

2000 Missouri Nursery Survey

Issued Cooperatively by



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*Serving, promoting and protecting the agricultural producers, processors
and consumers of Missouri's food, fuel and fiber products.*

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It is my pleasure to present to you the Missouri Nursery Survey, our first attempt to assess the scope and impact of the state's nursery industry.

As the following pages outline in detail, the nursery industry is a vital component of the state's diverse horticulture industry and an important contributor to Missouri's agriculture economy. The state's nursery industry employed more than 9,000 people in 2000 and contributed approximately \$250 million in gross receipts to Missouri's economy.

We appreciate the support and assistance of the Missouri Agriculture Statistics Service, the Missouri Landscape and Nursery Association, the University of Missouri-Columbia, and the Missouri nursery growers and dealers who helped to make this publication possible.

Sincerely,

Lowell Mohler
Director of Agriculture

Summary

The estimated value of gross receipts of Missouri's nursery industry in 2000 was nearly \$250 million. The estimated value of all land, buildings, and equipment to the nursery industry totaled nearly \$243.9 million, nearly 98 percent of the gross receipts, averaging \$237,700 per operation.

Nursery gross receipts from wholesale and retail plant sales during 2000, were valued at \$162 million (two-thirds of the total) and were the largest receipts generating enterprises. Retail sales accounted for \$114 million. Receipts from landscape services, both installation and maintenance, accounted for \$70 million of the total.

The St. Louis region generated 42 percent of the total gross receipts while 29 percent of total gross receipts came from the Kansas City region with the remaining 29 percent coming from all other counties.

The total acreage of nursery operation in the state is estimated at nearly 8,150 acres with slightly more than 6,800 acres under production.

In 2000, 6,089,000 square feet of greenhouse, polyhouse, and other covered space were used for nursery production. More than 72 percent of this area consisted of film plastic greenhouses, hoop houses, and single or multilayer houses.

The nursery industry employed a workforce of nearly 9,000 people with a payroll of approximately \$75.8 million.

Gross receipts from sales of plant materials were nearly \$222.3 million. Nursery container stock was the largest cash receipt enterprise, accounting for \$76.0 million (34.2%). Receipts from balled and burlap sales were second at \$43.6 million (19.6%), while sales of herbaceous annuals accounted for \$40.5 million (18.2%).

Of the \$222.3 million of nursery products sold, plants grown entirely by Missouri operations accounted for \$91.6 million or 41.2 percent of the total value.

Nursery products shipped within the state were estimated to be 66.1 percent of total plant shipments. Central States accounted for nearly 14 percent of the total shipments.

Missouri Nursery Survey 2000

The data for the characteristics of the operations represents only the usable responses for each item of interest. There was no allowance made for those not responding to a specific question. Highlights are:

Sixty-two percent of all operations have access to the Internet.

Nearly 70 percent of the operations would use on-line registration with the Department of Agriculture, if available.

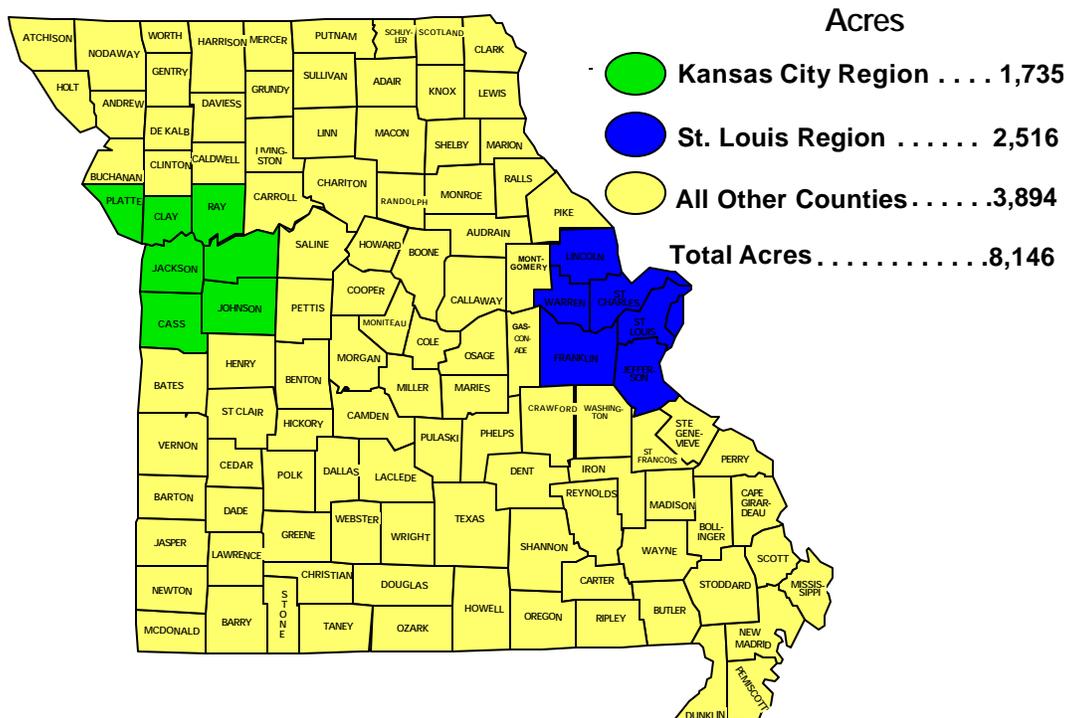
The number one use of the Internet was as a source of information.

Nearly 65 percent of all operations were not aware of the Japanese Beetle Harmonization Plan.

Nearly 23 percent of the operations are members of their local or state nursery association.

Nursery inspectors and magazines are the main sources of pest management information.

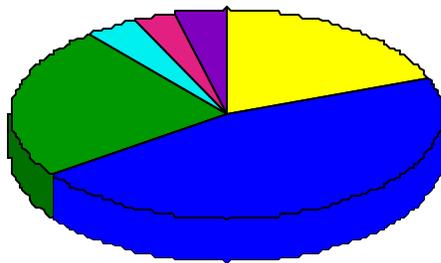
Acres of Production Area



Total Cash Receipts 2000

| Item | (000) |
|----------------------------|------------------|
| Labor | \$6,743 |
| Landscaping (maintenance) | \$10,738 |
| Other | \$10,738 |
| Wholesale Plant Sales | \$47,948 |
| Landscaping (installation) | \$59,935 |
| Retail Plant Sales | \$113,626 |
| Total | \$249,728 |

Cash Receipts



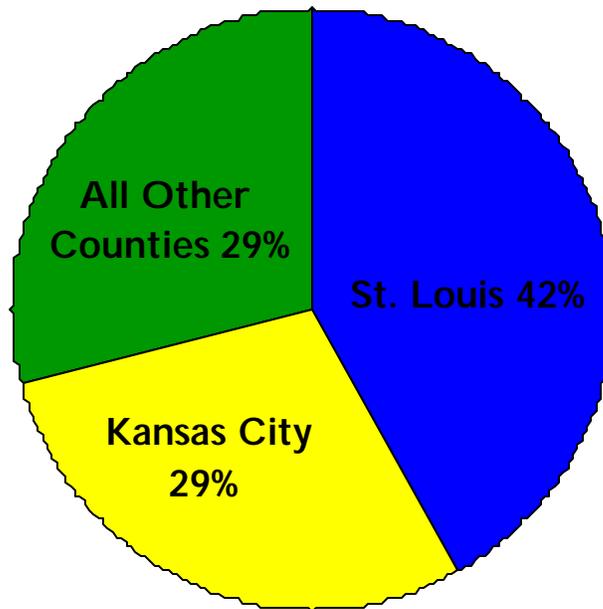
- Wholesale Plant Sales 19%
- Retail Plant Sales 46%
- Landscaping (installation) 24%
- Landscaping (maintenance) 4%
- Labor 3%
- Other 4%

Type of Plant Materials Sold and Cash Receipts 2000

| Plant Material | (000) | Percent |
|-----------------------|------------------|----------------|
| Nursery Container | \$76,012 | 34.2 |
| Balled and Burlap | \$43,562 | 19.6 |
| Herbaceous Annuals | \$40,451 | 18.2 |
| Herbaceous Perennials | \$33,116 | 14.9 |
| Bare Root | \$19,781 | 8.9 |
| Other Plant Material | \$9,335 | 4.2 |
| Total | \$222,257 | 100 |

Cash Receipts by Region

Nearly half of all sales/receipts were identified as being in the St. Louis region (city of St. Louis and six surrounding counties) while the other half of the in state receipts were evenly distributed between the Kansas City region (seven counties surrounding Kansas City) and the rest of Missouri.



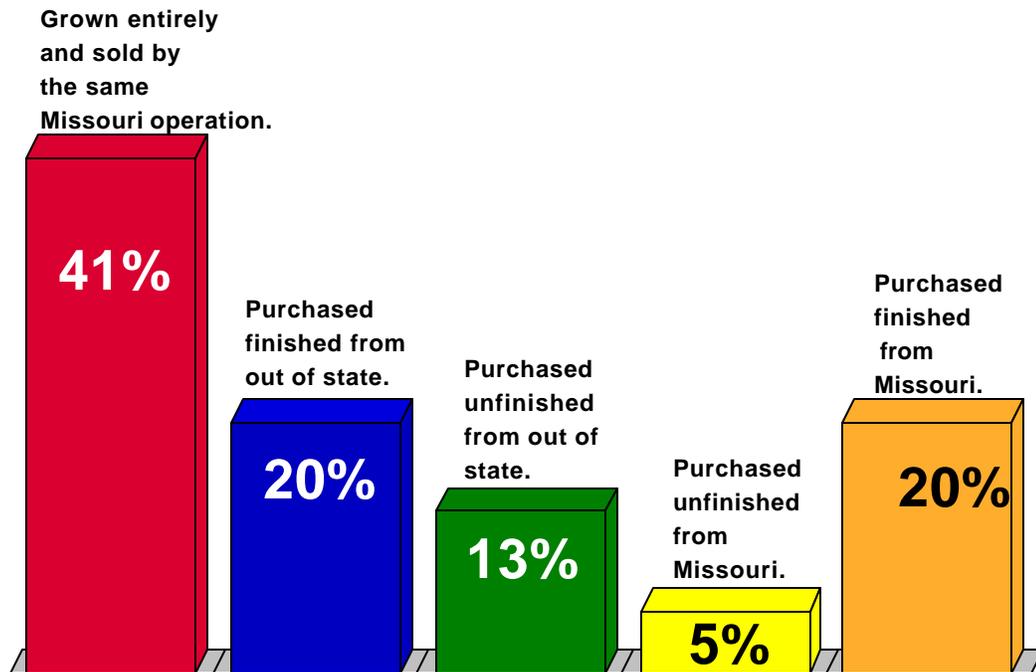
St. Louis Region (City of St. Louis, Franklin, Jefferson, Lincoln, St. Charles, St. Louis, and Warren counties.)

Kansas City Region (Cass, Clay, Jackson, Johnson, Lafayette, Platte, and Ray counties.)

Source of Plant Materials Sold and Cash Receipts 2000

| Source of Plant Material | (000) |
|---|------------------|
| Purchased unfinished products from Missouri nursery | \$12,002 |
| Purchased unfinished products from out of state nursery | \$29,782 |
| Purchased finished products from Missouri nursery | \$43,562 |
| Purchased finished products from out of state nursery | \$45,341 |
| Grown entirely and sold by the same Missouri operation | \$91,570 |
| Total | \$222,257 |

Value of Plants Sold; Percent by Source



Cash Receipts

The nursery industry established gross receipts at \$249.7 million in 2000. This is nearly equal to dairy products, about half of corn or hog cash receipts and about one-third of soybean values. As an industry, cash receipts represent about 5.5 percent of all commodity agriculture.

Nursery vs. Other Ag Commodities

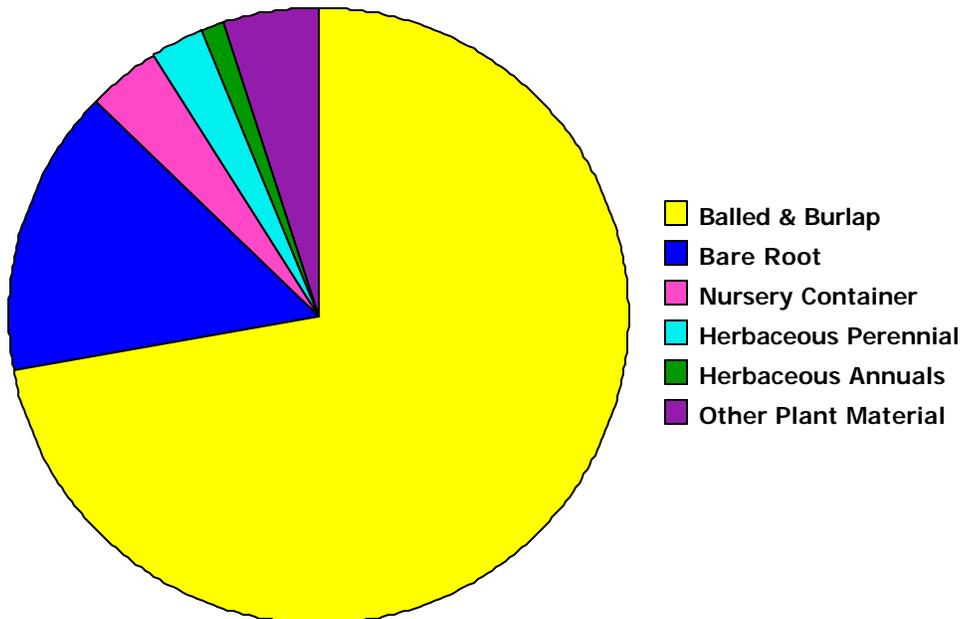
| | |
|------------------|-------------|
| Nursery Industry | \$249,727 |
| Dairy | \$269,709 |
| Corn | \$524,447 |
| Hogs | \$591,170 |
| Soybeans | \$755,042 |
| Cattle | \$1,044,789 |
| All Commodities | \$4,566,967 |

Cash Receipts Ag Commodities

| |
|-----------------------|
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| Hogs \$591,170 |
| Soybeans \$755,042 |
| Cattle \$1,044,789 |

Acreage Under Production by Plant Material

| Plant Material | Acres | Percent |
|----------------------|--------------|--------------|
| Balled & Burlap | 4,960 | 72.2 |
| Bare Root | 1,039 | 15.1 |
| Nursery Container | 256 | 3.7 |
| Herbaceous Perennial | 189 | 2.8 |
| Herbaceous Annuals | 81 | 1.2 |
| Other Plant Material | 341 | 5.0 |
| Total | 6,866 | 100.0 |



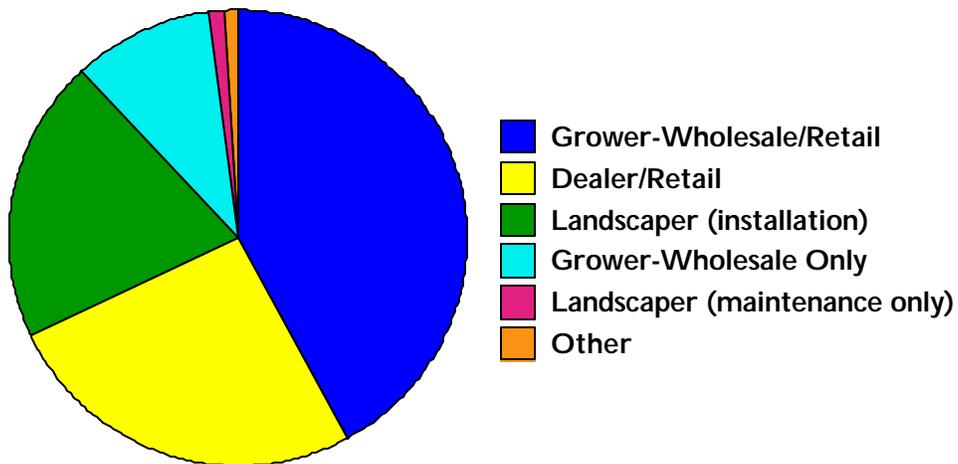
Total Covered Space

| Type | Square Feet (000) |
|------------------------------|-------------------|
| Film Plastic Greenhouse, etc | 4,434 |
| Rigid Plastic Greenhouse | 398 |
| Glass Greenhouse | 591 |
| Shade House | 409 |
| Other Types | 257 |
| Total | 6,089 |

Nursery operations by primary type of business, Missouri, 2000

| Type of Operation | Percent |
|-------------------------------|---------|
| Grower - Wholesale/Retail | 42.0 |
| Dealer/Retailer | 26.0 |
| Landscaper (installation) | 20.0 |
| Grower - Wholesale Only | 10.0 |
| Landscaper (maintenance only) | 1.0 |
| Other | 1.0 |
| Total | 100.0 |

Missouri Nursery Operations
Percent of Total by Type



Missouri Nursery Survey 2000

Nursery Assets

The overall value of land, buildings, and equipment to the Missouri Nursery Industry totaled \$243.9 million, nearly 98 percent of annual cash receipts, averaging \$237,700 per operation. Cash receipts to assets ratio varied from 18 percent in the less than \$50,000 group to 228 percent for the more than \$1 million group.

| Cash Receipts (CR) | Assets | Ratio CR/Assets |
|--------------------|----------------|-----------------|
| | <i>million</i> | |
| <\$50k | \$26.6 | 18 |
| \$50k - \$249k | \$76.8 | 61 |
| \$250k - \$499k | \$45.2 | 81 |
| \$500k - \$1mil | \$40.4 | 90 |
| >\$1mil | \$54.9 | 228 |
| Total | \$243.9 | 102 |

In comparison, the 1997 Census of Agriculture indicates the overall Missouri ratio of cash receipts to the value of land, buildings, machinery, and equipment for all of agriculture was approximately 15 percent.

Labor

Number of persons employed in the nursery industry and gross wages paid - 2000

| Sales Size Group | Part Time | Full Time | Total Employed | Total Wages | Average Wages per Employee |
|------------------|---------------|---------------|----------------|-----------------|----------------------------|
| | <i>Number</i> | <i>Number</i> | <i>Number</i> | <i>(000)</i> | <i>Dollars</i> |
| < \$50,000 | 943 | 295 | 1,238 | \$3,882 | \$3,136 |
| \$50k - \$249k | 1,664 | 713 | 2,377 | \$12,407 | \$5,220 |
| \$250k - \$499k | 692 | 458 | 1,150 | \$12,804 | \$11,134 |
| \$500k - \$1mil | 504 | 575 | 1,079 | \$13,298 | \$12,324 |
| > \$ 1mil | 1,542 | 1,559 | 3,101 | \$33,370 | \$10,761 |
| Total | 5,345 | 3,600 | 8,945 | \$75,761 | \$8,470 |

Labor Usage

Labor usage among the Missouri nursery growers and dealers varies dramatically. Survey data showed 41 percent of our smallest operations (less than \$50,000 cash receipts) reported hiring workers in their operations at the rate of slightly less than six workers; while nearly five of those were part-time employees. Conversely, the largest operations (\$1 million or more in receipts) reported hired labor at the rate of about ninety workers; with nearly an even split between full and part-time employees.

Nearly 30 percent of industry's cash receipts were returned to the employees within the industry in the form of salaries, totaling \$75.8 million.

Hired Labor

| Sales Size Group | % Operators | Employees per Operation | Full Time | Part Time |
|------------------|-------------|-------------------------|-----------|-----------|
| <\$50k | 41 | 6 | 1 | 5 |
| \$50k-\$249k | 83 | 19 | 6 | 13 |
| \$250k-\$499k | 100 | 29 | 11 | 18 |
| \$500k-\$1mil | 94 | 35 | 19 | 16 |
| >\$1 mil | 91 | 89 | 45 | 44 |

**Shipping Destination and Value*
by Category of Plant Material**

| Destination | Plant Categories and Values | | | | | Total ^{6/} | |
|-------------------------------|-----------------------------|-----------------|-------------------|--------------------------|---------------|---------------------|--------------|
| | Bare Root | Balled & Burlap | Nursery Container | Herbaceous ^{1/} | Other Nursery | Value | Percent |
| Missouri | 8,268 | 30,624 | 52,144 | 51,276 | 4,593 | 146,905 | 66.1 |
| Eastern States ^{2/} | 3,917 | 2,570 | 6,081 | 4,120 | 420 | 17,108 | 7.7 |
| Southern States ^{3/} | 2,235 | 4,269 | 3,877 | 3,752 | 895 | 15,029 | 6.8 |
| Central States ^{4/} | 4,114 | 4,705 | 8,057 | 11,844 | 2,007 | 30,727 | 13.8 |
| Western States ^{5/} | 1,207 | 1,394 | 5,777 | 2,428 | 653 | 11,459 | 5.2 |
| Canada | 20 | 0 | 76 | 0 | 0 | 96 | 0.0 |
| Other Countries | 20 | 0 | 0 | 147 | 765 | 932 | 0.4 |
| Total | 19,781 | 43,562 | 76,012 | 73,567 | 9,334 | 222,257 | 100.0 |

^{1/} Herbaceous perennials and annuals.
^{2/} Eastern States include CT, DE, MA, ME, MD, NJ, NH, NY, PA, RI, VA, VT, WV
^{3/} Southern States include AL, AR, FL, GA, LA, MS, NC, OK, SC, TN, TX
^{4/} Central States include IA, IL, IN, KS, KY, MI, MN, ND, NE, OH, SD, WI
^{5/} Western States include AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY
^{6/} Total may not add due to rounding
* All values listed in \$1,000 unit

Operations With Internet Access

| Total Responses | Operations having access to the Internet | |
|-----------------|--|------|
| | Yes | No |
| | <i>Percent</i> | |
| 429 | 62.0 | 38.0 |

On-Line Registration with the Department of Agriculture

| Total Responses | Operations that would use on-line registration | |
|-----------------|--|------|
| | Yes | No |
| | <i>Percent</i> | |
| 239 | 69.9 | 30.1 |

Internet Use by Category

| Category | Percent |
|---------------------------------|---------|
| Information resources | 49.2 |
| Buying/Selling | 10.5 |
| E-mail | 34.5 |
| Other | 5.8 |

**Awareness of the
Japanese Beetle Harmonization Plan**

| Total Responses | Not Aware of Plan | Aware of Plan |
|-----------------|-------------------|---------------|
| 415 | 64.8 | 35.2 |

Percent

**Membership in
Nursery Industry Associations**

| Type of Association | Total Responses | Member | Non-Member |
|---------------------|-----------------|----------------|------------|
| | <i>Number</i> | <i>Percent</i> | |
| Local | 357 | 22.7 | 77.3 |
| State | 357 | 22.7 | 77.3 |
| National | 301 | 25.9 | 74.1 |

**Main Source of
Pest Management Information**

| Source of Information | Percent |
|------------------------------|------------|
| Nursery Inspector | 42.6 |
| Magazines | 13.9 |
| Extension Agent | 12.5 |
| Chemical Dealer | 12.5 |
| Growers or Producers | 10.9 |
| E-Info Service | 0.2 |
| Other | 1.7 |
| No Outside Source | 5.7 |
| Total Responses | 423 |

Description and Methodology of the Survey

Survey Objective - The objective of the 2000 Missouri Nursery Industry Survey was to determine the contribution of the licensed nursery growers and dealers to the state's economy through sales of nursery and landscaping products.

Survey Design - The Missouri Nursery Survey was designed to collect data from licensed nursery growers and dealers using sample list survey methodology with complete follow-up of nonrespondents. Name and addresses of licensed nursery growers and dealers excluding "restricted" dealers were provided by the Missouri Department of Agriculture (MDA) and were used as a sampling frame. The list was checked to remove duplication. Only a few names were removed from the MDA list either due to duplication or because they were no longer associated with the nursery industry. This resulted in a final sample list of 1,043 licensed nursery growers and dealers.

The questionnaire was developed by the Missouri Agricultural Statistics Service with assistance from the Missouri Department of Agriculture and the nursery industry representatives. The survey was designed to collect information for the calendar year 2000 for the following items: type of operation, gross receipt from different types of plant material and source of plants sold, shipping destinations of all plant material areas used from production, other information such as total assets, location of the nursery operations by region, numbers of part-time and full-time workers paid by the operation, total gross wages paid and operation characteristics with respect to access to the Internet and usage, and primary sources of information on plant pest management.

Survey questionnaires were initially mailed to all respondents on December 28, 2000. After the second request mailing to nonrespondents on February 1, 2001, a follow-up postcard reminder was mailed three weeks later. A subsequent telephone reminder to nonrespondents followed between March 11 and March 25 in an effort to maximize returns. Data collection ceased on April 30, 2001.

Even though the survey had the general industry support, obtaining complete information and response from all individual operations was difficult and not realized. Of the 1,043 operations mailed a questionnaire, a total of 440 (42%) usable questionnaires were obtained. There were a total of 586 (56%) nonresponses and 17 reported that they were no longer associated with the nursery industry.

A systematic method of post stratification by size of the 1,026 operations were used to put operations into one of the six size groups based on value of sales. The nonrespondents were then stratified based on knowledgeable input from the MDA Plant Industry Division. The statistical estimates presented in this report were based on the information provided by 440 respondents and were extrapolated statewide through the use of sample expansion factors. However, questions such as type of business operation, operation characteristics' data were based on useable reports to provide the results. All questionnaires were manually edited for completeness and reasonableness. In cases where the statistician had questions about reported data, responses were verified with the original respondent. Upon completion of the manual edit and data entry, a computer edit data check was performed for additional data checks. The errors identified by the edit program were reviewed and corrections made accordingly before the final summaries were performed.