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ON CENTER

Dr. Charles A. Conover Retires

Charles A. Conover, Professor of Environmental Horticulture and Director of the UF Central Florida

Research and Education Center (Apopka, Leesburg and Sanford), retired June 27, 1996.

A native of New Jersey, Dr. Conover received his B.S. and M.S. in ornamental horticulture from the University of Florida and a Ph.D. in plant science from the University of Georgia.

At this research center, he was responsible for administration of the only research unit in the United States devoted to foliage plants and cut foliage crops. The Center's purpose is to provide production information for the commercial industry as well as consumer advice on plant growth and use under interior conditions.

Dr. Conover developed a system of acclimatization which produces plants that are better adapted to being moved to interiors. His research was also extensive in the areas of shipping, potting mixtures, light, and nutrition. He has published over 1,000 papers on floricultural research and plant care, most of which are on foliage plants. Dr. Conover has lectured throughout the United States on state and industry-supported short courses, and has traveled extensively in tropical America and Europe.

Prior to assuming the directorship of the research center in 1970, Dr. Conover was Florida's state-wide floriculture extension specialist. In that position, he was editor for seven years of the Florida Flower Grower and the Florida Foliage Grower. He has co- authored the textbooks Foliage Plant Production and Introduction to Floriculture, contributed the foliage chapter in the 14th edition of the Ball Red Book as well as co-authored A Professional Guide to Green Plants published by FTD and The Greenhouse plant card series published by Western Publishing Company.

After 33 years of dedicated service to University of Florida and the Florida foliage industry, his presence and leadership will truly be missed.

HORTICULTURE

Factors Affecting the Efficiency of Overhead Irrigation:
The Rest of the Story

Richard Beeson, Ph.D., Horticulturist

This article concludes a discussion started in March 1995 and continued in June 1996, indicating where efficiency of applied water is lost in overhead irrigation. The factors remaining to be discussed are sprinkler type, wind and time of application.

Sprinkler type can and should be factored into the design and installation of an overhead irrigation system. By including sprinkler specifications, a high degree of uniformity in water distribution (May 1996) can be obtained. However, even with good uniformity, sprinkler type affects irrigation efficiency

through its influence on droplet size and droplet momentum (January 1996). In dense plant canopies, a 1990 study found off-center rotary heads produced greater canopy penetration, and therefore greater efficiency, than common impact sprinkler heads. Other types of sprinkler heads are commonly used in the industry and new ones have recently been introduced. The effectiveness of these new sprinkler heads and other types of sprinklers in penetrating plant canopies (May 1995), as well as their associated influence on irrigation efficiency, is unknown but should be considered.

Wind is the most haphazard factor affecting irrigation efficiency. With its random intensity, installing systems designed to counter wind deflection of overhead irrigation can result in significant waste of water when wind intensity is less than that for which the system was designed. By the same token, irrigating to saturate plants on the windward side with a system designed for windless conditions over-irrigates those plants on the downwind side. Because wind is normally not factored into irrigation system designs, managers should determine which areas are most prone to windy conditions and try to irrigate these areas during the evening to early morning hours when winds are generally calm.

The time of application of overhead irrigation received a great deal of attention in the early 1990s, resulting in the imposition of overhead irrigation restrictions from midmorning to late afternoon. Frequently up to 60% losses of overhead irrigated water were quoted. However, in 1994, specialists in the Agricultural Engineering Department at UF calculated that losses of overhead irrigation through evaporation of droplets exiting sprinkler heads in Florida in the worst case scenario would be 3% or less. Evaporation of water from wetted plant surfaces would exceed plant transpiration under the same conditions. Yet, for most landscape ornamentals, this evaporation loss appears to be only 25% more than well-watered plants would normally transpire during the half- hour to hour-and-a-half that the leaves are drying off. Since plant surfaces actually would retain relatively little of the irrigated water, loss of efficiency with midday irrigation is likely to be small compared to container spacing and canopy shedding.

RESEARCH REPORT

Bedding Plants for the Interior

C.A. Conover, Ph.D. & L.N. Satterthwaite

Foliage plants usually dominate interior plantscapes because they can adjust to the light levels, temperatures and humidity without marked loss of quality. Interiorscapers typically use flowering plants to provide accents to foliage plants; however, only a few flowering plants are available that will last indoors. Using short-lived blooming plants in interiorscapes can provide much needed color accents, but creates a labor-intensive situation because either the unattractive blooms must be removed from the plants or entire plants must be replaced to maintain an appealing setting. If bedding plants could be found that survive indoors for periods of time equal to or greater than the commonly used flowering

plants, they could also be used as color accents at lower cost than most of the commonly used potted flowering plants.

With this in mind, a research project was conducted to determine whether or not certain bedding plants have potential to serve as short-term color accents in interior landscapes. After approximately three years, data on several groups of bedding plants indicate that there is potential for their use in interiors.

The research was organized to determine the nutritional levels needed to produce high quality bedding plants with potential for interior longevity. Cultivars of Ageratum, Antirhinnum (snapdragon), Begonia, Celosia, Coleus, Dahlia, Dianthus, Helianthus (sunflower), Hypoestes, Impatiens, Salvia, Tagetes (marigold), Torenia, and Zinnia were tested.

During the production phase, the maximum light intensities ranged from 4500 to 6500 ft-candles (ft-c). The bedding plants, in 4-inch pots, were fertilized with 14-14-14 Osmocote at either 0.04, 0.05, 0.07 or 0.09 oz. per pot. When the crop was considered ready for market," the plants were moved into simulated interior environments where light intensities were either 75, 150, 225 or 300 ft-c (12 hours/day) from cool-white fluorescent lamps. Plant quality, growth, flower number, and other responses were recorded at three-week intervals. Those cultivars that maintained satisfactory quality for three or more weeks under 150 ft-c were considered promising. In addition, shipping trials (duration and/or temperature) were conducted on many of the genera.

In general, the results showed that longevity in an interior can be increased by using low fertilizer rates during production and high light intensities in the subsequent interior setting. Low to moderate levels of fertilizer (0.04 oz to 0.05 oz per 4-inch pot) produce the best plants for indoor use. Light intensities of at least 150 ft-c will increase the longevity of most plants, although some can last for three or more weeks under 75 ft-c. In most cases, shipping plants under temperatures ranging from 55 to 75°F for up to four days, made little or no difference in interior longevity.

Several of the plants tested showed potential for indoor use, while a number were not considered to be of value in an interior because they did not exhibit a satisfactory quality, or were only marginally acceptable after three weeks under the light intensities tested.

The bedding plants we tested will not replace foliage plants in interiors, but what they can do is provide color accents that are different from those commonly used. In addition, bedding plants can remind people of spring and summer, which could be beneficial during the winter. Use of bedding plants in small mass plantings as color accents could serve best in malls and other large commercial plantings. In these locations, the necessary light levels will be present and since bedding plants can tolerate cool temperatures, mall temperatures may be conducive to increased longevity.

These findings show that there are bedding plants that have potential for use in interiors. This knowledge should allow alternatives for color in interiors and open new markets for bedding plant producers.

For more detailed information on this study, which includes the cultivar names of the plants tested, see: Bedding Plants for Interiors, CFREC-Apopka Research Report RH-96-3, by C.A. Conover and L.N. Satterthwaite.

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