



2003 SURVEY RESULTS OF THE GREENHOUSE

INDUSTRY IN NEW JERSEY

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INTRODUCTION

The greenhouse and nursery industry is the number one agricultural commodity in NJ with a value of cash receipts of \$306,000,000, totaling 37.3% of the state's total farm receipts and 2.2% of the total US value for this commodity (2001 data, Economic Research Service, USDA, Washington, DC). No statistical data exists that separates these two industries. No state wide comprehensive and up-to-date greenhouse survey has been conducted in recent years. Currently, there are approximately 350 greenhouse and 600 nursery operations in New Jersey. In order to get recent and accurate data relevant to the NJ greenhouse industry, a survey was conducted in the spring of 2003. Results of this survey will be helpful tools to our local extension agents and specialists and the NJ greenhouse industry at large. The survey will provide valuable feedback from the industry that will help determine future research and education priorities.

METHODOLOGY

A total of 377 surveys containing a list of 68 questions were mailed out to greenhouse growers in the state of New Jersey. The questions attempted to provide information on a range of topics, including: business location and size, expansion plans, types of crops grown, employee information, sales, competition, business challenges, new business opportunities, finding aid, advertising, etc.

The survey mailing list was finalized after input from various extension agents closely working with the greenhouse industry. Included in the survey questionnaire was a business reply envelope, enabling respondents to return their surveys without having to pay for postage. After approximately two months, a follow-up letter was mailed to encourage more people to return their completed surveys.

Due to historically grown differences in the greenhouse industry among the different regions of the state, the state was divided into three regions: north, central, and south (see Figure 1). The majority of the surveys (56%) were mailed to growers in the southern portion of the state, 26% of the surveys to the central growers, and 17% to the northern growers.

A total of 114 (a 30% return-rate) usable surveys were returned and the data from those surveys is described in this document.



Figure 1. Division of the State of New Jersey into three regions: north (Sussex, Passaic, Bergen, Warren, Morris, Essex, Hudson, and Union), central (Hunterdon, Somerset, Middlesex, Mercer, Monmouth, and Ocean), and south (Burlington, Camden, Gloucester, Salem, Cumberland, Atlantic, and Cape May).

RESULTS

The highest response rate (45%) came from the northern growers followed by the central (34%), and southern (24%) region.

General Information

The average size of the greenhouse operations were the largest in the south (70,941 sq ft), followed by the north (24,830 sq ft), and lastly by the central (20,891 sq ft) region. The average annual gross sales were greatest in the north (\$31,561), followed by the central (\$22,251), and finally the southern (\$20,301) region.

59% of the received surveys indicated that the businesses were established during the years of 1976 and 2000. Most (64%) of the firm structures are sole proprietorship, followed by subchapter S-corporation (13%) and C-corporation (11%). Partnerships, LLC, other, and no responses made up the remainder (12%) of the responses.

Most respondents were not involved in other farming operations (51%). While, the activities of those who were (43%), included fruits and vegetables, flowers, Christmas trees, nursery stock, pumpkins, mum, and others.

17% of the respondents operate an entirely retail business while 33% run an entirely wholesale operation.

43% of the production greenhouses are in the range of 1,000 to 10,000 square feet in size.

70% of greenhouse operations have remained the same in size since the year 2000. While only 17% increased and 4% decreased in size.

Operation Expansion

27% of the respondents were anticipating expanding their operation within the next five years, while 65% were planning to keep it the same size. Of the respondents planning to expand their operation, 6% plan to expand their retail operation, 11% their wholesale operation, 5% their production greenhouses, and 8% all three. 70% of the respondents did not answer this question.

Percentage Growing Area

The approximate percentage of growing area of total sales is 46% for perennials, 12% for bedding plants, followed by 9% for other and other potted plants each, 5% for poinsettias, 5% for hanging baskets, 5% for geraniums, 3% for flowering bulbs and vegetables, 2% for hardy mums, and 1% for field grown cuts.

Plug/Plant Information

38% of the respondents produce their own plugs while 57% don't, and 5% did not respond to this question.

62% of the respondents buy in plugs, while 33% do not, and 5% did not respond to this question.

31% buy pre-finished plants, versus 64% that don't, and 5% did not respond to this question.

12% of the respondents sell pre-finished plants, versus 83% that do not, and 3% did not respond to this question.

4% of the respondents sell plugs, 91% don't, and 5% did not respond to this question.

Employees

Comparing with the year 2000, 11% of the respondents reported an increase in the number of employees, while 10% reported a decrease. 64% reported no change and 15% of growers did not respond to the inquiry. Of those who reported an increase, 77% reported an increase between 1-25%, while 23% did not report any percentage. Of those whose response was a decrease, 55% reported a decrease between 1-25%, while 18% reported an decrease between 26-50%, and 27% did not report any percentage.

Business Type

56% of the respondents stated that their greenhouse operation is a full time business, while 35% stated that it's a part-time business. 9% of the respondents did not answer this question.

Major Source of Income

41% of respondents stated that their greenhouse business is their major source of income, while 48% claimed that it is not. 1% found the inquiry inapplicable to their operation. And 10% did not respond to this question.

Finished Product Sale

84% of respondents sell their finished product in state, while 7% do not. 8% of growers did not answer the question and 1% found it inapplicable to their business.

36% of the respondents sold their finished products to neighboring states, while 55% did not. 8% did not answer the questions and 1% found the question inapplicable to their operation.

6% of the respondents sold their finished product to distant states, while 85% did not. 1% found the inquiry inapplicable to their operation, and 8% did not answer the question.

2% of the respondents sold their finished product out of the country, while 89% did not. 1% found the question inapplicable to their operation and 8% did not answer the question.

Out of State Customers

44% of the respondents indicated that 0% of their sales is to out of state costumers. 33% indicated that 1-50% of their sales is to out of state costumers. 9% indicated that 51-99% of their sales is to out of state costumers. 14% of the respondents did not answer this question.

Out of Country Customers

84% of the respondents indicated that 0% of their sales is to out of country customers. 2% indicated that 1-50% of their sales is to out of country customers. 14% of the respondents did not answer this question.

Competition for Retail Greenhouse Operators – Large Retail Chains (mass merchandisers)

32% of retail growers responded that their main competition comes from mass merchandisers. 18% responded that mass merchandizers were not their biggest competition, and 50% did not answer or found the question inapplicable.

Competition for Retail Greenhouse Operators – Retail Firms (garden centers)

35% of retail growers responded that their main competition comes from garden centers. 17% responded that garden centers were not their biggest competition, and 48% did not respond or found the question inapplicable.

Competition for Retail Greenhouse Operators – Retail Firms (supermarkets)

19% of retail growers responded that their main competition comes from supermarkets. 28% responded that supermarkets were not their biggest competition, and 53% did not respond or found the question inapplicable.

Competition for Retail Greenhouse Operators – Other

11% of retail growers responded that their main competition comes from other businesses. 32% responded that other businesses were not their biggest competition, and 58% did not respond or found the question inapplicable.

Percentage of Retail Sales – On Site

23% of retail growers sold 100% of their products on site. 7% sold 51-99% of their products on site. 9% sold 1-50% of their products on site. 31% sold none of their products on site, and 31% did not answer this question.

Percentage of Retail Sales – In a flower shop

2% of retail growers sold 100% of their products at a flower shop. 3% sold 51-99% of their products in a flower shop. 4% sold 1-50% of their products in a flower shop. 61% sold none of their products in a flower shop, and 32% did not answer this question.

Percentage of Retail Sales – Through a farmers market

0% of retail growers sold 100% of their products through a farmers market. 1% sold 51-99% of their products through a farmers market. 3% sold 1-50% of their products through a farmers market. 64% sold none of their products through a farmers market, and 32% did not answer this question.

Percentage of Retail Sales – Other

5% of retail growers sold 100% of their products through “other” sources. 4% sold 51-99% of their products through “other” sources. 4% sold 1-50% of their products through “other” sources. 55% sold none of their products through a farmers market, and 32% did not answer this question.

Competition for Wholesale Greenhouse Operators – New Jersey growers

46% of wholesale growers responded that their main competition comes from other NJ growers. 12% responded that other NJ growers were not their biggest competition, and 41% did not respond or found the question inapplicable.

Competition for Wholesale Greenhouse Operators – Out of state growers

11% of wholesale growers responded that their main competition comes from out-of-state growers. 42% responded that out-of-state growers were not their biggest competition, and 42% did not respond or found the question inapplicable.

Competition for Wholesale Greenhouse Operators – Other

11% of wholesale growers responded that their main competition comes from “other” sources. 42% responded that other” sources were not their biggest competition, and 47% did not respond or found the question inapplicable.

Percentage of Wholesale Sales – Mass merchandisers

0% of wholesale growers sold 100% of their products to mass merchandisers. 2% sold 51-99% of their products to mass merchandisers. 1% sold 1-50% of their products to mass merchandisers. 72% sold none of their products to mass merchandisers, and 25% did not answer this question.

Percentage of Wholesale Sales – Garden centers

11% of wholesale growers sold 100% of their products to garden centers. 13% sold 51-99% of their products to garden centers. 19% sold 1-50% of their products to garden centers. 31% sold none of their products to garden centers, and 25% did not respond to this question.

Percentage of Wholesale Sales – Supermarkets

0% of wholesale growers sold 100% of their products to supermarkets. 1% sold 51-99% of their products to supermarkets. 4% sold 1-50% of their products to supermarkets. 70% sold none of their products to supermarkets, and 25% did not answer this question.

Percentage of Wholesale Sales – Other

8% of wholesale growers sold 100% of their products to “other” sources. 9% sold 51-99% of their products to “other” sources. 25% sold 1-50% of their products to “other” sources. 33% sold none of their products to “other” sources, and 25% did not answer this question.

Please note: “other” sources were defined as landscapers, churches, fundraisers, distributors, wholesalers, new home builders, other growers, road stands, restaurants.

Competition Expansion Plans

25% of the respondents were aware of expansion plans by their competition, while 56% were not, and 19% either did not answer or found the question inapplicable.

Expansion Into a Niche Market

20% of the respondents plan to expand into a niche market, while 56% were not, and 23% either did not respond or found the question inapplicable.

Please note: the niche markets were defined as day lilies, exotic foliage and flowering plants, container plant service, grafted conifers, ornamental pot peppers, strawberries, specialized packaging, unique plants, ponds, good service, bouquets, re-wholesale, planters, larger annuals, larger potted plants, hard to find plant material.

The growers also stated that they wish to remain in such niche markets anywhere from 5 to 10 years, and some as long as it remains profitable.

Greatest Challenge to Business Expansion

The growers that responded to this inquiry found the following to be some of the challenges to business expansion: owner/operator age, availability of capital, supermarket chains, competition, costs, customers, deer/groundhogs, economy, energy prices, insurance, labor, land, long hours, marketing, market saturation, regulations, relocation, resources, time, water issues, and weather.

Greatest Challenge to Greenhouse Industry Expansion in the Local Counties

Chains, competition, cost, customers, economy, energy, housing developments, insurance, labor, land, market share, marketing, money, oversupply, plant maintenance, population, price wars, prices regulations, resources, tax, water.

Affect of Future Expansion of Greenhouse Industry in New Jersey

19% of the respondents believed that future expansion of the greenhouse of industry in New Jersey will affect them positively, while 18% believe it will have a negative effect on them. 49% believe there will be no effect and 14% did not answer.

Factors Creating a Challenge to The Successful Operation of the Business

1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major

Factor	No Response	1	2	3	4	5
Ability to attract and retain competent management	17	53	6	18	7	13
Ability to attract and retain competent employees	17	28	12	19	20	18
Your own management expertise	16	27	11	21	24	15
Your own marketing expertise	15	22	11	23	26	17
Availability of capital (cash and/or loans)	16	20	15	26	20	17
Production costs	15	3	6	28	36	26
Competition	14	20	16	22	23	19
Zoning regulations	16	34	13	22	13	16
Environmental regulations	16	23	16	30	14	15
Other governmental regulations	16	23	14	31	13	17
Weather uncertainty	15	10	7	25	32	25
Other, please specify:	109	2	0	1	0	2

Factors Creating a Challenge for Growing High Quality Plants

1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major

Factor	No Response	1	2	3	4	5
Greenhouse environment control	17	11	14	24	33	15
Insect control	15	9	6	33	36	15
IPM program (when applicable)	40	18	9	28	12	7
Disease control	15	13	16	30	27	13
Weed control	15	25	15	21	25	13
Crop irrigation	19	18	15	24	21	17
Water quality	17	27	15	26	14	15
Weather (including drought)	16	9	11	18	25	35
Cultural requirements of new crops	21	27	13	31	12	10
Scheduling crops in the greenhouse	17	31	13	28	22	3
Incorporating new technologies	17	23	11	33	21	9
Other, please specify:	106	4	0	1	2	1

Factors Contributing to Finished Product Pricing

1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major

Factor	No Response	1	2	3	4	5
Cost of production	19	3	4	19	41	28
Labor cost	22	13	9	21	25	24
Other growers' prices	19	11	14	20	29	21
Quality of plant material	20	12	3	15	35	29
Market demand	21	5	6	29	29	24
Product uniqueness	20	12	13	15	31	23
Inventory levels	21	19	13	37	16	8
Last year's price	22	12	12	29	28	11
Other, please specify:	110	2	2	0	0	0

Factors Contributing to Potential Business Expansion

1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major

Factor	No Response	1	2	3	4	5
Availability of capital	22	20	9	20	19	24
Availability of qualified labor	22	16	4	18	28	26
Marketing opportunities	23	11	6	27	26	21
Availability of usable land	24	29	16	11	15	19
Availability of high quality water	23	31	10	28	12	10
Transportation challenges	23	27	22	23	10	9
Novel crop selection	24	19	14	36	14	7
Other	104	4	0	1	1	4

Annual Gross Sales for 2002

7% of the respondents reported their annual gross sales as not for profit or non-applicable, while 15% reported a value of less than \$10,000, 7% placed in the range of \$10,000-\$24,000, 8% in the range of \$25,000-\$49,000, 8% in the range of \$50,000-\$99,000, 13% in the range of \$100,000-\$199,000, 10% in the range of \$200,000-\$299,000, 6% in the range \$300,000-\$399,000, 3% in the range of \$400,000-\$499,000, 5% in the range of \$500,000-\$999,999, 3% in the range of \$1,000,000-\$1,999,999, 2% in the range of \$2,000,000-\$3,999,999, and 2% in the range of \$4,000,000 and above. 11% of the respondents did not answer this question.

Average Hourly Employee Salary – Seasonal Employees

1% paid approximately \$5/hr, 12% paid \$6/hr, 9% paid \$7/hr, 13% paid \$8/hr, 5% paid \$9/hr, 5% paid \$10/hr, 3% paid \$11/hr, 2% paid \$12/hr. 10% of the respondents reported this question did not apply to their business, while 40% did not answer this question.

Average Hourly Employee Salary – Full-time Employees

3% paid approximately \$7/hr, 5% paid \$8/hr, 6% paid \$9/hr, 8% paid \$10/hr, 3% paid \$11/hr, 7% paid \$12/hr, 1% paid \$13/hr, 3% paid \$14/hr, 7% paid \$15/hr, 1% paid \$16/hr, 2% paid \$18/hr, 2% paid \$20/hr, 2% paid \$25/hr. 10% of the respondents reported this question did not apply to their business, while 40% did not answer this question.

New Hires in the Coming Years

16% of the respondents plan to hire more employees in the next couple of years, 71% do not, while 1% might. 12% did not answer this question.

Production Practice

43% of growers used conventional production practices, 6% use IPM, 37% use a mixture, 1% use other methods, and 13% did not answer this question.

IPM Users

26% of the IPM users were satisfied with this practice, 4% were not, and 70% did not comment.

Organic Production Consideration

11% of the respondents were considering organic production, while 64% were not. 25% did not answer this question.

Challenges for Organic Production

The respondents that answered this question reported the following challenges to organic production: insects/pests, diseases, costs, quality, production time.

Automation for Labor Saving

35% of the respondents were considering automation for labor saving purposes, 54% were not, and 11% did not answer this question.

Type of Equipment Considered for Labor Saving Purposes

The growers that responded to this question reported they were considering the following equipment for labor saving purposes: automatic nutrient dosing, automatic watering, climate control, conveyers, curtains, delivery carts, drip irrigation, farm wagons, filling systems, heated propagation culture, injectors, management, monorail, plug seeder, pot handlers, potting machines, rolling benches, soil bale busters, transplanters, vehicles.

Nutrient Delivery System Update

12% of the respondents were considering updating their nutrient delivery system, while 75% were not, and 12% did not answer this question.

Rainwater Collection System Installation

10% of the respondents were considering installing a rainwater collection system, 78% were not, and 12% did not answer this question.

Water Use Restrictions and Regulations

69% of the respondents were concerned about water use restrictions and regulations, while 20% were not, and 11% did not answer this question.

Water Recirculation System

13% of the respondents indicated they are planning on using a water recirculation system, 76% were not, and 11% did not answer this question.

Concern Over Disease Issues In Recirculation System

54% of the respondents were concerned about disease issues in recirculating irrigation systems, 54% were not, and 18% did not answer this question.

Energy Saving Technologies

61% of the respondents were considering energy saving technologies, 29% were not, and 10% did not answer this question.

Alternative Energy Sources

17% of the respondents were considering alternative energy sources, 72% were not, and 11% did not answer this question.

Co-generation Consideration

10% of the respondents were considering co-generation, 78% were not, and 12% did not answer this question.

Computer Operated Environmental Control System

9% of the respondents have a computer-operated environment control system, 81% did not, and 11% did not answer this question.

Computer Operated Environment Control System Capabilities and Operation

9% of the respondents were satisfied with the capabilities and operation of the computer-operated environment control system, 11% were not, and 81% did not answer this question.

Installing a Computer Operated Environment Control System

11% of the respondents were considering installing a computer operated environment control system in the near future, 65% were not, and 24% did not answer this question.

Constructing Additional Greenhouses

29% of the respondents were considering additional construction of greenhouses, while 61% were not, and 10% did not answer this question.

Renovating and or Upgrading Existing Greenhouses

41% of the respondents were considering renovating or upgrading their existing greenhouses, 32% were no, and 26% did not answer this question.

Considering High Tunnels

2% of the respondents were considering using high tunnels, 57% were not, and 41% did not answer this question.

Considering Double Poly Greenhouses

25% of the respondents were considering double poly greenhouses, 34% were not, and 41% did not answer this question.

Considering Glass Greenhouses

3% of the respondents were considering glass greenhouses, 56% were not, and 41% did not answer this question.

Considering Open Roof Greenhouses

8% of the respondents were considering open roof greenhouses, 51% were not, and 41% did not answer this question.

Considering Retractable Roof Greenhouses

1% of the respondents were considering retractable roof greenhouses, 58% were not, and 41% did not answer this question.

Considering Single Span Greenhouses

5% of the respondents were considering single span greenhouses, 54% were not, and 41% did not answer this question.

Considering Gutter Connected Greenhouses

12% of the respondents were considering gutter connected greenhouses, 47% were not, and 41% did not answer this question.

Difficulty with Workers Protection Standard

9% of the respondents reported having difficulty complying with Worker Protection Standards, 77% did not have such difficulties, and 14% did not answer this question.

Business Related Questions: Local Extension Specialist

40% of the respondents consulted with local extension specialists for business related questions, while 47% did not, and 13% did not answer this question.

Business Related Questions: Extension Specialist

29% of the respondents consulted with extension specialists for business related questions, while 58% did not, and 13% did not answer this question.

Business Related Questions: Rutgers University Fact Sheet

33% of the respondents used RU fact sheets for business related questions, while 54% did not, and 13% did not answer this question.

Business Related Questions: Equipment Manufacturer

32% of the respondents consulted with equipment manufacturers for business related questions, while 54% did not, and 13% did not answer this question.

Business Related Questions: Colleague Growers

52% of the respondents consulted with colleague growers for business related questions, while 35% did not, and 13% did not answer this question.

Business Related Questions: Other References

35% of the respondents consulted with other references for business related questions, while 52% did not, and 13% did not answer this question.

Business Related Questions: Internet

26% of the respondents used the Internet for business related questions, while 60% did not, and 14% did not answer this question.

Business Related Questions: Other

11% of the respondents consulted with “other” sources for business related questions, while 75% did not, and 15% did not answer this question.

Most Useful References: Local Extension Agent

18% of the respondents reported that their local extension agent was the most useful reference, 70% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Extension Specialist

15% of the respondents reported that the extension specialist was the most useful reference, 73% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Rutgers University Fact Sheet

17% of the respondents reported that RU fact sheets were the most useful reference, 71% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Equipment Manufacturer

17% of the respondents reported that equipment manufacturers were the most useful references, 71% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Colleague Growers

37% of the respondents reported that colleague growers were the most useful references, 51% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Other References (e.g., books)

16% of the respondents reported that “other” references were the most useful references, 72% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Internet

6% of the respondents reported that the Internet was the most useful reference, 82% did not agree with this statement, and 12% did not answer this question.

Most Useful References: Other

6% of the respondents reported that “other” sources were the most useful reference, 82% did not agree with this statement, and 12% did not answer this question.

Computer Ownership

78% of the respondents reported that they own a computer, 14% did not own a computer, and 8% did not answer this question.

Internet Usage

68% of the respondents reported that they use the Internet, 24% did not use the Internet, and 9% did not answer this question.

Internet Usage for Business

41% of the respondents reported that they use the Internet for their business, 50% did not use the Internet for their business, and 9% did not answer this question.

Website Ownership

24% of the respondents reported they operate their own website, 68% did not maintain a website, and 8% did not answer this question.

Desire of Website Ownership

14% of the respondents expressed a desire to own a website, 53% were not interested, and 33% did not answer this question.

Product Sale on the Web

9% of the respondents sold their products on the web, 39% did not, and 52% did not answer this question.

Familiarity With the Rutgers University Farm Management Website

19% of the respondents were familiar with the farm management website, 68% were not, and 13% did not answer this question.

Familiarity With the Rutgers University Floriculture Website

24% of the respondents were familiar with the floriculture website, 63% were not, and 13% did not answer this question.

Familiarity With the Rutgers University Horticultural Engineering Website

14% of the respondents were familiar with the horticultural engineering website, 71% were not, and 15% did not answer this question.

Additional Useful Information Needed

Some of the respondents suggested that information on EPA/DEP rules and regulations, irrigation products, herbicide/pesticide/fertilizer recommendations, energy systems, market trends, and practical help be displayed on help websites.

Advertising Methods: Internet

13% of the respondents used the Internet for advertising, 68% did not, and 19% did not answer this question.

Advertising Methods: TV

7% of the respondents used television for advertising, 74% did not, and 19% did answer this question.

Advertising Methods: Radio

7% of the respondents used radio for advertising, 74% did not, and 19% did not answer this question.

Advertising Methods: Newspapers

30% of the respondents used newspapers for advertising, 51% did not, and 19% did not answer this question.

Advertising Methods: Brochures

24% of the respondents used brochures to advertise, 57% did not, and 19% did not answer this question.

Advertising Methods: Direct Mailing

29% of the respondents used direct mailing for advertising, 52% did not, and 19% did not answer this question.

Advertising Methods: Signs/Posters

29% of the respondents used signs and/or posters for advertising, 52% did not, and 19% did not answer this question.

Advertising Methods: Other

22% of the respondents used other methods for advertising, 56% did not, and 22% did not answer this question.

APPENDIX – Survey Results in Table Form

1. In what county is your business located?

County	Responses
Atlantic	13
Bergen	8
Burlington	4
Camden	6
Cape May	5
Cumberland	10
Gloucester	10
Hunterdon	5
Mercer	10
Middlesex	3
Monmouth	7
Morris	7
Ocean	3
Passaic	3
Salem	7
Somerset	6
Sussex	6
Warren	1

Region	Breakdown of returned surveys	Average Operation Size (sq ft)	Min – Max (sq ft)	Average Annual Gross Sales (\$)	Min-Max (\$)
North	25%	24,830	0-100,000	31,561	0 – (1,000,000-1,999,000)
Central	30%	20,891	0-240,000	22,251	0 – (4,000,000 & >)
South	45%	70,941	0-2,062,000	20,301	<10,000 – (4,000,000 & >)

Response rate for each region:

North: 29 received from 65 mailed = ~45%

Central: 34 received from 99 mailed = ~34%

South: 51 received from 213 mailed = ~24%

2. What year was your greenhouse business established?

Year	Responses
No Response	12
Prior to 1900's	1
1900-1925	2
1926-1950	8
1951-1975	23
1976-2000	67
After 2000	1

3. What is the legal structure of your firm?

Legal Structure	Responses
Sole Proprietor	64
C Corporation	12
Partnership	6
Sub-Chapter S Corp.	15
LLC	7
Other	3
No Response	7

4. Are you involved in other farming operations besides greenhouse production?

	Whole state	North	Central	South
Yes	49	11	13	25
No	58	14	18	26
No Response	7	4	3	-

5. If yes, please list them: B&B (2), beef cattle (1), blankets (1), blueberries (1), catalogue retail (1), Christmas trees (4), Christmas wreaths (1), container growing (2), corn (2), cut flowers (2), dairy farm (1), evergreens (1), field crops (2), nursery stock (9), flowers (5), mums (5), fresh market produce (1), fruits (2), grains (1), hay (2), herb (1), hog farming (1), horses (1), kale (1), Mt. pinks (1), trees (2), ornamental crops (2), perennials (2), pumpkins (5), fruits/vegetables (9), animals(1), soybeans (3), daylilies (1), watermelons (1), woody plants (1)

Please note: some growers responded with more than one answer.

6. You would describe sales from your greenhouse operation as ____% retail, ____% wholesale

Percent Retail	Number of Responses	Percent Wholesale	Number of Responses
100	19	100	38
76-99	14	76-99	10
51-75	9	51-75	4
26-50	9	26-50	13
1-25	11	1-25	16
No retail	49	No retail	30
No response	3	No response	3

7. The total size of your production greenhouse(s) is _____ square feet

No Response	5
0	8
Under 1,000	8
1,000 - 10,000	49
10,001-20,000	12
20,001-30,000	11
30,001-50,000	4
50,001-100,000	11
Greater than 100,000	6

8. Since 2000, the size of your greenhouse operation has:

No Response	10
Remained the Same	80
Increased	19
Decreased	5

9. Do you anticipate expanding your operation within the next five years?

Yes	31
Maybe	1
No	74
No Response	8

10. If yes, will you be expanding in your:

No Response/NA	79
Retail	7
Wholesale	12
Production Greenhouses	6

All Three	9
Other	1

11. The approximate percentage (growing area) of total sales for the following crops are:

Crops	% Total Growing Area
Bedding Plants	12
Flowering Bulbs	3
Field Grown Cuts	1
Perennials	46
Poinsettias	5
Hardy Mums	2
Hanging Baskets	5
Geraniums	5
Herbs	0
Cut Flowers	0
Other Potted Plant	9
Vegetables	3
Other	9

12. Do you:

	Produce your own plugs?	Buy in plugs?	Buy pre-finishes plants?	Sell pre-finished plants?	Sell plugs?
Yes	43	71	35	14	5
No	65	37	73	94	103
No Response	6	6	6	6	6

13. Please indicate the number of full-time, part-time, and seasonal employees (including family members) you employ each month:

	Number of Employees	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
FT	No Response	4	4	4	4	4	4	5	5	5	5	5	5
	0	59	60	51	50	50	51	51	51	51	51	55	56
	1-5	38	36	43	44	44	43	44	44	45	45	41	36
	5-10	7	8	9	8	8	8	8	8	6	6	6	10
	>10	6	6	7	8	8	8	8	6	6	6	7	7

PT	No Response	6	6	6	6	6	6	6	6	6	6	6	6
	0	88	82	68	62	60	63	69	71	74	73	74	76
	1-5	19	24	37	42	42	41	36	34	29	30	32	29
	5-10	1	2	3	2	4	1	1	1	4	4	1	2
	>10	0	0	0	2	2	3	2	2	1	1	1	1
Seasona I	No Response	6	5	6	6	6	6	6	6	6	6	6	6
	0	100	95	85	81	80	83	91	92	95	95	94	92
	1-5	8	14	22	23	23	22	14	14	11	11	13	15
	5-10	0	0	1	3	3	2	1	1	1	1	0	0
	>10	0	0	0	1	2	1	1	1	1	1	1	1

14. Since 2000, the total number of your employees:

Increased	13
Decreased	11
No Change	73
No Response	17

15. If increased or decreased by how much? %

% Increase/Decrease	Responses for Increase	Responses for Decrease
No Response	3	3
1-25%	10	6
26%-50%	0	2
51%-75%	0	0
76%-100%	0	0

16. What percentage of your business' total annual sales occurs during each month?

Responses	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
No Response	7	6	6	5	4	4	4	6	6	6	6	5
0%	85	85	62	26	18	29	53	57	43	50	65	60
1-50%	22	23	46	81	77	81	57	51	65	58	43	49
51-99%	0	0	0	2	15	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0

17. Is your greenhouse business a part-time business, or full-time business?

Business Type	Responses	Average Annual Sale Range
Full Time	64	\$200,000 - \$299,000

Part Time	40	\$10,000 - \$24,000
No Response	10	< \$10,000

18. Is your greenhouse business your major source of income?

Yes	47
No	55
NA	1
No Response	11

19. Do you sell your finished products to in state, neighboring states, distant states or out of country?

	In state	Average Annual Gross Sale Range	North	Central	South
No Response	9	<\$10,000	3	5	1
NA	1	0	0	1	0
No	8	\$50,000 - \$99,000	1	2	5
Yes	96	\$50,000 - \$99,000	26	25	45

	Neighboring States	Average Annual Gross Sale Range	North	Central	South
No Response	9	<\$10,000	3	5	1
NA	1	0	0	1	0
No	63	\$25,000 - \$49,000	13	17	33
Yes	41	\$200,000 - \$299,000	13	11	17

	Distant States	Average Annual Gross Sale Range	North	Central	South
No Response	9	<\$10,000	3	5	1
NA	1	0	0	1	0
No	97	\$50,000 - \$99,000	23	27	47
Yes	7	\$100,000 - \$199,999	3	1	3

	Out of Country	Average Annual Gross Sale Range	North	Central	South
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No Response	9	<\$10,000	3	5	1
NA	1	0	0	1	0
No	102	\$50,000 - \$99,000	24	28	50
Yes	2	\$10,000 - \$24,999	2	0	0

What percentage of your total sales is to out-of-state customers?

No Response	16
0%	50
1-50%	38
51-99%	10
100%	0

What percentage of your total sales is to out-of-country customers?

No Response	16
0%	96
1-50%	2
51-99%	0
100%	0

20. If your business sells mostly retail, where does most of your competition comes from?

	Large Retail Chains – Mass Merchandisers	Retail Firms – Garden Centers	Distant States – Supermarkets	Other
No Response	56	54	59	65
NA	1	1	1	1
No	20	19	32	36
Yes	37	40	22	12

21. If your business sells mostly retail, what percentage of your retail sales is:

	On Site	In a Flower Shop	Through a Farmers Market	Other
No Response	35	36	37	37
0	35	69	73	63
1-50%	10	4	3	4
51-99%	8	3	1	4
100%	26	2	0	6

22. If your business sells mostly wholesale, where does most of your competition comes from?

	Growers in NJ	Growers in Other States	Other
No Response	46	47	52
NA	1	1	1
No	14	40	48
Yes	53	26	13

23. If your business sells mostly wholesale, what percentage of your wholesale sales is to:

	Mass Merchandisers	Garden Centers	Supermarkets	Other
No Response	29	29	29	29
0	82	35	80	38
1-50%	1	22	4	28
51-99%	2	15	1	10
100%	0	13	0	9

Other: Churches (4), fundraisers (3), distributors (1), wholesalers (7), Florist (10), Landscapers (20), restaurants (1), non profits (2), new home builders (1), other growers (2), order (1), road stands (1), restaurant (1)

Please note: some growers responded with more than one answer.

24. Are you aware of plans for expansion by your competition?

Yes	29
No	64
NA	1
No Response	20

25. Do you plan to expand into a niche market?

Yes	23
No	64
NA	2
No Response	25

- If yes, what is this niche market? Day lilies (2), herbs (2), exotic foliage and flowering plants (1), container planting service (1), grafted conifers (1), ornamental pot peppers (1), strawberries (1), specialized packaging (1), propagating unique plants

(1), ponds (2), good service for plant (1), bouquets (1), re wholesale (2), planters (1), larger annuals (1), larger potted plants (1), hard to find plant material

Please note: some growers responded with more than one answer.

- If yes, how long do you expect it to remain in this niche market? 5 years, 10 years, as long as possible/competition drives us out

26. What is the greatest challenge to expanding your operation? Age (5), capital (2), chains (3), competition (3), cost (7), customers (3), deer/groundhogs (1), economy (5), energy (3), insurance (2), labor (22), land (7), long hours (1), marketing (4), market saturation (1), money (11), regulation (5), relocation (1), resources (1), time (7), water control (1), weather (3)

Please note: some growers responded with more than one answer.

27. What is the greatest challenge for greenhouse industry expansion in your county? Chains (2), competition (8), cost (7), customers (4), economy (2), energy (4), housing developments (1), insurance (1), labor (9), land (7), market share (1), marketing (1), money (2), oversupply (1), plant maintenance (2), population (3), price wars (2), prices (1), regulations (9), Resources (1), tax (3), water (2)

Please note: some growers responded with more than one answer.

28. How do you think future expansion of the greenhouse industry in New Jersey will affect you?

	Total Responses	North	Central	South
Positively	22	4	7	11
Negatively	20	6	3	11
No Effect	56	15	15	26
No Response	16	4	9	1

29. Please rate each of the factors listed below according to how much they were a challenge to the successful operation of your business. Use a 1 to 5 scale with 1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major. Please insert a check mark in the appropriate cell.

Factor	No Response	1	2	3	4	5

Ability to attract and retain competent management	17	53	6	18	7	13
Ability to attract and retain competent employees	17	28	12	19	20	18
Your own management expertise	16	27	11	21	24	15
Your own marketing expertise	15	22	11	23	26	17
Availability of capital (cash and/or loans)	16	20	15	26	20	17
Production costs	15	3	6	28	36	26
Competition	14	20	16	22	23	19
Zoning regulations	16	34	13	22	13	16
Environmental regulations	16	23	16	30	14	15
Other governmental regulations	16	23	14	31	13	17
Weather uncertainty	15	10	7	25	32	25
Other, please specify:	109	2	0	1	0	2

<i>Geographical distribution of growers that checked 4 or 5</i>	Location		
	North	Central	South
Factor			
Ability to attract and retain competent management	5	5	10
Ability to attract and retain competent employees	14	11	13
Your own management expertise	9	10	20
Your own marketing expertise	10	13	20
Availability of capital (cash and/or loans)	11	9	17
Production costs	18	13	31
Competition	10	10	22
Zoning regulations	10	9	10
Environmental regulations	12	8	9
Other governmental regulations	10	8	12
Weather uncertainty	34	17	23
Other, please specify:	1	0	1

30. Please rate each of the factors listed below according to the degree they created a challenge for growing high quality plants. Use a 1 to 5 scale with 1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major. Please insert a check mark in the appropriate cell.

Factor	No Response	1	2	3	4	5
Greenhouse environment control	17	11	14	24	33	15
Insect control	15	9	6	33	36	15
IPM program (when applicable)	40	18	9	28	12	7
Disease control	15	13	16	30	27	13
Weed control	15	25	15	21	25	13
Crop irrigation	19	18	15	24	21	17
Water quality	17	27	15	26	14	15
Weather (including drought)	16	9	11	18	25	35
Cultural requirements of new crops	21	27	13	31	12	10

Scheduling crops in the greenhouse	17	31	13	28	22	3
Incorporating new technologies	17	23	11	33	21	9
Other, please specify:	106	4	0	1	2	1

<i>Geographical distribution of growers that checked 4 or 5</i>	Location		
	North	Central	South
Factor			
Greenhouse environment control	15	10	23
Insect control	13	13	25
IPM program (when applicable)	2	4	13
Disease control	10	9	21
Weed control	6	8	16
Crop irrigation	11	8	19
Water quality	7	5	17
Weather (including drought)	15	18	27
Cultural requirements of new crops	4	1	17
Scheduling crops in the greenhouse	6	6	13
Incorporating new technologies	6	7	17
Other, please specify:	1	1	1

31. Please rate how much of the factors listed below contributed to your finished product pricing. Use a 1 to 5 scale with 1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major. Please insert a check mark in the appropriate cell.

Factor	No Response	1	2	3	4	5
Cost of production	19	3	4	19	41	28
Labor cost	22	13	9	21	25	24
Other growers' prices	19	11	14	20	29	21
Quality of plant material	20	12	3	15	35	29
Market demand	21	5	6	29	29	24
Product uniqueness	20	12	13	15	31	23
Inventory levels	21	19	13	37	16	8
Last year's price	22	12	12	29	28	11
Other, please specify:	110	2	2	0	0	0

<i>Geographical distribution of growers that checked 4 or 5</i>	Location		
	North	Central	South
Factor			
Cost of Production	16	19	34
Labor Cost	14	12	23
Other growers prices	12	12	26
Quality of plant material	16	17	31
Market demand	13	13	27
Product uniqueness	9	16	29

Inventory levels	7	4	13
Last years cost	12	8	19
Other	0	0	0

32. Please rate to what extent the factors listed below pose a challenge to the potential expansion of your business. Use a 1 to 5 scale with 1 = very minor, 2 = minor, 3 = neutral, 4 = major, 5 = very major. Please insert a check mark in the appropriate cell.

Factor	No Response	1	2	3	4	5
Availability of capital	22	20	9	20	19	24
Availability of qualified labor	22	16	4	18	28	26
Marketing opportunities	23	11	6	27	26	21
Availability of usable land	24	29	16	11	15	19
Availability of high quality water	23	31	10	28	12	10
Transportation challenges	23	27	22	23	10	9
Novel crop selection	24	19	14	36	14	7
Other	104	4	0	1	1	4

<i>Geographical distribution of growers that checked 4 or 5</i>	Location		
	North	Central	South
Availability of capital	11	10	22
Availability of qualified labor	13	16	25
Marketing opportunities	11	9	27
Availability of usable land	8	10	16
Availability of high quality water	7	2	13
Transportation challenges	3	5	11
Novel crop selection	3	4	14
Other	1	0	4

33. Please indicate the annual gross sales for your greenhouse operation last year (2002):

Not for profit/NA	8
Less than \$10,000	17
\$10,000-\$24,000	8
\$25,000-\$49,000	9
\$50,000-\$99,000	9
\$100,000-\$199,999	15
\$200,00-\$299,000	11
\$300,000-\$399,000	7
\$400,000-\$499,000	4
\$500,000-\$999,999	6
\$1,000,000-\$1,999,999	4
\$2,000,000-\$3,999,999	2

\$4,000,000 and above	2
No Response	12

34. Please indicate the average wage per hour you pay your:

Seasonal Employees:

Amount	Responses
NA	11
\$5	1
\$6	14
\$7	10
\$8	15
\$9	6
\$10	6
\$11	3
\$12	2
No Response	46

Full-time Employees:

Amount	Responses	Location			Avg. Production Size
		North	Central	South	
NA	11	3	6	2	15,384
\$7	4	0	0	4	5,267
\$8	6	1	4	1	45,389
\$9	7	1	3	3	23,771
\$10	9	1	3	5	251,531
\$11	4	2	0	2	102,667
\$12	8	2	4	2	74,071
\$13	1	1	0	0	6,000
\$14	3	2	0	1	42,667
\$15	8	5	2	1	32,319
\$16	1	0	0	1	92,000
\$18	2	1	1	0	12,500
\$20	2	1	0	1	31,500
\$25	2	2	0	0	13,250
No Response	46	7	11	28	8,400

35. Are you planning on hiring more employees the next couple of years?

Maybe	1
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No Response	14
No	81
Yes	18

36. Which production practices do you use?

Conventional	49
IPM	7
Mixture	42
No Response	15
Other	1

37. If using IPM, are you satisfied with the results?

No Response/NA	79
No	5
Yes	30

38. If applicable, are you considering organic production?

No Response/NA	28
No	74
Yes	12

39. In your opinion, what are the challenges for organic production? Insects/pests, disease, cost, quality, time

40. Are you considering automation for labor savings purposes?

No Response	12
No	62
Yes	40

41. If yes, what type of equipment are you considering? Anything that could help (2), automatic nutrient dosing (1), automatic watering (1), climate control (2), conveyers (1), curtains (2), delivery carts (2), drip irrigation (2), farm wagons (1), filling systems (2), heated propagation culture (1), injectors (1), irrigation (11), management (1), monorail (1), plug seeder (1), pot handlers (1), potting machines (7), rolling benches (2), soil bale buster (1), transplanters (3), vehicles (1)

42. Are you considering updating your nutrient delivery system?

No Response	14
No	86
Yes	14

43. If yes, what type of equipment are you considering? Injector

44. Are you considering installing a rainwater collection system?

No Response	14
No	89
Yes	11

45. Are you concerned about water use restrictions and regulations?

		Average Production Size (sq ft)
No Response	12	13,860
No	23	15,414
Yes	79	53,030

46. Do you plan on using a water recirculation system?

No Response	12
No	87
Yes	15

47. Are you concerned about disease issues in recirculation systems?

No Response	20
No	32
Yes	62

48. Are you considering energy saving technologies?

No Response	11
No	33
Yes	70

49. Are you considering alternative energy sources (e.g., wind, geothermal)

No Response	13
No	82
Yes	19

50. Are you considering co-generation (electricity and heat)?

No Response	14
No	89
Yes	11

51. Do you have a computer-operated environment control system?

No Response	12
No	92
Yes	10

52. If yes, are you satisfied with its capabilities and operation?

Unknown	92
No	12
Yes	10

53. If not, are you considering installing one in the near future?

Unknown	27
No	74
Yes	13

54. Are you considering constructing additional greenhouses?

No Response	11
No	70
Yes	33

55. If not, are you considering renovating/upgrading existing ones?

Unknown	30
No	37
Yes	46
Maybe	1

56. If yes, what type of new greenhouse structure are you considering?

	High Tunnels	Double Poly	Glass	Open Roof	Retractable Roof	Single Span	Gutter Connected
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No Response	47	47	47	47	47	47	47
No	65	39	64	58	66	61	53
Yes	2	28	3	9	1	6	14

57. Do you have difficulty complying with Worker Protection Standards?

No Response	16
No	88
Yes	10

58. How do you get help with your business related questions? Do you contact or consult (please check all that apply):

Response	Local Extension Specialist	Extension Specialist	RU Fact Sheet	Equipment Manufacturer	Colleague Growers	Other References	Internet	Other
No Response	15	15	15	15	15	15	16	17
No	54	66	61	62	40	59	68	84
Yes	45	33	38	37	59	40	30	13

59. Which of these reference sources do you find most useful (please check only one)?

Response	Local Extension Specialist	Extension Specialist	RU Fact Sheet	Equipment Manufacturer	Colleague Growers	Other References	Internet	Other
No Response	14	14	14	14	14	14	14	14
No	80	83	81	81	58	82	93	93
Yes	20	17	19	19	42	18	7	7

60. Do you own a computer?

No Response	9
No	16
Yes	89

61. Do you use the Internet?

No Response	10
No	27

Yes	77
-----	----

62. Do you use the Internet for business?

No Response	10
No	57
Yes	47

63. Do you have your own web site?

No Response	9
No	78
Yes	27

64. If not, would you like to have your own web site?

No Response	38
No	60
Yes	16

65. If yes, do you sell your products on your web site?

No Response	59
No	45
Yes	10

66. Are you familiar with the following Rutgers Cooperative Extension web sites:

<http://aesop.rutgers.edu/~farmmgmt>? (Economics)

No Response	15
No	77
Yes	22

<http://aesop.rutgers.edu/~floriculture>? (Crop Production)

No Response	15
No	72
Yes	27

<http://aesop.rutgers.edu/~horteng>? (Engineering)

No Response	17
No	81
Yes	16

67. What additional types of information would you like to see available on these web sites that would be helpful to your business? EPA/DEP rules and regulations, irrigation products, herbicide/fertilizers recommendations, energy systems, market trends, practical help

68. Please indicate all methods of advertising you use.

Responses	Internet	TV	Radio	Newspapers	Brochure	Direct Mail	Signs, posters	Other
Unknown	22	22	22	22	22	22	22	25
No	77	84	84	58	65	59	59	64
Yes	15	8	8	34	27	33	33	25