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. 49, June, 1979

TABLE OF CONTENTS

	Page
Growth Continues in Hawaii's Ornamental Industry	1
Observations on Poinsettia Flowering 1978	2
Coming Events	3
Fertilization of Poinsettias on Capillary Mats	5
Available Publications	6
Pesticide Safety	6
Directory of Ornamental Commodity Groups	7
Food for Thought	8

GROWTH CONTINUES IN HAWAII'S ORNAMENTAL INDUSTRY

Results of the most recent survey of flower and nursery production in Hawaii conducted by the Hawaii Agricultural Reporting Service[1] showed that the wholesale value of these products in 1978 climbed to a record high of $17.5 million. This was a 25 percent increase over the 1977 value and continued the upward trend of recent years (Table 1). The wholesale value of ornamental crops is up 347 percent over 1969 which represents an average annual growth rate of 38.5 percent for the 9-year period, 1969–1978.

A breakdown of some major commodities grown in Hawaii also reveal some interesting trends (Tables 2–5).

Anthurium production highlighted Hawaii's growing ornamentals industry with a 48.8 percent increase over 1977, climbing to a record $5.0 million wholesale value. This represents an average annual growth rate of 54.7 percent for the 9-year period of 1969–1978.

Orchid production during the 9-year period, 1969–1978, continued at a modest average annual growth rate of just under 10 percent, reaching a new high of $2.0 million wholesale value. Cut dendrobium orchids and potted orchid plants lead the increase, up 23.6 and 13.5 percent respectively over 1977 in wholesale value. Production of cut cattleya orchids continues to decline in the State.

Production of other cut flowers and foliages in Hawaii continues to show a steady increase with an average annual growth rate of 25.9 percent. Biggest gains were noted in the infant Protea industry, up 131.6 percent over 1977. Significant increases were also noted in the production of carnations, roses and tuberoses, up 90.5, 29.0, and 20.7 percent respectively over 1977. Declines were recorded in cut chrysanthemums, down 20.4 percent, and other cut foliages (mostly crotons and lycopodiums), down 23.1 percent.

Table 1. Wholesale value of flowers, ornamentals and nursery crops produced in Hawaii during the 9-year period, 1969–78.

Year	Wholesale value	% Increase Total	% Increase Annual
1969	$ 3,910,000	---	---
1970	4,225,000	8.1	8.1
1971	4,484,000	14.7	6.1
1972	5,244,000	34.1	16.9
1973	6,674,000	70.7	27.3
1974	8,211,000	110.0	23.0
1975	9,767,000	149.8	19.0
1976	11,828,000	202.5	21.1
1977	14,003,000	258.1	18.4
1978	17,458,000	346.5	24.7

[1] Hawaii Flowers & Nursery Products Annual Summary, Hawaii Agricultural Reporting Service, Box 22159, Honolulu, HI 96822

Table 2. Wholesale value of anthuriums produced in Hawaii during the 9-year period, 1969–78.

Year	Wholesale value	% Increase Total	% Increase Annual
1969	$ 847,000	---	---
1970	943,000	11.3	11.3
1971	1,032,000	21.8	9.4
1972	1,150,000	35.8	11.4
1973	1,500,000	77.1	30.4
1974	1,720,000	103.1	14.7
1975	1,988,000	134.7	15.6
1976	2,500,000	195.2	25.8
1977	3,372,000	298.1	34.9
1978	5,017,000	492.3	48.8

Table 3. Wholesale value of orchids produced in Hawaii during the 9-year period, 1969–78.

Year	Wholesale value	% Increase Total	% Increase Annual
1969	$1,075,000	---	---
1970	1,107,000	3.0	3.0
1971	1,073,000	- 0.2	- 3.1
1972	995,000	- 7.4	- 7.3
1973	1,178,000	9.6	18.4
1974	1,204,000	12.0	2.2
1975	1,340,000	24.7	11.3
1976	1,438,000	33.8	7.3
1977	1,786,000	66.1	24.2
1978	1,999,000	86.0	11.9

Table 4. Wholesale value of other cut flower and foliages produced in Hawaii during the 9-year period, 1969–78.

Year	Wholesale value	% Increase Total	% Increase Annual
1969	$1,318,000	---	---
1970	1,467,000	11.3	11.3
1971	1,552,000	17.8	5.8
1972	1,854,000	40.7	19.5
1973	2,091,000	58.6	12.9
1974	2,510,000	90.4	20.0
1975	2,685,000	103.7	7.0
1976	3,298,000	150.2	22.8
1977	3,834,000	190.9	16.3
1978	4,392,000	233.2	14.6

Table 5. Wholesale value of nursery and potted foliage plants produced in Hawaii during the 9-year period, 1969–78.

Year	Wholesale value	% Increase Total	% Increase Annual
1969	$ 671,000	---	---
1970	708,000	5.5	5.5
1971	827,000	23.2	16.8
1972	1,245,000	85.5	50.5
1973	1,905,000	183.9	53.0
1974	2,730,000	306.9	43.3
1975	3,754,000	459.5	37.5
1976	4,592,000	584.4	22.3
1977	5,011,000	646.8	9.1
1978	6,050,000	801.6	20.1

The other rapidly expanding segment of the ornamentals industry in Hawaii, 1969–1978, was the production of nursery plants for landscaping and potted foliage plants for homes and offices with an average annual increase of 89.1 percent. This represents a wholesale value of $6 million for 1978. The production of landscape plants for the local market continues to decline, down 18.7 percent from 1977. This decline in the wholesale value of ornamentals and trees is possibly due to the slow down in the State economy and the decline of the landscape industry. This is more than offset by the continued increase in production of potted foliage for the export market with a 40.4 percent increase over 1977.

Fred D. Rauch
Associate Specialist in Horticulture

OBSERVATIONS ON POINSETTIA FLOWERING 1978

We are frequently asked how to determine if a poinsettia crop will finish at a good height or be

	November 3		Calculated	Predicted		December 21	
	Ave. No. Nodes	Ave. Length (cm)	Ave. internode length	Nodes to Expand	Final Length	Ave. No. Nodes	Actual Length
6" pot	5.5	22.6	4.1	7.5	53	11.9	53.8
5" pot	5.3	18.4	3.5	7.7	45	11.9	44.4
4" pot	4.7	14.4	3.1	8.3	40	10.7	40.2

too tall. A technique for looking at this was developed by researchers at Ohio State (1). They observed that ½ the final shoot length was recorded 4 weeks after the start of short days. A caution in using this technique is that temperatures in our Hawaii growing environments cannot be controlled as well as in mainland greenhouses.

The technique makes use of the fact that once the flower (cyathium) has been initiated, there are no more leaves laid down. Thus, with initiation complete, a process requiring approximately 21 days at 65°F, all that remains is the elongation of existing internodes. At any one time there are approximately 13 un-elongated internodes on a vegetative stem in cultivars like Paul Mikkelsen and Eckespoint C-1.

This means that the final height, or length of break is going to be a function of the number and length of unexpanded internodes. Since the number of cells is pretty well determined by this time, it is the final length of the cells which determines internode length.

Have we any way of predicting internode length? To some extent, we can look at the "normal" internode length on our own plants in our own growing environments. Modification is possible through temperature, watering and growth retardants.

One should be certain that a flower bud is initiated. This may be a little difficult to determine without dissecting it. Our method was to provide our C-1 plants with long days by light breaks in the middle of the night. When natural short days were imposed, we waited until we were certain a bud had been initiated then the length of the break was measured and the number of nodes counted. While the first node above the break tends to be somewhat longer than the rest, the top ones are shorter. In this case we took an average internode length by dividing the number of expanded nodes into the length of the break. We estimated that there were 13 un-expanded internodes and multiplied this by the average internode length to "predict" our final height. Except for estimating 13 instead of 12 nodes we hit very close to our prediction. Probably one node of the 13 was already included in our count because we waited 27 days to take the first measurements.

Schedule: Plant and light Sept. 21, Pinch Sept. 30, Lights out Oct. 7, Measurements Nov. 3, Dec. 21. Twenty-seven days from start of SD to first measurements, 48 days to final measurements. The crop was in peak condition for Christmas about December 17 or 72 days from the start of SD. The cultivar Eckespoint C-1 is regarded as an 11 week (77 day) crop when grown at 65°F, but our warmer temperatures (60–70°F) undoubtedly hastened development.

Reference

(1) Hammer, P. L., Jr., D. L. Kiplinger, and H. K. Tayama. 1975. *Greenhouse Studies on the Effect of Chemical Growth Retardants on Shoot Growth of Chrysanthemums and Poinsettias*. Florist's Review. Feb. 6, 1975. pp 26–27, 70–76.

Richard A. Criley
Associate Horticulturist

COMING EVENTS

EXPORT SEMINAR

The Hawaii Association of Nurserymen will be sponsoring a seminar on exporting foliage plants on June 21–22, 1979. Topics of interest will be discussed during the program on the first day at the Community Service Building of the Maui Community College in Kahului followed by field tours on the second day.

Cooperative marketing will be featured during the morning session on market alternatives with Dr. Richard W. Schermerhorn from the University of Idaho, one of the country's leading authorities on cooperatives. The afternoon program emphasis basic production practices with Dr. Robert Raabe, Extension Plant Pathologist with the University of California as featured speaker. The industry tour will include Sunset Tropicals, Haiku Farm and Howard's Nursery among others.

FARM FAIR

The 1970 State Farm Fair sponsored by the Hawaii Farm Bureau Federation is scheduled for Honolulu on June 28 to July 8, 1979.

FLORIST ASSOCIATION

The general membership meeting of the Florist Association of Hawaii is scheduled for Kemoo Farms in Wahiawa on July 10 at 6:30 p.m. The speaker will be Ms. Lelanda Lee of First Hawaiian Trust on Tax Shelters and Retirement Planning for Small Business.

AAN

The American Association of Nurserymen will be holding its 104th annual convention in Atlanta in combination with the Southern Nurserymen's Association's annual trade show and convention. Convention headquarters will be the Peachtree Plaza while the Trade Show will be staged at the nearby Atlanta Civic Center. Dates are July 28–August 1, 1979. For further information contact: AAN, 230 Southern Building, Washington, D. C. 20005.

SAF

The Society of American Florist will hold a reconvened session of their annual conference in Hawaii at the Naniloa Surf Hotel in Hilo, Hawaii, July 29–30, 1979. Hawaii flower and nursery growers are welcome to attend and meet with the 500 delegates from the mainland.

ASHS

The 76th annual meeting of the American Society for Horticultural Science will be held jointly with the American Society of Plant Physiologists, July 30 to August 4, 1979 at The Ohio State University, Columbus. Several tours are planned for July 30 and 31.

TURFGRASS CONFERENCE

The annual conference of the Hawaii Turfgrass Association will be held in Honolulu at the International Country Club on August 2–3, 1979.

FARWEST SHOW

The Ornamentals Northwest Short Course and Farwest Trade Show will be held in the Memorial Coliseum in Portland, Oregon, August 23–26, 1979. For trade show information contact: Dan O. Barnhart, 0224 S. W. Hamilton, Portland, Oregon 97201.

PACIFIC HORTICULTURAL TRADE SHOW

The Pacific Horticultural Trade Show will be held at the Long Beach Convention Center in Long Beach, CA, September 6–8, 1979. For information contact: PHTS Show Manager, Richard C. Staples, 1419 21st St., Sacramento, CA 95814.

HAWAII FLORIST

Plans are underway for the Hawaii Florist Association's annual Design and Management Short Course to be held in September, 1979.

OREGON NURSERYMEN

The annual convention of the Oregon Association of Nurserymen will be held at Kah-Nee-Ta on the Warm Springs Reservation on September 12–16, 1979. For information contact: OAN, 0224 S. W. Hamilton, Portland, Oregon 97201.

CALIFORNIA NURSERYMEN

The 69th annual convention of the California Association of Nurserymen is scheduled for the Newporter Inn, Newport Beach, CA on September 25–27, 1979. For information contact: CAN, 1419 21st St., Sacramento, CA 95814.

PLANT PROPAGATORS

The Western Region of the International Plant Propagator's Society will have its annual meeting October 2–4, 1979 at the Sacramento Inn, Sacramento, California.

CALIFORNIA FLORIST

The California State Florist Association's annual convention will be held in Hawaii, October 3–9, 1979.

BEDDING PLANTS, INC.

The 1979 National Conference of Bedding Plants, Inc. will be held October 7–10 at the Mariott Lincolnshire, which is located about 45 minutes north of Chicago's O'Hare Airport. For further information contact: Bedding Plant, Inc., P. O. Box 286, Okemos, MI 48864.

HAN ANNUAL CONFERENCE

The Hawaii Association of Nurserymen will hold their 19th annual conference and trade show, October 8–11, 1979, at the Hilton Hawaiian Village in Honolulu, HI. Special mainland speakers will include Dr. Kenneth Baker, author of *The U.C. System for Producing Healthy*

Container-Grown Plants, Mr. Jim Wanko, Executive Vice President of the Society of American Florists and Mr. Herb Mitchell with Herb Mitchell Associates, Newport Beach, CA.

TROPICAL PLANT INDUSTRY EXHIBITION

The Seventh Annual Tropical Plant Industry Exhibition is scheduled for the Diplomat Hotel, Hollywood-by-the-Sea, Florida for January 16–20, 1980. The 300-booth TPIE show is one of the major shows featuring tropical foliage plants in the country and generally attracts 6500 to 7000 buyers. For information contact: Louis Cayll, P. O. Box 999, Healiah, FL 33011.

FOLIAGE SHORT COURSE

The 1980 National Tropical Foliage Short Course is scheduled for the Sheraton Twin Towers Hotel in Orlando, Florida on January 27–30, 1979.

FERTILIZATION OF POINSETTIAS ON CAPILLARY MATS

Because of the interest in the use of capillary mats for irrigation and the fact that moisture would only be available from the bottom of the soil mass, it was considered of interest to determine if this system would require differences in fertilization with slow release fertilizers. Less water in the soil mass might restrict fertilizer availability because of less water to solubilize the fertilizer. Placement of the fertilizer in the bottom portion of the soil mass might provide more water for solubilizing it than even incorporation. The nutrients would be carried in the soil through capillary water movement.

Poinsettia cultivar Gutbier V-14* was used in this experiment. Two cuttings per 5" pot were planted September 21, 1978 and pinched September 30. From the time of planting until October 7 a 4-hour light break was provided. The day/night temperature regime in the glasshouse usually exceeded 85/70° minimums except during a rainy period in early November.

Two media were used: equal parts of soil, sphagnum peat, and perlite and equal parts sphagnum peat, perlite, and vermiculite. Both mixes received amendments: treble superphosphate, 2 oz/ft^3; dolomite, 6 oz/ft^3; and Peters Fritted Trace Elements 0.5 oz/ft^3. The capillary mat (a non-woven textile by Pellon Corp.) was irrigated twice daily with liquid feed containing

*donated by Ecke Poinsettias, Encinitas, CA.

Table 1. Growth of poinsettia cv. Gutbier V-14 in 2 media with 5 fertilization regimes on capillary watering.

	Medium & Fertilization		Height (cm)	No. Breaks/pot	Diameter (cm)	Maturity[a)]	Root Quality[b)]
1.	Soil-Peat-Perlite (1:1:1)						
	Osmocote (14–14–14)	4 oz/ft^3	36.6	11.4	27.0	0.3	1.6
	"	6 oz/ft^3	40.6	13.8	30.2	0.8	2.1
	"	8 oz/ft^3	38.2	13.0	28.3	0.5	1.6
	Scotts (21–3–13)	4 oz/ft^3	46.0	12.0	29.6	0.6	1.7
	Osmocote (14–14–14) at bottom of pot	4 oz/ft^3	44.8	13.2	28.6	0.8	2.3
2.	Peat-Perlite-Vermiculite (1:1:1)						
	Osmocote (14–14–14)	4 oz/ft^3	44.2	10.6	29.4	0.6	1.9
	"	6 oz/ft^3	44.4	12.6	30.8	0.7	2.5
	"	8 oz/ft^3	41.0	13.2	31.4	0.9	2.0
	Scotts (21–3–13)	4 oz/ft^3	36.8	9.8	27.3	0.3	1.8
	Osmocote (14–14–14) at bottom of pot	4 oz/ft^3	40.6	13.4	28.6	0.5	2.2

a) Maturity rating is ave. no. of pollen-bearing cyathia per flower when data was recorded.
b) Root quality is visual rating of 3 = soil mass well covered with roots; 2 = heavy concentration of roots at bottom of pot with fewer above; 1 = few visible roots on soil mass.

150 ppm each of N and K. The fertilization treatments were: incorporation into the soil mix of 4, 6 or 8 oz/ft^3 of Osmocote or 4 oz/ft^3 of Scott 21–3–13 plus trace elements, and a 4 oz/ft^3 rate of Osmocote in which all the fertilizer was mixed into the bottom 1/3 of the pot. There were 5 pots per treatment arranged in a completely randomized design.

Data were collected in December on height, number of breaks, diameter of 5 of the largest inflorescences per pot, maturity and a root quality rating. The root quality was assessed as 3 = best, the soil ball well covered with roots down to 1, with only a few roots showing.

Results

There were no statistically significant difference for height, number of breaks, inflorescence diameter, maturity or root quality for either the soil mix or fertilization treatment (Table 1). The ranked order of responses to the fertilization treatments in both mixes showed the 2 higher levels of Osmocote as being superior to the lowest rate when incorporated throughout the soil mix except for height where the 8 oz. rate was lowest ranked. The 4 oz. rate when confined to the bottom of the pot gave better results than the same rate generally distributed in the soil mass. The Scott material, while providing as much N at 4 oz/ft^3 as Osmocote at the 6 oz. rate, ranked below it in all comparisons.

Richard A. Criley
Associate Horticulturist

AVAILABLE PUBLICATIONS

1979 U.H. Recommendations for Turfgrass

This publication of the Cooperative Extension Service of the University of Hawaii by Dr. Charles L. Murdock and others outlines the current recommendations for establishment and maintenance of turfgrass in Hawaii. In addition, recommendations are provided on the control of nematodes, insects, diseases and weeds in turf.

Pikake

Instant Information No. 12, by Robert Masutani and Kenneth W. Leonhardt provides information on the culture and harvesting of Pikake in Hawaii.

Ornamentals and Flowers

A new series under the Hawaii Cooperative Extension Service publication Instant Information has been initiated with 5 new leaflets on commonly used landscape plants in Hawaii prepared by Dr. Fred D. Rauch, Extension Horticulturist. These include information on the size, characteristic, where to use, landscape value, propagation, pests and cultivars (varieties).

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

No.	Title
1	Crape Jasmine
2	Wedelia
3	Common Gardenia
4	Oleander
5	Monstera

1978 Yearbook Is A Guide To Country Living

The 1978 Yearbook of Agriculture published recently, "Living on a Few Acres," describes both the pitfalls and satisfactions of living in the country. The book is aimed mainly at those persons who do not intend to gain their principal income from the land but rather have a job in town or some other source of income.

The yearbook's 48 chapters cover many aspects of part-time farming, including production for family use or supplemental income. The book's five sections include information on pluses and minuses, acquiring the right spot, improvements, how to make the most of the land, and selling the property. There are specific articles on raising vegetables, grapes, berries, ornamental plants, herbs, nuts, poultry, pigs, goats, rabbits, Christmas trees, and earthworms.

Copies of the 472-page yearbook may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Ask for stock number as follows: 001–000–03809–5. Members of Congress have limited copies of the 1978 yearbook for free distribution to constituents.

PESTICIDE SAFETY

To protect man, animals, and the environment:

1. Read the ENTIRE LABEL before each use. You'll be amazed at what you missed the last time you read it. Follow label directions exactly. Be certain that the product is registered against the pest you want to control and on the plant you wish to protect.

2. Observe all safety precautions. Wear protective mask and clothing, if directed on the label.
3. Avoid inhaling concentrated pesticide powders or vapors when filling the sprayer.
4. Concentrated pesticides or mixtures spilled on skin should be washed off with soap and water immediately. Clothing wet with pesticides should be removed, skin washed, and clean clothing put on.
5. Don't smoke or eat when using pesticides. Before eating or smoking, wash face and hands.
6. Wash hands and face, or better yet, take a shower after spraying and change to clean clothes. Wash contaminated clothes separate from family laundry before using again.
7. Another person in addition to the applicator should know the pesticide being applied in case there is an accident. Work in pairs when handling highly toxic materials.
8. If you feel ill when handling or spraying pesticides, stop right away. Don't try to finish the job. See a doctor and show him a label of the pesticide being used so that he can phone the Poison Information Center for the best treatment.
9. Do not handle or market newly treated plants. Adhere to the waiting period indicated on the pesticide label.
10. Post warning signs in areas being treated with pesticides until it is safe to re-enter.
11. Store pesticides in original containers with original labels–out of reach of children, pets, and livestock and away from food or feed. Keep in a locked storeroom or cabinet marked "PESTICIDES–KEEP OUT."
12. Never put pesticides in containers such as bottles, cans, cartons, bags, etc., which once had drinks and food.
13. Rinse metal, glass and plastic containers with adequate water and pour into spray tank. Do it three times. Disarm the empty containers by puncturing them so they cannot be used to hold drink, food or feed.
14. Dispose of empty containers properly. Bury them at least 18 inches deep in a disposal area (such as a public landfill) where the pesticides will not be washed into streams, ponds or water supplies.

DO NOT USE PESTICIDES IF YOU ARE NOT WILLING TO FOLLOW SAFETY PRECAUTIONS.

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. Masa Oshiro
71 Banyan Drive
Hilo, HI 96720

Anthurium Council of Hawaii
President: Mr. Mitsuo Murashige
75 Aupuni Street
Hilo, HI 96720

Big Island Anthurium Growers Association
President: Mr. Daniel Hata
Kurtistown, HI 96760

Big Island Chapter of HAN
President: Ms. Leslie Hill Higgens
1073 Ainalako Rd.
Hilo, HI 96720

Florist Association of Hawaii
President: Mr. Howard Nakamoto
1293 S. Beretania St.
Honolulu, HI 96814

Hawaii Association of Nurserymen
President: Mr. Ray Uchida
P. O. Box 293
Honolulu, HI 96809

Hawaii Dendrobium Orchid Growers Association
President: Mrs. Helen Wong
41–879 Mahailua St.
Waimanalo, HI 96795

Hawaii Landscape Contractors Association
President: Mr. Dan Nakamura
1402 Kapiolani Blvd., Suite B–34
Honolulu, HI 96814

Hawaii Protea Growers Association
President: Mr. Chris Peterson
RR1, Box 769
Kula, HI 96790

Hawaii Turfgrass Association
President: Mr. Wayne Morioka
P. O. Box 30407
Honolulu, HI 96820

Hawaii Vanda Association
President: Mr. Haruo Taira
Pahoa, HI 96778

Hilo Florist & Shipper's Association
President: Mr. Richard Iwasaki
44 Hauoli St.
Hilo, HI 96720

Hilo Orchid Society
President: Mr. Yoshiharu Tsubaki
255 Aipuni St.
Hilo, HI 96720

Kauai Anthurium Association
President: Mrs. Flora Bukoski
P. O. Box 521
Kolao, HI 96756

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
Kealakekua, HI 96750

Maui Association of Nurserymen
President: Mr. Howard Takishita
432-A High St.
Wailuku, HI 96793

Maui Flower Growers
President: Mr. Yukio Matsui
310 Kaahumanu Ave., Bldg. 214
Kahului, HI 96732

Oahu Nursery Growers Association
President: Mr. Rodney Fukui
P. O. Box 293
Honolulu, HI 96809

FOOD FOR THOUGHT

- The ability to manage time is one of the keys to effective business management. Time lost is never regained. The good manager has to battle constantly to keep unimportant events and activities from using the time he should be devoting to important things.
- Every business projects an image of itself to customers, suppliers and the general public. Be sure that the image presented is the one you wish a particular audience to observe. In this area, actions speak louder than words.

What Kind of a Bone are You?

In the anatomy of every organization there are four kinds of bones:

1. There are the Wishbones–who spend all their time wishing someone else would do the work.
2. There are the Jawbones–who do all the talking, but little else.
3. There are the Knucklebones–who knock everything anyone tries to do.
4. And there are the Backbones–who get under the load and do the work!

Pesticide Pipeline
Vol. XI, No. 5, May, 1979

Fred D Rauch

Fred D. Rauch
Associate Specialist in Horticulture