

Ornamental Research News

Central Florida Research and Education Center

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ORNAMENTAL RESEARCH NEWS

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SAFETY FIRST

A Glasshouse Safety Note

Dr. Dick Henley

During the weekend of March 30-31, 1996 strong localized wind storms occurred in the vicinity of the Central Florida Research and Education Center - Apopka. A combination of wind-blown debris and a loosened exhaust stack from one of the forced-air heaters managed to break several sections of roof glass in our low-profile, Dutch glass-covered greenhouses. Unlike the powerful hail storm of March 25, 1992 which broke all roof glass in the research center greenhouses, only seven sections were broken

during this most recent storm.

A notable difference was observed in the glass and damage which resulted from the two storms. The glass broken in 1992 was regular triple-strength glass. The dimensions of the roof glass in the Dutch houses was approximately 0.16 inch (4 mm) thick by 29 inches wide by 65 inches long. The weight of each piece of roof glass is approximately 28.3 pounds. Those who have had the opportunity to clean up the regular triple-strength roof glass, broken from above, will recall that many of the shards were long, curved and pointed. Some of the larger pieces weighed several pounds and simulated knives, slicing through plants, pots, plastic irrigation lines and puncturing some bench tops. It was indeed fortunate that the 1992 hail storm struck the Apopka-Orlando area during the evening hours after workers had gone home, otherwise many individuals could have been severely injured.

Following the 1992 hail storm, the Dutch glasshouses at this research center and many of the surrounding commercial glasshouses were reglazed with triple-strength tempered glass. When the 4mm-thick tempered glass broke during the recent storm, it shattered into many tiny fragments. The average fragment collected from the greenhouse floor weighed less than ½ gram—remember there are 454 grams in a pound. Many of the fragments were further fractured into smaller pieces which remained together. If all the fractured pieces were separated from one another, the weight of each piece would have been less than 0.1 gram. The accompanying photograph of the tempered glass shards shows its relative size. It is doubtful if anyone would be seriously cut from broken tempered glass falling from above. Managers must decide if they want to spend a little more for tempered glass for the side and end walls of their structures also. Many do not. Since tempered glass can not be cut to fit around heater vents and other fixtures which must pass through the greenhouse covering, it is necessary to have a small supply of regular triple-strength glass for those applications. While tempered glass costs approximately 25% more than regular triple strength, the safety value of utilizing tempered glass in glasshouse roofs should be evident and is worth the additional cost.

ENTOMOLOGY

Fungus Gnats and You
Dr. Lance Osborne

Fungus gnats have always been considered a pest in greenhouses and interiorscapes. This year has been particularly bad for some unexplained reason. I have averaged one or two phone calls a week asking me what to do about controlling flies in potted plant material. My first suggestion is for them to read the University of Florida publication Management of Fungus Gnats in Greenhouse Ornamentals (SS-ENY-912 [Extension Entomology Report #74]) by Jim Price, Don Short and Lance Osborne. This report is updated annually and describes the biology and gives a list of the registered pesticides for fungus gnat management. However, fungus gnats are not the only flies that can be found in significant numbers in greenhouses or interior landscapes. We also find flies in the families Psychoidae (moth flies),

Drosophilidae (vinegar or fruit flies), Ephydriidae (shore flies), and an amazing array of predatory flies. Fungus gnats are, in general, the most common and the only fly that can cause direct damage to plants. They also transmit plant diseases such as *Pythium* spp., *Phytophthora* spp., and *Fusarium* spp.. High numbers of adult flies result in many nuisance complaints by the public and workers. Most recently we received complaints that these flies were biting people in an office complex. Fungus gnats do not bite people; they don't have the mouth parts that would enable them to bite. It was also reported that this account would switch to silk plants if the fungus gnats were not eradicated. This caused significant concern in the industry because it occurred in one of the nations highest profile airports; an airport used to showcase Florida Ornamental Foliage Plants. Control of these insects can be difficult but not impossible. Water management is critical in controlling both fungus gnats and shore flies; however, the interior landscape is a particularly troublesome environment. Plants are often in self-watering containers, but they can receive additional moisture from office workers, customers, or the general public. In one installation, maintenance personnel pointed out coffee stains on the walls behind many plants. People were using the plants as a convenient place to dispose of their unwanted coffee. When the soil stays moist, the environment becomes very conducive for the development of fungus gnat populations. Secondly, many interior plant maintenance contracts require the pots be top dressed with bark nuggets. I feel that this material placed on a moist soil surface also contributes significantly to the gnat problem. In the airport setting I mentioned previously, I recommended the bark be removed from pots where gnats were causing problems. The soil surface was allowed to be exposed to the natural drying conditions of an air conditioned office. The maintenance personnel have reported that they have not observed any fungus gnats since. In accounts where the soil must be top dressed with decorative materials that may result in increased fungus gnat populations, we must develop new techniques to manage the problem. One suggestion, which makes sense but has never been critically evaluated, is to top dress the soil with a layer of fine sand. Sand is a deterrent to the laying of eggs by fungus gnat adults. It essentially provides a physical barrier between the adults and where they want to lay their eggs. Decorative moss, bark or other material could then be placed on top of the sand.

In addition to the many older materials that have been recommended for controlling fungus gnats (Knox Out, Oxamyl, Enstar II, Resmethrin, Gnatrol,...), new chemicals are available or soon will be. These include Citation 75 WP, Dimilin 25 WP and Precision 25 WP. All three materials are considered insect growth regulators. Therefore, they don't have much activity on the adults. If a rapid reduction in adult activity is required, they should not be your first choice.

Biological control is another option that has had success in a number of Florida greenhouses. The predominant control agent used would be the insect pathogenic nematodes. Nematodes are becoming widely accepted as a good alternative to pesticides. Beneficial nematodes do not attack plants. The infective stages are applied to the soil using standard spray equipment or through the irrigation system. The infective stages are then able to find and kill the fungus gnat larvae. As with any biological control agent, the end user must check the product for quality. In this case, you must inspect the material and determine if the nematodes are alive.

Some success has been obtained with a predatory mite called *Hypoaspis miles*. This predator lives in the soil and feeds on young stages of fungus gnats, some thrips and springtails. One generation takes about

10 days. The use of this mite is not recommended when populations are high or as a method to eliminate the population completely. When used properly, they keep populations low. The utility of using biological control on plants in situations other than commercial nurseries has not been critically evaluated but some successes have been reported.

EXTENSION CORNER

Business Strategies Seminars

Liz Felter - Multi-County Commercial Horticulturist

A series of interactive seminars with noted economist Karl Kepner, Ph.D. will be presented this fall by Linda Landrum, Volusia County Extension and Liz Felter, Orange County Extension. The four programs will discuss marketing, human resource management and financial decision making. The classes will be held in Pierson, Florida, on September 19, 26, October 3 and 10, 1996.

Watch your mail for the program announcement and register early since class size will be limited to 50 people. If you have any questions please call Linda Landrum at (904) 822-5778 or Liz Felter at (407) 836-7570.

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Hours 7:30 am until 4:00 pm, Monday thru Friday.

Grower Diagnostic Clinic - every Thursday 1:00 to 3:00 pm.

Ornamental Research News - Chris Fooshee, Editor
