouse where growers are having trouble achieving control with the granular formulation, can aid in determining if the whitefly population is susceptible to the compound thus, ruling out resistance. If the treated squash plants turn silver - indicating an increasing tolerance to imidacloprid - we will suggest that the grower use alternative control measures until we can evaluate the population more rigorously.

We also need to determine if seeds treated with imidacloprid will achieve results similar to those obtained with drenching. These studies are being conducted using 0, 5, 10, 20 and 40 ppm to obtain a discriminating dose. If we find that we can obtain results similar to the drench studies, we will begin to test our method in greenhouses throughout the state.

If you have a whitefly problem that is not responding to conventional pesticide treatments, telephone Lance Osborne at (407) 884-2034, or e-mail him at lso@icon.apk.ufl.edu

ON CENTER

Florida Foliage the Years Beyond 2000

Dr. C. A. Conover, Center Director

In 1963, when I started working with foliage plant producers, most production was in ground beds and total wholesale value was less than 10 million dollars annually. Since that time, the industry has made significant advances with almost all potted material eight inches in diameter or less grown in greenhouses on raised benches; at a present annual value of 300 million dollars. This wondrous growth has not been without difficulty. However, beyond the year 2000, the industry faces even more serious

challenges. I will present what I consider to be the "Top Four".

1. Markets

Assuming that demand for foliage plants continues to increase, one must ask "who will supply them?" At present, only Quarantine-37 prevents plants grown inexpensively elsewhere in the world from becoming a major threat in the marketplace. Since any relaxation of Quarantine-37 will be based on politics rather than hard research information about disease and insect pests, it becomes necessary for all producers to support strong lobbying efforts by industry. Only in this way will the market be dominated by U.S. companies rather than producers in other parts of the world.

2. Pest Control Strategies

Because ornamentals are a minor crop in the use of all types of pesticides, fewer and fewer pesticides will be developed and labeled for ornamentals. This trend will intensify as biological controls become more available and convenient to use. What this means for the industry is an absolute need to move toward almost total biological control systems and/or use of resistant cultivars. Problems of compliance with Worker Protection Standards (WPS), fewer pesticides and much higher pesticide costs will speed this trend.

3. Wastes/Hazardous Wastes

The disposal costs of solid wastes are increasing rapidly and will speed an increase in the percentage of recycling; however, the major problem for growers will be containment and disposal of fertilizer and pesticide wastes. I believe Best Management Practices (BMP's) are only the beginning of total regulation of fertilizer and pesticide wastes. This means that crops will have to be grown using recirculating systems where nothing is leached or released to the environment.

4. Production Systems

At some point beyond the year 2000, computerization of all aspects of foliage plant production will occur. This will require far fewer production employees, but many more computer and automation specialists. However, only in this manner will the industry remain competitive in the face of low cost imports that will eventually enter this country.

Although numerous other challenges may occur, only by solving these "top four" can the foliage industry remain viable into the next century.

To Scout Or Not To Scout

Liz Felter - Multi-County Commercial Horticulturist

For foliage producers to compete in the 21st century the only choice is to scout. Scouting is the routine monitoring of your crop for insect, disease and/or cultural problems. When problems are found, they are recorded and an integrated solution is implemented.

Compared to food crops, ornamentals are considered minor crops. Fewer and fewer pesticides are being developed and labeled for use on this category of plant material. As a result, biological controls, which are becoming readily available and convenient to apply, are leading the trend toward reduced pesticide use.

The ornamental plant industry needs to move toward an almost total biological control system including the use of resistant cultivars. Increasing pesticide costs, problems of compliance with Worker Protection Standards (WPS) and fewer labeled pesticides will speed up the use of biorational controls. Our industry can use all the good press it can get and the use of biological controls is one way to achieve that goal.

Scouting is a key to success. A successful scouting program can decrease the use of pesticides and ensure an effective biological control program. The motivation for these environmentally friendly changes is simply economic - it's just too costly to produce crops the old-fashioned way of calendar sprays and blanket applications of chemicals, but growers should not expect to see economic gains right away.

Spraying pesticides may no longer kill the targeted pests and will leave residues that wipe out predators. Therefore, until these residues are at tolerable levels, the predators can not establish themselves. A decrease in the use of pyrethroids and an increase in the use of water based soaps, oils and insect growth regulators will benefit this process. Neem-based products can be used immediately before releasing beneficial insects or mites into the nursery.

Once pesticide residues have disappeared, naturally occurring beneficials will start showing up on their own. Biological controls take time to work and total eradication will not and should not be expected to occur. Pest populations can be maintained at very low, acceptable numbers. The economic benefits will eventually come along; however, the environmental benefits start the day you begin scouting. If you are dedicated to scouting your nursery, you and the environment will benefit.

Start today by taking a lacewing larvae to lunch at the mealybug cafe.

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Ornamental Research News - Chris Fooshee, Editor
