

# Ornamental Research News

Central Florida Research and Education Center

Volume 2, No. 2

February 1995

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## Flowering Spathiphyllum Naturally vs. Forcing with GA3

Plant Breeding  
Dr. R.J. Henny, Geneticist

The ability to 'force' spathiphyllum to bloom using foliar sprays of gibberellic acid (GA3) has made it possible to have a continual supply of blooming plants for sale. GA3-treatment is quite reliable and allows growers to program their crops throughout the year. Treated plants typically flower within 9-12 weeks, depending upon time of year or cultivar. However, it should be considered that chemicals are not only expensive, but their use will become more restricted as environmental regulations tighten. Therefore, other means are needed to provide a continuous supply of blooming plants.

In addition, there are side effects to the plants from using GA3 to induce flowering. Treated spathiphyllum plants may have a leggy look due to increased petiole length and narrower leaves. Peduncle (flower stalk) lengths also may increase and some flowers will be distorted. Plants that have bloomed heavily following GA3-treatment will be stunted in later growth compared to untreated plants. The extent of these adverse effects may vary among cultivars.

An alternative to use of GA3-treatment for blooming spathiphyllum is to develop cultivars, through breeding, that have longer natural flowering cycles. Production of natural blooms on spathiphyllum is lowest during the fall months (September through December). A flower requires approximately three months to mature once it is initiated in the shoot apex. This means that flower initiation is diminished from June through September, the longest days of the year. Spathiphyllum flower naturally during the spring, about three months after the shortest days of the year. Apparently, daylength has an effect on flower initiation for spathiphyllum. It is possible that spathiphyllum, being tropical in origin, are sensitive to relatively small changes in photoperiod.

Development of spathiphyllum cultivars that flower naturally throughout the year would be desirable to reduce the need for chemical application. One goal of our breeding program is to develop spathiphyllum hybrids that have such an extended natural flowering cycle. In reality, we may be selecting for plants

that are insensitive to daylength.

Next month: Part 2 - Increasing natural flowering cycles through selection.

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## **Experiment for Better Disease Control**

Plant Pathology

Dr. J.O. Strandberg, Plant Pathologist

Most agriculturists will try a new product or evaluate a new practice, but are frequently uncertain whether the results are good, bad, or of no consequence. Unfortunately, many effective disease-control products and practices receive an unsatisfactory evaluation because good experimental methods are not used to evaluate them. Growers should not be reluctant to experiment with production factors, including pest control, if they take the time to understand the problem to be solved and carefully plan the experiment, keeping a few basic principles of experimental design in mind.

Correctly identifying the problem can be the most difficult aspect of developing an experimental approach. This is particularly true for disease-causing organisms which should be professionally diagnosed to assure proper identification. This has become more crucial in recent years because many modern (and expensive) fungicides and disease management practices are highly specific for the fungi they can control. Likewise, many fungicides, regardless of price, are only effective when used with good disease management practices.

Understanding the problem can also establish realistic expectations. If finding a critical solution where none yet exists, improving efficiency, reliability, and reducing costs are the goals, it must be remembered that the complexity of the experiment will increase as each of these factors is considered. Therefore, an experimental plan, including the criteria for evaluating results, is needed before starting the experiment. For help in planning or evaluating the results of your experiment don't hesitate to contact university extension or research personnel.

Useful experiments are usually repeated to allow for effects of uncontrolled factors such as weather, irrigation, location, cultivar, or disease. It is also essential to apply the treatment to more than one experimental unit (greenhouse, bench, group of pots, etc.). One must also consider applying the treatment to different-aged plants in different seasons as well. Ideally, experimental units should be small, as similar as possible, and well separated. Also essential are untreated experimental units that receive no treatment or a treatment whose effects are well known to serve as benchmarks for evaluating experimental results. It is also a good idea to begin with small trials to work out the details of the test. Even well planned experiments can have unexpected outcomes.

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## Spotlight on Plant Breeding

On Center

C.A. Conover, Center Director

CFREC plant breeder, Dr. Jake Henny, has developed and released to the foliage plant industry, a total of eleven cultivars. *Dieffenbachia* 'Triumph', 'Victory', and 'Tropic Star' were among the first releases from the breeding program. Others include *Aglaonema* 'Stripes', 'Silver Bay', and 'Flamingo' as well as *Anthurium* 'Southern Blush'.

About three years ago, we concluded that state funding was inadequate to maintain a viable breeding program and all future cultivars should be patented to generate royalties to support research. To date, two dieffenbachia cultivars, 'Sparkles' and 'Star Bright' as well as two unnamed anthurium cultivars are being patented.

Most of the early work in the breeding program was with genera that were members of the family Araceae, commonly called aroids. However, during the past two years, the breeding program has expanded to include several new genera of woody ornamentals and flowering plants. Some woody ornamental genera under study include *Myrica rubra*, *Photinia* and *Feijoa* (a dooryard fruit and ornamental). Flowering plants under study include *Clitoria* (blue pea), *Barleria* (Philippine violet), *Dombeya*, *Hosta*, *Malvaviscus*, *Milletia*, *Tradescantia* (spiderwort), and *Lantana*.

Much of the work being carried out on some non-traditional foliage/flowering plants is being performed by the Research Gardeners working with Dr. Henny. As mentioned in previous articles, our Research Gardener program was modeled after the county cooperative extension service's Master Gardener program. Our program consists of volunteers trained in the fundamentals of research by the faculty at the CFREC and assigned to work with a specific faculty member.

Some of Dr. Henny's research goals include development and evaluation of hybrids as well as propagation and growth studies. Such tests will include the screening of growth regulators and use of different fertilization regimes to optimize the growth and appearance of species and varieties that may have been overlooked in the past.

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## Plant Pathology Faculty Update

Personnel

C.A. Conover, Center Director

Most of you are well aware by now that Dr. Ann Chase retired from UF last February in order to start

her own business, "Chase Research Gardens" in California. After receiving authorization to fill the position left vacant by her retirement, a nationwide search concluded in December with the hiring of Dr. David J. Norman.

Dr. Norman's educational background and experience are what we feel is needed to solve the disease problems facing the foliage and cut foliage industries. Dr. Norman has a strong background in biology, chemistry and microbiology. He has a Master of Science in horticulture, a Ph.D. in plant pathology from the University of Hawaii and excellent experience working with plants and diseases common to our industries. Most recently, Dr. Norman has been employed in a post-doctorate position with the University of Hawaii Research Corporation in the area of biological control of weeds.

Present plans are for Dr. Norman to start working at the CFREC around the first of March. Once he has arrived, we plan to visit many local nurseries so he can begin to get acquainted with the industry in Florida.

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Central Florida Research and Education Center  
2807 Binion Road, Apopka, Florida 32703  
Telephone (407)884-2034-Fax (904)392-9359  
Office Hours 7:30 am until 4:00 pm, Monday thru Friday.  
Grower Diagnostic Clinic - Thursdays 1:00 to 3:00pm.  
Ornamental Research News - Chris Fooshee, Editor  
e-mail ([WCF@ifas.ufl.edu](mailto:WCF@ifas.ufl.edu))

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