

## **HIGHLIGHTS**

**In 2002, the Arizona “Green Industry” provided:**

- 24,100 jobs (full time equivalents)
- \$487 million in payroll (wages and benefits)
- \$1.2 billion in total sales
- \$1.0 billion in total expenditures

**The Arizona “Green Industry” is one of the most rapidly growing sectors in the state with:**

- 4.8% average annual growth in employment since 1998
- 9.2% average annual growth in wages since 1998 (in real dollars)

# ECONOMIC CONTRIBUTIONS OF THE ARIZONA “GREEN INDUSTRY” -- 2002

## EXECUTIVE SUMMARY

### *What is Arizona’s “Green Industry?”*

The “Green Industry” is defined as firms involved in the production and sale of plant products as well as the design, installation, and maintenance of landscapes. As such, the industry consists of three major segments: nursery/greenhouse production, landscape services, and retail sales of floricultural items. This study focuses on the nursery/greenhouse and landscape services industries.

Within landscape services, there are three major areas of activities: design, installation, and maintenance. Within the nursery/greenhouse sector there are also three major areas of activity: production of plants, wholesale distribution, and retail distribution. There is some overlap between the two segments of the industry. Some landscape service companies also produce plant materials (primarily for their own use) while some nursery operations also offer landscape services. The production of plant materials includes both field and greenhouse production for all types of plants.

### *What was the “Green Industry’s” Contribution to the Arizona economy?*

The “Green Industry” is continually growing and has become an important part of the Arizona economy. The industry’s economic contributions include:

- 24,100 jobs (full time equivalents)
- \$487 million in payroll (wages and benefits)
- \$1.2 billion in total sales
- more than \$50 million in exports to other states
- \$1.0 billion in total expenditures

In addition, gross receipts from nursery producers totaled \$501 million. The landscape services sector had gross receipts of \$735 million. The bulk of the more than \$1.0 billion in expenses was for supplies and equipment (\$359 million) and wages and benefits (\$487 million).

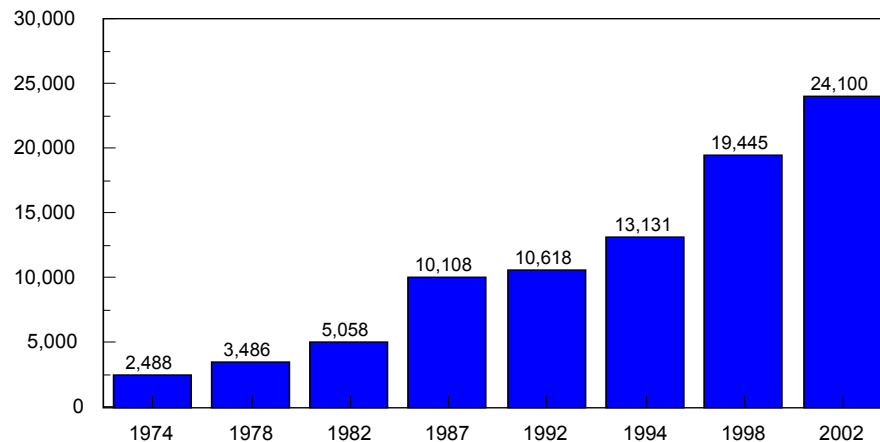
## INTRODUCTION

The “Green Industry” is a thriving and growing component of Arizona’s economy. The growth of the industry is closely tied to both the growth of Arizona’s population and the growth in per capita income. Consequently, the last several years have been good for the industry. Employment has risen by almost 24 percent since 1998 while sales have risen almost 31 percent. The Arizona “Green Industry” has provided the leadership needed for the development of xeriscape (low water use plants or native vegetation). Sales of xeriscape plants accounted for more than 47 percent of plant sales in 2002. Xeriscape refers to landscapes that apply the following concepts:

- good landscape planning and design
- appropriate use of turf grass
- efficient irrigation
- soil improvements
- use of mulches
- low water use plants
- appropriate maintenance

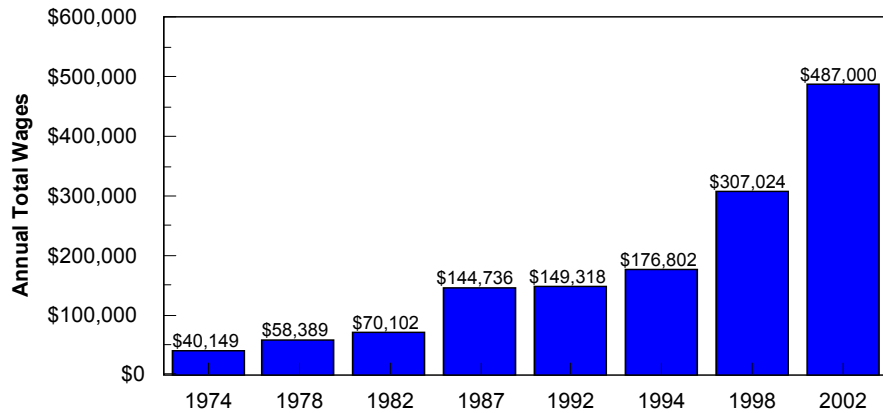
Employment growth in the industry was strong in the 1970s and 1980s, rising from 2,488 workers in 1974 to 10,108 workers by 1987. Growth slowed in the early 1990's with the recession but has rebounded since, rising from 13,131 workers in 1994, 19,445 in 1998, and 24,100 in 2002 (Figure 1).

**Figure 1. Green Industry Employment**



The increase in total wages was not as steady. Total wages increased slightly from 1978 to 1982 and again from 1987 to 1992. Growth in the industry in the last few years has caused total wages to climb rapidly (Figure 2). Wages and benefits per worker were \$20,207 in 2002, up from an inflation-adjusted \$16,220 in 1998.

**Figure 2. Green Industry Total Wages**  
(1,000 dollars)



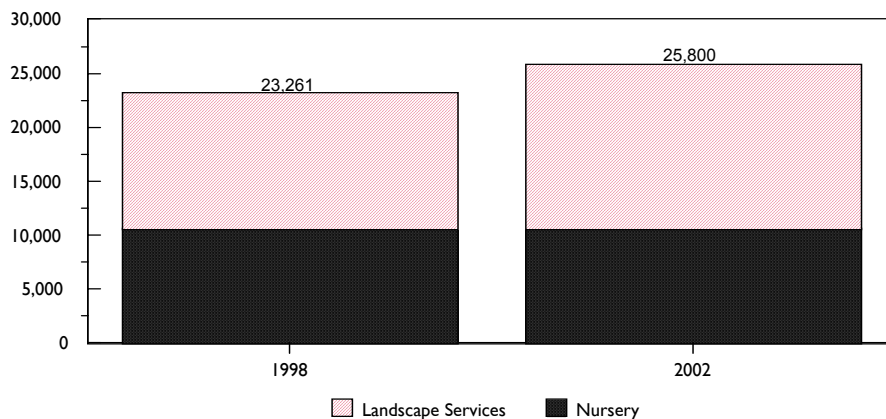
The “Green Industry” contributes to the quality of life in Arizona by developing and maintaining attractive urban and roadside landscapes. Installation of xeriscape landscape continues to be an important part of the landscape services sector. About 37 percent of the landscape installed in 2002 was on commercial or municipal properties while the remaining 63 percent was on residential properties.

## CURRENT ECONOMIC CONTRIBUTIONS

This report is based on the results of a survey of the “Green Industry” conducted in 2003. The survey provides a “snapshot” of industry conditions in 2002.

During 2002, the highest number of workers employed by the “Green Industry” was 25,800. There were 15,200 workers in the landscape services sector and 10,600 workers in the nursery sector (Figure 3).

**Figure 3. Green Industry Employment**  
By Sectors



In 2002, there was 21,000 full time and 3,100 part time workers employed. Employee payroll was \$487 million (Table 1).

Table 1. 2002 Number of Hired Workers, Wages, and Gross Sales

Sector	Full Time	Part Time	Highest Number (During, 2002)	Employment (Full Time Equiv.)	Total Wages (1,000 dollars)	Gross Sales (1,000 dollars)
Landscape Services	14,300	900	15,200	14,800	321,000	735,000
Nursery	6,700	2,200	10,600	7,800	166,000	501,000
<b>Total</b>	<b>21,000</b>	<b>3,100</b>	<b>25,800</b>	<b>22,600</b>	<b>487,000</b>	<b>1,236,000</b>
(% of total)						
Landscape Services	68	29	59	65	66	59
Nursery	32	71	41	35	34	41
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

“Nursery production” sales outside of Arizona accounted for about 13 percent of total sales or more than \$65 million (Table 2).

Table 2. 2002 Nursery Sales by Destination

Arizona	California	Nevada	Texas/NM	Rest of U.S. and Mexico	Total
(1,000 dollars)					
436,000	15,000	15,000	20,000	15,000	501,000

The “Green Industry” had more than \$1.2 billion in sales in 2002. This represents a huge contribution to Arizona’s overall economy and a major sector of agriculture. Sales from the nursery industry were about \$501 million in 2002. According to the 2002 Census of Agriculture, total market value of Arizona agricultural products was \$2.4 billion in 2002.

The Arizona “Green Industry” is designed to primarily serve Arizona customers. By providing this service, Arizona dollars are spent in Arizona. Approximately 88 percent of the plants and plant materials used by the Arizona “Green Industry” came from Arizona suppliers or Arizona firms growing plants in their own fields (Table 3).

Table 3. 2002 Value of Plant Material by Place of Origin

Sector	Own Fields and Arizona Suppliers	California Suppliers	Rest of U.S. Suppliers	Total
(1,000 dollars)				
Landscape Services	121,000	7,000	11,000	139,000
Nursery	76,000	7,000	3,000	86,000
<b>Total</b>	<b>197,000</b>	<b>14,000</b>	<b>14,000</b>	<b>225,000</b>
(% of total)				
Landscape Services	87	5	8	100
Nursery	88	8	4	100

More than 80 percent of all landscape design sales went to residential customers. Installation and maintenance sales were divided more equally between residential and commercial accounts (Table 4).

Table 4. Landscape Sales by Type of Service

Service	Residential Customers	Commercial/Municipal Customers	Total
	(percent of total sales)		
Landscape Design	81	19	100
Landscape Installation	62	38	100
Landscape Maintenance	54	46	100

## EXPENDITURES

The “Green Industry” purchases come from all sectors of the economy. The industry purchased \$106 million of equipment and vehicles, and \$359 million in supply expenses. Total expenses were more than \$1.0 billion (Table 5).

Table 5. 2002 and 1998 Expenditures

Expense	2002 Expenditures	1998 Expenditures
<b>Wages and Benefits</b>	\$487,000,000	\$307,024,000
Vehicle & Equipment Lease/Purchases	\$57,000,000	\$19,330,000
Fuel, Maintenance & Other Vehicle Expenses	\$49,000,000	\$40,839,000
<b>Total Vehicle and Equipment Expenses</b>	\$106,000,000	\$60,169,000
Plant Materials	\$225,000,000	\$86,406,000
Rock & Soil Amendments	\$55,000,000	\$41,424,000
Containers & Greenhouse Supplies	\$25,000,000	\$10,854,000
Fertilizer and Chemicals	\$16,000,000	\$13,663,000
Irrigation & Other Supplies	\$38,000,000	\$73,112,000
<b>Total Supply Expenses</b>	\$359,000,000	\$225,459,000
<b>Other Business Expenses 1/</b>	\$58,000,000	\$32,566,000
<b>Total Expenses</b>	<b>\$1,010,000,000</b>	<b>\$625,218,000</b>

1/ - includes rents, mortgages, facilities maintenance & construction, utilities, office expenses, advertising, etc.

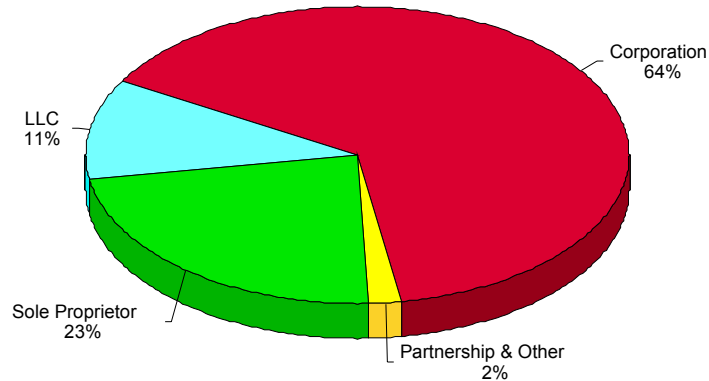
In addition to the money spent on supplies and equipment, the Arizona “Green Industry” spent more than \$58 million on other business expenses (utilities, rent, mortgages, office supplies, facilities maintenance, and construction).

Plant material represented approximately 63 percent of the value of materials and supplies purchased and represented the second largest expenditure area, exceeded only by wages and benefits. Rock was the next largest expenditure at 15 percent of materials and supplies purchased.

## INDUSTRY ORGANIZATION

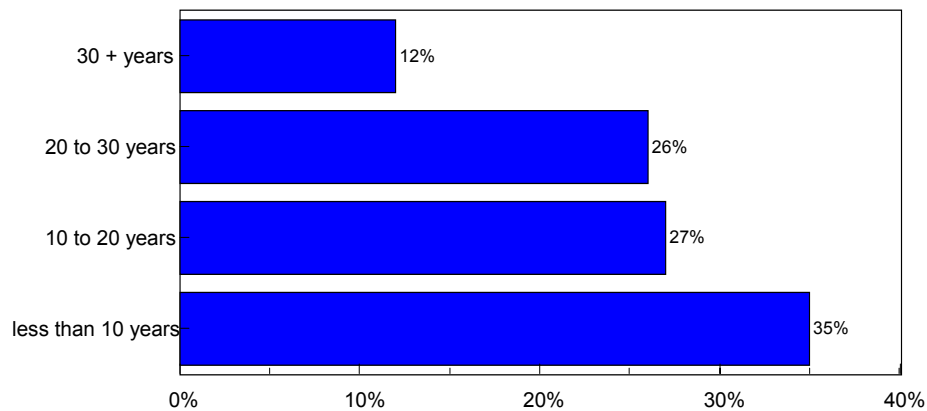
There have been changes in the legal organization of the “Green Industry” over the last five years. The percentage of sole proprietorships has decreased (23 percent vs. 36 percent) and the percent of corporations have gone up to 64 percent compared to 51 percent in 1998 (Figure 4).

**Figure 4. Green Industry Legal Structure**



Approximately 62 percent of the operations have started in the last 20 years, down from 70 percent in 1998. More than one-third (35%) of the operations have been in business less than 10 years (Figure 5).

**Figure 5. Years in Operation of Green Industry Firms**  
(in percent)



Firms were asked to rank several factors that impact their ability to expand. For the “Green Industry” the leading factor affecting the ability to expand was availability of capital. This was followed by hourly labor and water supply (Table 6).

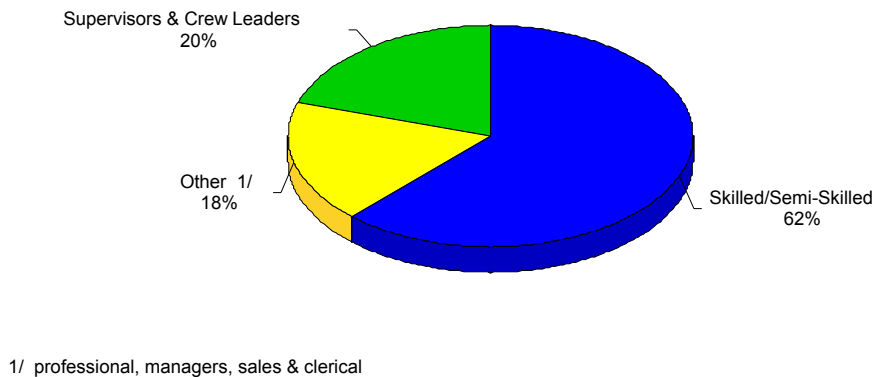
Table 6. Factors Effecting the Ability to Expand Operations

Factor	Percent of Firms Reporting			
	1	2	3	NA
Water Supply	33%	21%	33%	13%
Hourly Labor Availability	30%	28%	33%	9%
Ability to Hire Managers	28%	29%	31%	12%
Land Availability	44%	14%	28%	14%
Competition	28%	35%	30%	7%
Government Regulations	31%	31%	29%	6%
Market Demand	28%	35%	30%	7%
Availability of Capital	27%	26%	37%	10%

## EMPLOYMENT

During 2002, The “Green Industry” employed 22,600 full time equivalent workers. There were 21,000 full time and 3,100 part time workers on the payroll. These workers were employed in several different capacities. Twenty percent of “Green Industry” employees were supervisors, and crew leaders (Figure 6).

Figure 6. Occupations of Workers



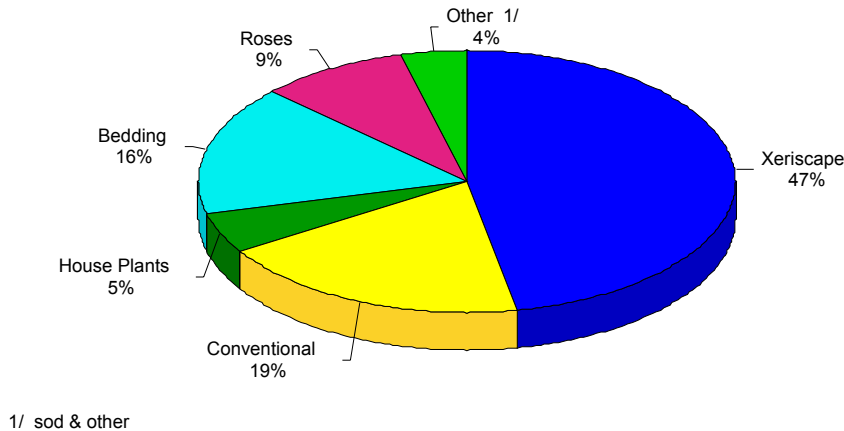
The growth in wages was ahead of inflation. Wages and benefits per worker were calculated by dividing the total wages and benefits by the number of hired workers. The wages and benefits per worker in 2002 were \$20,207. This compares to \$16,220 (in 2002 dollars) in 1998.



# SALES

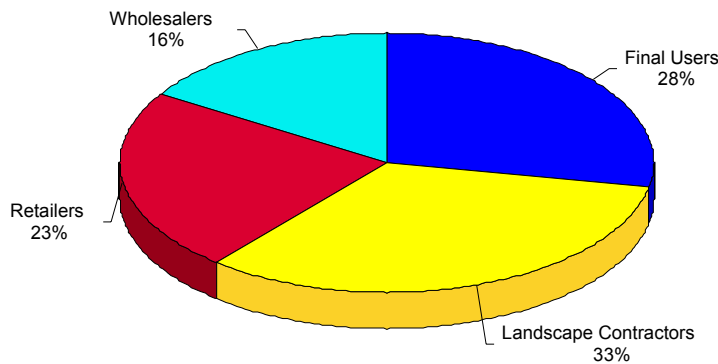
Sales of nursery products totaled approximately \$501 million. Sales by plant type show that xeriscape sales were more than \$235 million in 2002 or 47 percent of the dollar value of nursery sales (Figure 7). The next largest sales category was conventional sales at just more than \$95 million (19%).

**Figure 7. 2002 Value of Nursery Sales**



Analysis of sales by customer show that the largest buyers of nursery products were landscape service firms, which bought \$166 million or 33 percent of Arizona production. The next largest group of buyers was the final user/general public who bought \$140 million of the nursery crops produced. These were followed by retailers at \$115 million and wholesalers at \$80 million (Figure 8).

**Figure 8. 2002 Nursery Sales by User**



## Supplemental Tables

A total of 87 percent of all nursery sales was to Arizona Buyers, virtually the same as 1998 (Table 7).

**Table 7. Nursery Sales by State**

Year	Arizona Buyers	California Buyers	Nevada Buyers	Texas and New Mexico Buyers	Rest of U.S. and Mexico Buyers	Total
(percent of total sales)						
2002	87	3	3	4	3	100
1998	88	3	3	4	2	100

Below are survey averages and annual totals for certain nursery and landscape wage categories. These averages and totals may not be representative of the whole industry due to a high survey non-response rate (Table 8).

**Table 8. Average and Annual Wages and Salaries**

Category	Average Hourly Wage	Hourly Wage Ranges	Average Annual Salary	Annual Salary Ranges
(dollars)				
Laborer - Nursery Firm	\$9.00	\$5.15 - \$10.00	\$18,000	\$15,000 - \$20,600
Laborer - Landscape Firm	\$9.00	\$5.15 - \$20.50	\$19,000	\$16,000 - \$21,000
Field Supervisor - Nursery Firm	\$12.00	\$6.50 - \$27.75	\$36,000	\$20,000 - \$52,400
Crew Leader - Landscape Firm	\$12.00	\$6.25 - \$18.75	\$38,000	\$21,000 - \$78,000
Sales Reps - Nursery & Landscape	\$20.00	\$6.00 - \$41.00	\$50,000	\$19,000 - \$80,000
Bookkeepers - Nursery & Landscape	\$15.00	\$8.00 - \$50.00	\$30,000	\$2,000 - \$75,000
Office Managers - Nursery & Landscape	\$13.00	\$9.00 - \$35.00	\$46,000	\$16,500 - \$94,500

# **ECONOMIC CONTRIBUTIONS OF THE ARIZONA “GREEN INDUSTRY” –2002**

## **Methodology**

This study was commissioned by the Arizona Nursery Association and the Arizona Landscape Contractors Association to provide information about the contributions of the “Green Industry” to the Arizona economy. This study updates the information contained in the previous edition, released in 1999.

Like the previous study, this publication includes information on employment, payroll, and sales. In addition, it provides estimates of expenses and operation profiles. Statistical samples were drawn from lists provided by Arizona Nursery Association, the Arizona Landscape Contractors Association, the Arizona Department of Agriculture’s list of licensed contractors, and a list of nurseries maintained by the Arizona Agricultural Statistics. Estimates of the universe size upon which expansion factors were based, were provided by the Arizona Nursery Association and the Arizona Landscape Contractors Association. An under estimate of the universe size would result in an under expansion of survey values, and an over estimate of the universe would have the opposite effect. Representatives of the two associations feel that, if anything, the scope of the industry may have been understated.

An initial sample of 536 was selected to represent nursery producers, landscape service providers and design or consultation service providers. The expectation was that at least 200 completed questionnaires would result from this sample. So called “mass marketers” such as Wal-Mart and Home Depot were not included in the sample. This needs to be kept in mind when evaluating the economic contribution of the industry, and particularly imports of plant materials from out of state. The sample was further divided into six strata based on estimated value of sales and type of operation.

Data collection was undertaken in the summer of 2003 covering business activity in 2002. The survey was designed for data collection by mail with provisions for telephone follow-up of non-respondents. Enough reports were received to get a good cross-section of the “Green Industry” in Arizona with the exception of the purely retail operations and mass marketers mentioned above.