HORTICULTURE DIGEST

Department of Horticulture
University of Hawaii

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In This Issue: FLOWER AND NURSERY INFORMATION
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PRICING HORTICULTURAL PRODUCTS

One of the reasons Florists and Nurserymen are in the business is to make money. Pricing often determines the volume of business and directly influences the net profit.

Pricing is used also for other reasons . . . to move inventory, to promote sales and to attract the impulse buyer. If pricing is to be used for these reasons, the seller must keep in mind what happens to net profit. He should also be aware of the volume of sales necessary to realize a satisfactory level of profits. For example, a 20 percent price cut means that a 400 percent increase in volume is necessary to make the same profit obtained before the price was lowered. The following table will serve as a guide for pricing changes:

Price Cut	*Necessary Increase in Sales*
3%	13.6%
5%	25.0%
7¼%	42.8%
10%	67.0%
15%	150.0%
20%	400.0%

The following table shows what happens when we reverse the process, or increase prices:

3% increase means the same profit on 90% of the same volume

5% increase means the same profit on 83.5% of the same volume

7¼% increase means the same profit on 77.0% of the same volume

10% increase means the same profit on 62.5% of the same volume

15% increase means the same profit on 50.0% of the same volume

20% increase means the same profit on 33.4% of the same volume

Nurserymen traditionally price an item by taking a flat fee or standard mark up (i.e. buy an item for $2 and sell it for $4 or 50% margin of profit on the selling price). A much better system would be to use a variable or flexible mark up. Unique or unusual items could receive a higher mark up while it may be necessary to mark up more common merchandise at a lower level.

Nursery Retail Comments
Jan. 1977

GROWTH REGULATOR NOTES

Enhancement of Branching on Dwarf Brassaia (Schefflera arboricola)

Known branch-inducing agents were applied as single spray applications to recently pinched plants of Dwarf Brassaia. These were growing in 6-inch plastic pots in a 1:1 volcanite-woodshavings mix. The automatic irrigation regime delivered about a pint of diluted fertilizer (100 ppm N, 135 ppm K) twice daily. The data were recorded 6 and 10 weeks after treatment. A final evaluation of the number of breaks which had developed was taken at week 26.

All sprays initially increased bud break over the controls. The most attractive plants resulted from the PBA and Cytex treatments. Ethephon depressed growth, partly because the plants de-

Treatment		Height (cm)		Diameter (cm)		Av. No. Breaks per plant		
Chemical	Rate (ppm)	6 wk	10 wk	6 wk	10 wk	6 wk	10 wk	26 wk
Control		37.8	41.9	46.0	50.2	.6	1.9	3.6
PBA(1)	100	37.4	45.1	43.8	45.4	.8	3.8	2.4
PBA	200	36.4	42.2	38.4	40.9	1.2	3.0	4.4
Cytex(2)	100	37.4	43.5	42.0	43.7	1.1	3.6	4.2
Cytex	200	36.6	41.9	45.2	45.5	.9	4.4	4.6
Ethephon(3)	200	33.1	37.6	39.7	39.9	1.1	4.0	5.2
Ethephon	400	23.4	40.1	14.9	20.7	1.4	3.4	3.6

foliated 2 days after treatment, and partly because of the retarding effect of ethylene. The petioles of leaves on ethephon treated plants were short and the new growth somewhat rosetted. At the highest rate, 400 ppm, there was dieback from the terminal.

(1) PBA is 6(benzylamino)-9-(2-tetrahydropyranyl)-9-H-purine supplied by Shell Development Co.

(2) Cytex is a seaweed-derived product supplied by Atlantic & Pacific Research, Inc.

(3) Ethephon is 2-chloroethanephosphonic acid supplied by Amchem, Inc.

(4) N-6-BA is N-6-benzyladenine purchased from ICN Biochemicals.

Enhanced Plantlet Development From Leaf Cuttings of Pilea 'Moon Valley'

Following a dip in a 50 ppm rooting solution, 180 large leaves of Pilea 'Moon Valley' were rooted in vermiculite under intermittent mist. Three weeks later, when leaves were rooted, 6 leaves were sprayed with cytokinin or ethephon solutions. After a suitable period for drying, the leaves were replaced under mist. After 6 and 10 weeks, data were taken on number and length of plantlets.

Treatment		No. plantlets per leaf		No. plantlets 1 cm or longer at 10 wk
Chemical	Rate (ppm)	6 wk	10 wk	
Control		4.7	6.2	5.2
PBA(1)	50	3.2	8.4	3.2
	100	1.1	8.4	5.8
	200	5.2	7.2	7.2
Cytex(2)	50	1.8	10.0	4.0
	100	2.8	10.1	4.0
N-6-BA(4)	50	2.6	13.1	5.6
	100	3.4	9.7	5.2
	200	2.6	10.4	3.2
Ethephon(3)	100	1.7	9.5	2.7

While Cytex and N-6-BA gave large numbers of plantlets, the portion developing to 1 cm or greater was lower than for PBA because of competition among all the shoots. In all cases, the productivity of plantlets was as good at 50 ppm as at higher concentrations. There was high mortality in the ethephon treatment, coupled with delay in plantlet development and elongation.

Improvement of Bud Break on Polyscias guilfoylei victoriae

The variegated, lacey Panax, *Polyscias guilfoylei victoriae* shows a strong apical dominance and upright habit of growth. More attractive plants can be produced by pinching to induce lateral branching, but the development of chemical branching compounds offer an alternative approach. Single and twice-repeated sprays (2-week interval) of three branch-inducing agents were applied to rooted cuttings to stimulate lateral bud break. The growing conditions were as described for the Dwarf Brassaia. Data were recorded after 6 weeks.

Treatment		Plant		Av. length of
Chemical	Rate (ppm)	Height (cm)	No. breaks	break (cm)
Control		32	3.1	9.4
PBA(1)	100 (1X)	16.6	2.5	5.6
PBA	100 (2X)	13.2	3.8	3.9
Cytex(2)	100 (1X)	21.9	2.1	6.4
Cytex	100 (2X)	20.2	2.3	7.0
Ethephon(3)	200 (1X)	19.2	6.4	5.9
Ethephon	200 (2X)	16.1	7.3	4.6

On unpinched plants, the cytokinins did not stimulate more breaks than the control, even with a repeat spray. Ethephon-treated plants defoliated during the first week after treatment with new growth not appearing until 5 weeks. Many lateral buds did sprout but elongated slowly. Ethephon, in general, also served to retard the growth.

Richard A. Criley
Associate Horticulturist

PLANT, GARDEN AND HOME SHOW

The 3rd Annual Plant, Garden and Home Show has been scheduled for September 20 to October 2, 1977 at the Neal Blaisdell Center.

PLANT PROPAGATORS

The Western Region International Plant Propagators' Society annual meeting will be held at Griswald's Inn, Claremont, California on October 12 to 14, 1977. This is in the Los Angeles area and near several large nurseries such as Monrovia and the L.A. State and County Arboretum.

NOTE: Application forms and information on membership in the Plant Propagators' Society can be obtained from Richard A. Criley or Fred D. Rauch, Membership Committee representatives for Hawaii and Foreign countries, respectively application forms must be received by September 10 to allow time for processing and approval at the Western Region meeting.

PLANT PATHOGENS IN PEAT

Commercial peat and peat mixtures may contain plant pathogens. Kim, Forer, and Longenecker (1975), plant pathologists with the Pennsylvania Department of Agriculture, analyzed 52 randomly selected peat samples of which 36 originated in foreign countries. Some of the products were labeled "sterilized," "no fungi," or "weed free."

Pythium species, including *P. acanthicum, P. aphanidermatum*, *P. irregulare*, *P. spinosum*, and *P. splendens*, were recovered from 15 of the samples. The pathogenicity of one of the *P. aphanidermatum* isolates were demonstrated by spraying zoospores on some susceptible plants, including alyssum, geranium, grass (*Poa* spp.), and beans. All of the test plants were killed.

Fusarium species were present in all of the peat samples; however, this is not surprising, because these species are in virtually all soils. *Rhizoctonia* and *Verticillium* species were not detected.

Peat or peat mixtures used for propagation of plants should be heat- or chemically-treated to eliminate plant pathogens before use.

Literature Cited

Kim, S. H., L. B. Forer, and J. L. Longenecker. 1975. Recovery of plant pathogens from commercial peat-products. Proceedings of the American Phytopathological Society 2:124.

Arthur H. McCain
Extension Plant Pathologist
Berkeley, CA

COMING EVENTS

CALIFORNIA REFRESHER COURSE

The 29th annual California Association of Nurserymen refresher course will be held at California Polytechnic State University, Saint Louis Obispo, California on June 1–3, 1977.

HAN ANNUAL CONFERENCE

The Hawaii Association of Nurserymen will hold their 17th annual conference, June 8–10, 1977, at the Kauai Surf Convention Center at Lihue, Kauai. Special mainland speakers will include: Harold Young, Editor-publisher of Pacific Coast Nurseryman; Jerry Sato, owner San Jose Nursery Grower's; J. Hilscher, President, American Association of Nurserymen; and Dan Collins from Gallup & Stribling International. Governor George Ariyoshi will be the keynote speaker.

Special features in addition to the trade show opening and reception on Wednesday night will be the 1st annual Scholarship and Research Breakfast, Golf Tournament, Round Robin Tennis Tournament and Nursery and Garden Tour on Saturday, June 11. For further information and registration forms contact Allan Yamada, HAN Conference Chairman, 5105 Hekili Road, Kapaa, Kauai, Hawaii 96746.

STATE FARM FAIR

The 1977 Hawaii Farm Fair has been scheduled for June 30 to July 10.

FARWEST SHOW AND AAN CONVENTION

The 5th annual Farwest nursery, garden and supply show has been shifted to the Seattle Center Exhibition and Display Hall in Seattle, Washington in conjunction with the 102nd annual conference of the American Association of Nurserymen, July 17 to 20, 1977. The expanded trade show at the famous Seattle Center, the site of the 1962 World's Fair, will feature over 400 booths.

All AAN convention functions will be staged at the Olympic Hotel in downtown Seattle with regular shuttle bus service between the Seattle Center and the hotel or persons may take the famous monorail requiring a mere 90 seconds of travel time between downtown Seattle and the Seattle Center.

DENDROBIUM JAQUELYN THOMAS CULTIVAR 'NAT SEEFURTH'

Mericlones of *Dendrobium* Jaquelyn Thomas '66194–7' were released in 1975 by the Horti-

culture Department of the University of Hawaii to commercial growers for trial. Growers have been pleased with its performance. Furthermore, large numbers of plants have been clonally propagated through tissue culture by a commercial laboratory.

Because 66194–7 is a cumbersome designation, we are officially naming this clone 'Nat Seefurth' in memory of the late Nathaniel (Nat) H. Seefurth, who passed away on March 27, 1976. Nat Seefurth, a retired lawyer from Chicago, was a frequent visitor to the Islands since 1958 and was impressed with the potentials of the anthurium and dendrobium cut flower industries. He made four research grants from 1958 to 1972 in support of our breeding research on anthuriums and dendrobium cut flower industries. Accompanying the last check in 1972 was the following statement:

"Our check is enclosed, and is to be used for such projects concerning anthurium and dendrobium research as may be directed by Dr. H. Kamemoto. This is the fourth grant that we have made for this purpose, and is made in recognition of the importance of the ornamentals industry to Hawaii, and the progress that has been made under Dr. Kamemoto's supervision in developing new and improved varieties."

Nat Seefurth is survived by his wife, Marian. A pink anthurium was named earlier after Marian Seefurth.

The origin and description of *Dendrobium* Jaquelyn Thomas 'Nat Seefurth' appeared in an article entitled "*Dendrobium* Jaquelyn Thomas 66194–7" in Horticulture Digest No. 23, June 1975. It is hoped that this attractive and productive clone will become firmly established as an important cut flower cultivar.

H. Kamemoto, Horticulturist
J. Kunisaki, Assistant Horticulturist

ASPLENIUM AND PTERIS FERN SPORE GERMINATION

Tests carried out in the Department of Environmental Horticulture, Davis, by Dr. A. M. Kofranek on germination of *Asplenium nidus* and *Pteris tremula* spores produced some very useful results. Media upon which the spores were sown were sphagnum peat moss, fir bark plus peat moss, or sphagnum moss by itself. Peat moss was found to be a good medium for spore germination, if ground dolomitic limestone was incorporated at the rate of 100 to 200 grams per cubic foot. Sphagnum moss also proved to be a good medium. Boiled dionized water was used to irrigate the media during the germination period. Only freshly collected spores from plants at the UCD Botany greenhouses were used in the tests.

Preliminary experiments had shown that light was necessary for spore germination. During the tests at Davis, a light intensity of 50 footcandles was supplied continuously until the majority of spores germinated. This was merely an arbitrary level, because the lowest light tolerance levels were not determined. Good spore germination was accomplished in the laboratory under fluorescent lamps, provided the temperature was maintained at 69° to 73°F. Germination began to take place in approximately 10 to 14 days, at which time a light-green cast was evident on the surface of the media. Spores continued to germinate after the initial period but, for all practical purposes, germination was. complete within a month.

As a result of this work, the following would constitute guidelines for uniform fern spore germination.

1. Use fresh spores.
2. Sow spores on sphagnum peat moss to which dolomitic limestone has been incorporated at the rate of 100 to 200 grams per cubic foot.
3. Sphagnum moss also makes a good germinating medium, provided a layer of finely graded moss covers the surface. Pasteurization or the incorporation of dolomitic limestone is not necessary.
4. Irrigate with good quality water that is free of algae. If algae content of the water is unknown, it is best to boil the water to kill any algae that may be present. Young fern prothallia and algae enjoy the same environmental conditions for growth. If given a chance, the algae might eventually smother the prothallia; therefore all precautions should be taken to prevent algal growth.
5. Temperatures of 70°F. and above induce best spore germination.
6. Provide continuous light for germination (although we did not try less than 24 hours daily).
7. Cover flats or containers with glass or polyethylene to prevent drying out. Provision for indirect sunlight or application of shade on greenhouse glass also helps prevent drying of the media.
8. Gradually remove shade or covering. It might be necessary to provide a cheesecloth cover temporarily on bright days after a majority of the spores germinated.

9. Finally, prothallia should be misted occasionally to accomplish the sexual fertilization process that initiates development of the "adult" fern plant.

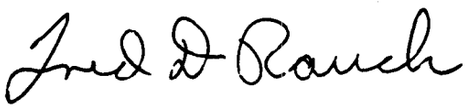
Flower and Nursery Report
May–June, 1976

A Catholic teenager complained to her priest about having to wait so long in line for confession. "There ought to be an express line," she told him "for those with three sins or less."

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, and their employees.

The world really isn't much worse than it ever was. It's just that the news coverage is so much better.

A bargain these days is anything you can buy at the same price that it was last week.



Fred D. Rauch
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