

Hawaii Cooperative Extension Service

HORTICULTURE

HITAHR · College of Tropical Agriculture and Human Resources
U. S. Department of Agriculture Cooperating



DIGEST

Department of Horticulture
University of Hawaii at Manoa

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What are the most common complaints of workers about their bosses? In a recent survey of several thousand employees, the top ten were:

- Arbitrariness
- Arrogance
- Failure to show appreciation or give credit
- Failure to see the other person's point of view
- Failure to size up employees correctly
- Lack of leadership
- Lack of frankness and sincerity
- Failure to delegate responsibility
- Indecision
- Bias—letting emotions rule reason

Also mentioned were: lack of courtesy, sarcasm, jealousy, nervousness, and frequent loss of temper.

Pacific Coast Nurseryman and
Garden Supply Dealer

THE EFFECT OF SHADE LEVELS ON SPATHE COLOR OF *ANTHURIUM ANDRAENUM* 'MARIAN SEEFURTH' AND 'ANUENUE'

Unlike deeply colored anthuriums such as the reds and oranges, spathes of pastel colors have a tendency to fade rapidly. Depending on the degree of color loss, a flower may be downgraded in quality or, if very severe, may be

rendered unmarketable. Because this rapid color loss is influenced by light under which the plants are grown, this experiment was undertaken to determine the proper shade level for good color retention of two pastel-colored cultivars, 'Marian Seefurth', a pink, and 'Anuenue', a coral obake, at the Magoon facility of the University of Hawaii, Manoa. In addition, the effect of shade levels on yield and flower stem length was studied.

The saran shade levels tested were 63, 73, 80, 83, 88, and 91%. A layer of 55% shade cloth was installed under the permanent installations of 63, 73, and 80% shade cloths to obtain 83, 88, and 91% shade levels, respectively. For each cultivar, 6 mature single-stemmed plants of similar height were grown under each shade level. Flowers were harvested when the spadix color had changed from yellow to white along two-thirds to three-fourths of its length. At the time of harvest, flower stems were measured and spathes were classified as being either faded or not faded. A spathe was considered as being faded when an obvious loss in color and glossiness made the spathe appear old. A spathe slightly light in color but still retaining a fresh appearance was not classified as being faded. The results of a two-year period are presented.

The minimum shade levels under which no faded spathe was obtained were 91% shade for both cultivars during summer and 73 and 63% shades for 'Marian Seefurth' and 'Anuenue', respectively, during winter (Table 1 and 2). The general trend showed that faded spathes increased with decreasing shade levels. With 'Anuenue', the green areas of the spathes were also lighter in color with decreasing shade levels; this portion on some severely affected spathes appeared white.

The light intensities on a cloudless day at noon were approximately 1400 foot-candles

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Table 1. Effect of shade levels on yield, fading of spathes and flower stem length of *Anthurium andraeanum* 'Marian Seefurth' during summer and winter¹.

Shade level, %	Summer			Winter		
	Flowers per plant	Faded spathes, %	Stem length, cm	Flowers per plant	Faded spathes, %	Stem length, cm
63	3.0	94.4	68.3a ²	1.8	9.1	69.1a,b
73	2.8	69.7	75.7c,d	2.3	0.0	78.2c
80	2.9	71.4	70.4a,b	1.7	0.0	74.2b,c
83	2.6	67.7	72.4b,c	2.0	0.0	67.6a
88	2.6	16.1	75.7c,d	1.9	0.0	78.2c
91	2.5	0.0	72.4b,c	1.9	0.0	68.1a,b

¹Summer - Jun.-Sept., incl., Winter - Dec.-Mar., incl.

²Means not having the same letter within columns are significantly different at 5% level, Duncan's multiple range test.

Table 2. Effects of shade levels on yield, fading of spathes and flower stem length of *Anthurium andraeanum* 'Anuenue' during summer and winter¹.

Shade level, %	Summer			Winter		
	Flowers per plant	Faded spathes, %	Stem length, cm	Flowers per plant	Faded spathes, %	Stem length, cm
63	2.3	67.9	59.4a ²	1.8	0.0	60.4a
73	2.3	53.6	64.0a,b	1.8	0.0	66.8b
80	2.3	10.7	66.5c	1.7	0.0	67.3b
83	2.2	34.6	64.8a,b	1.8	0.0	66.8b
88	2.3	21.4	67.3b,c	1.8	0.0	68.8b
91	2.2	0.0	68.6c	1.5	0.0	65.8a,b

¹Summer - Jun.-Sept., incl.; Winter - Dec.-Mar., incl.

²Means not having the same letter within columns are significantly different at 5% level, Duncan's multiple range test.

under 91% shade during summer and 4000 foot-candles under 73% shade during winter. Because of this difference in light intensities which prevented fading, indications are that the total light energy to which the spathes are exposed is an important factor influencing fading. During winter, spathes can be exposed to higher light intensities without fading because of shorter exposure period (shorter daylength) while, during summer, lower light intensities are needed due to longer exposure (longer daylength).

The flower yield under the different shade levels during the same season showed no statistically significant difference for either cultivars (Table 1 and 2). However, comparison between summer and winter yields showed yields were

significantly higher during summer for each cultivar. The average yields for 'Marian Seefurth' were 2.7 and 1.9 flowers/plant and for 'Anuenue' 2.3 and 1.7 flowers/plant during summer and winter, respectively.

Significant differences in flower stem length were obtained under the different shade levels for both cultivars (Table 1 and 2). However, these differences in stem length did not affect the flower quality because all stems were at least 2½ times its spathe size. Stem length did not continue to increase with progressively more shade as expected but instead seemed to have reached a maximum at 73-80% shade levels.

During the winter, an undesirable quality was noticed at the higher shade levels with flowers of 'Marian Seefurth'. Possibly because

of low light intensity and short day length, 16.7 and 21.7% of the flower stems were weak and very crooked under 88 and 91% shade, respectively. Stems of 'Anuenue' were sturdy and upright under these shades during winter.

In conclusion, good spathe color was retained for both pastel-colored cultivars only under shade level of 91% during the summer and at all shade levels with the exception of 63% for 'Marian Seefurth' during winter. Yields did not differ significantly between shade levels during a season for both cultivars. Flower stems of each cultivar were of sufficient length under all shade levels during both seasons; however, stems of some 'Marian Seefurth' flowers were noticeably weak and crooked under 88 and 91% shades during winter. Therefore, a practical application, in this case, would be to install permanently an 80% shade to provide sufficient light during the winter for straight and sturdy flower stems and temporarily add 55% shade over or under the 80% shade during late March to early November to decrease the light intensity sufficiently for color retention of pastel anthuriums during summer. The proper shade levels for winter and summer for other localities in Hawaii may differ slightly from this, depending on the light intensities during these periods.

John T. Kunisaki
Assistant Horticulturist

AVAILABLE PUBLICATIONS

Banana Borer

This publication, *The Banana Root Borer, A New Pest* (Ent. Notes No. 11) by Dr. Ronald F. L. Mau, Extension Entomologist, outlines the characteristics, life cycle and control measures for this serious, new insect pest introduction.

Fading in Vanda Flowers

Studies to reduce the fading of vanda orchids shipped overseas are reported in Res. Ser. 007, *Controlling Premature Fading in Vanda Miss Joaquin Flowers with Potassium Permanganate*, by E. K. Akamine and T. Goo. The potassium permanganate treatments proved effective for preventing or delaying the fading of normal vanda flowers.

Dieffenbachia Rot

HITAHR Brief No. 010, *Dieffenbachia Cane Rot Complex*, by M. Aragaki and J. Y. Uchida reports research progress on this serious production problem. Information is included on the

organisms involved, symptoms and dissemination of the disease along with control measures.

Dendrobium Conference

The proceedings of the Commercial Dendrobium Growers Conference is published in Res. Ext. Series 013 of the College of Tropical Agriculture and Human Resources. This publication presents information on insect and mite control, weed control, structures and general culture of producing dendrobiums commercially.

Agriculture Cooperatives

Research Bulletin 193, *Structure, conduct and performance of Cooperative Associations in Hawaii, 1977*, by Heinz Spielmann and Jack T. Ishida provide current information on Hawaii's diversified agricultural cooperatives. The report includes a short discussion of recent changes in cooperative associations in the United States, a brief historical account of cooperatives in Hawaii and a report of findings of a recent survey.

Copies of these publications may be obtained from your local County Extension Office or by writing to the Publication and Information Office, Rm. 107, Krauss Hall, 2500 Dole St., University of Hawaii, Honolulu, HI 96822.

GUINNESS BOOK OF WORLD RECORDS

The publishers of the Guinness Book of World Records, Sterling Publishing Co., Inc., Two Park Avenue, New York, NY 10016, have announced that they wish to expand and improve the horticulture section of the book. They are seeking record claims for gigantic fruits, flowers, plants and vegetables. Very few tropical plants are even included in the current listings, so this presents an excellent opportunity to become a Guinness record holder.

All submissions must be verified and authenticated. The standards for this are as follows:

1. All submissions must be accompanied by unbiased witness verification. All testimonies must be notarized.
2. Submissions must be accompanied by photographs, either black and white or color—preferably both.
3. All submissions must include pertinent data, i.e., weight and height. If available, growing specifications would be useful and interesting for our readers.

Fred D. Rauch
Horticulture Specialist

PROPAGATION OF *PLEOMELE REFLEXA* 'SONG OF INDIA'

Terminal cuttings of *Pleomele reflexa* 'Song of India' were tested under intermittent mist for best rooting response to 6 hormone treatments, 4 media and heating of beds. IBA treatment gave significantly better rooting than NAA, IAA, Rootone F, SNA, or no hormone; rooting response to 500 ppm IBA was the best of the range from 0 to 3,000 ppm IBA tested. Rooting in vermiculite or volcanic black cinder was significantly better than in perlite or peat moss. Heated beds gave significantly better rooting in winter months than did untreated beds. Heated beds were held at 24°-32°C (75°-89°F) and unheated beds were recorded at 16°-21°C (60°-70°F). 100% rooting of *Pleomele reflexa* can be obtained consistently if terminal cuttings are treated with 500 ppm IBA, placed under intermittent mist in either vermiculite or black cinder media and with beds heated during winter months.

Tadashi Higaki, Horticulturist
Joanne Imamura, Research Assistant

NURSERY NOTES

Edema

Edema is a problem found on many plants such as geraniums and peperomia. It is a pimple-like blister or small corky area on the underside of the leaves. It occurs during periods of cold, cloudy weather. It is thought to be caused by the plant taking on water faster than it can be given off through the leaf openings and the leaf cells rupture forming the pimple-like blisters. You can combat this problem by using a well-drained soil mix, provide air circulation and cut down on the amount of water applied.

Zoysia by Seed

The United States Department of Agriculture has discovered a method of propagating zoysia grass by seed. The traditional method of establishing zoysia is by "plugging".

Dr. Doyi Yeam and research agronomist Jack Murray found that by soaking seeds in a 34 percent potassium hydroxide (KOH) solution for 25 minutes and then exposing them to 48 hours of low intensity light, they could induce more than 90 percent of the zoysia seeds to germinate within six days. Untreated seed takes six weeks to reach 30 percent germination.

Nursery Pesticides

A concerted effort by the American Associa-

tion of Nurserymen, the National Forest Products Association and the Society of American Florists has given the nursery industry quicker access to new and effective pesticides. The cost of acquiring registration data has been so great that a manufacturer often did not register low volume uses until years after a chemical was registered for a major agricultural crop.

The three organizations made their problem known at the 1981 Congressional Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) oversight hearings. They requested the insertion of a new definition in FIFRA that would make "applying a pesticide, registered for use on a food crop, to any non-food or non-feed nursery crop against any target pest specified on the labeling, unless such as is specifically prohibited on the labeling" not inconsistent with its labeling. In subsequent meetings with the House Agricultural Committee staff and EPA, a method was found to resolve the nurserymen's problem without making a change in the Act. Under existing statutory authorities, EPA proposed that the following uses are not inconsistent with labeling: (1) a pesticide registered for use on a specific ornamental plant can be used on all ornamental plants; (2) a pesticide registered for use in greenhouses can be used on all non-food plants grown in greenhouses; and (3) general or unclassified use pesticides registered for use on food crops may be used on non-food or non-feed nursery sites. In all three all label directions, precautions, and restrictions must be followed.

This new policy would make about 85% of the registered pesticides available to the nurserymen.

Tongg Associates Reorganizes

Richard C. Tongg, FASLA, announced the transformation of Tongg Associates, Inc. to the new landscape architectural firm of Tongg, Clark and Mechler, Inc., the successor to the oldest landscape architectural firm in Hawaii. Together, Tongg commented, they have the experience, resources and ability to continue the design practice and philosophy that has become synonymous with Hawaiian landscape architecture.

For over 50 years, Tongg has been active in the beautification of Hawaii through his involvement in every aspect of landscape design, beginning with the Honolulu City Hall (1929) to the ongoing work at the Honolulu International Airport. He has always worked to produce the finest possible projects for his

clients, and has been rewarded generously by numerous professional awards and his selection as a Fellow in the American Society of Landscape Architects.

Root-Promoting Compound from Willows

An extract from willow twigs acts as a root-promoting stimulant on cuttings of other species, according to studies conducted by Dr. Max Kawase at the Ohio Agricultural Research and Development Center in Wooster. The compound or compounds, which has not yet been identified chemically, promotes rooting in difficult-to-root species. When applied to cuttings along with rooting hormones such as IBA, rooting is increased sharply. Even in high concentrations, the substance does not cause injury to the cuttings.

The compound, or one similar to it, has been found in all woody species tested so far, including cotoneaster, euonymus, honeysuckle, viburnum, and yew. The amount of the substance varies with species and conditions, and possibly with time of year.

The root-promoter is easily extracted from willow cuttings either by steeping the cuttings in water or by centrifuging with water. The need now is to identify the compound, purify it, and possibly synthesize it for commercial use.

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Floraboard

The House passed the Farm Bill December 16, with a vote of 205 to 203. A provision authorizing a referendum on Floraboard was part of the bill. The legislation now goes to the President, who is expected to sign the bill into law.

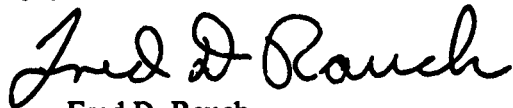
Beginning sometime this year, a series of meetings will be held around the country to discuss the Floraboard program with eligible growers and importers. The referendum will be held during the next 18 to 24 months.

Florists' Review
January 7, 1982

FOOD FOR THOUGHT

A wise man learns from the mistakes of others. Nobody lives long enough to make them all himself.

NOTE: The use of trade names is for the convenience of readers only and does not constitute an endorsement of these products by the University of Hawaii, the College of Tropical Agriculture and Human Resources, the Hawaii Cooperative Extension Service, and their employees.



Fred D. Rauch
Extension Specialist in Horticulture