

Ornamental Research News

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ENTOMOLOGY

Do You Have a Pest Scouting Program?

Dr. L.S. Osborne, Entomologist, Liz A. Felter, Multi-County
Extension Agent I, and Geri J. Cashion, Extension Agent II

Scouting is often talked about as the cornerstone of IPM (Integrated Pest Management) programs. Scouting is a very rigorous activity and requires a high degree of concentration. An individual can only scout for about three hours at a time before fatigue reduces the quality of work, but having someone look at your plants is critical in achieving good control and management of many plant pests. If a pesticide treatment is not followed by a close inspection of the treated plant material, it can only be assumed that the pests have died. This has always been a risky way to conduct business and in the future it will be an even greater risk. Problems with poor water quality, poor coverage, improper selection of active ingredient, frequency of application, and pesticide resistance all dictate close monitoring to determine if control has occurred. Secondly, many new techniques and pesticides require scouting programs. For example, the use of predatory mites to control spider mites is of little value unless the system is monitored to detect whether or not the spider mites are reaching unsatisfactory levels. These levels are arbitrary, but often are set very low. Without a scouting program, failure is imminent.

Many new pesticides are being developed which fall into a class of compounds called growth regulators. These materials are not, by nature, quick acting like the many nerve poisons on which we have learned to rely. Growth regulators are effective, but the effects of an application can be quite deceiving. To the untrained eye these pesticides may not appear to be working, but a trained scout could determine if the target pests have been affected.

The problem we are facing is a lack of adequately trained personnel to conduct the scouting needed to

make pest management programs efficient. It appears that many nurseries in Florida are not using someone to regularly perform scouting tasks, or if they do, they will often assign these duties to an employee responsible for so many other tasks that scouting isn't done on a regular basis. These employees are too frequently asked to put their scouting tasks on hold and attend to other duties. Finally, both training and implementation are inadequate to achieve a good pest management program.

To deal with what we perceive as a critical limiting factor to the development of sound pest management programs in Florida ornamental nurseries, we are proposing a scout training program. This course will emphasize how to detect and identify insects and mites and how various pesticides work and manifest their activities. However, students will not be qualified to make pesticide recommendations based on the content of this course, nor will we teach students how to identify fungi, bacteria or nematodes, but rather we will show them how to collect samples for tissue, disease and nematode analysis to obtain the proper identification from competent laboratories.

Our initial attempts to train scouts will be limited to about 10 participants. We would like to conduct a course that lasts no more than 20 hours and includes both classroom and field training. The initial course will be conducted at the University of Florida's Central Florida Research and Education Center in Apopka and at participating local nurseries.

We envision these scouts as part of a highly trained work force who could be certified as Professional Scouts and who would be required to regularly attend continuing education programs.

Students would be subject to certain stipulations:

- 1. Each participant must have a company willing to hire him or her once the course is finished.
- 2. If currently employed by a nursery, we request that the student be required to scout a minimum number of hours per week.
- 3. All students must then be allowed to give feedback on scouting experiences and critique our training.

Little equipment will be required. Bryan Nelson of Ciba-Geigy Corporation will donate hand lenses to the program, and these will be given to the students. Books and other reference materials, most at a cost of less than \$10.00 each, are available but not required.

The dilemma we face is obtaining potential students Are you interested in becoming or sending someone to become a scout trainee? If so, please contact one of the authors:

Lance Osborne (407) 884-2034,

Liz Felter (407) 836-7570, or

Geri Cashion (813) 722-4524.

PLANT BREEDING

The Freedom of Plant Breeding

Dr. R.J. Henny, Geneticist

If the sole compensation of plant breeding were based on developing one perfect variety, this would be a career with few rewards. Other sources of gratification must, and do, exist along the long road to variety development. Plant breeding offers one immeasurable gift the gift of freedom. That is, freedom to be creative. As long as variation exists between two plants, either visible or hidden in the genes, there is potential for creativity.

Seeing the first visible variation between hybrids is an indescribable high. Creative thoughts and hopes run wild! Variation may be limited in the first generation, but will usually increase in the second. This is when breeding goals may begin to be realized.

The little breakthroughs that occur in the breeding process itself are exciting, and often ground breaking in their contribution to the body of horticultural knowledge. For example, finding fertile flowers and making the first successful pollinations in an unexplored genus is a source of much satisfaction. Harvesting the first mature seeds and seeing them germinate are other exciting steps.

Cost and time requirements of breeding programs discourage participation by many who might otherwise be interested; however, breeding programs need not be excessively large and/or expensive. Growing 200 300 seedlings in one untapped genus per year may pay off richly.

Remember, the genetic potential of a plant is not always reflected in its outward appearance. The genes that are carried inside are what make a good parent. In many ornamental plants, this can only be learned by experience, since little information is published on the inheritance of important traits. A seedling is not an end in itself, but rather a step to something we hope is better. Undesirable hybrids tell as much about the plants we study as do the winners.

Breeding acquaints us with a genus, inside and out. The knowledge it yields is unique among all the specialty areas in horticulture. So, look at the plants you grow with breeders' eyes, pick a genus and observe the unique characteristics of different cultivars. Make some crosses and begin to feel the freedom of creation through plant breeding.

PLANT PATHOLOGY

Rain and Bacterial Diseases

Dr. D.J. Norman, Plant Pathologist

Hurricane season, well underway in Florida, produces regular episodes of moist air and heavy rain which, accompanied by warm temperatures, promotes rapid multiplication of most pathogenic bacteria that infect ornamental foliage crops. Infected plants exude bacteria from their stomata, hydathodes, or from open wounds. The primary mechanism by which these bacteria move in uncovered or shadehouse nurseries is in flowing water. Bacteria are passively carried along as water moves through the nursery and are splashed by rain or sprinkler irrigation onto the surfaces of uninfected plants. Bacteria can also become airborne in aerosols and can then be carried by wind throughout the nursery.

All of the major bacterial pathogens infecting foliage crops have delicate, thin, threadlike flagella (tails) which help the bacteria move short distances, but are not responsible for long distance movement. Bacteria use their flagella to locate wounds or natural plant openings through which they enter and infect. *Pseudomonas*, *Xanthomonas*, and *Agrobacterium* usually have from one to four of these flagella. Flagella in the genus *Erwinia* (which cause soft-rots) may cover the entire cell surface.

Few effective measures have been developed for controlling bacterial diseases that infect foliage plants. Historically, compounds containing copper have given the best results, but these compounds can retard growth, may produce a phytotoxic response, and some may leave residue on foliage. Antibiotics, such as streptomycin and oxytetracycline, can be applied as foliar sprays; however, they are relatively expensive and are usually only effective for a few months, until bacterial populations become resistant.

Prevention and disease management are the two best ways of controlling bacterial diseases. Since disease management is not always successful, the following guidelines should be followed:

- 1) purchase clean stock;
- 2) dip tools in a disinfectant;
- 3) remove plants that show symptoms; and
- 4) place plants on benches or at least a few inches off the ground to significantly reduce disease spread by water.

CFREC-Apopka OPEN HOUSE
October 21, 1995
8:00-10:00 am FNGA Nursery Tour
10:00-12:00 noon General Public
Call (407) 884-2034 for details.

Central Florida Research and Education Center
2807 Binion Road, Apopka, Florida 32703
Telephone 407/884-2034 - Fax 904/392-9359
Hours 7:30 am until 4:00 pm, Monday thru Friday.
Grower Diagnostic Clinic - every Thursday 1:00 to 3:00 pm.

