

HOME HORTICULTURE INFORMATION REQUESTS

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Throughout the country, thousands of gardening questions are being asked daily in nurseries, garden centers, cooperative extension offices, botanical gardens, arboreturns, horticultural societies, hardware and discount stores, and amongst friends, neighbors, and relatives.

The focus of this essay is to examine the information needs of home horticulture. Home horticulture as defined by the research of the 1974 Minnesota-Wisconsin Home Horticulture Project is: "Those programs and activities that relate to the arrangement, selection, planting, growing, and maintenance of trees, shrubs, flowers, lawns, plant materials in and/or around dwellings including protection from, and the control of plant insects, disease, and weeds."¹

Being aware of the topical nature of questions asked, their monthly distributions, seasonal cycles, and annual variations, an institution can better serve the needs of its constituency and more efficiently allocate staff and volunteer resources. Unfortunately, very few organizations

with horticulture information services, collect and interpret detailed data on the questions asked to their informational systems. After looking at the following examples and data on home horticulture information requests, which the author has collected from extension agents, public gardens, garden centers, horticultural societies, and two national surveys, hopefully the 82% of Americans who are involved in some form of gardening can be better served.²

According to the 1974 Minnesota-Wisconsin Home Horticulture Project, "The most prevalent need is for programming that provides crucial information, answers to specific seasonal questions, at the time people are working on their lawns or gardens. Few gardeners are interested in being educated in the sense of reading extensively, or attending classes. They want short specific answers."³

PUBLIC GARDENS

Botanical Gardens and Arboretums have long been a focal point of information requests. Often a public garden or arboretum will be asked questions related to its collections. Example: people will look to the Arnold Arboretum for information on trees or to Green Animals Topiary Garden for information on topiary.

At the Chicago Botanic Garden, the Plant Information Service averages nearly 2,000 phone calls annually (1980-1983).⁴ April through October accounts for nearly 75% of all annual calls with April, May, June and July as the busiest months in 1981 and May, June, July, and August as the busiest months in 1983 (See Table A). Indoor Plants have consistently been the most asked about topic, with trees and shrubs a close second. Data collected by the Garden Plant Information Service staff from 1983 shows when the following topical areas had their peak question periods:

January - indoor plants;

May -vegetables/fruits, annuals/perennials;

June - trees/shrubs, pests/disease

August - lawns/ground covers.

Within each topical question area different patterns arise. Example: pest/disease show a strong peak in June/July while house plants demonstrate a strong interest throughout the year. The data collected by the Chicago Botanic Garden staff can help them schedule and prepare fact sheets, press releases, informational programs, and television appearances plus alert garden staff to possible insect/disease outbreaks in the garden and surrounding communities.

Francis Clark indicates in her "Educational Resources at Botanical Gardens and Arboreta" that forty three public gardens had plant information hotlines in 1984.⁵ Hopefully these institutions are keeping data that will help them better serve their constituencies and more efficiently allocate staff resources including volunteers, who run their information services.

GARDEN CENTERS AND HORTICULTURAL SOCIETIES

Garden Centers and Horticultural Societies are another important source of horticultural information. Volunteers in Philadelphia, have been operating the Pennsylvania Horticultural Society's (PHS), plant hotline twelve hours per

week since 1977.⁶ The PHS hotline has received over 14,000 phone calls in its first seven years of operation.

An analysis of the PHS hotline information requests indicates May and June as the busiest months and the growing season of April - October accounting for 67% of all hotline requests⁷ (See Table A).

The Cleveland Garden Center received over 6,000 phone calls during 1982-1983 to its plant information service which is run by a staff horticulturist eighteen hours per week.⁸ The growing season of April - October accounted for 74% and 77% of total phone calls for 1982 and 1983 respectively. May, June, July and August were the busiest months in both 1982 and 1983 (See Table A).

EXTENSION SERVICE

University and County Extension Offices service probably more home horticulture questions than any other not-for-profit or governmental educational institutions in our country. The annual phone call totals listed in Table A reflect the popularity of Extension Service gardening hotlines.

At the New Castle County, Delaware, Extension office, the Ornamental Horticulture Specialist answered over 7,500 gardening questions over the telephone in the 24 month period of 1982-1983.⁹ The busiest month in this two year period was May of both years and the growing season of April - October of both years received 77% and 76% of annual phone calls respectively. Detailed data were collected by the Horticulture Specialist in twenty subject areas. The five most frequently asked subject areas in order of number of phone calls received were 1) trees, 2) general pest control, 3) home fruits, 4) home vegetables and 5) shrubs.

Tables B and C show the monthly telephone totals of the Horticulture Specialist Extension Agent for New Castle County, Newark, Delaware. Example: Questions pertaining to garden chemicals accounted for 24 phone calls during May, 1982 (Table B), while questions pertaining to trees (general), received 128 phone calls in May, 1983 (Table C).

The two far-right columns show the "Sum" (annual totals) for a particular subject area and the "Rank" meaning the numerical position of the annual totals of each subject area in relation to the twenty different subject areas. (One being the highest rank/total and twenty being the lowest rank/total). Example: Questions pertaining to general pest

control accounted for 539 phone call requests in 1982 giving it the second most requested subject area (Table B).

The two bottom line categories in Tables B and C illustrate the "Monthly Totals", meaning the monthly total of all questions asked and the "Monthly Ranking", meaning the numerical position of the monthly totals in relation to the other monthly totals. (One being the highest rank/total and twelve being the lowest rank/total). Example: March, 1983, had a total of 408 phone calls making March the fourth busiest month of the year (See Table C).

TABLE A
MONTHLY TOTALS OF PHONE CALL REQUESTS
BY
PERCENT OF ANNUAL TOTALS*

| LOCATION | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | *** A-O | **** *totals |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|--------------|
| Chicago 1981 (1) | 4 | 4 | 8 | 12 | 13 | 14 | 12 | 9 | 7 | 7 | 6 | 4 | 74 | 1525 |
| Chicago 1983 (1) | 5 | 5 | 8 | 6 | 11 | 13 | 12 | 11 | 9 | 10 | 6 | 4 | 72 | 2544 |
| Cleveland 1982 (2) | 4 | 4 | 6 | 8 | 16 | 12 | 12 | 13 | 3** | 10 | 7 | 5 | 71 | 2784 |
| Cleveland 1983 (2) | 4 | 3 | 6 | 9 | 13 | 14 | 12 | 12 | 8 | 9 | 6 | 3 | 82 | 3424 |
| Delaware 1982 (3) | 2 | 4 | 11 | 11 | 20 | 12 | 8 | 8 | 10 | 8 | 5 | 2 | 77 | 3638 |
| Delaware 1983 (3) | 3 | 4 | 10 | 12 | 19 | 8 | 9 | 7 | 12 | 9 | 5 | 2 | 76 | 3889 |
| Maryland 1981 (4) | 2 | 4 | 9 | 12 | 9 | 9 | 17 | 13 | 10 | 8 | 4 | 3 | 78 | 18391 |
| Maryland 1982 (4) | 3 | 5 | 7 | 16 | 16 | 12 | 11 | 11 | 7 | 6 | 5 | 2 | 79 | 17799 |
| Minnesota 1973 (5) | 2 | 3 | 8 | 10 | 14 | 12 | 11 | 12 | 10 | 10 | 5 | 2 | 79 | 33997 |
| P.H.S. 1983 (6) | 4 | 9 | 8 | 10 | 11 | 12 | 10 | 9 | 8 | 7 | 7 | 2 | 67 | 2210 |
| U.R.I. 1984/85 (7) | 2 | 3 | 7 | 8 | 15 | 13 | 17 | 14 | 9 | 7 | 3 | 1 | 83 | 5731 |

* Percent totals rounded off to the nearest whole number. Totals may not equal 100.

(1) Chicago Botanic Garden Plant Information Service

** (2) Cleveland Garden Center Plant Information Service (note Sept. 1982 reduced totals due to staff vacation time)

(3) New Castle County, Delaware, Extension Hotline

(4) Baltimore County, Maryland, Extension Hotline

(5) University of Minnesota Extension Horticulture Clinic

(6) Pennsylvania Horticultural Society Plant Hotline

(7) University of Rhode Island (U.R.I.) Cooperative Extension Gardening Hotline (Oct. 84-Sept. 85)

*** "A-O" represents the percentage of annual phone calls received during the months of April-October.

**** "*Totals" represents the total number of phone calls received during the indicated year.

TABLE B

NEW CASTLE COUNTY EXTENSION OFFICE

HORTICULTURE SPECIALIST

DAILY TELEPHONE LOG - 1982

| SUBJECT | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Sum | Rank |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| Garden Chemicals | 0 | 4 | 11 | 20 | 24 | 15 | 8 | 2 | 9 | 3 | 2 | 1 | 99 | 11 |
| Garden Equip./Bldgs. | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 20 |
| Garden Flowers | 5 | 7 | 14 | 20 | 12 | 6 | 1 | 6 | 3 | 12 | 8 | 3 | 97 | 12 |
| General Pest Control | 4 | 5 | 16 | 22 | 167 | 96 | 57 | 68 | 59 | 25 | 18 | 2 | 539 | 2 |
| Home Fruits | 7 | 31 | 47 | 49 | 47 | 42 | 16 | 32 | 28 | 26 | 24 | 5 | 354 | 3 |
| Home Vegetables | 7 | 16 | 41 | 31 | 65 | 38 | 55 | 27 | 28 | 20 | 10 | 2 | 340 | 4 |
| House Plants | 11 | 18 | 13 | 15 | 17 | 5 | 6 | 10 | 21 | 28 | 19 | 17 | 180 | 7 |
| Household Pests | 2 | 1 | 2 | 3 | 5 | 8 | 5 | 11 | 5 | 8 | 4 | 1 | 55 | 15 |
| Landscape Planning | 1 | 3 | 1 | 5 | 5 | 2 | 2 | 0 | 8 | 2 | 2 | 0 | 31 | 18 |
| Lawn Care (general) | 3 | 6 | 46 | 33 | 11 | 15 | 3 | 11 | 37 | 19 | 9 | 3 | 196 | 6 |
| Lawn Diseases | 0 | 1 | 1 | 0 | 3 | 4 | 2 | 1 | 1 | 1 | 0 | 0 | 14 | 19 |
| Lawn Insects | 0 | 1 | 4 | 3 | 4 | 4 | 4 | 1 | 12 | 24 | 0 | 0 | 57 | 14 |
| Lawn Weeds | 0 | 2 | 17 | 27 | 17 | 3 | 6 | 6 | 10 | 6 | 0 | 0 | 94 | 13 |
| Poisonous Plants | 1 | 2 | 2 | 4 | 7 | 2 | 6 | 0 | 3 | 3 | 3 | 1 | 34 | 17 |
| Shrubs (general) | 4 | 11 | 40 | 46 | 62 | 34 | 17 | 15 | 25 | 33 | 14 | 8 | 309 | 5 |
| Small Animal Problems | 0 | 1 | 9 | 16 | 15 | 15 | 12 | 20 | 5 | 16 | 13 | 4 | 122 | 8 |
| Soil Management | 0 | 6 | 27 | 18 | 14 | 5 | 8 | 10 | 14 | 4 | 11 | 3 | 120 | 9 |
| Trees (general) | 19 | 31 | 74 | 81 | 218 | 130 | 50 | 47 | 72 | 59 | 37 | 18 | 836 | 1 |
| Vines/Ground Covers | 1 | 1 | 5 | 12 | 13 | 1 | 5 | 2 | 3 | 0 | 3 | 1 | 47 | 16 |
| Miscellaneous | 11 | 10 | 12 | 11 | 12 | 12 | 13 | 6 | 9 | 7 | 7 | 1 | 109 | 10 |
| MONTHLY TOTALS | 78 | 157 | 383 | 417 | 713 | 437 | 276 | 275 | 352 | 296 | 184 | 70 | 3638 | - |
| MONTHLY RANKING | 11 | 10 | 4 | 3 | 1 | 2 | 7 | 6 | 5 | 8 | 9 | 12 | - | - |

TABLE C

NEW CASTLE COUNTY EXTENSION OFFICE

HORTICULTURE SPECIALIST

DAILY TELEPHONE LOG - 1983

| SUBJECT | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Sum | Rank |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| Garden Chemicals | 5 | 3 | 23 | 39 | 41 | 25 | 17 | 7 | 8 | 3 | 4 | 2 | 177 | 7 |
| Garden Equip./Bldgs. | 0 | 2 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 8 | 18 |
| Garden Flowers | 4 | 3 | 12 | 16 | 16 | 5 | 6 | 3 | 14 | 12 | 7 | 3 | 101 | 11 |
| General Pest Control | 9 | 5 | 47 | 45 | 191 | 70 | 74 | 84 | 64 | 30 | 25 | 8 | 652 | 1 |
| Home Fruits | 18 | 26 | 54 | 45 | 58 | 25 | 26 | 16 | 22 | 25 | 11 | 1 | 327 | 3 |
| Home Vegetables | 11 | 15 | 21 | 26 | 53 | 23 | 40 | 33 | 13 | 20 | 10 | 1 | 266 | 4 |
| House Plants | 10 | 14 | 13 | 15 | 16 | 4 | 7 | 4 | 18 | 21 | 15 | 12 | 149 | 9 |
| Household Pests | 4 | 9 | 11 | 13 | 34 | 29 | 24 | 26 | 40 | 25 | 19 | 14 | 248 | 5 |
| Landscape Planning | 1 | 0 | 1 | 6 | 5 | 0 | 1 | 0 | 2 | 2 | 2 | 0 | 20 | 16 |
| Lawn Care (general) | 0 | 5 | 47 | 37 | 20 | 8 | 9 | 17 | 69 | 40 | 11 | 3 | 266 | 4 |
| Lawn Diseases | 1 | 0 | 2 | 1 | 5 | 0 | 2 | 4 | 1 | 0 | 0 | 0 | 16 | 17 |
| Lawn Insects | 0 | 0 | 3 | 8 | 5 | 5 | 7 | 2 | 24 | 22 | 1 | 0 | 77 | 13 |
| Lawn Weeds | 1 | 2 | 14 | 32 | 18 | 2 | 3 | 3 | 8 | 10 | 4 | 0 | 97 | 12 |
| Poisonous Plants | 0 | 1 | 1 | 2 | 9 | 6 | 6 | 4 | 2 | 3 | 2 | 2 | 38 | 15 |
| Shrubs (general) | 5 | 6 | 23 | 34 | 45 | 23 | 18 | 7 | 21 | 31 | 15 | 6 | 234 | 6 |
| Small Animal Problems | 7 | 10 | 23 | 30 | 24 | 23 | 24 | 21 | 25 | 20 | 18 | 3 | 228 | 7 |
| Soil Management | 3 | 10 | 25 | 18 | 23 | 3 | 6 | 9 | 14 | 5 | 9 | 4 | 129 | 10 |
| Trees (general) | 31 | 27 | 66 | 54 | 128 | 50 | 60 | 29 | 80 | 58 | 32 | 17 | 632 | 2 |
| Vines/Ground Covers | 0 | 1 | 7 | 11 | 16 | 5 | 4 | 3 | 10 | 5 | 1 | 0 | 63 | 14 |
| Miscellaneous | 10 | 4 | 12 | 15 | 29 | 16 | 16 | 11 | 16 | 19 | 4 | 9 | 161 | 8 |
| MONTHLY TOTALS | 120 | 143 | 408 | 448 | 737 | 322 | 350 | 283 | 451 | 352 | 190 | 85 | 3889 | - |
| MONTHLY RANKING | 11 | 12 | 4 | 3 | 1 | 7 | 5 | 8 | 2 | 6 | 9 | 12 | - | - |

The peak number of questions in 7 out of 20 subject areas in 1982 was May (See Table B) while 1983 found May peak subject area totals in 11 of 20 subject areas (See Table C). Each subject area displayed its own unique distribution of monthly totals. The categories general pest control and trees displayed strong peaks in May while home fruits had high totals over a three to four month period. Home vegetables and shrubs were highest in May but they did not have as consolidated a peak interest period as general pest control and trees (See Tables B & C).

The University of Minnesota Extension Horticulture Clinic handles requests by phone calls, letters, and walk-in visitors. In 1972 the peak month for requests was August, while in 1973 May was the busiest month for the Clinic.¹⁰

Tabulations of the number of phone calls to Minnesota's Horticulture Clinic demonstrate the seasonal demands for home horticulture. The peak month in 1973 was May and the slowest month was December. The months of April through October accounted for 79% of the total annual phone calls. An analysis of the topics covered during the 33,997 phone calls in 1973 showed that 23% dealt with plant culture, 20% plant disease, 11% yard and garden pests, 10.0% household pests, 8%

urban forestry, 3% plant identification, and 2% weeds.

Phase I Part I of the Minnesota-Wisconsin report centered on a national survey of home horticulture programs of the Extension Service. All fifty states had organized extension home horticulture programs. Nationally, the specimens or samples processed by state and area specialists for home gardeners during the 1970-1971 fiscal year included the following totals; soil analysis 99,078, plant insect identification 91,012, plant disease identification 90,745, plant identification 39,369 and weed identification 33,403. These totals give a rough estimate of the role of the Extension Service specialists serving the needs in home horticulture.

In 1982, 135,000 calls were received between Minnesota's three clinics in disease, insects and horticulture. In 1983 a "Dial U" 900 number service was installed in which the caller is charged via their phone bill at a rate of \$2.00 per call. Phone calls dropped ninety percent the first year to 12,838 calls. However, "Dial U" has increased each year since with 18,325 calls in 1984 and 21,580 calls in 1985.¹¹

After analysis of the data that the Minnesota study collected, a Minnesota clinic staff member referred to Minnesota horticulture as the three "T's", turf, tomatoes and trees!

Baltimore County Extension (Maryland) received an average of approximately 18,000 horticulture phone calls annually during 1981-1982. Master Gardeners answered a majority of the phone questions, with nearly 80% of the inquiries received during the April - October growing season¹² (See table A).

The University of Rhode Island Cooperative Extension Education Center in Kingston, features a gardening hotline staffed by Master Gardeners. Between October, 1984, and September, 1985, the gardening hotline received 5,731 phone calls. The busiest months were May through August with 83% of the total annual phone calls occurring between April and October.¹³

Reviewing the information in Charts A, B and C prompts the following observations: An average of the totals in the April through October (A-O) column of Table A indicates that approximately 76% of the annual total of gardening questions will be asked during the outdoor growing season (April-October). Tables B and C illustrate how each subject area displays a unique distribution of requests. Example: Table B illustrates how lawn insect inquiries peaked in September and

October with 63% (36 inquiries) of the annual total (57 inquiries). Contrast this fall peak of interest with the widely scattered requests on house plants in which no two consecutive months showed more than 27% (49 inquiries) of the annual total (180 inquiries). Inquiries about general pest control showed a marked increase between the months of April and May, with April having 22 inquiries (4% of the annual total of 539) and May, 167 inquiries (31% of the annual total of 539). Table C totals on general pest control inquiries show a similar trend with April inquiries of 45 (7% of the annual total of 652) and May inquiries of 191 (29% of the annual total of 652).

NURSERY MARKETING COUNCIL SURVEY

Besides collecting data from home horticulture information services, one can look at national surveys for indicators of potential horticultural questions and problem areas.

The "Nursery Consumer Profile" by the Nursery Marketing Council, was published in 1979.¹⁴ This national

report focused on consumer attitudes and purchasing actions. Results revealed the following information in regards to where consumers involved in home horticulture look for primary sources of gardening information (See Table D). Example: The news media is used as a primary information source by 61% of those interviewed in this random survey while only 10% used catalogs as a primary source of information.

TABLE D

Nursery Marketing Council Survey

Primary Information Sources Used By Consumers

For Garden Information

| | |
|--------------------------------|-----|
| News Media* | 61% |
| Nursery | 50% |
| Friends/Neighbors/Relatives | 37% |
| Garden Center/Lawn Center | 26% |
| Agricultural Agent/Gov't Agent | 16% |
| Catalogs | 10% |
| Nowhere/do not seek info | 29% |
| All other answers | 11% |

* News media includes magazines, newspapers, books, television and radio.

In relating the reliability of the above mentioned sources of horticultural information, the following results emerged (See Table E).

TABLE E

Nursery Marketing Council Survey

Primary Information Sources Used By Consumers

For Garden Information

Ranked By A Consumer Reliability Index

| | |
|--------------------------------|-----|
| Agricultural Agent/Gov't Agent | .77 |
| Nursery | .73 |
| Garden Center/Lawn Center | .60 |
| Friends/Neighbors/Relatives | .44 |
| Catalogs | .43 |
| News Media | .32 |

The larger index numbers indicate a higher reliability rating. Example: Agricultural Agent/Gov't Agent is rated highest with a .77 reliability rating while the news media is rated as the least reliable source of horticultural information with a .32 reliability rating.

The results from the above (Tables D & E) indicate that although the news media is used by a large percentage of

consumers as a primary source of horticultural information (Table D), consumers have a low trust in the reliability of the horticultural information received from the news media (Table E). It is interesting to note that nurseries ranked high both as primary sources of information (Table D) and as reliable sources of information (Table E).

The Nursery Consumer Profile survey also questioned the information needs of the consumer and found that "types of plants" and "soil conditions" each represented 20% of information requests, "pest and weed control" and "growing needs" each represented 14%, "plants for a growing area" 12%, "when to plant" 8% and "no information needs" 35%.

Tables D and E are only two small bits of information from this major consumer survey. The Nursery Marketing Council has compiled nearly 1,000 pages of survey results and interpretation to help guide the nursery industry in future years.

GARDENS FOR ALL SURVEY

Each year Gardens for All (GFA), The National Gardening Association, commissions the Gallup Organization to produce a survey called the "GFA/Gallup National Gardening Survey".¹⁵

The survey is primarily oriented to vegetable gardening, which is the emphasis of the organization. A wealth of information is contained in these annual surveys and is used by commercial enterprizes and public horticultural organizations in planning marketing strategies and programs. Gardening households used a multitude of "how-to" garden information according to the 1984 survey.

"The most widely used sources were seed packets (73%) and information included with products or on the product packaging (56%). About four out of ten vegetable gardening households got gardening information from friends (43%), newspapers (41%), and relatives (36%). Seed catalogs (30%), garden books (29%), gardening magazines (29%), garden store pamphlets (22 %) and general interest magazines (21%) were the only other sources used by more than one out of five gardening households."¹⁶

The following table F lists the most common problems (with a rating of 10% or more of those surveyed) gardeners have had in their vegetable garden in each of the last four years. "For three out of four of the last four years, insects and weeds have led the list. Not enough water led the list of garden problems temporarily in 1983."¹⁷ Data for 1983 demonstrates how drought (not enough water) reduced other common problems in the vegetable garden.

TABLE F
GFA/Gallup National Gardening Survey
Of The
Most Common Problems In The Vegetable Garden

| <u>Problem:</u> | <u>1981</u> | <u>1982</u> | <u>1983</u> | <u>1984</u> |
|------------------|-------------|-------------|-------------|-------------|
| Insects | 37 | 37 | 26 | 35 |
| Weeds | 21 | 27 | 14 | 23 |
| Not Enough Water | 17 | 14 | 40 | 16 |
| Too Much Water | 13 | 9 | 9 | 10 |
| Birds/Rabbits | 10 | 9 | 8 | 8 |

Other GFA survey results indicated that on a national level County Extension Agents are used by 14% of gardening households for how-to garden information, but amongst farmer households and southern households, Extension Agents are used by 25% and 19% of gardening households, respectively.

Within the topical areas of garden information the survey found that regional interests vary. Western gardeners are particularly interested in container gardening, greenhouse growing, and citrus growing. Gardeners in the South and West have the strongest interest in choosing fruits and vegetables, and the South shows the least interest in growing perennials. High temperatures are a problem for western gardeners, while too much rain/water is a particular concern of New England

gardeners.

The GFA Survey is ripe with relevant information for institutions serving the gardening needs of the public.

Example: Knowing that 40% of garden supplies for the Rocky Mountain Region are purchased in supermarkets can help Colorado home horticulture information specialists plan outreach programs and clinics in shopping centers near where garden supplies are purchased.

SUMMARY

Home horticulture information services vary in the number of people served, topical questions asked, and the numeric ranking of those topical areas. Each horticultural institution has its own particular audience and public-perceived expertise, which is often based on the specialization of its plant collections and the focus of its education programs.

By keeping data on the information requests of home horticulture, an institution can better serve its constituency and more efficiently allocate staff resources. Statistics from national surveys can help information specialists focus on the

general topics of greatest interest among home gardeners.

Results from the Gardens for All National Gardening Survey show how climatic variations and their relationship to insect and disease outbreaks can significantly alter the problems faced by the home gardener in any one year or region. Insect and Disease problems can be forecast on a monthly seasonal basis using home horticulture information inquiry data from previous years, and employing the forecasts of Integrated Pest Control Managers, who take into account pest and disease life cycles, data from previous insect and disease outbreaks, climatic data and the monitoring reports of their field scouts.

Data collected for this essay shows that 76% of the annual gardening related phone calls received by horticultural institutions are placed during the outdoor growing season of April through October. Further analysis demonstrates that each subject area of gardening questions displays a unique monthly distribution of requests. This type of information can be used by institutions to prepare staff and resources for the deluge of gardening questions that occur during every growing

season.

Lack of collected, collated and interpreted data frequently leaves the home-horticulture-oriented institution with an unfocused and unprepared informational service system. Local and regional data on home horticulture information requests should be collected and shared by cooperating institutions in order to bring the public needs into a sharper and more current focus. Standardization of the data collected on home gardening questions would allow for regional and perhaps even a national understanding of the informational needs of the home horticulturist.

NOTES

1. Vernon A. Keel, Harry P. Zimmerman, Robert A. Wearne, Communicating Home Garden Information: Phase I Report, The Minnesota-Wisconsin ES-USDA Home Horticulture Project: Phase II Report, Extension Approaches to Communicating Home Garden Information.
2. Gardens for All, GFA Gallup National Gardening Survey Burlington, Vermont: The National Association for Gardening, 1982-83.
3. See note 1 above.
4. Charles A. Levine, Chicago Botanic Garden, personal communication February 1984.

5. Francis Clark, Educational Resources at Botanical Gardens and Arboreta (Swarthmore, Pa: AABGA, 1984).
6. PHS Yearbook, Pennsylvania Horticultural Society, 1977-1983.
7. Mary Lou Wolfe, Pennsylvania Horticultural Society, personal communications 1983 - 1984.
8. Helen Tramte, Cleveland Garden Center, personal communication April 1984.
9. David Tatnall, New Castle County, Delaware Cooperative Extension Service, personal communications 1983-1984.
10. See note 1 above.
11. Emily Lincowski, Jane P. McKinnon, Evaluation of the Dial U Insect and Plant Information Service (St. Paul, Minn.: University of Minnesota, November 1983).
12. Russ Balge, Baltimore County, Maryland Extension, personal communication January 1984.
13. Kathy Mallon, Rhode Island Cooperative Extension Education Center, personal communication March 1987.
14. Nursery Consumer Profile - Research Summary (Washington, D.C.: Nursery Marketing Council, 1979).
15. See note 2 above.
16. See note 2 above.
17. See note 2 above.

A SELECTED BIBLIOGRAPHY FOR
HOME HORTICULTURE INFORMATIONAL SERVICES

This bibliography is a literature review of the informational services of institutions and businesses serving the needs of home horticulture. The references are grouped into four functional categories: 1) Cooperative Extension Service; 2) Garden Centers and Retail Nurseries; 3) General References; 4) Public Gardens and Horticultural Institutions.

The Cooperative Extension Service is where many of the new techniques and research into home horticulture information service systems are taking place. Innovative Extension Agents, given the freedom of their positions and the diversity of their constituencies, are enterprisingly trying new approaches to reach new and old audiences. The rapid urbanization of America has changed the rural agricultural mission of the Extension Service into a multi-programmed, diverse, audience-oriented institution. The large number of references reflect the diversity and strength of the Extension Service's home horticulture programs.

Garden Centers and Retail Nurseries have long been on the "front line" in serving the informational needs of the home horticulturist. As discount stores have entered the horticultural commodities market, garden centers and retail nurseries have been forced to rely on the informational services they offer, in order to remain competitive. Innovation within the service aspect of the retail plant business world has seen the proliferation of information on product packages and displays, plus the accreditation and certification of professional nurseryman. These two developments have opened up a wealth of accurate information to the consumer.

The General Reference section is a compilation of articles on information-related developments which are pertinent to horticultural information systems. Computers and the use of volunteers are two particular areas of much promise.

The small number of Public Gardens and Horticultural Institutions listed as references reflect the lack of documented examples of home horticulture information services located within these institutions. Information systems such as those found at the Chicago Botanic Garden and the Pennsylvania Horticultural Society, are model examples of what can be done at public horticultural institutions and should be documented within the literature.

COOPERATIVE EXTENSION SERVICE REFERENCES

Adams, E. Blair. "Action or Reaction?" Extension Service Review, Vol. 41, (June, 1970). p. 6.

"An Extension Center - A Learning Center." Journal of Cooperative Extension, Vol. 10, No. 1, (Spring, 1972). p. 8.

Balge, Russell J. Four Seasons, Cooperative Extension Service, Cockeysville, Maryland.

Barcus, Francis E. The Role of Agricultural Extension in the Suburban Community. Communications Research Center Report No. 6, University of Massachusetts, August, 1962. 149 p.

Bejot, Dennis D. "Extension and Extension Cords." Journal of Extension, Vol. 18, (September/October, 1980). p. 24.

Bernstein, Julie F.; Wott, John A.; Santini, Judy. "Computer-planned Gardens". Hort Science, Vol. 16, No. 5, (October, 1981). p. 603.

Boger, Allen E. "Simplicity + Relevance + Promotion = Success." Extension Service Review, Vol. 41, (November, 1970). p. 6.

Boyce, Milton.; Wearne, Robert. "Master Gardeners and Teen Horticultural Assistants." National 4-H News, Vol. 5, (June/July, 1976). p. 4.

Burleson, William C. "Center for Volunteer Development." Extension Review, Vol. 53, No. 4, (Fall, 1982). p. 12.

Caffarella, Rosemary S. "Identifying Client Needs." Journal of Extension, Vol. 20, (July/August, 1982). p. 5.

Carmichael, Erna. "Hiring Paraprofessionals: a problem or a challenge?" Journal of Extension, Vol. 26, (November/December, 1978). p. 30.

Carnahan, William E. "Urban IPM - Blooming Across the Country." Extension Review, Vol. 53, No. 2, (Spring, 1982). p. 12.

Carroll, Candace. "Hot Line Serves Homeowners." Extension Service Review, Vol. 43, No. 12, (December, 1972). p. 3.

Chamberlain, Juliann. "A Description of the Master Gardener Program in Indiana." Thesis. Purdue University. May, 1982.

Cohnstaedt, Martin L.; Phillipson, Thomas K. "The Urban Extension Agent." Adult Leadership, Vol. 10, No. 8, (February, 1962). p. 225.

Cooperative Extension Service, State of Indiana. Purdue University. Plant Diagnostician's Quarterly, Vol. 3, No. 2. (July, 1982).

Cress, Forrest. "Retailers Wholesale Extension Information." Extension Service Review, Vol. 47, (November/December, 1976). p. 22.

Davidson, John A. Dutky, Ethel M. Ornamentals Alert, University of Maryland, College Park, Maryland.

Debertin, David L.; Rabbits, Lynn W.; Jones, Larry D. "Kentucky's ANSER: The Agricultural Network Serving Extension and Research." American Journal of Agricultural Economics, Vol. 61, No. 3, (August, 1979). p. 546.

Deschner, Laura. "The Master Gardener Program." Garden, Vol. 5, No. 4, (July/August, 1981). p. 12.

Ewbank, H.L. Jr.; Baker, E.E. "Tele-Lecture or Traditional Lecture?" Journal of Cooperative Extension, Vol. 6, No. 1. (Spring, 1968). p. 46.

Finkle-Strauss, Linda. "Master Gardeners." Horticulture, Vol. 1, No. 1, (January, 1980). p. 18.

- Fretz, Thomas A. "Poster Sessions: A New Means of Communication." Hort Science, Vol. 14, No. 2, (April, 1979). p. 106.
- Fretz, Thomas A.; Crean, David E.; Sydnor, T. Davis. "Slide Presentations." Hort Science, Vol. 14, No. 3, (June, 1979). p. 223.
- Gamon, Julia. "How to Hang on to Volunteers." Journal of Extension, Vol. 15, (September/October, 1978). p. 6.
- Gentle, Tom, "Gardening by the Calendar." Extension Review, Vol. 49, No. 4, (July/August, 1978). p. 20.
- Gomez, Ricardo E.; Palmer, Lynn. Directory of State Extension Horticultural Specialists, 1982. USDA - Extension Service. 54 p.
- Gouin, Francis R. "4-H in Horticulture." Hort Science, Vol. 10, No. 5, (October, 1975). p. 466.
- Grieshop, James I.; Rupley, Victoria. "How do you spell relief? Master Gardening!" Journal of Extension, Vol. 22, (July/August, 1984). p. 15.
- Groves, Marjorie P. "Aides handle hoes against inflation." Extension Service Review, Vol. 47, (July, 1976). p. 18.
- Heatley, Randy C.; Peterson, Curt. "Gardening Tabloids Go To Market." Extension Review, Vol. 57, No. 3, (Fall, 1986). p. 18.
- Higbee, Arthur L. ed. "Community Systems and Techniques Symposium." Hort Science, Vol. 13, No. 6, (December, 1978). p. 653.
- Keel, Vernon A.; Zimmerman, Harry P.; Wearne, Robert A. Communicating Home Garden Information, Phase I Report, The Minnesota-Wisconsin ES-USDA Home Horticulture Project: Phase II Report, Extension Approaches to Communication Home Garden Information.
- Kempton, Rodney L. "Concepts in Volunteer Management." Journal of Extension, Vol. 18, (September/October, 1980). p. 19.

- Kozlowski, Robert E. "The Master Gardener Program - A Chance to Share." Plants/Gardens, Vol. 35, No. 1, (May, 1979). p. 7.
- Kristiansson, Karin. "Green Star Gardeners Learn Through Video Cassettes." Extension Service Review, Vol. 47, No. 4, (July/August, 1976). p. 7.
- Lewis, A.J. "Reaching the Beginner." Journal of Extension, Vol. 24, (Fall 1986). p. 35.
- Lincowski, Emely. McKinnon, Jane P. Evaluation of the Dial U Insect and Plant Information Service. University of Minnesota, November, 1983. 48 p.
- Meador, Daniel B. Vernon, Edwin W. "Tele-lectures Expand Home Horticulture Programs in Illinois." Hort Science, Vol. 12, No. 4, (August, 1977). p. 239.
- McConnell, Maeve. "Database Curbs Crops Diseases." Extension Review, Vol. 55, No. 3, (Fall, 1984). p. 35.
- Naeve, L. Taber, H.G.; Kling, G.J. "The Student Intern Program to Assist Iowa County Extension Staff." Hort Science, Vol. 14, No. 6, (December, 1979), p. 697.
- O'Hearn, Mary Kay. "For Gardening Information: Dial U!" Extension Review, Vol. 57, No. 3. (Fall, 1986). p. 12.
- Otis, Earl Jr. "Extension gets help from 'Master Gardeners'." Extension Service Review, Vol. 44, No. 9, (September/October, 1973). p. 10.
- Powers, Richard D. "Communicating with Graphs." Journal of Cooperative Extension, Vol. 4, No. 1, (Spring 1966). p. 35.
- Reisbeck, Robert F. "Toward more effective newsletters." Journal of Extension, Vol. 18, (July/August, 1980). p. 14.
- Relf, Paula D.; McDaniel, Alan. "Home Gardening Teaching Aides." Journal of Extension, Vol. 19, (July/August, 1981). p. 18.
- Rogers, Kurt. "Involvement Grows Through Landscaping." Extension Review, Vol. 51, No. 3, (Summer, 1980). p. 34.

- Rollins, H. A. Jr. "Challenges in the 70's for Extension Horticulture." Hort Science, Vol. 7, No. 1, (February, 1972). p. 4.
- Schultz, Warren Jr. "Inside the Computer-Planned Garden." Organic Gardening, Vol. 30, No. 2, (February, 1983). p. 72.
- Spencer, William P.; Sorensen, Donald M. "Audience Involvement: Best Way to Learn." Journal of Extension, Vol. 20, (July/August, 1982). p. 23.
- Stephens, James M. "Gearing up for Gardeners." Extension Service Review, Vol. 45, No. 6, (November/December, 1974). p. 6.
- Sutherland, Stu. "Extension's Master Volunteers." Extension Review, Vol. 53, No. 4, (Fall, 1982). p. 4.
- Sutherland, Stu. "Computer Uses in Pest Management." Extension Review, Vol. 53, No. 2, (Spring, 1982). p. 8.
- Trent, Curtis. "What should a title say?" Journal of Extension, Vol. 20, (January/February, 1982). p. 18.
- Troldahl, Verling C. "Communicating to the Suburbs." Journal of Cooperative Extension, Vol. 2, No. 2, (Spring, 1964). p. 82.
- U.S.D.A. - Extension Service. Extension in the '80's: A Perspective for the future of the Cooperative Extension Service -Executive Summary. 1983. 11p.
- University of Wisconsin - Extension. Dial Access: A Way to Spread Your Message. Center for Interactive Instructional Programs, Madison, Wisconsin. June, 1979. 269 p.
- Warner, Paul D.; Clearfield, Frank. "Green thumb: Extension's Videotext." Journal of Extension, Vol. 20, (November/December, 1982), p. 21.
- Warner, Paul D.; Christenson, James A. "Looking beyond extension stereotypes." Journal of Extension, Vol. 21, (September/October, 1983). p. 27.

- William, R.D.; Nehiley, J.M.; Halsey, L.H.; Thorne, J.W.; Korsching, P.F.; Christenberry, L.T. "Communicating Vegetable Production Information to Growers with Varying Educational Skills." Hort Science, Vol. 16, No. 3, (June, 1981). p. 258.
- Witt, Mary Hotze. "Consumer Horticulture: Trends in Program Delivery." Hort Science, Vol. 17, No. 3, (June, 1982). p. 319.
- W.J.W. "Three Keys to Mass Communication." Extension Service Review, Vol. 43, No. 7, (July, 1972). p. 16.
- Wott, John A.; Santini, Judy.; Bernstein, Julie. "A Computer in your Vegetable Garden." Journal of Extension, Vol. 19, (November/December, 1981). p. 3.
- Yemma, Cynthia. "Extension Programs build confidence in the home - in the garden." Outlook - University of Rhode Island, (Winter, 1983-1984). p. 13.
- Yep, Benjamin H. "Expanding Urban Programming." Journal of Extension, Vol. 19, (May/June, 1981). p. 29.
- Zarkin, David A. "Once 'They Wouldn't Accept a Woman'." Extension Service Review, Vol. 46, (January, 1975). p. 6.
- Zarkin, David A. "Help at hand for home gardeners." Extension Service Review, Vol. 48. (1977). p. 12.

GARDEN CENTERS/RETAIL NURSERIES REFERENCES

- California Association of Nurseryman. Dialogue, Sacramento, California.
- Carpenter, Dr. Edwin D. "Guidelines for creating effective garden center displays." American Nurseryman, Vol. 154, No. 1, (July 1, 1981). p. 160.
- Davidson, Harold.; Snell, Dennis A. "Growth and Development of the Garden Center Industry in the United States." Hort Science, Vol. 6, No. 1, (February, 1971). p. 12.

- Hosey, Timothy.; Percival, Bob. "How to set up a weed, pest and disease control information center." American Nurseryman, Vol. 159, No. 2, (January 15, 1984). p. 47.
- Marchant, Brent, "Garden Center Merchandising Programs to attract and retain customers." American Nurseryman, Vol. 156, No. 5, (September 1, 1982). p. 69.
- Marciel, Ron. "One firm's approach to coping in today's market-place." American Nurseryman, Vol. 157, No. 12, (June 15, 1983). p. 29.
- Nursery Marketing Council. Nursery Consumer Profile - Research Summary. Washington, D.C. 1979. 22 p.
- Pennsylvania Nurseryman's Association. Voluntary Accreditation Program. Harrisburg, Pennsylvania. 11 p.
- Reilly, Ann. "Creative programs can help even out sales." American Nurseryman, Vol. 159, No. 1, (January 1, 1984). p. 109.
- Reilly, Ann. "Good displays sell garden center products." American Nurseryman, Vol. 159, No. 4, (February 15, 1984). p. 83.
- Robertson, Dr. Jerry L. "New markets and life-styles will dictate garden centers future." American Nurseryman, Vol. 158, No. 8, (October 15, 1983). p. 79.
- Stump, D.S. "Reflections on the past." American Nurseryman, Vol. 159, No. 4, (February 15, 1984). p. 31.
- Texas Association of Nurseryman. Texas Certified Nurseryman. Austin Texas. 4 p.
- Verkade, Stephen D.; Hamilton, Dr. David F. "A strategy for merchandising competitively." American Nurseryman, Vol. 157, No. 9, (May 1, 1983). p. 112.
- Western Garden Nursery. The Western Garden Club. Hayward, California. 4 p.

GENERAL REFERENCES

- Ballinger, Walter E. "Effective Internships for Horticultural Students." Hort Science, Vol. 17, No. 2, (April, 1982). p. 133.
- Barham, Warren S. "What is Horticulture and Who are Horticulturists?" Hort Science, Vol. 17, No. 5, (October, 1982). p. 710.
- Beatty, Russell A. "Ornamental Horticulture Redefined." Hort Science, Vol 16, No. 5, (October, 1982). p. 614.
- Cathey, Henry M. "Bring Us All Together." Hort Science, Vol. 6, No. 2, (April, 1971). p. 120.
- Cohen, Aaron.; Cohen, Elaine. Designing and space planning for libraries: a behaviorial guide. New York: Bowker Co., 1979. 250 p.
- Gardens for All. GFA Gallup National Gardening Survey, 1984 - 1985. Burlington, Vermont. The National Association for Gardening. 1985.
- Hess, Charles E. "Horticulture - A Medium for Education." Hort Science, Vol. 8, No. 6, (December, 1973). p. 456.
- Kuntz, Mary. "Opening the gateways of Information." USA Today, March 27, 1984. p. 1B.
- Lilley, Dorothy B. Library and informational science: a guide to information sources. Detroit, Michigan. Gale Research Co., 1982. 151 p.
- Maloney, Lawrence D. "America's Suburbs Still Active and Doing Fine." U.S. News & World Report, March 12, 1984. p. 59.
- Meister, Richard T. "Learning the Art of Effective Communication." Hort Science, Vol. 8, No. 1, (February, 1973). p. 8.

Michalski, R.S.; Davis, J.H.; Bisht, U.S.; Sinclair, J.B. "A Computer-Based Advisory System for Diagnosing Soybean Diseases in Illinois." Plant Disease, Vol. 67, No. 4, (April, 1983). p. 459.

Miller, Larry E. "Adult Education: Growth for Vocational Agriculture in the Eighties." Agricultural Education, Vol. 43, No. 5, (November, 1970). p. 101.

Moeller, George H. "USDA Forest Service Programs to Support Urban Forest Resources." Hort Science, Vol. 16, No. 3, (June, 1981). p. 271.

Paulson, Belden. "Urban Dilemma: Contributing Factors." Journal of Cooperative Extension, Vol. 11, No. 1, (Spring, 1973). p. 15.

Raulston, J.C. "Ornamental Horticulture Information Sources - 1982." Department of Hort Science, North Carolina State University, Raleigh, North Carolina. 2 p.

Smith, Michael D. ed. Ortho Problem Solver. Ortho Information Services, San Francisco, California. 1982. 1022 p.

Southerland, Margaret M. Horticultural Volunteers: Cultivation their Potential. A.A.B.G.A., Swarthmore, Pennsylvania. 1980. 40 p.

Sparks, Martin D.; George, William R. "Marketing for Volunteer Service Organizations: A Case Study." The Non Profit World Report, Vol. 2, No. 2. (March/April, 1984).

"Spreading an Appreciation of Horticulture: exploring horticulture information sources." American Horticulturist, Vol. 53-54, (1974/75). p. 44.

Tukey, H.B. Jr. "Urban Horticulture: Horticulture for Populated Areas." Hort Science, Vol. 18, No. 1, (February, 1983). p. 11.

Tyler, Ralph W. "The Role of the Volunteer." Journal of Cooperative Extension, Vol. 4, No. 3, (Fall, 1966). p. 153.

Watt, Dan. "Neighborhood Computer Centers." Popular Computing, May, 1984. p. 91.

Widmoyer, Fred B. "The Role of Amateurs in Horticultural Education." Hort Science, Vol. 7, No. 1, (February, 1972). p. 9.

Wott, John A. "A short history of consumer horticulture." Hort Science, Vol. 17, No. 3, (June, 1982). p. 313.

PUBLIC GARDENS AND HORTICULTURAL INSTITUTION REFERENCES

Briggs, George B. "A Novel Approach to displaying plants and educating the public." American Nurseryman, Vol. 154, No. 10, (November 15, 1981). p. 9.

Clark, Frances. Educational Resources at Botanical Gardens and Arboreta. A.A.B.G.A., Swarthmore, P.A., 1984. 22 p.

De Wolf, Gordon P. Jr. "Serving Justifies Public Support." A.A.B.G.A. Bulletin, Vol. 5, No. 2, (May, 1971). p. 47.

Hansell, Dorothy Ebel. ed. "Handling Requests for Botanical, Horticultural, and Gardening Information." A.A.B.G.A. Bulletin, Vol. 3, No. 4, (October, 1969). p. 98.

MacPhail, Ian. "Information Resources for Botanical Gardens." A.A.B.G.A. Bulletin, Vol. 15, No. 3, (July, 1981). p. 90.

Norweb, R. Henry Jr. "Relating to People." A.A.B.G.A. Bulletin, Vol. 5, No. 2, (May, 1971). p.44.

Seibert, Russell J. "Educational Services of U.S.A. Botanical and Horticultural Gardens." A.A.B.G.A. Bulletin, Vol. 10, No. 1, (January, 1976). p. 11.

Watson, Donald P. "Educational Opportunities for Botanical Gardens and Arboretums." A.A.B.G.A. Bulletin, Vol. 11, No. 1, (January, 1977). p. 29.

A MODEL FOR ESTABLISHING HORTICULTURAL
INFORMATION-RESOURCE CENTERS

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Longwood Program
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INTRODUCTION

"A Texas Certified Nurseryman in your employ establishes you as a professional - brings you prestige, enhances your image and, best of all, gains you a reputation as THE PLACE to go for information and customer service." ¹

This quote from a Texas nurseryman brochure on the Texas Certified Nurseryman (TCN) program illustrates the importance of information services in home horticulture. Horticulture professionals and amateurs are constantly searching for reliable and easy-to-use information sources.

This essay reviews the sources of home horticulture information in this country and proposes a model for the establishment of Horticultural Information-Resource Centers (HIRC), taking into consideration location and design, staffing, programs, the development and evaluation of information systems, potential sources of revenue and some concluding remarks.

The primary focus of a proposed HIRC is the information needs of home horticulture as defined within the Minnesota-Wisconsin Home Horticulture Project. Here home horticulture is defined as: "Those programs and activities that relate to the arrangement, selection, planting, growing, and maintenance of trees, shrubs, flowers, lawns, plant materials in and/or around dwellings including protection from and the control of plant insects, disease, and weeds." 2

SOURCES OF HOME HORTICULTURE INFORMATION

Primary information sources used by consumers was one of the main concerns of the "The Nursery Consumer Profile" published by the Nursery Marketing Council in 1979.³ This report focused on consumer attitudes and purchasing actions on a national level. Results produced the following information as to where consumers involved in home horticulture look for primary sources of gardening information (See Table A). Example: The news media is used as a primary information source by 61% of those interviewed in this random survey while only 10% used catalogs as a primary source of information.

TABLE A
Nursery Marketing Council Survey
Primary Information Sources Used by Consumers
For Garden Information

| | |
|--------------------------------|-----|
| News Media* | 61% |
| Nursery | 50% |
| Friends/Neighbors/Relatives | 37% |
| Garden Center/Lawn Center | 26% |
| Agricultural Agent/Gov't Agent | 16% |
| Catalogs | 10% |
| Nowhere/do not seek info | 29% |
| All other answers | 11% |

*News Media includes magazines,
newspapers, books, television and radio.

In relating the reliability of these sources of horticultural information, the following results emerged (See Table B). The larger index numbers indicate a higher reliability rating. Example: Agricultural Agent/Gov't Agent is rated highest with a .77 reliability rating while the news media is rated as the least reliable source of horticultural information with a .32 reliability rating.

TABLE B

Nursery Marketing Council Survey
Primary Information Sources Used by Consumers
For Garden Information
Ranked By A Consumer Reliability Index

| | |
|--------------------------------|-----|
| Agricultural Agent/Gov't Agent | .77 |
| Nursery | .73 |
| Garden Center/Lawn Center | .60 |
| Friends/Neighbors/Relatives | .44 |
| Catalogs | .43 |
| *News Media | .32 |

*News media includes magazines,
newspapers, books, television and radio.

The results from Tables A and B indicate that although the news media is used by a large percentage of consumers as a primary source of horticultural information (Table A), consumers trust the reliability of the news media very little (Table B). In comparison, nurseries ranked high both as primary sources and as reliable sources of horticultural information (Tables A and B respectively).⁴

Several channels of communication are used in home horticulture information services. Telephones are one of the most dominant and widespread avenues of communication. The most prevalent telephone format is the direct one-on-one method in which a gardener calls a nurseryperson, extension agent or plant information hotline volunteer at a retail garden center, extension office, botanical garden or horticultural society. Frances Clark indicates in "Educational Resources at Botanical Gardens and Arboreta" that forty-three out of one hundred and ten surveyed gardens and arboretums have direct one-on-one plant information hotlines.⁵

A second method of phone communication is the Tip-A-Phone service, in which a single timely message is played to each caller. The most widely used example of this type of service is the daily recorded weather service forecasts. Another method of taped phone information services is the Teletip system. The heart of the system is a cartridge playback machine activated by a Teletip operator. A caller dials a toll-free 800 number and asks for a particular cartridge number or topical message to be played. The recorded messages range in length from thirty seconds to five minutes.

Computer electronic bulletin boards are the newest way of dispersing information over the phone lines. A caller uses a computer, modem, and appropriate software to access the host

institution's computer, modem, and bulletin board program. Messages are sent and received by the users of the electronic bulletin board with the systems operator organizing and updating all electronic message boards.

Supplemental income can be obtained from any phone information service by installing a 900 number system in which the phone company charges a set fee for access to the phone line and then reimburses the host institution based upon user totals.

Walk-in services are an effective way of serving the gardening public, especially for organizations with high visitation such as large garden centers, urban botanical gardens and arboretums. Information booths staffed with Certified or Accredited Nurserymen, professional horticulturists, or trained volunteers such as Master Gardeners are an excellent method of serving the public's information needs. Having knowledgeable staff dispensing correct and timely information enhances the consumers perception of the reliability of the host institution.

Very few organizations use letters as a major means of conveying information to the public. "Gardens for All", in Vermont, has a database of horticultural information which is used in conjunction with a word processing program allowing staff to more effectively respond to written requests from their members.⁶

Some retail garden centers, extension agents, botanical gardens and arboreturns use newsletters to communicate timely and concise horticultural information. These newsletters will often publicize local plant clinics, horticultural workshops and lectures. Home horticulture information seekers also turn to the written word in reference books, gardening magazines, newspaper articles, and specialized handouts available from extension agents and progressive garden centers. Informational labels on plants and related products are another source of information for the home gardener.

Television, radio and newspapers are frequently used by the gardening public as information sources as indicated in Table A, but the public does not perceive the information gathered from the mass media as highly reliable (Table B).

A variety of other sources of horticultural information are available to the public including slide-tape shows and video tapes. These visual means of communicating information can show and tell gardeners how to perform gardening activities.

Retail garden centers, a primary source of plant materials and garden related products, are also on the front line in serving the public's information needs. During the busy spring, summer and holiday season, these commercial enterprises become deluged with information requests. Consumers buy plants and related

products expecting information services as a consumer service. A 1984 article in American Nurseryman addressed the question of "How to set up a weed, pest and disease control information center" within the confines of a retail store.⁷ Signs, reference materials, visually oriented displays with pictures and drawings, along with informational handouts, are all important parts of such an information center. Garden Centers with certified and accredited nurseryman often display their staff's professional qualifications and training as a backdrop to an information booth.

Cooperative Extension Offices serve a growing number of home gardeners. An example of their program development is the University of Rhode Island Cooperative Extension Education Center in Kingston, which features a gardening hotline staffed by Master Gardeners, a reference library, a plant protection clinic, and an affiliated All America Selections Display Garden.⁸ Providing all of these services in one location allows for more effective use of staff and reference resources, and offers convenience to the visiting public.

Public Gardens, arboretums and horticultural societies often provide signs and labels in their gardens for visitor information. In conjunction with hotlines and information booths, these not-for-profit institutions can provide valuable educational experiences for

visitors by accurate labeling of their plant collections and through the timely offering of horticultural programs.

The various volunteer training programs of the Extension Service, including Master Gardeners training, 4-H programs, plus the accreditation and certification programs of nurseryman associations, have greatly increased the quality and number of people staffing horticultural information services. As the American gardening public becomes more knowledgeable, the pool of people to draw from to staff such information services is expected to grow. Perhaps someday gardeners in the United States will approach the level of knowledge and involvement in home horticulture that the British home gardener already possesses.

Pooling reference and staff resources helps facilitate the horticultural information needs of the home gardener and allows retail garden centers, cooperative extension offices, public gardens and arboretums and horticultural societies to better serve the needs of the local gardening community. As books, journals, magazines, pamphlets and other information sources multiply, the home gardener needs a one-stop information center that will allow access to current and reliable information in a friendly and easy manner. What follows is a proposal for the establishment of Horticultural Information-Resource Centers, which will act as focal points for horticultural information services, home gardening

training programs, and a depository of horticultural reference materials.

LOCATION AND DESIGN

In planning a Horticultural Information-Resource Center two areas need to be discussed: location and design.

The question of location can be answered simply, "Wherever space is available!" There are however, several variables that need to be considered, including what organizations/institutions are going to be involved in the center.

A host institution such as a public garden, garden center or public park, can offer an appropriate horticultural backdrop to such a center. On the other hand, a public library, cooperative extension center or government office complex can share well developed staff and reference resources. Another possibility is a retail garden center or shopping mall which would be highly accessible and visible to a large number of people.

There are benefits to each of these locations but most likely the bottom line is that economics determines the site of such a Center. Retail locations feature high rents and leases while not-for-profit organizations can offer lower housing costs, but often less public exposure. Wherever a Center finally locates, it must be

easily accessible to the general gardening public and hopefully near some horticultural resources such as a public garden, extension office, garden center or park.

Several types of activity spaces or rooms will be needed at the Horticulture Information Resource Center (HIRC). A large reference room will house the nearly all of the resource materials. Partitions, book shelves, tables, portable walls and color scheme will divide the room into activity stations.

Staff will need offices and a student work room can double as a workshop meeting space. A room for a horticulture hotline and plant clinic adjacent to the main reference room will allow staff and volunteers quick and easy access to the Center's reference materials. Equipped with a large blackboard, basic reference books, and space for two or three desks with phones, volunteer Master Gardeners will make this room a center of activity during the growing season.

If a nursery association is affiliated with the Center, their staff and records could be located in several adjacent office spaces. The shared resources would enable their accreditation/certification programs to develop more fully and at a lower cost to their members. The Cooperative Extension Service could have distribution of publications and a staff outreach office located within the Center.

A host public garden, garden center or public park, could locate staff offices of related personnel and programs such as education, public relations and horticulture information specialists in close proximity to the Center. These affiliated agents, education specialists, public relations staff and information specialists, would benefit from the resources of the HIRC. Affiliated staff could share training sessions and educational programs.

Within the Center, several types of resources would be available to interested home gardeners, commercial plant growers, horticulture professionals and affiliated institutional staff members. Related institutions could join the HIRC as affiliated members paying an annual fee in support of the Center's resources.

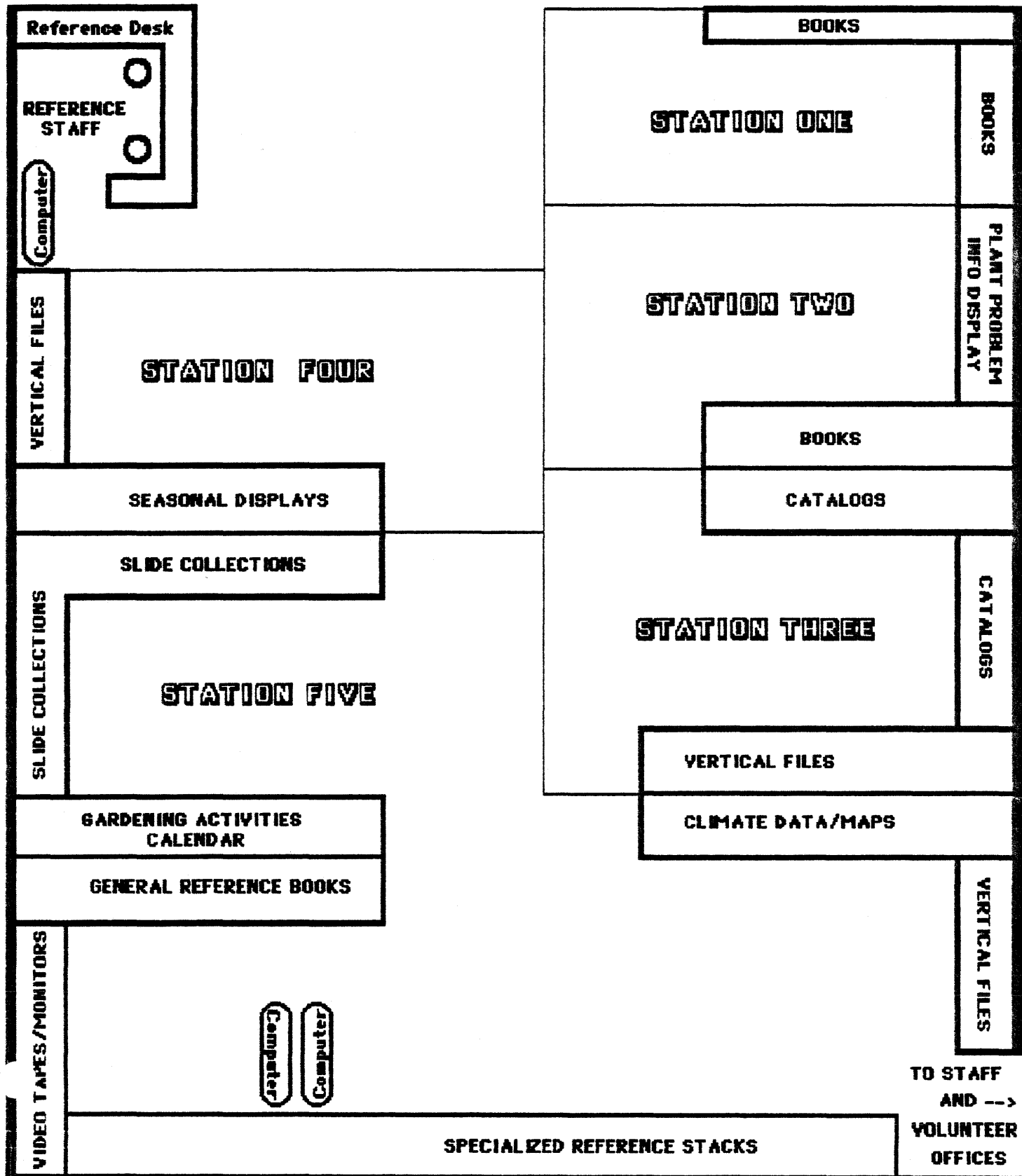
Such an information center would be organized around a self-help, user-oriented floor plan featuring color-coded problem solving activity station areas (See HIRC Reference Room Floor Plan). The Center would feature a large orientation wall at the entrance to the main reference room displaying a floor plan map of the Center, problem solving flow charts, pictures and diagrams highlighting seasonal displays and timely problem solving informational handouts.

HIRC REFERENCE ROOM FLOOR PLAN

ORIENTATION WALL DISPLAYS

ENTRANCE

RESTROOMS -->



An excellent example of this type of organized information center is the Career Resource Center at the University of Maryland, in College Park. This center is organized around four activity stations oriented to choosing a major in college and finding related employment. The four stations are: Assessing Yourself; Exploring Careers; Exploring Educational Options; Choosing and Implementing Career Goals/Job Hunting. Graphics (including color schemes), self-help concepts, work stations, and a user-oriented floor plan help guide students through the maze of career development.⁹

The Proposed Horticultural Information-Resource Center's staff would direct people towards resource materials helpful to answering their horticultural questions. Master Gardeners in the Hotline/Plant Clinic Room would be able to give phone callers and walk-ins individual attention and consultation.

Appropriate office equipment (such as vertical files, desks, chairs, book shelves, magazine racks, and space dividers), along with large, easily read, color-coded signs and labels would help reduce demands upon the Center's staff.

A wide range of books and periodicals would be the core of the information resources. Vertical files on pertinent subjects and a extensive selection of horticultural catalogs would offer information in a variety of special interest areas, reflecting the needs of the

Center's constituency. Video tapes, slide collections, and computer databases would offer quickly accessible information.

A computer, modem, and hard disc would run the information electronic bulletin board and horticulture database programs, while a tape phone message machine could give updates on meetings, pest bulletin alerts, timely gardening activities and horticultural events throughout the community.

The Center's books would be shelved and organized according to user-oriented activity stations and not according to the Library of Congress classification scheme. If a particular book was deemed necessary at three activity stations, then the Center would have three copies, one located at each of the three appropriate stations. Annuals, Bulbs, Fruits, Ground Covers, Herbs, House Plants, Natives, Perennials, Shrubs, Trees, Vegetables, and Vines would be relevant divisions for books and resource materials located at Activity Station One.

Using the category of Trees as an example, the following books could be located at Activity Station One of a New England Center:

BOOKS

Cope, Edward A. 1986. Native and Cultivated Conifers of Northeastern North America. 1986. Cornell, New York: Cornell University Press. 231 p.

Dirr, Michael. 1983. Manual of Woody Landscape Plants. Champaign, Illinois: Stipes Publishing Co. 825 p.

Dirr, Micheil. Heuser, Charles W. Jr. 1987. The Reference Manual of Woody Plant Propagation. Athens, Georgia: Varsity Press, Inc. 239 p.

Flint, Harrison L. 1983. Landscape Plants for Eastern North America. New York: John Wiley & Sons. 677 p.

Harrison, Charles R. 1975. Ornamental Conifers. New York: Macmillan Publishing Co. 224 p.

Hillier, Harold G. 1982. The Hillier Colour Dictionary of Trees and Shrubs. New York: Van Nostrand Reinhold Co. 323 p.

Little, Elbert L. 1980. The Audubon Society Field Guide to North American Trees. New York: Aldred A. Knopf, Inc. 714 p.

Mitchell, Alan. 1987. Trees of North America. New York: Facts on File, Inc. 208 p.

Sargent, Charles S. 1965. Manual of the Trees of North America. New York: Dover Publications, Inc. 923 p.

Wyman, Donald. 1965. Trees for American Gardens. New York: Macmillan Publishing Co., Inc. 502 p.

Other resources that could be located at or referred to in the category of "Trees" at Activity Station One include a computer data base of local ornamental and native trees, a tree limb/bark/cone collection, pressed tree leaves, tree slide collection, video tapes on trees, vertical file on trees, tree catalogs, tree oriented periodicals, and HIRC-produced tree information handouts. The "Tree" resource guide would give a brief description of each informational resource and direct the user to its location.

Activity Station Five would most closely resemble a conventional library with reference book stacks and vertical files

containing a general reference section and a series of alphabetically arranged topical groupings. These groupings would include specialized plant topics such as African Violets, Begonias, Carnellias, Daylillies, Ferns, Greenhouses, Peonies, Propagation, Pruning, Soils, Tools, Weeds, Winter Gardens, etc.

The five color-coded activity stations would initially be:

STATION ONE: PLANT IDENTIFICATION & CULTURAL INFORMATION

STATION TWO: PLANT PESTS & PROBLEMS

(Animals, Diseases, Insects, Weeds)

STATION THREE: PLANT CATALOGS AND DISPLAY LOCATIONS,

PLANT SOCIETIES

STATION FOUR: MISCELLANEOUS CATEGORIES

(including seasonal interest subject areas,
specialized topical displays, newly introduced
plants)

STATION FIVE: REFERENCE STACKS AND RESOURCES

(including vertical files, slide collections, climate
data/maps, video tapes/monitors, computer
terminals and a gardening activities
calendar)

Each of the activity stations (See HIRC Reference Room Floor Plan), would feature the necessary reference books, vertical files, visual displays, handouts, etc., to help solve the users problems. Each activity station would feature its own color code represented on signs, labels, book bindings, handouts, carpet and table tops. Color-coded divisions and international symbols are quickly and easily recognized reference points for the overwhelmed information seeker.

STAFFING AND OPERATION

The staffing needs of the Horticulture Information Resource Center (HIRC) will depend on the services offered by the Center, user needs and usage totals, and the Center's affiliated organizations. Trained volunteers will be an integral part of the Center's personnel, as well as horticulture, education, and information specialists. The following is a discussion of possible personnel needs. (See the Horticultural Information-Resource Center Organization Chart for an overall view of the staff positions and relationships on page 23).

The Information Center Director must have a background in horticulture, administration and public oriented information services. The Director will hire staff, draft and monitor budgets,

interact with affiliated institutions and organizations, report to the Center's governing body, and take an active part in long range planning, fund raising and public relations.

In charge of the design and development of the self-help, user-oriented information services, the Center's Assistant Director will monitor user flow patterns, requests, and problems generated by walk-ins, hotline and computer bulletin board users. This professional must have a strong background in information systems management, communication techniques, data collection and interpretation. The Assistant Director will directly oversee the Reference Staff and in the absence of the Director will be in charge of the Center.

The Administrative Assistant will coordinate personnel administration, assist the Director in his/her duties and supervise the Volunteer Coordinator and Public Relations/Graphics staff.

The reference desk will be run by Reference Staff trained in horticultural librarian skills and public service skills such as listening to visitors questions and helping them in a friendly and supportive manner. Reference Staff will be the important link in facilitating the public's use of the self-help Center and will also be responsible for the daily upkeep of the activity stations. The perceptions they gain by public interaction will be important in the evaluation and development process of the Center's information

systems.

Reference Staff or a designated Master Gardener will daily monitor and clean up the gardening information computer bulletin board, post meetings, workshops and classes on the gardening activities calendar plus update the pest alert program guided by the local extension agent, a nearby college or university horticulture program or a local integrated pest management consultant firm.

Publications, press releases, visual displays, special exhibits, and related activities will be produced by a Public Relations/Graphics staff member. Writing skills and artistic talents will be the required strengths of this staff position who will report to the Administrative Assistant.

A Volunteer Coordinator will coordinate all volunteer screening, training, and assignments and will report to the Administrative Assistant. Volunteers will be considered part of the Center's staff and should be given commensurate respect and responsibilities. Unreliable volunteer staff members will be dismissed in the same professional way a paid staff member would be relieved of duties. The Volunteer Coordinator will be responsible for the Master Gardener volunteer program at the Center. Master Gardeners will be an integral part of the public services of the Center, handling the majority of one-on-one horticultural questions

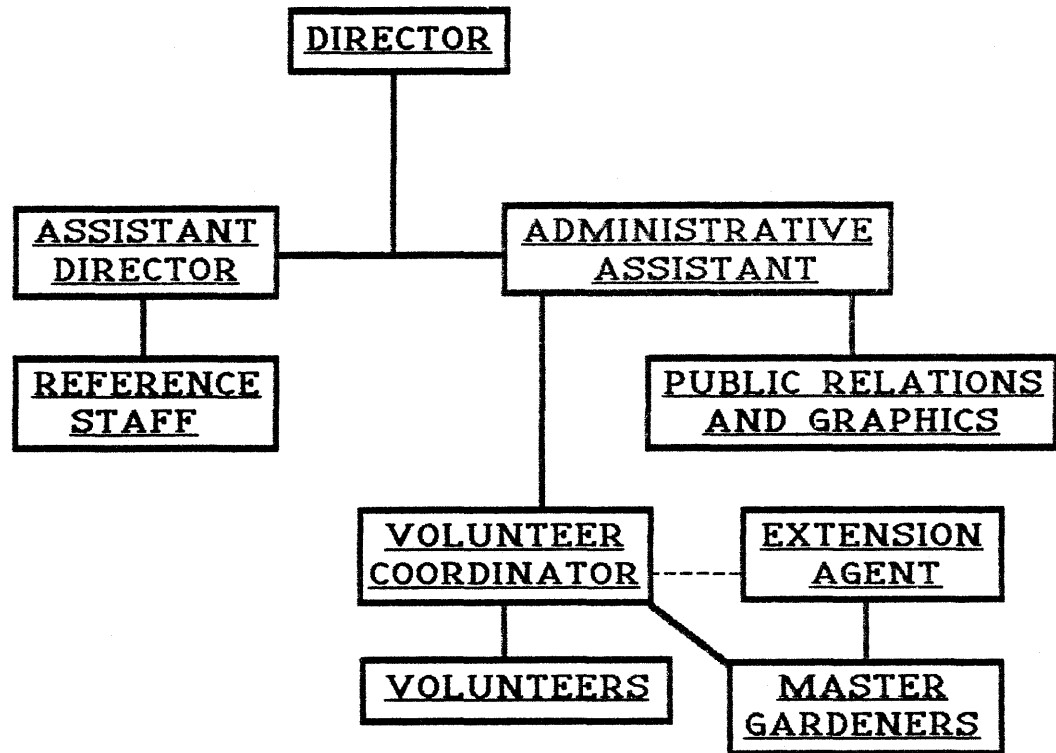
from walk-ins, hot line and plant clinic requests.

Certified and Accredited Nurserymen could augment the volunteer staff by taking on the same responsibilities as Master Gardeners. Training for both the Master Gardeners and Certified and Accredited Nurserymen will be directed by the local Extension Agent with the support of the Center's staff. In return, an agreed amount of HIRC service hours would be vouchered in lieu of training costs. Local horticultural societies could sponsor meetings and training sessions, and share resources with the Center's staff.

Cooperative Extension Agents could locate part-time, seasonal or permanent offices within the Center's building(s), allowing Agents easy access to the HIRC resource materials and in return contribute appropriate consultation time to volunteer Master Gardeners, Accredited/Certified Nurserymen and professional staff members. Extension publications would also be available at the Center.

HORTICULTURAL INFORMATION-RESOURCE CENTER

ORGANIZATIONAL CHART



Students could do projects at the Center in horticulture, information systems, and education, thereby broadening their knowledge of the public needs in horticulture and in turn helping the Center's staffing and organizational needs.

The Center would serve the home gardening public and horticulture professional plus be a meeting location for local garden clubs and horticultural societies. As a not-for-profit institution, the

Center would augment the commercial information services already available to the public. Workshops, clinics, and advisory pest bulletins sent to local nurseries, garden centers and news media are only a few of the roles and services such a HIRC could offer a community.

Professionals would look to the Center as the local reference source in solving horticultural problems. Working with local libraries, the Center's staff could suggest which gardening and reference books would best be acquired to serve the public's horticulture information needs. Traveling exhibits developed by Center staff and horticultural clinics staffed by trained volunteers, could visit local libraries, garden centers, shopping centers and corporate sponsor headquarters, helping the Center reach out into the community.

A vital part of the Center's information services would be the Assistant Director's role in information systems evaluation and development. The data collected from the phone hotlines, computer gardening information bulletin boards, plant clinics, walk-in requests, user surveys, user flow patterns and resource uses would allow for a quantitative analysis of the Center's operations. Monthly reports would highlight current user trends, subject categories and numerical totals of information requests, and seasonal patterns of the requests.

Data collected over several seasons would allow the Center to predict and anticipate user requests such as the timing and nature of requests relating to vegetable culture, care of seasonal gift plants and disease and pest problems. A seasonal calendar, directing the timing of special exhibits, graphic information displays, problem solving handouts and press releases, could all be based upon previously collected and interpreted data. A calendar of anticipated information requests would allow the Center to more properly allocate staff and reference resources in anticipation of public needs.

From the data collected and studies made, a Horticultural Information-Resource Center could constantly fine tune it's resources to the needs of it's users. Different HIRC's throughout the country would reflect their unique constituent needs. Input from all of the HIRC staff would help focus and revise the least effective parts of the Center's self-help, user-oriented information systems. Organization of resources at different HIRC locations may vary in response to the uniqueness of each communities needs and resources.

As a not-for-profit institution, the Center would apply for appropriate grants from government agencies and foundations. Member organizations would pay an annual support fee and commit a level of staff support and reference resources in sponsorship of the HIRC. Advisory pest bulletins could be given out

to subscribing garden centers, nurseries and horticultural institutions.

A 900 number phone system for both the telephone hotline and computer gardening information bulletin board would generate income to help offset the costs of these services. Charging a nominal fee for these information services would also reduce the usage of these systems to serious users.

SOME FINAL THOUGHTS

The Horticulture Information Resource Center as outlined in this article may be too intensive and expensive for any single institution to sponsor. Depending upon the number and nature of the Center's affiliated or host institutions, the Center could have it's own governing board with representatives from each member organization, a totally separate and independent governing board, or an advisory board under a larger parent organization. An umbrella organization set up amongst affiliated horticultural institutions could pool resources of the community and facilitate a phased-in implementation of the pertinent ideas expressed in this essay. Each particular local situation will evolve its own governance solutions.

As we move into the 21st century, the information needs of our society are growing daily. The problem in many cases is not the lack of information but rather the means to access it; do we have the time to wade through the reams of documents that already exist? An information center oriented to their users problems, organized as a self-help, user-oriented information resource center, would effectively reach out to many people, helping them solve their horticulture information needs and thereby lessening the information service burdens of local not-for-profit horticultural institutions and profit enterprises.

NOTES

1. "Texas Certified Nurseryman", Texas Association of Nurseryman Certification Board, Austin, Texas. 1983.
2. Vernon A. Keel, Harry P. Zimmerman, Robert A. Wearne, Communicating Home Garden Information: Phase I Report, The Minnesota-Wisconsin ES_USDA Home Horticulture Project: Phase II Report, Extension Approaches to Communicating Home Garden Information.
3. Nursery Consumer Profile - Research Summary (Washington, D.C.: Nursery Marketing Council, 1979).
4. Ernie G. Wasson. "Horticultural Information Systems." The 1984 Longwood Program Seminars, vol. 16 (Newark, Delaware: University of Delaware).
5. Frances Clark, Educational Resources at Botanical Gardens and Arboreta (Swarthmore, Pa: AABGA, 1984).
6. Susan Littlefield, Gardens for All, Vermont, personal communication, May 1984.

7. Timothy Hosey, Bob Percival, "How to set up a weed, pest and disease control information center," American Nurseryman, vol. 159 (2), January 15, 1984, pp. 47-50.
8. Kathleen Mallon, Rhode Island Cooperative Extension Education Center, personal communication, March 1987.
9. Career Development Center, University of Maryland, College Park, Maryland. Personal visits, September 1983.

