

Ornamental Research News

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Seasonal Watch

Potential for Ethylene Damage Increases as Temperatures Drop

Dr. R.W. Henley, Extension Foliage Specialist

[This article was originally printed in the October, 1994 issue of Ornamental Research News. Due to the potential risks of ethylene damage and its effect on plant growth we present this information again. Ed.]

Each heating season, ethylene damages potted crops in a few greenhouses in central Florida. Unfortunately, many of the nurseries that have experienced toxic levels of ethylene in their greenhouses or tightly covered shadehouses have incurred extensive damage of sensitive crops. Damaged crops may be rendered unsalable due to loss of flowers or leaves or distortion of stems and leaves. In many of these cases, waiting for recovery through subsequent growth is not economically feasible. A very few crops may only be delayed due to partial defoliation or flower drop. Those that can quickly develop new foliage and flowers may recover sufficiently to prevent loss of the entire crop.

Ethylene a clear, odorless, unsaturated hydrocarbon gas is one of several by-products of incomplete combustion of fossil fuels (coal, oil and gas). Most ethylene phytotoxicity that occurs in central Florida greenhouses is due to malfunctioning forced-air heating units. Many malfunctions can be attributed to new equipment without adequate venting installed or heating units that have not been properly maintained. Although most unit heaters are installed with appropriate venting, every year several incidents of problems with new equipment are reported. The majority of the problems with new units

have been with portable heaters that were not vented. Such units should be used with some provision to allow outside air to the heater during its operation.

While improper maintenance can include a number of factors, the most frequent problem reported is deterioration of the burner units and heat exchangers. Incomplete fuel combustion can be estimated by looking at the burners during operation to determine the color of the flame. A blue flame indicates combustion is nearly complete while an orange flame is caused by a lack of oxygen that results in incomplete combustion. Do not wait until the day before a suspected freeze to check out your greenhouse heating system. Major flaws can be identified early and replacement parts obtained and installed before they are needed. Additional testing is desirable with the onset of the heating season as houses are winterized. Unless you are an expert on installation and maintenance of the greenhouse heating systems employed in your nursery, it is best to use the services of a reputable heating company, preferably one that has experience with greenhouses.

Extension Corner

What Is The Plant Diagnostic Clinic?

Liz Felter - Multi-County Commercial Horticulturist

The plant clinic is an opportunity for commercial growers to bring plants that don't look like they should, in for observation. Growers are encouraged to bring in sick plants for a possible diagnosis. We say possible diagnosis because, sometimes, diseases cannot be determined on site and need to be sent to a laboratory to be cultured and identified.

The plant clinic is a down-to-earth approach to trying to solve problems associated with disease, pest and cultural practices. Perhaps, we can help you. Feel free to stop by any Thursday from 1:00 to 3:30 pm at the Central Florida Research and Education Center, 2807 Binion Road, Apopka, FL 32703-8504. For further information contact Liz Felter at (407) 836-7570.

Entomology

Insecticide Resistance in *Liriomyza trifolii*, Diamondback Moth, and Silverleaf Whitefly

G.L. Leibe, Ph.D., Entomologist

[In last September's newsletter, I discussed accountability as it relates to UF/IFAS programs as viewed by the public and the legislature. We are now developing accountability statements by faculty that relate the value of their research and extension programs to industry and the public. The accountability

statement that follows is an example of our efforts to document and justify research. C.A. Conover, Center Director]

Insecticide resistance in *Liriomyza trifolii*, diamondback moth, and silverleaf whitefly has become a very important, limiting factor in the management of these insects in Florida. Collectively, insecticide resistance in these insects has, at one time or another, resulted in increased usage and over usage of insecticides, loss of yield statewide, reduction of production acreage statewide, reduction in the length of growing seasons, and increased cost of production for such crops as celery, potatoes, crucifers, tomatoes, poinsettias, hibiscus, woody and foliage ornamentals, and numerous other crops. The cost of insecticide resistance in vegetables and ornamentals in Florida is easily in the tens of millions of dollars. Insecticide resistance has resulted in permanent, and costly, changes in the culture of many of the aforementioned crops.

Insecticide resistance is a manageable, even preventable, phenomenon resulting from essentially a lack of consideration of the consequences of "conventional" methods of chemical pest control. Until longer term solutions exist, insecticides are still the most effective and efficient tools for insect control. Insecticide resistance can be prevented, or at least managed, by developing a knowledge base and a mechanism for implementing resistance-management programs, of which the most important component is education.

Support of research on chemical insect control and resistance management to preserve these valuable resources is a necessity to continue Florida's quality production of vegetables and ornamentals. Unless this research is encouraged through support from public and private sectors, we will plunge into the 21st century paying the costly price of insecticide resistance and never have the means to address the problem.

The measurable or potential impact in terms of social, economic, and/or environmental factors resulting from expenditure of research support funds on this project includes: reductions in cost of vegetable and ornamental production, cost reductions to consumers, increases in profitability, and increases in real and perceived safety in production methods and food supply. The reduction in insecticide usage alone, which will result in less environmental contamination and less conflict with urban dwellers, is also a major consideration.

For more information, contact Gary L. Leibe, CFREC-Sanford, 2700 East Celery Ave., Sanford FL 32771 (407) 330-6735 or FAX (407) 328-5575.

On Center

Open House A Success

Chris Fooshee, Editor

The 1995 CFREC-Apopka Open House, held on October 21, 1995, was a success. The Annual F.N.G.A. Nursery Tour provided over 100 attendees from 8:00 until 10:00 am and the session open to the general public from 10:00 am to 12:00 noon attracted nearly seventy people interested in the research work being performed here.

We extend our thanks to the Action Chapter of the F.N.G.A. for including us on this year's nursery tour and for providing hot coffee, muffins and fruit for the tour group, and to E.C. Geiger South, Inc. for providing coffee and soft drinks for the public session.

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