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Trade Flows and Marketing Practices within the California Nursery Industry—Survey Results from 1988 and 1993¹

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Abstract

Nurseries were surveyed nationwide in 1989 and 1994 to collect information on products, customers, and business practices during the previous year. California's nursery industry is the largest in the nation and provided the majority of seedlings, liners, whips, and grafted material from within the state. Landscape firms were the most important customers for wholesale nurseries in 1993 (35% of sales), followed by garden centers and re-wholesalers (26% and 25% of sales), and mass merchandisers (12% of sales). Over 90% of California nursery wholesale products were sold within the state, and the rest were shipped to the north, west, midwest, and parts of the east coast. Production cost was used as the most important criteria for price determination of nursery stock. Sales methods such as in-person and telephone, negotiated and non-negotiated sales varied in popularity between the two years surveyed. Nurseries spent about 3.5% of their revenue on advertising, primarily in catalogs and the Yellow Pages. Twenty-six percent and 70% of medium and large nurseries, respectively, were represented at trade shows versus only 11% of small nurseries. Capital and land were the major factors limiting expansion of nurseries in 1988 and 1993, with market demand becoming a more prevalent factor in 1993.

Index words: product inventory and sales, nursery customers, business practices, advertising.

Significance to the Nursery Industry

The greenhouse and nursery industry is the second most important sector of agriculture in the United States, and generated more than \$10 billion value in cash receipts in 1994. Although an important economic force, nursery statistics on trade and business practices of the industry are scarce. Compared to other agricultural commodities, nursery production is extremely diversified, including a wide range of products such as bulbs, bedding plants, perennials, roses, Christmas trees, and deciduous or evergreen shrubs or trees. Within each of these plant categories, anywhere between a few to several hundred species are grown commercially, making the collection of detailed statistics a daunting task. In 1989 and 1994, national surveys of the nursery

industry collected information on destinations of nursery products, origins of propagation materials, sales methods used, price determination practices, and resources allocated to advertising. We have summarized the survey results for the California nursery industry, the leader in nursery and greenhouse production in the United States. We have further categorized responses by small, medium, and large nurseries, based on their annual sales volume. The results show characteristic differences and similarities in business practices for nurseries of different size and how the industry adapted to the recent recession.

Introduction

The United States greenhouse and nursery industry is the second most important sector in U.S. agriculture in terms of economic output (3). Over the last ten years the value of cash receipts for greenhouse and nursery products has increased from \$5.4 billion to \$10 billion nationwide (7). California leads the nation's greenhouse and nursery production with cash receipts valued at \$1.98 billion in 1994. From 1980 to 1990 the value of cash receipts doubled, but stagnated for the following four years.

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The value of cash receipts for ornamentals alone, excluding floriculture products almost doubled nationwide from 1985 to 1994, similar to cash receipts for greenhouse and nursery products. However, cash receipts for ornamentals in California, which is still the leading state in ornamental nursery production, increased only about 20% during that period (Fig. 1). The slow growth is partially due to the recent recession as the sale of nursery stock is closely linked to the general economic conditions (4). Nursery stock sales were found to increase as residential construction increased, and decrease with inflation (4). Another reason for the slow growth of the nursery industry in California may be that the industry was much larger than any other state's for many years and supplied states with relatively small populations and little or no nursery industry. These states then developed their own nursery industry as population size increased to meet the local demand for nursery products. California's neighboring states Nevada and Arizona are examples of this trend. Cash receipts for the Nevada greenhouse and nursery industry increased from \$181,000 in 1987 to \$3.1 million in 1992, while cash receipts of Arizona's nursery industry were boosted from \$13.2 million to \$48.0 million over that time period (8).

Nursery statistics collected by the U.S. Department of Agriculture provide little information on trade flows and marketing practices of the industry. The objective of this paper is to present the California results of two national surveys of the nursery industry in 1989 and 1994 which determined product inventory and sales, customers and product flows, and various business practices. Part of these surveys, reflecting basic characteristics of the nurseries, product inventory and sales, and destination and transportation of product, have been summarized previously (6).

Materials and Methods

A national survey of the nursery industry was conducted by the Southern Regional Research Committee (S-103) in 23 states in 1989 and in 24 states in 1994 to determine trade flows and marketing practices within the United States

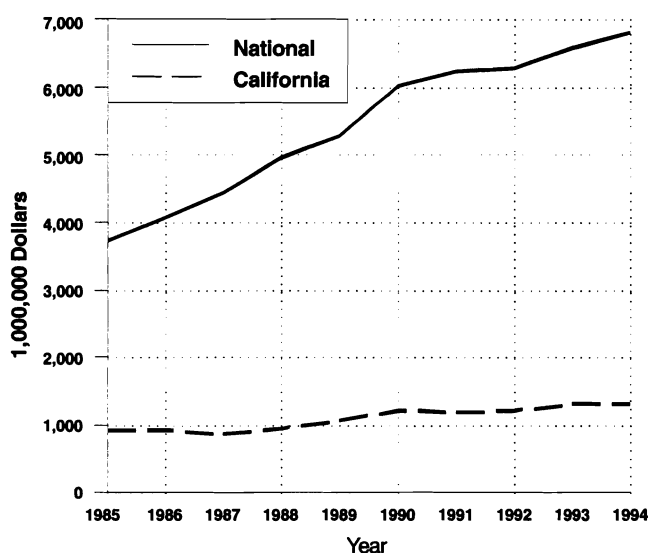


Fig. 1. Value of California and United States cash receipts for ornamentals (7).

wholesale nursery industry (1, 2). The objectives were to determine trade flows of nursery products and origin of inputs, transaction methods used, price determination practices, and resources allocated to advertising media.

Questionnaires were handled differently in each state. In California, questionnaires were distributed by the California Association of Nurserymen to their members that operated wholesale nurseries. Respondents primarily included container growers producing woody and herbaceous perennials. Surveys were sent out in the spring of 1989 and 1994 and asked questions regarding business practices during the previous year. Questionnaires were mailed to 450 nurseries in both years with 131 responses returned in 1989 and 52 in 1994. The following results represent a small sample of the California wholesale nursery industry and therefore have to be interpreted with caution.

Nurseries that responded to the survey were grouped into three distinct categories based on gross value of product sales. Small nurseries had a sales volume up to \$99,999, medium nurseries between \$100,000 and \$999,999, and large nurseries had a sales volume of \$1,000,000 or more per year. In 1989 nurseries were well represented in each size category with 45 small, 43 medium, and 43 large. A lower response rate in 1994 provided less balance with only 9 small, 23 medium, and 20 large nurseries. Because we had no control over the sample population or which of the respondents had answered only one or both surveys, responses between years or nursery sizes were not compared statistically.

The 1989 survey instrument served as a basis to refine questions for the 1994 survey. Therefore not all questions are identical for the two years, and some questions were clarified or expanded while others that received poor answers were eliminated. Most questions provided specific options or requested detailed information from the nurseries, although many questions also contained a place to specify other options. For the product inventory category, nurseries were asked to specify the state or nation of origin for seedlings, liners, whips, and grafted material. In 1989 the top six destinations and in 1994 the top five destinations and an added 'other' category were requested. The surveys monitored the seasonal shifts in sales, asking each respondent to specify the percentage of their total annual sales for each month.

In order to characterize customers and product flows, nurseries were asked the percentage of sales that were wholesale or retail. The surveys questioned the type of wholesale customers that were important to the industry. The 1989 survey asked the nurseries to specify the percentage of wholesale sales to three customer categories: retail firms (including mass markets and garden centers), landscape firms, and re-wholesaler firms (including other growers and brokers). In 1994, this question was changed further, breaking down 'retail firms' into several groups: garden centers, mass merchandisers and other retailers (grocers, etc.). Because of these changes, the 1993 data presented in Table 2 has these three 'retail' categories collapsed in order to facilitate direct comparisons.

The surveys asked nurseries to specify the top destinations, in terms of sales, for their wholesale products. The 1989 survey, as before, had a single 'retail' category which was later split into garden centers, mass merchandisers and other retail firms (the 1994 survey also included an 'other' category).

Nurseries' business practices relating to sales, product presentation, and constraints were determined by surveying factors that influence price determination, methods of sales and advertising, and factors limiting nursery expansion. Nurseries were asked to rank the five most important factors they used to determine their price structure. The possible answers included cost of production, inflation, comparison to other growers, grade of plants, market demand, time of year, inventory, the previous year's prices, and 'other' factors. The answers were scored from 1 to 5, with 1 being the most important. Surveys provided the following options for nurseries to determine the method of sales: both negotiated and non-negotiated in-person, telephone, or trade show orders, as well as mail orders. Nurseries were asked to specify the percentage of sales they allocated annually to advertising and what percentage they used for the *Yellow Pages*, billboards, radio, trade shows, newspaper, trade journals, catalogs, newsletters, or other media. Both surveys gauged whether and how often nurseries were represented at trade shows in 1988 and 1993. The 1989 survey gathered data regarding the use of traveling sales representatives by the nurseries, and the 1994 survey asked whether discount information was published for large volume buyers.

The nurseries were also asked to identify the five factors which they consider most limited the expansion potential of their firms, and to rank them from 1 to 5, with 1 being the most important. Their choices included weather uncertainty, market demand, water supply, their own management, environmental regulations, ability to hire competent management, and the basics of land, labor, capital, and competition. In the 1989 survey there was an 'other' category which was replaced by 'other government regulations' in 1994.

Results and Discussion

PRODUCT INVENTORY AND SALES

Origins of seedlings, liners, whips, and grafted material. California nurseries obtained more than two thirds of seedlings, liners, whips, and grafts from California sources (Table 1). Two of the other top nursery producers, Oregon and Florida, were common secondary sources for nursery stock. The remaining states, providing about 1% to 3% each, included Hawaii, Washington, Texas and international sources

(other than Canada) in 1988; and Colorado, Illinois, Hawaii, Michigan, Pennsylvania, and Montana in 1993.

Nurseries of all different sizes relied on California sources both years, with two-thirds or more of their seedlings, liners, whips and grafted material being purchased from within the state (Table 1). Secondary sources shifted dramatically from 1988 to 1993 for both small and medium nurseries, while large nurseries obtained significant quantities of the material from similar points of origin. Large nurseries also purchased the bulk of their material from fewer states than medium or small nurseries. Other states which produced and sold more than 50% of seedlings, liners, whips, and grafted material within their state were Florida, Louisiana, Oregon, and Tennessee. California also supplied 40% of Arizona nurseries with plant source material in 1988 (1).

Monthly breakdown of sales. The most dramatic increase in sales for both years came in March, which brought just over 11% of the year's income, followed by brisk sales until the end of spring (Fig. 2). A steady decline in sales began in the summer, with monthly sales remaining between 5% and 8% overall until the following spring.

The spring months (April to June) accounted for 33% of annual sales in 1988 and 35% to 42% in 1993 for all nursery sizes. Twenty-one percent of annual sales in 1988 and 18% in 1993 occurred in the fall (October to December). The other two seasons, summer (July to September) and winter (January to March) were quite similar to each other, accounting for 22% to 24% of annual sales in both years.

When examining the seasonal data by nursery size, the 1988 data showed very little variation from the average. However, in 1993, small nurseries sold 30% of their annual total in the summer, nearly double the percentage of winter sales. Medium and large nurseries followed the same trends as in 1988. The data for both years suggest that small nurseries were more sensitive to the changing demand as the year progressed as compared to medium and large nurseries.

Temperature records for the two years surveyed showed few deviations from the 30-year average monthly temperatures (5). Precipitation was considerably below average in 1988, indicating a drought year, while the opposite occurred in 1993 with more than twice the amount of 30-year aver-

Table 1. Top origins by state of seedlings, liners, whips and grafted material obtained by firms and averaging one percent overall.

| Origin | 1989 Survey (Top 6) | | | | 1994 Survey (Top 5) | | | |
|----------------------------|---------------------|--------|-------|-----------|---------------------|------------------|-------|-----------|
| | Nursery size | | | | Nursery size | | | |
| | Small | Medium | Large | All firms | Small | Medium | Large | All firms |
| | Percent response | | | | Percent response | | | |
| California | 76.4 | 76.8 | 84.2 | 79.1 | 81.4 | 67.2 | 64.2 | 68.2 |
| Oregon | 10.1 | 4.0 | 5.1 | 6.3 | 0.7 | 6.8 | 11.6 | 7.8 |
| Florida | 0.2 | 9.0 | 4.8 | 4.8 | 2.9 | 0.0 ^a | 9.2 | 4.0 |
| Washington | 2.9 | 1.8 | 5.4 | 3.3 | 0.0 | 0.4 | 0.5 | 0.4 |
| Import (other than Canada) | 4.1 | 2.5 | 0.0 | 2.2 | — | — | — | — |
| Hawaii | 0.1 | 3.5 | 0.0 | 1.3 | 8.6 | 0.0 | 0.3 | 1.4 |
| Texas | 2.9 | 0.0 | 0.1 | 1.0 | 0.0 | 0.0 | 1.1 | 0.4 |
| Colorado | — | — | — | — | 0.0 | 4.9 | 1.1 | 2.7 |
| Illinois | — | — | — | — | 0.0 | 4.5 | 0.0 | 2.1 |
| Other | — | — | — | — | 1.3 | 9.2 | 5.7 | 6.6 |

^aActual percentage is less than 0.05%.

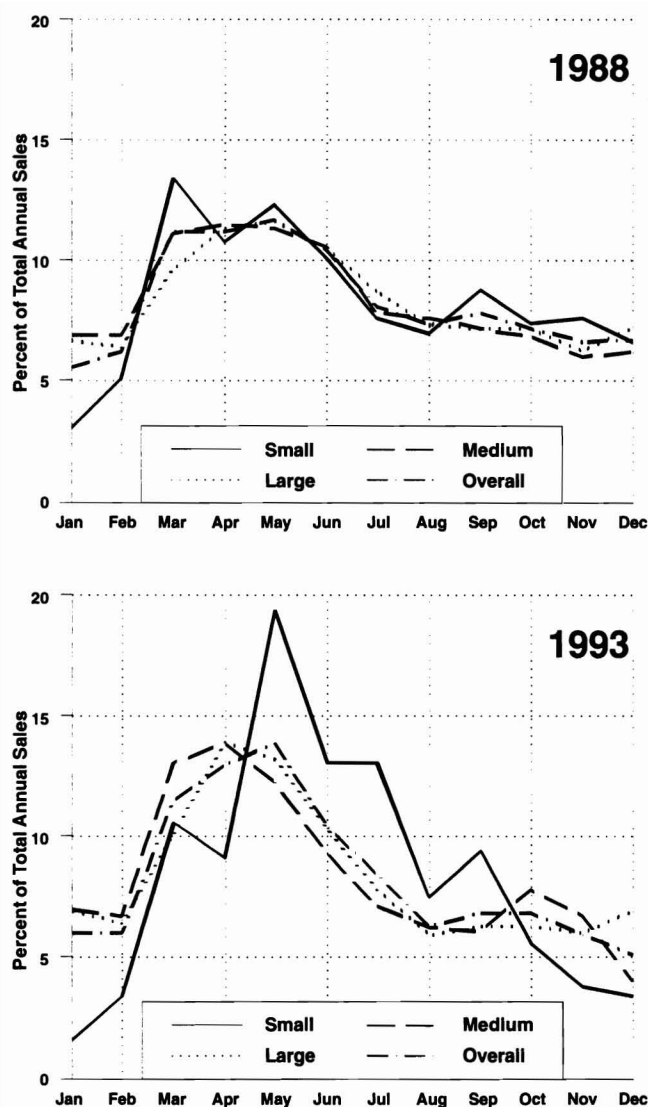


Fig. 2. Percentage of total annual sales of California nurseries per month.

age rains in January and February, which probably stimulated spring sales for nurseries.

CUSTOMERS AND PRODUCT FLOWS

Wholesale versus retail customers. The nurseries which responded to the surveys were predominantly wholesalers, the intended targets for the California surveys. Sales conducted on a wholesale basis accounted for 80% and 88% in

1988 and 1993, respectively. Large nurseries conducted the majority of their business in this manner (88% in 1988, 93% in 1993). Medium nurseries sold 84% to 85% of their plants on a wholesale basis in both years. Small nurseries increased wholesale business from 67% to 85%.

Wholesale customers. Overall sales to wholesale customers were very similar for both years (Table 2). Wholesale customers differed, however, for the different nursery sizes. Small nurseries conducted almost half of their wholesale business with retail firms in 1988, but in 1993 conducted half of their business with re-wholesale firms. It is possible that in the weaker economy of 1993 the small nurseries may have taken advantage of the re-wholesaler's marketing infrastructure which is above the capacity of what a small nursery could develop and maintain on its own.

The 1993 data for the three uncollapsed retail categories showed that landscape firms were the most important customers for wholesale nurseries (35% of total sales), followed by garden centers and re-wholesalers (26% and 25% of sales, respectively). Mass merchandisers accounted for 12% of sales.

Mass merchandisers accounted for 29% of all sales for large nurseries, but for less than 2% of sales for medium and small ones. Large nurseries can provide large volumes of product at low prices, specifically what is required by mass merchandisers. It would be difficult for small and medium nurseries to compete effectively against the large nurseries in this category, and therefore they tend to develop a different customer base.

Large nurseries in 1993 appear to be the most diversified in their wholesale customer base, with each of the four categories accounting for roughly one quarter of sales. The small and medium nurseries each have a large bulk of their sales with just two customer categories (landscape firms for both; re-wholesalers for small, and garden centers for medium nurseries). Such comparisons are not available for 1988, because of the collapsed retail category.

Top destinations by state for wholesale sales. California was the most important destination for wholesale products in both years surveyed, and accounted for 91% to 98% of sales. In 1988, large nurseries sold up to 4% of their wholesale product to re-wholesalers, retailers, or landscapers in Arizona, Texas, or Pennsylvania. The 1994 retail category for garden centers again showed predominantly in-state trade, with only the 'other' category garnering as much 2% of the sales. Garden centers, which are often small customers with a large variety of specialized needs, are relatively less attractive for out-of-state providers.

Table 2. Percentage of wholesale sales to various wholesale nursery customers.

| Wholesale customer | 1989 Survey | | | | 1994 Survey | | | |
|--------------------|------------------|--------|-------|-----------|------------------|--------|-------|-----------|
| | Nursery size | | | | Nursery size | | | |
| | Small | Medium | Large | All firms | Small | Medium | Large | All firms |
| | Percent response | | | | Percent response | | | |
| Retail firms | 46.9 | 41.9 | 39.4 | 42.6 | 15.0 | 38.2 | 54.1 | 40.4 |
| Landscape firms | 30.9 | 34.5 | 34.6 | 33.4 | 35.6 | 43.3 | 23.8 | 34.5 |
| Re-wholesale firms | 22.1 | 23.6 | 26.0 | 24.0 | 49.4 | 18.5 | 22.1 | 25.2 |

California nurseries shipped wholesale products to re-wholesalers in 19 states, to retail outlets including mass markets and garden centers in 19 states, and to landscape firms in four states outside of California. Trade flows out of California were directed primarily to surrounding states, up the west coast, the midwest, Texas, and parts of the east coast. In contrast to this regional bias, Florida nurseries shipped primarily to the southern states and up the east coast (1). Oregon and Tennessee, both major nursery producers, had the most generalized out-of-state shipping with 70% to 90% of their wholesale sales sent to 28 different states each (1).

Export sales. The majority of California nurseries sold their products domestically. Only 17% in 1988 and 24% in 1993 of all firms sold nursery products out of the country. In both years at least a quarter of the large nurseries were exporters. Medium nursery exporters were more prevalent in 1993 than in 1988, with a 12% increase between the two years. Export sales, however, accounted only for a small percentage of total revenue for the nurseries, with the exception of the medium exporting nurseries, which garnered 18% of revenue from out of country sales in 1988, well above the 5% to 6% for the other nursery sizes. By 1993 the exports by medium nurseries only accounted for only 5% of sales.

States with significant export sales in 1993 were Idaho, Oregon, and Washington, all located close to the Canadian border. Their export sales accounted for 23%, 8%, and 6% of the total annual sales, respectively (2).

Repeat customers. Overall, 82% of the business conducted by the nurseries in 1988, and 85% in 1993 was with repeat customers. Both large and medium nurseries reported 86% of sales to repeat customers in both years surveyed. Small nurseries were slightly lower at 75% in 1988 and 72% in 1993.

BUSINESS PRACTICES: SALES

Price determination. Prices were set primarily by the cost of production and comparison to other growers in 1988 (Table 3). Of moderate importance were such forces as market demand, the previous years' prices, grade of plants, inflation, and time of year. Prices were not often based on

inventory. Also, seven nurseries indicated 'other' forces, which averaged a high score of 2.4. The 1993 overall results were very similar to 1988, confirming that cost of production was clearly the most important factor influencing prices for both years surveyed.

An examination of the price-determining factors for nurseries by size revealed that the cost of production was the most important criteria for nurseries, regardless of size. Comparison to other growers was the second most important force driving prices for nurseries of all sizes in 1988, and all but small nurseries in 1993, which ranked it a relatively low 3.9. In 1993, market demand was another important factor emphasized with a score of 2.4 and 2.3 by small and large nurseries, respectively.

Grade of plants was moderately important for determining prices for small and medium nurseries, but of lesser importance for large nurseries which ranked it a point lower (4.0) than the small and medium nurseries. The remaining factors, including inflation, time of year, and inventory were among the least influential price determinants for all nursery sizes.

Method of sales. Negotiated and non-negotiated in-person sales, and non-negotiated telephone orders accounted for roughly one quarter of all sales each in 1988 (Table 4). Negotiated telephone orders further accounted for another 15% of sales. In 1993, non-negotiated telephone and negotiated in-person sales each resulted in almost twice the amount of sales than non-negotiated in-person or negotiated telephone orders (Table 4). Mail orders comprised an insignificant amount of sales, except for small nurseries in 1988. Trade show orders provided on average an additional 1% or less of total sales and are probably more important as an advertising tool than a method of sales.

When the various in-person and telephone categories were collapsed, the 1988 survey results found that in-person orders were somewhat more popular than telephone orders, with 53% versus 41% of total sales, respectively. By 1993, these differences were not apparent, as in-person orders and telephone sales were both at 48%.

After similarly collapsing and comparing for the negotiated and non-negotiated categories, it appeared that in 1988 there was a preference for non-negotiated orders, which accounted for 56% as opposed to 40% of sales for negotiated

Table 3. Factors used to determine prices for all nurseries (scored 1–5, with 1 = most important).

| Factor | 1989 Survey | | | | | | 1994 Survey | | | | | |
|-----------------------------|------------------------------|----|----|----|----|------|------------------------------|----|----|----|---|------|
| | Score | | | | | | Score | | | | | |
| | 1 | 2 | 3 | 4 | 5 | Ave. | 1 | 2 | 3 | 4 | 5 | Ave. |
| | ----- No. of responses ----- | | | | | | ----- No. of responses ----- | | | | | |
| Cost of production | 58 | 22 | 20 | 9 | 5 | 2.0 | 23 | 9 | 7 | 5 | 2 | 2.0 |
| Comparison to other growers | 35 | 35 | 25 | 13 | 5 | 2.3 | 7 | 17 | 11 | 4 | 6 | 2.7 |
| Market demand | 14 | 19 | 30 | 23 | 13 | 3.0 | 13 | 7 | 9 | 12 | 4 | 2.7 |
| Based on last year's price | 8 | 11 | 10 | 16 | 11 | 3.2 | 2 | 6 | 7 | 5 | 5 | 3.2 |
| Grade of plants | 4 | 13 | 11 | 9 | 15 | 3.3 | 4 | 8 | 6 | 6 | 5 | 3.0 |
| Inflation | 1 | 14 | 17 | 13 | 17 | 3.5 | 2 | 0 | 1 | 3 | 6 | 3.9 |
| Time of year | 2 | 3 | 1 | 5 | 9 | 3.8 | 0 | 1 | 1 | 2 | 3 | 4.0 |
| Based on inventory | 0 | 5 | 2 | 19 | 26 | 4.3 | 2 | 2 | 8 | 8 | 9 | 3.7 |
| Other | 3 | 0 | 2 | 2 | 0 | 2.4 | 2 | 0 | 0 | 0 | 1 | 2.3 |

Table 4. Percent sales conducted with various methods.

| Method of sales | 1989 Survey | | | | 1994 Survey | | | |
|-----------------------------|------------------|--------|-------|-----------|------------------|--------|-------|-----------|
| | Nursery size | | | | Nursery size | | | |
| | Small | Medium | Large | All firms | Small | Medium | Large | All firms |
| | Percent response | | | | Percent response | | | |
| In-person (nonnegotiated) | 30.4 | 29.0 | 27.1 | 28.9 | 13.2 | 16.2 | 20.7 | 17.3 |
| Telephone (nonnegotiated) | 20.0 | 29.2 | 28.1 | 25.7 | 15.6 | 39.3 | 26.5 | 30.4 |
| In-person (negotiated) | 25.3 | 20.6 | 26.9 | 24.2 | 39.5 | 22.0 | 37.4 | 30.7 |
| Telephone (negotiated) | 13.6 | 17.4 | 15.0 | 15.4 | 31.1 | 17.0 | 12.2 | 17.8 |
| Mail orders | 8.1 | 3.3 | 1.6 | 4.4 | 0.0 | 3.0 | 2.4 | 2.2 |
| Trade shows (nonnegotiated) | 2.3 | 0.2 | 0.8 | 1.1 | 0.0 | 1.1 | 0.6 | 0.7 |
| Trade shows (negotiated) | 0.2 | 0.3 | 0.4 | 0.3 | 0.6 | 1.3 | 0.2 | 0.8 |

orders. However, by 1993, these differences were not evident (Table 4).

In 1993, small nurseries emphasized the negotiated form of sales, with both in-person and telephone orders accounting for 71% of all sales. None of the small nurseries that replied to the survey in 1994 conducted business by mail order, although in 1988 this group accounted for 8% of sales. Medium nurseries, on the other hand, conducted the majority of sales via telephone orders in 1993. Large nurseries tended to emphasize in-person versus telephone orders, which accounted for 58% versus 39% of sales, while showing no preference for either negotiated or non-negotiated sales.

Handling of resale items (1994 survey only). The resale process of buying a nursery product from a secondary source, then growing and selling it in its mature form, is a popular practice with the nurseries. Half of all the nurseries (50%) were resalers. Medium nurseries had the greatest percentage of resalers (57%), more than the 44% of small and 45%

of large nurseries. The medium nurseries had the largest portion of total sales from resaling. Those involved in resale derived 19% of their revenue from this source. Large and small nurseries were roughly half that, with resales accounting for 12% of large nursery and 10% of small nursery sales.

BUSINESS PRACTICES: PRESENTATION OF PRODUCTS

Advertising. California nurseries spent about 3.5% of their revenue on advertising in 1988 and 1993, slightly below the national average for the nursery and greenhouse industry of 4.3% in 1993 (2). The different sizes of nurseries spent 2% to 3% of their revenue for this purpose, with small nurseries in 1988 and medium nurseries in 1993 spending above average amounts on advertising (Table 5).

The most popular forms of advertising overall were catalogs and the *Yellow Pages* in 1988 and 1993 (Table 5). Newsletters or flyers, trade journals, trade shows, and newspapers ranked similarly in 1988 and 1993 as advertising media. Trade shows gained in popularity over the years, while

Table 5. Revenue applied to advertising and percent applied to various media.

| Advertising data | 1989 Survey | | | | 1994 Survey | | | |
|--------------------------------------------------------|------------------|--------|-------|-----------|------------------|------------------|-------|-----------|
| | Nursery size | | | | Nursery size | | | |
| | Small | Medium | Large | All firms | Small | Medium | Large | All firms |
| | Percent response | | | | Percent response | | | |
| Respondents which advertise | 63.2 | 73.2 | 97.4 | 77.8 | — | — | — | — |
| Percent of sales allocated to advertising ² | 4.8 | 2.8 | 2.6 | 3.3 | 2.2 | 4.5 | 2.8 | 3.5 |
| | Percent response | | | | Percent response | | | |
| Catalogs | 27.8 | 21.9 | 29.2 | 26.5 | 10.0 | 21.4 | 21.4 | 19.9 |
| Yellow Pages | 23.0 | 34.2 | 12.9 | 22.4 | 35.8 | 33.8 | 2.8 | 22.1 |
| Newsletters/Flyers | 15.3 | 18.8 | 8.8 | 13.8 | 5.0 | 6.7 | 17.3 | 10.5 |
| Trade journals | 10.9 | 7.4 | 20.4 | 13.7 | 11.7 | 12.9 | 24.0 | 17.0 |
| Trade shows | 5.4 | 9.5 | 12.9 | 9.8 | 0.0 | 13.3 | 23.6 | 15.5 |
| Newspapers | 10.4 | 3.5 | 9.2 | 7.7 | 4.2 | 5.5 | 5.3 | 5.3 |
| Radio | 4.2 | 0.7 | 0.5 | 1.5 | 0.0 | 1.2 | 0.0 | 0.6 |
| Billboards | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 ³ | 0.0 | 0.0 |
| Other | 2.9 | 4.0 | 6.1 | 4.6 | 33.3 | 5.2 | 5.6 | 9.1 |

²Percent sales allocated to advertising is partially based on estimated data. When specific percentages were unavailable, estimates were calculated on the basis of a known dollar value allocated to advertising for a particular nursery, and the corresponding range of total income as also specified in the questionnaire.

³Actual percentage is less than 0.05%.

Table 6. Factors limiting expansion for all nurseries (scored 1–5, with 1 = most important).

| Factor | 1989 Survey | | | | | | | | | 1994 Survey | | | | | | | | |
|----------------------------------------------|----------------------------|----|----|----|----|------|---------------------------|--------|-------|----------------------------|---|---|---|---|------|---------------------------|--------|-------|
| | Score | | | | | | Size | | | Score | | | | | | Size | | |
| | 1 | 2 | 3 | 4 | 5 | Ave. | Small | Medium | Large | 1 | 2 | 3 | 4 | 5 | Ave. | Small | Medium | Large |
| | ----- # of responses ----- | | | | | | ----- Average score ----- | | | ----- # of responses ----- | | | | | | ----- Average score ----- | | |
| Capital | 38 | 20 | 11 | 5 | 4 | 1.9 | 2.4 | 1.7 | 1.8 | 14 | 3 | 8 | 1 | 5 | 2.4 | 1.3 | 2.7 | 2.5 |
| Land | 31 | 23 | 11 | 8 | 7 | 2.2 | 2.3 | 2.4 | 2.0 | 8 | 1 | 6 | 2 | 3 | 2.6 | 2.8 | 2.4 | 2.6 |
| Market demand | 17 | 8 | 10 | 14 | 12 | 2.9 | 2.8 | 3.1 | 2.9 | 11 | 9 | 5 | 6 | 4 | 2.5 | 2.7 | 2.5 | 2.5 |
| Own management | 7 | 11 | 11 | 3 | 11 | 3.0 | 2.5 | 3.2 | 3.2 | 4 | 3 | 0 | 4 | 2 | 2.8 | 3.8 | 2.3 | 2.3 |
| Water supply | 8 | 8 | 10 | 7 | 13 | 3.2 | 2.6 | 3.1 | 3.8 | 1 | 5 | 4 | 2 | 6 | 3.4 | 4.0 | 3.6 | 3.1 |
| Ability to hire/develop competent management | 3 | 9 | 8 | 9 | 6 | 3.2 | 4.0 | 2.9 | 3.1 | 2 | 3 | 4 | 7 | 3 | 3.3 | 3.0 | 3.3 | 3.7 |
| Labor | 2 | 12 | 16 | 12 | 10 | 3.3 | 3.7 | 3.6 | 2.9 | 0 | 7 | 6 | 5 | 5 | 3.4 | 3.8 | 3.1 | 3.6 |
| Competition | 4 | 8 | 12 | 12 | 12 | 3.4 | 3.2 | 3.8 | 3.2 | 2 | 8 | 5 | 7 | 8 | 3.4 | 3.7 | 3.2 | 3.4 |
| Weather uncertainty | 1 | 5 | 8 | 11 | 5 | 3.5 | 3.4 | 3.4 | 3.6 | 1 | 2 | 0 | 4 | 2 | 3.4 | 4.5 | 3.2 | 3.0 |
| Environmental regulations | 0 | 4 | 3 | 12 | 6 | 3.8 | 3.3 | 3.5 | 4.0 | 4 | 5 | 5 | 7 | 5 | 3.2 | 2.8 | 3.5 | 3.1 |
| Other government regulations | — | — | — | — | — | — | — | — | — | 3 | 4 | 6 | 2 | 4 | 3.0 | 2.3 | 2.9 | 3.4 |
| Other | 7 | 2 | 1 | 1 | 3 | 2.4 | 2.4 | 1.3 | 3.3 | — | — | — | — | — | — | — | — | — |

newspaper and especially radio were little used forms of advertisement (Table 5). Billboards were the least favorite advertising medium. Nationally, trade shows and catalogs were the most popular advertising media in 1993, accounting for roughly 25% each (2).

Depending on their size, nurseries used different methods of advertising. The *Yellow Pages*, which overall was a favorite, was used much less by large nurseries, and declined from 1988 to 1993. Small and medium nurseries used a quarter to one third of their advertising dollars with the *Yellow Pages*. Only small nurseries reduced their catalog advertising from 28% in 1988 to 10% in 1993. Small and medium nurseries decreased their relative spending on newsletters by two thirds, while large nurseries doubled their allocation from 1988 to 1993. Advertising in trade journals and at trade shows increased mainly for medium and large nurseries over the five-year period. This trend is congruent with the increase in the percentage of large nurseries attending trade shows during this time. An increase for small nurseries advertising with "other" methods was observed from 1988 to 1993, indicating their adaptive strategies to compete in their niche market.

Trade show representation. Overall, 37% of nurseries were represented at an average of 4 trade shows in 1988, and 41% went to an average of three shows in 1993. Large nurseries were represented at trade shows in far greater numbers, 69% in 1988 and 70% in 1993, and those which did attend went to an average of 6 and 3 shows, respectively. Less than a third of medium nurseries were represented at the shows both years (27% in 1988; 26% in 1993), and visited 1–2 on average. Small nurseries were even less frequent attendees (only 16% in 1988; 11% in 1993), and chose to go to one show if they attended any at all.

Traveling sales representatives (1989 survey only). Overall, about one third of the respondents employed traveling sales representatives (33%), with 62% of large nurseries employing such individuals, followed by 35% of medium nurseries, and only 4% of small nurseries.

For those nurseries which employed traveling sales representatives: small nurseries hired an average of two, medium, and large nurseries six representatives (overall average was four). The range for small and medium nurseries were both 1–2 representatives, and 1–35 for large nurseries. Fewer traveling representatives may be the result of dwindling resources and the use of new communication technologies.

Publishing discount information (1994 survey only). About one third of both medium and large nurseries published discount information for large volume purchases in 1994 (32% of medium and 37% of large nurseries). None of the small nurseries published this information.

BUSINESS PRACTICES: CONSTRAINTS

Factors limiting expansion. Factors limiting expansion for all nurseries remained stable from 1988 to 1993 with less than 0.6 score difference for individual factors (Table 5). Capital was the most important factor limiting expansion for all nurseries in both surveys. Land was also very important in both years and can be expected to become even more important in the future as nurseries compete with urban development for desirable sites for nursery production. Market demand was ranked as the second or third factor limiting expansion, and will probably remain so until the state economy becomes more prosperous. The remaining factors all received middling to low scores, ranging from 2.8 to 3.8.

The overall data, however, masks some dramatic changes between the two years for nurseries of different size. For the small nurseries, capital rose in importance from 2.4 to 1.3 (Table 6). Limitations due to the nursery's own management dwindled from an average score of 2.5 to 3.8, as did water supply, which dropped from 2.6 to 4.0. Weather uncertainty also dropped in importance, from 3.4 in 1988 to a very low 4.5 in 1993.

For medium nurseries, capital dropped in importance from 1.7 to 2.7 (Table 6). The nursery's own management did just the opposite, rising from 3.2 to a much more important

score of 2.3. Other categories which rose approximately half a score included market demand, labor, and competition.

The nursery's own management and environmental regulations increased significantly in limiting expansion of large nurseries between 1988 and 1993. Weather uncertainty and water supply were also scored higher for 1993. Factors decreasing in importance over the five-year period included capital, land, labor, and the ability to hire competent management.

The list of limiting factors provided by the surveys can be further examined by breaking down the problems into two distinct groups: proactive and reactive. Proactive refers to the limiting conditions which nurseries have the ability to change with direct action, and include resources (capital, land, labor, and water, all of which can be purchased) and management (hiring competent management, and handling one's own management if they are obstacles to expansion). Reactive conditions which nurseries must react to, and are unable to influence directly, include the weather, the government (environmental and other regulations), and market forces (demand and competition).

The 1988 data showed that the only reactive force of great concern for nurseries was market demand. Small and large nurseries both had scored only proactive categories at or above 3.0, with the exception of market demand. Medium nurseries only ranked proactive categories with average scores above 3.0.

The 1994 survey indicated that small nurseries were no longer concerned primarily with problems they could directly control. The medium and large nurseries still perceived most of their important limitations to expansion in proactive categories (3 of 5 and 3 of 4 of all categories scoring 3.0 or

higher, respectively). This suggests that the medium and large nurseries viewed that they had the ability to directly affect their problems under the right circumstances. Small nurseries, however, had only 2 of 5 of their average scores of 3.0 or higher in proactive categories, suggesting that in 1993 they perceived their most limiting factors to be in categories that they could not control, unlike the results from the previous survey.

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