

# HORTICULTURE DIGEST

Department of Horticulture  
University of Hawaii

Cooperative Extension Service  
U.S. Department of Agriculture Cooperating

In This Issue: FLOWER AND NURSERY INFORMATION  
No. 40, November 1977

## TABLE OF CONTENTS

	Page
Growth Regulator Notes—Flowering of <i>Gardenia radicans</i> .....	1
Events .....	2
Available Publications .....	2
Nursery Notes .....	2
Make Your Own Mixes? .....	3
All-American Roses .....	4
Directory of Ornamental Commodity Groups .....	5

## GROWTH REGULATOR NOTES

### Flowering of *Gardenia radicans*

The literature (2) indicates that flowering of the shrub or florist gardenia (*Gardenia jasminoides*) can be timed by means of exposure to temperatures under 65°F. The gardenia is also reported sensitive to daminozide (B-nine) which causes more compact growth and may contribute to heavier bud set (1, 3).

The dwarf gardenia (*G. radicans*) flowers heavily in the spring on compact plants well suited to pot culture. If flower bud set and forcing conditions can be controlled, it offers a good possibility as a holiday season pot plant.

On January 3, 1974, 15–18" outdoor-grown plants in 1-gal containers were subjected to retardant treatments as well as to a "cold temperature" treatment as indicated in the following schedule. Even at this time a few (3–5 mm) flower buds were evident. All plants were grown in a greenhouse with a minimum night temperature of 62 to 66°F.

#### Treatments

1. No treatment.
2. Sheared to 12–15" diameter.
3. Sprayed with daminozide at 5000 ppm a.i.
4. Sheared and sprayed with daminozide at 5000 ppm a.i.

5. Drenched with ancymidol (Arest)—10 mg a.i. per pot.
  6. Sprayed with ancymidol (Arest) at 500 ppm a.i.
  7. Subjected to 3 weeks at 55°F with lights 12 hr/day (10 ft-c) and returned to the greenhouse after storage—January 21.
- None of the plants reached flowering by April 11, which was the date for Easter in 1974. Data were recorded May 2 and are presented in Table 1. The heaviest average bud count was for the ancymidol drench treatment.

Treatment No.	Ave. Diameter (cm)	Height (cm)	Ave. No. buds per plant		
			1 cm	1 cm	total
1	47.1	24	3.7	10.2	13.9
2	38.0	19	10.5	1.7	12.2
3	51.3	22	2.5	6.0	8.5
4	40.7	18	2.5	0.7	3.2
5	51.0	26	17.5	20.5	38.0
6	53.6	24	7.0	7.5	14.5
7	52.5	28	1.3	3.3	4.6

Buds longer than 1 cm did flower by mid May while many buds less than this length dried out and aborted. Daminozide, at the concentration



Figure 1. Left: Ancymidol-drenched *Gardenia radicans*; right: Control

used, apparently had no effect or had a somewhat inhibitory effect on flower initiation. The cold temperature treatment had an evident delaying effect on flower initiation.

The plant size ranged from about 38 to 54 cm (15 to 21 inches) in diameter. The smaller size plants resulted from the shearing and were somewhat better proportioned. Since pruning did not completely inhibit flower initiation, it may be possible to use this approach together with a drench of ancymidol to produce compact, flowering plants.

## LITERATURE

1. Poole, R. T. 1963. Effects of gibberellic acid and 2-chloroethyltrimethylammonium chloride on growth and flowering of *Gardenia jasminoides* 'Veitchii'. Proc. Florida St. Hort. Soc. 76:474-477.
2. Post, K. 1956. Florist Crop Production and Marketing. Orange Judd Publ. Co., N.Y.
3. Shanks, J. B. and C. B. Link. 1964. The chemical regulation of plant growth for florists. Md. Flor. 108:1-16.

## EVENTS

### *Foliage Seminar*

The International Foliage Plant Seminar III has been scheduled for the Town and Country Hotel in San Diego, CA on November 6 to 9, 1977.

### *Landscape Contractors*

The annual convention of the California Landscape Contractors Association is scheduled for the Stardust Hotel, Las Vegas, Nevada for November 10-13, 1977. Contact CLCA, 6252 E. Telegraph Rd., Los Angeles, CA 90040 for information.

### *Propagation Seminar*

A mini workshop on plant propagation has been scheduled for November 18, 1977 at the Pagoda Hotel in Honolulu. It will feature short presentations on various plant propagation topics by commercial growers and University personnel and will include tissue culture of plants, seed germination and the care of growth regulators.

### *Ornamentals Seminar*

The first Annual Ornamentals Seminar has been scheduled for the Maui Community College, Kahului, Maui for January 12, 1978. This combined event will include the 5th annual Protea Workshop, 5th annual Nurserymen's Workshop and the 4th annual Flower Growers Short Course. A flower and nursery tour is planned for January 13. For further information contact: Fred D. Rauch, 3190 Maile Way, Honolulu, Hawaii 96822.

### *Tropical Foliage Short Course*

The National Tropical Foliage Short Course will be held January 15-18 at the Sheraton Towers Hotel, Orlando, FL. Programs are being planned for all segments of the foliage industry—producers, wholesalers, retailers, designers, installation contractors and maintenance experts.

### *Tropical Plant Exhibition*

The 5th annual Tropical Plant Industry Exhibition will again be held at the Diplomat Hotel, Hollywood-by-the-Sea, Florida, January 19-21, 1978. The shows 300 booths have long been sold out and a record attendance is expected. For further information contact: Louis Cayll, 1643 W. 33rd Place, Hialeah, FL 33012.

### *Ornamentals Short Course*

The 1978 OSU Ornamentals Short Course in conjunction with the Northwest Ag. Show will be held January 31-February 2, 1978, at the Thunderbird Motor Inn at Jantzen Beach, Portland, OR. Contact: Jim Green, Hort. Dept., Oregon State University, Corvallis, OR 97331.

### *Horticultural Congress*

XXth International Horticultural Congress will be at Sydney, Australia on August 15-23, 1978. To obtain a detailed brochure of official travel plans to the XXth Congress, contact: American Society for Horticultural Science, c/o Group Travel Services, Inc., 3537 Broadway, Kansas City, MO 64111. For additional information concerning the XXth Congress, contact: Mr. G. R. Gregory, Division of Horticulture, N.S.W. Department of Agriculture, 157 Liverpool Street, Sydney, N.S.W. 2000 AUSTRALIA.

## AVAILABLE PUBLICATIONS

### *Aids to Root and Shoot Promotion*

Miscellaneous publication 130 of the Hawaii Agricultural Experiment Station by Dr. Richard A. Criley discusses the physiological aspects of root and shoot initiation and how these can be altered by grower/propagator practices. It also provides an excellent summary on the effects of the various chemicals that are available and how they might be utilized in the more efficient propagation of our plants.

## NURSERY NOTES

*Pesticides:* Pesticides are categorized into four groups according to their toxicity. Signal words on the label, required by law, indicate their toxicity.

Category	Signal Words Required on Label
I.Highly toxic	DANGER POISON and skull and crossbones
II.Moderately toxic	WARNING
III.Slightly toxic	CAUTION
IV.Relatively non-hazardous	CAUTION

Retail Nursery Comments  
September 1977

**Did You Know:** One acre of grass gives off 2,400 gallons of water every hot summer day. This has a cooling effect of a 140,000 lb. air conditioner—a 70 ton machine. A mature tree in front of your home can produce a cooling effect equal to 10 room-size air conditioners running 20 hours a day.

*Flowers for Human Therapy*

Humans are more content when in close association with plants. At the Danlap Psychiatric Hospital, New York City, certain basic research in human behavior has recently been completed.

The results, oversimplified, were that those patients with a flowering plant on their tables ate 11% more, spent 21% more time at the table and conversed 33% more with their fellow patients than did patients without flowers.

California Florist

Hortitherapy is becoming more widely known. It is the utilization of horticultural products and activities related to the crafts of horticulture to promote feelings of well-being among elderly, handicapped, mentally disturbed and convalescent persons and any who can profit by the lift that comes from working with flowers and plants.

Industry members have known the therapeutic value of flowers for as long as there has been an industry, but it is just now being recognized as a professional treatment—"floritherapy"—for many human disorders.

Florists' Review

*Porous Concrete*

Dr. R. A. Aldrich, Pennsylvania State University Agricultural Engineer, recently obtained a formula for porous concrete suitable for greenhouse floors. Concrete of this type will permit water poured onto it to flow through without puddling.

The formula for one cubic yard is as follows:

- 2800 pounds of 3/8 inch rock
- 5½ sacks of Portland Cement
- 3 gallons of water per sack

Porous concrete of this type has been used for floors and walks in some greenhouses in England with success. Try it, you may like it.

Florida Foliage Grower  
Vol. 13, No. 6  
June 1976

**MAKE YOUR OWN MIXES?**

In recent years a number of growers in Hawaii have been using some of the commercially available potting mixes. Most of these are based on the peat-lite, or cornell mixes which are uniform, in most instances, light weight, free from insects and diseases and produce excellent plants.

However, research at the Penn State Soil and Forage Testing Laboratory, the Pennsylvania State University, University Park, indicated that in a group of 20 commercial home-garden potting mixes tested, 1 out of 5 were capable of killing or injuring plants.

Among the results:

1. Four out of 20 samples had excessive soluble salts. The excessive readings were 320, 380, 450 and 600. A reading greater than 180 is likely to cause plant injury.
2. Three out of 20 contained excessive nitrogen, with readings of 304, 404 and 404. A reading greater than 250 is excessive.
3. Nine out of 20 contained pH levels under 5.5. Penn State researchers recommend a pH range of 5.5 to 6.8. Three of the mixes had readings of 4.4, 4.5 and 4.5. The acidity of these readings would affect the availability of various fertilizer elements.
4. Phosphorus levels were low in 19 of 20 sampled. The average for the 19 samples was 88 pounds per acre. Four of the nationally known brands contained only 10 pounds phosphorus per acre. Penn State recommends 250 to 900 pounds per acre.
5. Ten out of 20 had low potassium levels, while 8 had excessive readings.

The Penn State researchers also offer some comparative findings. When 8 commercial potting mixes were checked at the laboratory 20 years ago, half had excessive soluble salts, and 7 out of 8 had pH readings of less than 5.3. Of the products recently tested, a firm labels one of its products as "house-plant potting soil" and another as "extra rich potting soil". Researchers made the following analysis:

	pH	Nit-N	Soluble Salts	Phosphorus	Potassium
regular	6.4	55	12	36	0.97
extra rich	6.3	68	18	44	0.56

The researchers concluded that many firms do not have their soil mixes analyzed regularly and that growers should investigate commercial potting mixes as a contributor to plant problems.

These results point up the need for growers to monitor their growing media by having it checked periodically by a soil testing laboratory and not just assume that since it was prepared commercially that it must be good for growing plants.

Also these results and the fact that as the demand for these mixes went up so did the price, it may be cheaper to make your own mixes rather than purchase them. One widely used mix is a peat-lite mix, so called because it combines sphagnum peat moss and vermiculite.

The formula for the peat-lite mix is:

<i>Materials</i>	<i>Amount per cubic yard</i>
Sphagnum peat	0.5 cu. yd. (11 bu.)
Horticultural vermiculite	0.5 cu. yd. (11 bu.)
Ground limestone	12-15 lbs.
Superphosphate 20%	2-4 lbs.
Fritted Trace Elements	2 oz.
Wetting Agent	3 oz.

There are many variations to the above formula. For example, perlite may be substituted for some of the vermiculite. Fertilizer may be added such as 1 lb. of calcium or potassium nitrate (or, preferably, 6-8 oz. of each per cu. yd.). African vermiculite may be used in place of domestic vermiculite. If so, then reduce the amount of limestone to 6-8 lbs. and use the calcitic instead of the dolomitic form.

If mixing with a hand shovel or a front end loader, spread the peat moss out on a concrete slab. Wet lightly with warm water and wetting agent. Cover the peat with the proper amount of vermiculite. Set up a sprinkler system to wet the materials. An oscillating lawn sprinkler will do a good job. After wetting, add the lime, superphosphate and trace elements and (if any) fertilizer. Mix thoroughly.

Larger amounts can be made in concrete mixers. However, do not let the mix rotate for long periods of time as it may form "pellets," especially if the peat moss is wet, and the vermiculite structure is damaged. Also excessive mixing can cause breakdown of the structure of the components as when cinders and peat moss are mixed.

A mix that has performed satisfactorily in tests here at the University of Hawaii is as follows:

#### *Components*

Cinders (volcanite or black cinders) 1 part  
Organics (wood shavings, peat moss, redwood composts, etc.) 1 part

#### *Additives*

	<i>per cubic foot</i>	<i>per cubic yard</i>
Lime (calcium carbonate)	6 oz.	10 lbs.
Treble Superphosphate (0-44-0)	2 oz.	3½ lbs.
Fertilizers (if desired)		
Osmocote (18-6-12)	4 oz.	7½ lbs.
or		
10-10-10	5 oz.	8 lbs.

NOTE: If fresh wood shavings are used extra nitrogen will need to be added.

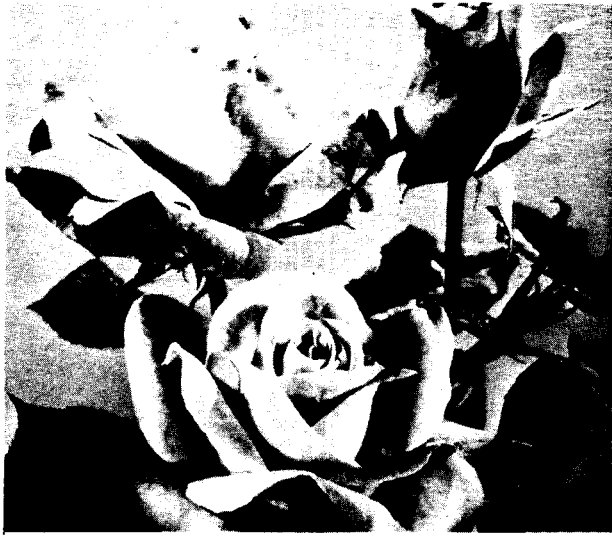
Fred D. Rauch  
Associate Specialist

### ALL-AMERICAN ROSES

Announcement of the 1978 award winning roses was made by All-American Rose Selections. This award was conferred upon two very excellent new rose hybrids:



*Charisma* is a floribunda of intense coloration and excellent, bushy, mound-like growth habit. The blooms are a flaming blend of brilliant scarlet and bright golden-yellow. The blooms have good lasting quality, both as cut flowers indoors, and on the plant. 'Charisma' makes an attractive medium sized plant with less tendency to grow wildly out of bounds.



*Color Magic* is a fine hybrid tea that produces an intriguing series of color changes as its blooms pass through the cycle of bud to mature flower. Beginning with creamy, apricot-pink buds, the blooms slowly unfold to huge six to seven inch blooms, delicate ivory pink in the center, shading to deep pink and finally to deep, rose-red on the outer petals. At some seasons the lightly, sweet fragrant flowers may turn completely bright cherry-red at maturity. This vigorous plant grows tall, and should be used accordingly in the garden.

#### DIRECTORY OF ORNAMENTAL COMMODITY GROUPS

With the large number of changes in the leadership of the various ornamental commodity groups in the State, it is necessary to update the directory periodically. This is being done to provide you with the most current information available.

Anthurium Association of Hawaii, Inc.

President: Mr. James Kuwahara  
Pahoa, HI 96778

Big Island Anthurium Growers Association

President: Mr. Daniel Hata  
Kurtistown, HI 96760

Big Island Chapter of HAN

President: Mr. Roy Shigenaga  
44 Malama Place  
Hilo, HI 96720

Florist Association of Hawaii

President: Mr. Howard Nakamoto  
1293 S. Beretania St.  
Honolulu, HI 96814

Hawaii Association of Nurserymen

President: Mr. Steven S. Saiki  
41-587 Makakalo St.  
Waimanalo, HI 96795

Hawaii Dendrobium Growers Association

President: Mr. Wayne Tsue  
59-500 Aukauka Rd.  
Haleiwa, HI 96712

Hawaii Landscape Contractors Association

President: Mr. James Kuroiwa  
808 Ahua St.  
Honolulu, HI 96819

Hawaii Protea Growers Association

President: Mr. Darrel Rhea  
P. O. Box 126  
Kula, HI 96790

Hawaii Turfgrass Association

President: Mr. Ed Sawa  
Brewer Chemical  
311 Pacific St.  
Honolulu, HI 96817

Hawaii Vanda Association

President: Mr. Haruo Taira  
Pahoa, HI 96778

Hilo Florist & Shipper's Association

President: Mr. Masami Niimi  
Hawaii Flower Exporting Co.  
Mt. View, HI 96771

Hilo Orchid Society

President: Mr. William Noroyle  
Hawaiian Paradise Park  
Keaau, HI 96749

Kauai Anthurium Association

President: Mr. Gilbert Carvalho  
P. O. Box 122  
Lawai, HI 96765

Kauai Association of Nurserymen

President: Mr. Lelan Nishek  
P. O. Box 3013  
Lihue, HI 96766

Kona Coast Growers Association

President: Dr. Melvin Wong  
P. O. Box 208  
Kealahou, HI 96750

Maui Association of Nurserymen

President: Mr. Sam R. K. Choo  
RR-1, Box 403  
Lahaina, HI 96761

Maui Flower Growers

President: Mr. Yukio Matsui  
Kula, HI 96790

Oahu Nursery Growers Association

President: Mr. Pat Takahashi  
86-148 Puhawai Rd.  
Waianae, HI 96792

Fred D. Rauch  
Associate Specialist in Horticulture

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, the Hawaii Cooperative Extension Service, or their employees.