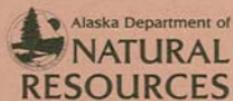


Survey of Greenhouse and Nursery Production  
in Alaska  
1982

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Division of Agriculture



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SURVEY OF GREENHOUSE AND NURSERY PRODUCTION  
IN ALASKA  
1982

Prepared by

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## INTRODUCTION

During the spring of 1983 the Department of Natural Resources, Division of Agriculture surveyed the greenhouse and nursery industry in Alaska. The purpose of this study was to update and expand on research done in the past and to estimate the current size of in-state greenhouse and nursery production. The greenhouse and nursery industry forms a vital link between the agricultural sector and consumers. It includes retail and wholesale outlets that sell both plants produced in the state and plants produced in other states and countries. There are, in all likelihood, many untapped markets for the specialized plants that are raised in Alaska.

The survey was directed to commercial greenhouses and nurseries that raise most or all of their plants produced for sale to wholesale or retail buyers or individual customers. Public (institutional) greenhouses and nurseries were not included.

Difficulties in doing this survey were encountered due to a reluctance by some producers to share information on their enterprises. However, many people did respond and expressed interest in receiving a copy of the results. This study provides basic information on the needs of the greenhouse and nursery industry and summarizes production statistics in terms of number of operations, acres of land or square feet of greenhouse space, number of plants, and value of production during 1982.

Alaska's greenhouse and nursery producers have an opportunity to enter the market for landscaping and ornamental plants. One of the advantages of in-state production is to encourage reproduction of plants that are naturally well-suited to Alaska's environment. Although many of these plants can be produced in other parts of the country (or world), the genetic stock may become less-suited to Alaska's conditions if all propagation and production takes place in milder climates. However, Alaska's greenhouse and nursery producers cope with higher costs of energy, labor, fertilizers, and chemicals and a shorter growing season than do producers in other parts of the U.S.

## OTHER STUDIES

In 1979 the Cooperative Extension Service, Anchorage, Alaska, surveyed greenhouses in Alaska for estimates of square footage and volume of retail sales. The ten greenhouses that disclosed both size and retail sales had a total of 349,645 square feet of space and approximately \$3 million in retail sales. Based on estimated average sales per square foot and knowledge of size of non-reporting greenhouses, total retail sales for greenhouses in Alaska during 1979 were estimated at \$5,612,414.

In fall 1982 Agresources, Palmer, Alaska, surveyed greenhouse production in the Matanuska Valley. There were 18 commercial and institutional greenhouses identified in the borough. Dr. Logsdon found that 10 of the 15 commercial greenhouses known to be in operation had a total area of 44,000 square feet. The average gross return was \$3.36 per square foot. Sales by Matanuska Valley greenhouses usually are a combination of both retail and wholesale sales.

## RETAIL VERSUS WHOLESALE SALES

Many considerations affect whether a nursery or greenhouse business will opt for wholesale or retail sales or a combination of both. Although retail sales are usually made at higher prices, the customer usually expects additional services (convenient hours, friendly and knowledgeable salespeople, attractive packaging, expanded selection, and longer sales seasons) and an accessible location. On the other hand, wholesale businesses often have a more remote location, less expensive land, larger volume, longer-term production with less finishing and packaging, and an owner who may not wish to deal directly with the public. A well-managed wholesale operation will earn higher income from the land than typical field and row crops and a well-managed retail business will generally earn a greater return per square foot than will a similar wholesale business.

Survey respondents were asked to estimate the percentage of retail and wholesale sales during 1982.

Twenty-one (45 percent) respondents had 90 percent or more of retail sales and 11 (23 percent) had 90 percent or more of wholesale sales. The remaining 32 percent had a more equal proportion of wholesale and retail sales.

### GREENHOUSE PRODUCTION

Twenty-nine greenhouse producers responded to the greenhouse portion of the survey and it is estimated that there are approximately 15 additional commercial greenhouses in the state. Survey respondents had approximately 412,000 square feet in greenhouse crop production during 1982 (Table 1). Total value of production was approximately \$2.6 million. Average gross sales were \$6.23 per square foot. Respondents' greenhouse space ranged from less than 1,000 square feet to greater than 100,000 square feet. The mean was about 14,200 square feet.

**Table 1**  
Alaska Greenhouse Space and Value of Production:  
Summary of Survey Results  
1982

Type of Production	Number of Respondents <sup>a</sup>	Total Square Ft.	Total Value	Value Per Square Foot
Flowering Bedding Plants	17	163,570	\$1,117,015	\$ 6.83
Vegetable Bedding Plants	19	54,301	188,952	3.48
Flowering Plants	8	53,110	143,250	2.70
Cut Flowers	0	0	0	
Foliage Plants	4	66,200	1,014,200	15.32
Hardy Plants/Container Nursery Stock	3	17,048	95,000	5.57
Hardy Plants/Tree Seedlings	2	1,410	b	b
Other	1	1,080	4,600	4.26
Vegetables <sup>c</sup>	7	55,000	b	b
<b>TOTAL<sup>d</sup></b>		<b>411,719</b>	<b>\$2,563,017</b>	<b>\$ 6.23</b>

- <sup>a</sup> Survey respondents may have produced more than one type of crop.  
<sup>b</sup> Insufficient data.  
<sup>c</sup> Estimates from non-survey sources.  
<sup>d</sup> Total greenhouse space is estimated at 625,000 square feet and total value of greenhouse plants produced in Alaska exceeded \$4 million.

It is estimated that there are an additional 213,000 square feet of commercial greenhouse space in Alaska with a crop value of about \$1.4 million. Thus, total commercial greenhouse space is estimated at approximately 625,000 square feet; total value of production is approximately \$4 million. This figure does not include plants that are shipped to Alaska. Other studies of Alaska's greenhouse industry have shown higher dollar values because value was placed on all plants and related products rather than only plants produced in Alaska.

Respondents were further categorized according to size of greenhouse space and value of production. Fifty-nine percent had less than 5,000 square feet in greenhouse production in 1982 (Table 2). Twenty-four percent had between 5,000 and 19,999 square feet in production, and 10 percent had between 20,000 and 49,999 square feet. Seven percent had greater than 50,000 square feet of greenhouse space in production.

**Table 2**  
Alaska Greenhouse Space: Distribution  
1982  
(square feet)

	0-999	1,000-4,999	5,000-19,999	20,000-49,999	50,000+	TOTAL
Number	8	9	7	3	2	29
Percent	28%	31%	24%	10%	7%	100%

Most respondents had a relatively low value of production. Twelve percent showed less than a \$999 value of greenhouse production and 21 percent each fell within the range of \$1,000 to \$4,999 and \$5,000 to \$14,999. Seventeen percent had between \$15,000 and \$29,999 and 21 percent had between \$50,000 and \$99,999. Eight percent showed greater than a \$100,000 value of production (Table 3). Expenses are not deducted from the value of production

**Table 3**  
Alaska Greenhouse Value of Production: Distribution  
1982

	\$0-999	\$1,000-4,999	\$5,000-14,999	\$15,000-29,999	\$30,000-49,999	\$50,000-99,999	\$100,000+	TOTAL
Number	3	5	5	4	0	5	2	24
Percent	12%	21%	21%	17%	0	21%	8%	100%

### Bedding Plants--Flowering

Flowering bedding plants had an average of four months in the greenhouse with a range of one to six months. Seventeen respondents had a total of 163,570 square feet of greenhouse space producing flowering bedding plants with a mean of 9,622 square feet per respondent. The average value was \$6.83 per square foot and total value was estimated at \$1.12 million.

### Bedding Plants--Vegetable

Nineteen respondents grew vegetable bedding plants covering 54,000 square feet of greenhouse space. Plants were in the greenhouse an average of 2.94 months, the range was one and one-half to four months. The average value per square foot was estimated at \$3.48. Total value of vegetable bedding plants raised by survey respondents in 1982 was approximately \$189,000.

### Flowering Plants

Flowering plants had an average of 5.6 months in the greenhouse with a range of four to ten months. Eight respondents devoted 53,100 square feet of greenhouse space to flowering plant production during 1982. Average value per square foot was estimated at \$2.70 and total sales were estimated at \$143,250.

### Cut Flowers

No survey respondents reported production of cut flowers.

### Foliage Plants

Foliage plants had an average of 8.75 months in the greenhouse with a range of three to 12 months. Foliage plants used 66,200 square feet of greenhouse space and had a total estimated value of approximately \$1.014 million. Average value per square foot was \$15.32.

### Hardy Plants--Container Nursery Stock

Three respondents reported greenhouse production of hardy plants--container nursery stock. Average time in the greenhouse was 3.8 months with a range of two to six months. Total greenhouse space devoted to hardy plant production was 17,000 square feet. It is estimated that total value of production was \$95,000.

### Hardy Plants--Tree Seedlings

Total greenhouse space devoted to production of tree seedlings by survey respondents was 1,400 square feet. Insufficient information was available to estimate value of production.

### Greenhouse Vegetable Production

Greenhouse space is also used to produce vegetables. These are usually high value crops that require a closely controlled environment. Survey results showed that tomatoes, cucumbers, and a lesser amount of celery and lettuce were produced. Time in the greenhouse ranged from 3.5 to six months. It is estimated that about 55,000 square feet of greenhouse space was devoted to vegetable production. Data was insufficient to estimate value of production.

### NURSERY PRODUCTION

Nurseries produce high value specialty crops. Plants may be propagated in Alaska or shipped in from other states. They are either lined-out in nursery rows or transplanted into containers. Plants are often in the nursery two years or longer before being sold. (Institutional nurseries such as the state forestry nursery, the Plant Materials Center (PMC), the

University Experiment Station, and Municipality greenhouses were not surveyed.)

Alaska nurseries commonly produce landscaping, reforestation, and conservation plants (shrubs, trees, herbaceous perennials) and small fruit plants (strawberry plants, raspberries, currants). The questionnaire requested information on total acres, number of plants, and value of production for each of these categories. Survey results showed over 27 acres in nursery tree production, 18 acres in shrub production, 4 acres of herbaceous perennials, 1.5 acres of strawberry plants, and 2.2 acres of other small fruits (Table 4). There were 13 respondents producing shrubs, 15 producing trees, eight producing herbaceous perennials, 10 producing strawberry plants, and nine producing other small fruits. Forty-six percent of respondents produced plants in at least four categories. Approximately 22,500 shrubs, 24,000 trees, 60,000 herbaceous perennials, 18,000 strawberry plants, and 7,000 small fruit plants (other than strawberries) were produced in Alaska during 1982 (Table 4).

Value of Alaska's nursery production during 1982 was estimated at approximately \$603,000. Values were estimated at \$142,000 for shrubs, \$258,000 for trees, \$186,000 for herbaceous perennials, \$11,000 for strawberry plants, and \$6,000 for other small fruits. Average value per plant was \$6.29 for shrubs, \$10.58 for trees, \$3.11 for herbaceous perennials, \$.60 for strawberry plants, and \$.81 for other small fruits (Table 5).

Nurseries were categorized by range of value of production during 1982. Thirty-nine percent (5) of the nurseries had production valued at between \$1,000 and \$4,999, fifteen percent (2) had production between \$5,000 and \$14,999 and another 15 percent had between \$15,000 and \$29,999 of production (Table 6). Production was shown at between \$30,000 and \$49,999 by 8 percent (1) and 23 percent (3) had between \$50,000 and \$99,999.

**Table 4**  
**Alaska Nursery Production: Summary of Survey Results**  
**1982**

Type of Plant	Number of Valid Responses	Number of Missing Values <sup>a</sup>	Total of Survey Respondents	Estimated Total <sup>b</sup>	Mean	Median	Minimum	Maximum
<b>ACRES</b>			(acres)	(acres)	(acres)	(acres)	(acres)	(acres)
Shrubs	12	1	18.12	19.63	1.51	1.0	.10	5.00
Trees	13	2	27.39	31.61	2.11	1.0	.10	12.00
Herbaceous Perennials	7	1	3.60	4.11	.51	.25	.05	1.50
Strawberry Plants	9	1	1.48	1.64	.16	.11	.002	.50
Raspberries/Currants	8	1	2.22	2.50	.28	.10	.001	.50
<b>PLANTS</b>			(plants)	(plants)	(plants)	(plants)	(plants)	(plants)
Shrubs	9	4	14,630	22,568	1,626	850	30	5,000
Trees	11	4	21,170	24,364	1,925	400	20	12,000
Herbaceous Perennials	6	2	44,650	60,007	7,442	1000	150	40,000
Strawberry Plants	10	0	18,320	18,320	1,832	1000	200	5,000
Raspberries/Currants	8	1	6,200	6,982	775	350	100	2,500
<b>VALUE</b>								
Shrubs	11	2	\$125,800	\$141,995	\$11,436	\$ 5,000	\$300	\$40,000
Trees	13	2	224,000	257,842	17,231	10,000	500	70,000
Herbaceous Perennials	4	4	8,300	186,347	2,075	1,000	300	--
Strawberry Plants	6	4	8,050	10,990	1,342	400	50	5,000
Raspberries/Currants	7	2	5,050	5,631	721	600	200	1,250
				<u>\$602,805</u>				

<sup>a</sup> Missing values include respondents who indicated production but did not answer all questions.

<sup>b</sup> Extrapolated based on survey results to include estimates for non-respondents.

**Table 5**  
 Alaska Nursery Production: Average Values  
 1982

	Average Value/Plant	Average Plants/Acre	Average Value/Acre
Shrubs	\$ 6.29	1,150	\$ 7,234
Trees	10.58	771	8,157
Herbaceous Perennials	3.11	14,600	45,340
Strawberry Plants	.60	11,170	6,701
Raspberries/Currants	.81	2,793	2,252

**Table 6**  
 Alaska Nursery Value of Production: Distribution  
 1982

	\$0-999	\$1,000-4,999	\$5,000-14,999	\$15,000-29,999	\$30,000-49,999	\$50,000-99,999	\$100,000+	Total
Number	0	5	2	2	1	3	0	13
Percent	0	39%	15%	15%	8%	23%	0	100%

## OTHER PRODUCTION

Depending on the location and goals of greenhouse and nursery producers, there are many other crops that can be raised. Production might be expanded to include more high value crops such as vegetables, berries, sod, and seed. Establishments located where land is costly often provide other services to their clientele such as storing perennial ornamentals during winter and selling greenhouse and garden supplies.

Some of the other crops produced by survey respondents were seed potatoes, cereal grain seed, grass seed, and vegetables. Total value of these other crops reported by survey respondents was \$887,000.

## CHANGES IN PRODUCTION

The question was posed as to how production in 1982 compared to production in 1981. Only three out of 39 respondents indicated that their production decreased. Ten respondents indicated either no change or an unspecified increase. The remainder (25) showed increases in production of between 5 and 200 percent. Of the respondents who specified percentage increases, six showed increases of between 100 and 200 percent, nine by between 20 and 50 percent, and 10 others by between two and 19 percent.

Respondents were also asked to estimate changes in their production for 1983. Ten stated that they would decrease production, two planned to produce the same amount, and 25 planned to increase production in 1983. Five respondents did not answer the question.

## COMPUTER ACCESS

Increasingly, computers are making inroads into the greenhouse and nursery business. A well-designed farm computer system can give a producer valuable information while freeing him from some time-consuming but essential tasks.

Survey respondents were asked to indicate whether they owned or had access to a computer or whether they planned to obtain access to one within the next year. Of 44 respondents, 34 percent (15) indicated that they have

access to a computer, 66 percent (29) did not. Of the 19 respondents who answered the second question, 42 percent (8) planned to gain access to a terminal within the next year, 58 percent (11) had no such plans.

#### INFORMATION NEEDS OF ALASKA'S GREENHOUSE AND NURSERY PRODUCERS

Although there has been considerable research in greenhouse and nursery production in other parts of the U.S., results are not always entirely applicable to Alaska. Survey respondents were asked to specify the types of information that they most frequently need. Choices included: cultural, chemical, computer, economic, energy-related, marketing, construction, and other. Any number of categories could be checked. Categories indicated most frequently were marketing (67 percent) and chemical (53 percent). See Figure 1. Comments were:

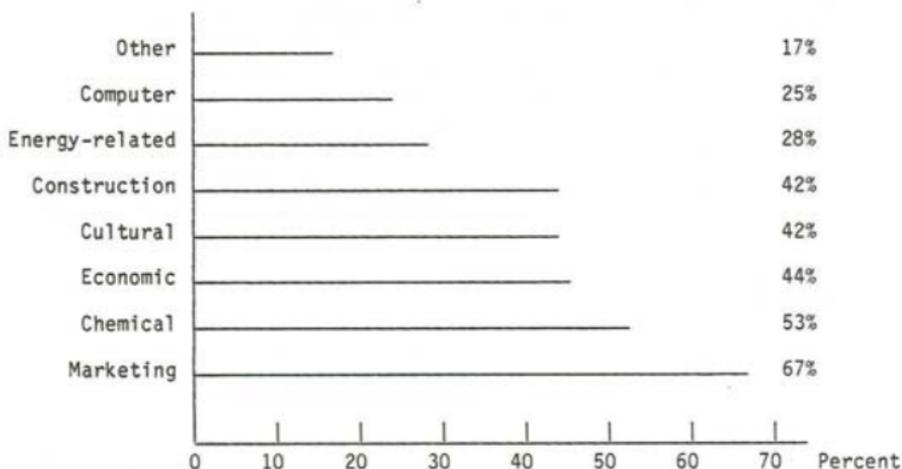
- need list of supply sources
- quality plant suppliers
- technical: new methods in landscaping profession
- advertising
- European data
- evapotranspiration rates, soil and water holding capacities, intake rates for irrigation

#### SUMMARY AND CONCLUSIONS

Production of greenhouse and nursery stock in Alaska is growing rapidly. The greenhouse and nursery industry currently includes businesses that ship plants into the state and that produce plant materials in the state. There is not, however, a clear distinction between the two groups. Many producers ship plants into the state and propagate others.

Some successful greenhouse and nursery producers use state-of-the-art production methods, inventory records, and marketing techniques. Time and energy must be allocated to marketing activities and access to information is critical. Successful production requires planning for what is to be produced and knowledge of the correct methods of propagation and production. Sixty-seven percent of survey respondents stated that better marketing information is needed. A lesser number checked production-related

**Figure 1**  
**Information Needs: Greenhouse and Nursery Industry**  
**1982**  
**(Percentage of Respondents)**



information. It was found that a significant amount of horticultural plants are produced in Alaska (valued at nearly \$5 million in 1982) and that Alaska's greenhouse and nursery industry is experiencing growth.

This study provided basic information about producers who raise most of their nursery plants in the state. The total size of the greenhouse and nursery industry in Alaska is actually much larger when total sales of plants shipped into the state for resale are also tallied.

# APPENDIX

## STATE OF ALASKA - DEPARTMENT OF NATURAL RESOURCES DIVISION OF AGRICULTURE

The Alaska Horticultural Association and the Division of Agriculture are requesting your cooperation in this survey of the nursery industry in the State of Alaska. The Division of Agriculture will summarize the results of the survey and provide these results to the public and the Alaska Horticultural Association. All individual responses will remain strictly confidential. If you have any questions, please contact Kettle Eberhart, 376-3276 or Cathy Wright, 745-4469. Please return this questionnaire by March 4, 1983.

1. What proportion of your sales during 1982 were:

\$ retail (retail is defined as 'direct sales to the final consumer;')  
 \$ wholesale (wholesale is defined as 'sales to an entity that plans to resell the product.')

2. Did you produce greenhouse grown plants in 1982?  yes  no.

If yes, please indicate the number of months each type of plant was grown in the greenhouse, the square feet of space used, and the approximate value of each crop. If you did not produce greenhouse plants in 1982, please skip to question 3.

- a. bedding plants (flowering):

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- b. bedding plants (vegetables):

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- c. flowering plants:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- d. cut flowers:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- e. hardy plants-container nursery stock:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- f. foliage plants:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- g. hardy plants-tree seedlings:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- h. OTHER (please specify): \_\_\_\_\_

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

3. Did you produce greenhouse grown vegetables in 1982?  yes  no.

If yes, please indicate the number of months each vegetable crop utilized greenhouse space, the square feet of space used, and the estimated value of each crop. If you did not produce greenhouse grown vegetables in 1982, please skip to question 4.

- a. tomatoes:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- b. cucumbers:

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

- c. OTHER (please specify): \_\_\_\_\_

months in greenhouse  
 square feet of greenhouse space used  
 \$  value of crop

4. Did you produce field grown nursery stock in 1982?  yes  no.

If yes, please indicate the number of acres used for each crop, the number of plants produced, and the estimated value. If you did not produce field-grown nursery stock in 1982, please skip to question 5.

- a. shrubs:

acres  
 number of plants produced  
 \$  value of crop

- b. trees:

acres  
 number of plants produced  
 \$  value of crop

- c. herbaceous perennial plants:

acres  
 number of plants produced  
 \$  value of crop

- d. small fruits-strawberry plants:

acres  
 number of plants produced  
 \$  value of crop

- e. small fruits-raspberry or currant plants: \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ number of plants produced  
 \$ \_\_\_\_\_ value of crop
- f. OTHER (please specify): \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ number of plants produced  
 \$ \_\_\_\_\_ value of crop

5. Did you produce seed crops in 1982? \_\_\_\_\_ yes \_\_\_\_\_ no.  
 If yes, please indicate the number of acres used for each type of seed production, total quantity produced in 1982, and the estimated crop value. If you did not produce seed in 1982, please skip to question 6.

- a. potatoes for seed: \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ tons  
 \$ \_\_\_\_\_ value of crop
- b. cereal grain seed: \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ tons  
 \$ \_\_\_\_\_ value of crop
- c. grass seed: \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ tons  
 \$ \_\_\_\_\_ value of crop
- d. flower seed: \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop

6. Did you produce vegetable crops in 1982? \_\_\_\_\_ yes \_\_\_\_\_ no.  
 If yes, please indicate the number of acres used to produce each type of vegetable, the quantity produced in 1982, and the estimated crop value. If you did not produce vegetables in 1982, please skip to question 7.

- a. cole crops \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop
- b. root crops \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop
- c. lettuce \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop
- d. squash \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop
- e. potatoes (table stock) \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop
- f. OTHER (please specify) \_\_\_\_\_  
 \_\_\_\_\_ acres  
 \_\_\_\_\_ pounds  
 \$ \_\_\_\_\_ value of crop

7. Was your total production (quantity) in 1982 greater or less than your production in 1981?  
 Increase \_\_\_\_\_ \$ Decrease \_\_\_\_\_ \$

8. Do you plan to increase or decrease your total production (quantity) in 1983 compared to your production in 1982? Please indicate the planned percentage change.  
 Increase \_\_\_\_\_ \$ Decrease \_\_\_\_\_ \$

9. Do you currently own or have access to a computer? \_\_\_\_\_ yes \_\_\_\_\_ no.  
 If no, do you plan to gain access to a computer within the next year? \_\_\_\_\_ yes \_\_\_\_\_ no.

10. What are the two biggest problems that you face in achieving/maintaining a successful business?  
 Please describe.
- \_\_\_\_\_
- \_\_\_\_\_

11. What kind of information do you frequently have use for?  
 \_\_\_\_\_ cultural \_\_\_\_\_ economic \_\_\_\_\_ marketing  
 \_\_\_\_\_ chemical \_\_\_\_\_ energy-related \_\_\_\_\_ construction  
 \_\_\_\_\_ computer OTHER (please explain) \_\_\_\_\_

12. Do you wish to receive a copy of the results of this questionnaire?  
 \_\_\_\_\_ yes \_\_\_\_\_ no

Name \_\_\_\_\_ Address \_\_\_\_\_ Date \_\_\_\_\_