



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. 12, December 1972

FROM THE EDITOR

Starting with this issue of Horticulture Digest we will be featuring the members of the Horticulture Department who are involved in the ornamental program. This will allow you to become familiar with these people, what they are doing and some of their responsibilities within the department.

Fred D. Rauch
Asst. Spec. in Horticulture



JOHN T. KUNISAKI

An important member of the ornamentals team is John T. Kunisaki, Assistant Horticulturist, who works quietly behind the scenes. John grew up on the Island of Kauai and, after serving 3 years in the military service, returned to the Islands to further his education. He completed his B.S. degree in horticulture from the University of Hawaii in 1960 and his M.S. degree in 1964. He then accepted a position with the USDA, Agricultural Research Service where he was involved in sugar cane research. In 1968 he returned to the Horticulture Department and, in addition to his research duties, is currently working toward his Ph.D. degree in botany.

John Kunisaki's research program is directed toward propagation and production of orchids and anthuriums. He has been working closely with Yoneo Sagawa on the tissue culture of orchid plants and is developing techniques to use this method to rapidly propagate other horticultural plants. Also under study are the use of floral preservatives to prolong the vase life of orchids, and the optimum shade requirements for anthurium to prevent spathe fading during summer months. John is also working closely with Haruyuki Kamemoto, Minoru Aragaki and Tada-shi Higaki in the selection of anthurium cultivars that are suitable for the cut flower industry.

John has been co-author of several research publications dealing with tissue culture and shoot-tip culture of orchids. He has demonstrated that it is possible to increase the production of anthurium plants by using intermittent mist, and has provided valuable information on carnation varieties for flower lei production as well as yield information for anthurium and dendrobium orchid flower production.

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SOME WORDS TO LIVE BY

Mr. Bruce Sandin, Eastern Division Field Supervisor for FTD, speaking at the banquet for the recent Florist short course offered the owners and managers of the flower shops some important words to live by in dealing with their employees.

The 5 most important words:

You did a good job!

The 4 most important words:

I made a mistake.

The 3 most important words:

What's your opinion?

The 2 most important words:

Thank you!

The 1 most important word:

We.

The least important word:

I.

POINSETTIA TIMING

Results of studies to determine the best time to plant rooted or callused terminal cuttings of poinsettias for a quality Christmas crop show that the cuttings can be planted through the first week of October if grown at 65 F night temperature with high fertility.

Low Elevation—Oahu

In trials conducted at low elevation, rooted cuttings of Eckespoint C-1 Red were planted at weekly intervals from September 9 through October 14 in 6-inch pots containing a 1:1 volcanite-wood shavings mix. Plants were grown as single stem (SS) plants, 3 cuttings per pot, and as a pinched crop, 2 plants per pot, pinched 1 week after planting. After the initial establishment period, two sets of similarly treated pots were taken to cooperating growers to observe the effects of outside and lath house growing conditions.

In general, single stem plants matured ahead of pinched plants and stood a better chance of maturing for Christmas if planted late in the season. In addition, SS plants were taller and had a larger inflorescence diameter. In contrast, pinched plants were significantly shorter, with more and smaller flowers per plant. This can be used to advantage to produce a quality pot plant from early planting dates or where grown under higher temperatures.

Under natural outdoor conditions the plants were shorter and matured later. A mid-September planting date is probably the latest that can be safely recommended, assuming adequate fertility and irrigation.

Mid Elevation—Maui

At the Kula Branch Station, cuttings of Annette Hegg (rooted) and Mikkel Rockford (callused) were planted weekly from September 3 through September 24 in a 1:1:1 soil-peat-perlite mix. In the first series, a single cutting was planted per 5-inch pot and, following pinching, pruned to 3, 4 or 5 breaks or left unpruned. In the second series, 2 cuttings were planted per 6-inch pot and, after pinching, were pruned to allow 6 or 8 breaks per pot or left unpruned.

As pinched plants both Annette Hegg and Mikkel Rockford bear more branches than needed. Pruning out weaker breaks to allow 6 to 8 inflorescences to develop per pot of 2 plants produces a higher quality plant.

Cuttings planted as late as September 18 and pinched 1 week later still produced acceptable plants under conditions at Kula. Later plantings tended to be shorter with smaller bracts. Color development on these cool-finished plants was rated outstanding. Slightly smaller plants re-

sulted from growing a single plant in a 5-inch pot than from growing 2 plants in a 5-inch pot.

F. D. Rauch, R. A. Criley,
and P. E. Parvin

FOLIAR NEMATODE DISEASE OF ANTHURIUM SEEDLINGS

A foliar blight of anthurium seedlings which is often lethal in young plants has been shown to be caused by the nematode *Aphelenchoides fragariae*. Symptoms of the disease are necrotic lesions which usually first appear near the mid-vein and gradually enlarge. Symptoms of the disease have been observed only on seedlings, especially younger seedlings, which eventually succumb to the infection, while mature plants propagated asexually are apparently free of the disease. The nematode also invades and destroys anthurium seeds planted on infested medium.

Experimental results have shown that prevention of the disease is possible by hot-water treatment of planting medium and by following good sanitary practices in the nursery. Trials with chemotherapy treatments also appear promising.

J. E. Hunter, W. H. Ko,
R. K. Kunitomo, and T. Higaki

NEW PUBLICATIONS

1972 State Laws

Affecting Farmers in Hawaii

This publication presents a digest of acts affecting farmers, which were enacted by the Sixth Legislature of the State of Hawaii during the 1972 regular session. Miscellaneous Publication 90 of the Cooperative Extension Service, University of Hawaii, "1972 State Laws Affecting Farmers" was prepared by Stephen M. Doue, Associate Specialist in Agricultural and Resource Economics.

Some Conversion Factors and Shortcuts for Calculating

Anyone looking for a handy reference to help with figuring the amounts of fertilizer, insecticides, fungicides or herbicides to apply to those field plots of various size, should find this publication very useful.

Leaflet 158 of the Cooperative Extension Service, University of Hawaii, was compiled and edited by Franklin F. Laemmlen, Assistant Professor of Plant Pathology. It not only provides a quick reference to useful conversion factors needed in making these calculations but also shows some shortcut methods that should make your job easier.

Papaya Mosaic Disease

Nurserymen as well as orchardists throughout the State should be aware of and be on the look-

out for the symptoms of papaya mosaic disease. Symptoms of this serious virus disease are described in CES Leaflet 95 prepared by Mamoru Ishii, Warren Yee and Ryoji Namba.

For further information or to obtain copies of these publications, contact your local county Extension office or write to the College of Tropical Agriculture, Publications and Information Office, Krauss Hall, University of Hawaii 96822.

ROSE FUNGICIDES TESTED

A preliminary trial conducted on field-grown roses in Waianae indicates that fungicide treatments effectively controlled rust, *Phragmidium disciflorum* (Tode) James, and Mildew, *Oidium* sp. Chemical applications were made with a knapsack sprayer on a weekly schedule starting in January 1972 to two rose varieties, 'Happiness' and 'Corina.' The following treatments were used:

- | | |
|-------------|-------------------|
| 1. Parnon | ½ pt per 100 gal |
| 2. Benlate | 2 lb per 100 gal |
| 3. Mertect | 1½ lb per 100 gal |
| 4. Plantvax | 1 lb per 100 gal |
| 5. Control | |

Readings were made when the test was terminated in mid-February 1972 by selecting 100 leaf samples from each plot. Counts were made of rust pustules and powdery mildew infection sites.

The results indicate that Plantvax controlled the rust more effectively than the other fungicides tested under the conditions of this test. Mildew control was equally good with Benlate or Parnon. Parnon-sprayed leaves contained fewer mildew infection sites; however, it is highly unlikely that the difference between Benlate and Parnon is significant.

A. P. Martinez, F. Laemmlen,
Y. Kitagawa, and K. Mihata

PRESERVATIVE AIDS FLOWER MARKETING

Studies conducted by Agriculture Research Service horticulturist Francis J. Marousky, Bradenton, Florida, show that the commercially available preservative, 8-hydroxyquinoline citrate (8-HQC), is beneficial in marketing cut flowers.

Once-Over Mums

Tests using 'Albatross' chrysanthemums indicate that a floral preservative, 8-HQC, permits once-over harvesting. Dr. Marousky harvested half the flowers about a week before the commercial stage. The stems were placed in 200 parts per million 8-HQC plus 2 percent sucrose and held in a bulb curing room at 72 F to 76 F. The remaining buds were allowed to open on plants in the field. Bud-cut flowers were similar in size and quality to flowers opened on the plant.

Harvesting mums as buds offers the grower flexibility in his marketing program through quality maintenance, ease of storage, and disease control.

Shipping Gladiolus "Good As New"

Present marketing practice dictates harvesting gladiolus spikes with unopened buds, grading the spikes, then wrapping them in kraft paper and transporting them at 40 F.

Seeking improvement on this method, Dr. Marousky packed white 'Friendship' gladiolus in vented and nonvented containers that were subjected to simulated shipping conditions for 3 days at 40 F and 50 F. Kraft paper or polyethylene plastic sheeting covered the spikes during shipment. Afterward, spikes were held at either 74 F in water or in 400 parts per million of the preservative 8-hydroxyquinoline citrate plus 3 percent sucrose (8-HQC+S).

Test results indicate that gladiolus spikes harvested in the bud stage and handled and shipped at low temperature, 40 F to 50 F, potentially can produce as many open florets as freshly harvested spikes. Additional enhancement of floret opening can be achieved after shipping if spikes are held in 8-HQC+S. Gladiolus placed in the floral preservative after shipping develop more open florets and live almost twice as long as gladiolus held in water.

Agricultural Research
March 1972/Vol. 20, No. 9

ANTHURIUM ANTHRACNOSE CONTROL

Anthracnose, also known as black nose or spadix rot, is still the major disease of anthurium in Hawaii. It is particularly severe in the high rainfall areas of East Hawaii. The fungus produces black, sharply angular spots on the spadix, which bears the true botanical flower of the anthurium. In severe infections, the rot extends into the peduncle and causes the whole spadix to rot and turn brown. In all cases the infected flower is unfit for sale.

An experiment was initiated in January, 1971, at the Waiakea Experiment Station to test the effectiveness of benomyl (Benlate 50W), a new systemic fungicide, under field conditions. Treatments consisted of benomyl at ½ pound per 100 gallons, and maneb at 2 pounds per 100 gallons. Unsprayed plants served as the control. Fungicides were applied with a knapsack sprayer every 2 weeks. Flowers were harvested at the three-fourths mature stage, and disease incidence data were collected for 10 months.

The results of this study showed that, properly applied, benomyl will provide excellent control of anthurium anthracnose. Benomyl sprays resulted in significantly higher percentage of disease-free flowers than from untreated plants.

Since benomyl is effective at lower rates, less spray residue remains on the flowers. The systemic properties of this fungicide are probably of great importance in high rainfall areas because penetration of the material into the spadix minimizes the washing effect of heavy rains. In comparison, maneb remains on the surface of the spadix and is exposed to frequent rains. Proper spraying at 2-week intervals with benomyl at the recommended rate, with equipment that provides good coverage, should control anthracnose for anthurium growers in Hawaii.

Tadashi Higaki, County Extension Chairman
Minoru Aragaki, Assoc. Plant Pathologist

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 Marketing Association of Hawaii, Inc.

President: Mr. Masami Niimi
P. O. Box 1065
Hilo, HI 96720

Big Island Association of Nurserymen

President: Mr. Tamotsu Kitagawa
P. O. Box 252
Hilo, HI 96720

Flower Growers Association of Hawaii

President: Mr. James Shima
69 Leilehua Rd.
Wahiawa, HI 96786

Florist Association of Hawaii

President: Mr. Yasuo Watanabe
Waipahu Florist
94-235 Hanawai Circle
Waipahu, HI 96797

Hawaii Association of Nurserymen

President: Mr. Edward Sawa
P. O. Box 48
Honolulu, HI 96810
or

HAN
P. O. Box 1343
Honolulu, HI 96809

Hawaii Landscape Contractors Association

President: Mr. Rodney Fukui
5713 Haleola St.
Honolulu, HI 96821

Hawaii Turfgrass Association

President: Mr. Lindy L. S. Loo
P. O. Box 1343
Honolulu, HI 96807

Kauai Anthurium Association

President: Mr. Earl Arruda
RR 1, Box 279A
Kapaa, HI 96746

Maui Association of Nurserymen

President: Mr. David Chun
P. O. Box 7
Haliimaile, HI 96787

Maui Flower Growers

President: Mr. Donald H. Akers
Upper James Terrace
Kula, Maui, HI 96790

Oahu Association of Nurserymen

President: Mr. Warren Q. K. Yee
41-1009 Kakaina St.
Waimanalo, HI 96795

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.

Fred D. Rauch

Fred D. Rauch
Assistant Specialist in Horticulture