

**Economic Aspects of the California
Nursery and Floral Industry, 2001–2009**

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PREFACE

This report is an updated and expanded version of Giannini Foundation Information Series No. 04-1, *Economic Contributions of the California Nursery Industry* by Hoy F. Carman and Ana Maria Rodriguez, issued in July 2004. The earlier publication was based on industry data through 2001. Short annual revisions using new industry data for 2002 through 2008/09 were prepared for the California Association of Nurseries and Garden Centers from 2004 through 2010. This report adds fiscal year 2009/10 and calendar year 2009 data, documents annual changes since the original report, and summarizes industry impacts for the total period.

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EXECUTIVE SUMMARY

California's nursery and floral industry contributes significantly to the state's economy. It is the largest in the United States with a farm value for floral and nursery product sales totaling \$3.78 billion in 2009 (U.S. Department of Agriculture, *California Agricultural Statistics*, 2010). Within the state, information from the National Agricultural Statistics Service for all agricultural commodities typically ranks California's total output of nursery products at second or third (\$2.85 billion) and the floral industry at ninth or tenth (\$0.93 billion). When floral and nursery product sales are combined, the industry ranks second among all California agricultural products following the dairy industry, which had \$4.54 billion in sales in 2009.

The number of California farms producing nursery and floral crops varies depending on when the count is made and criteria used to define a farm or producer. According to the U.S. Department of Agriculture's 2007 *Census of Agriculture*, the number of farms producing nursery and floriculture products increased steadily from 2,845 in 1982 to 4,388 in 2002 and then began to decline over the next five years, dropping to 3,549 in 2007. The California Department of Food and Agriculture's (CDFA's) *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California* (2002, 2011) listed 2,999 producers with sales of more than \$1,000 in 2002 and 2,959 such producers in 2011. With total sales of nursery products growing relative to the number of nursery farms, average sales per farm also grew through 2002 and then jumped significantly in 2007, when average sales per farm increased to a little more than \$1 million. A similar pattern of growth is shown for the average value of land, buildings, machinery, and equipment; that total increased to more than \$2.1 million in 2007.

California's nursery and floral industry enjoyed steady increases in sales from 1993 through 2007. Those increases raised the industry's share of California's total agricultural production from 9.3 percent in 1994 to a peak of 12.5 percent in 2002. After 2002, that share began to decline, falling to 10.9 percent in 2009. The variations in the nursery and floral industry's

share of total output were mainly due to changing sales for other commodities.

CDFA and California county commissioners report floral and nursery production in 55 of California's 58 counties in 2009, but just sixteen counties accounted for more than 87 percent of the value of production. Among these top sixteen counties, nursery and floral crops were the number one ranked crop in value of production in San Diego, Riverside, Orange, Los Angeles, San Mateo, Santa Clara, and Siskiyou counties. Of the sixteen California counties with the largest nursery, flower, and foliage production in 2009, nine had more than \$100 million of production, two less than in 2008 and three less than in 2007.

In terms of climate, nine of the top sixteen counties border the Pacific Ocean and Santa Clara County has a coastal type climate. Stanislaus County was the only Central Valley county with production of more than \$100 million in 2008 and none of the Central Valley counties broke \$100 million in 2009.

San Diego County dominates the nursery and floral industry with sales that topped \$1 billion annually in 2007, 2008, and 2009. Since its 2008 and 2009 sales increased while California's statewide sales decreased, San Diego County increased its share of California sales from 26.0 percent in 2007 to 27.6 percent in 2008 and 30.3 percent in 2009. The next five counties in the ranking (Monterey, Ventura, Riverside, Santa Barbara, and Orange) combined account for 29.9 percent of California's total 2009 production. The remaining ten of the top sixteen account for 27.0 percent of production. Only four of the top sixteen counties increased total sales between 2007 and 2009: San Diego, Santa Cruz, Santa Clara, and Siskiyou. Nursery and flower production is a major agricultural enterprise in several of California's most urbanized counties, including Los Angeles, San Diego, Orange, Santa Clara, and Riverside, which together account for more than 54 percent of California's population.

California is the largest single retail market for lawn and garden products in the United States, accounting for 7.6 to 10.4 percent of estimated total annual U.S. sales since 1997. The majority of California's nursery

and floral products are sold to California consumers. Total 2009 California retail sales of lawn, garden, and floral products were estimated at more than \$9.3 billion. The gross margin (retail sales minus cost of goods sold) on these sales was estimated at more than \$3.5 billion. Retail channels have been changing over time with the market share for “big box” hardware/home improvement stores such as Home Depot and Lowe’s increasing significantly.

The recession of 2008 and 2009 had a significant impact on retail sales and retail outlets. California florists’ sales plunged almost 62 percent from a high of \$1.2 billion in 2007 to \$461 million in 2009. Farm and garden store sales also decreased 25.3 percent from 2007 to 2009. CDFA licensing data for 2011 indicate that there are now 4,327 fewer firms offering floral and nursery products at the retail level than there were in 2002.

A regional economic model was used to trace the direct, indirect, and induced effects of California nursery and floral production and lawn and garden retailing through the California economy. The impacts

of the industry are dramatic and far-reaching. Estimated total output and total jobs attributed to production and retailing grew steadily from 2001 through 2007 with total output growing from \$10.34 billion to \$13.33 billion, employment growing from 168,867 to 217,557 jobs (28.8 percent), and value added growing from \$8.00 billion to \$10.33 billion (29.1 percent). Then, in 2008 and 2009, estimated total wholesale revenue from flower and nursery production and lawn and garden retail sales decreased significantly due to the economic recession. This sales decline was accompanied by a similar decrease in total output from \$13.33 billion in 2007 to \$10.37 billion in 2009, a decrease in the estimated total number of jobs in flower and nursery production and lawn and garden retailing in California from 217,557 in 2007 to 169,899 in 2009, and a decrease in total value added from \$10.33 billion in 2007 to \$8.01 billion in 2009. Unfortunately, estimated multiplier effects for basic production and retailing are symmetric; decreased sales lead to decreased total output, total employment, and value added.

INTRODUCTION

Nursery and floral production is an important segment of California's overall agricultural output and farm income. According to sales figures compiled by the U.S. Department of Agriculture (USDA) (*California Agricultural Statistics*, 2003–2010), nursery production and sales typically rank third among all California crops after dairy output (milk and cream) and grapes, while floriculture usually ranks somewhere around tenth. When sales for nursery and floriculture are combined, they rank second among all California crops. While the California floral and nursery sector's ties to the real estate industry and the unique nature of its crops contributed to fifteen years of uninterrupted sales growth between 1993 and 2007, the bursting of the real estate "bubble" and ensuing financial crisis in late 2007 resulted in farm-level floral and nursery sales dropping from a record \$3.98 billion in 2007 to \$3.45 billion in 2009. Between 2001 and 2009, the period covered by this report, nursery and floral sales varied from 9.9 to 12.5 percent of California's total agricultural sales, ending at 10.9 percent in 2009.

This report compares nursery and floral production and sales with those of other California crops and changes in sales over time for 2001 through 2009, covering the U.S. recession that began in late 2007. The report describes the changing nature of California nursery and floral production and identifies the location of production within California using county commissioners' annual reports. In addition, estimated retail sales and margins for California's lawn and garden sector are developed together with an estimate of the value added to California's economy. A regional economic model traces the direct, indirect, and induced-multiplier effects of California nursery and floral production and lawn and garden retailing through the California economy. Increasing sales magnified the total economic impact of nursery and floral production and retail sectors, but the impact of decreasing sales on income and employment also magnified downward. Estimates of changing production and sales on employment, value added, and total output are presented.

DATA SOURCES

Several sources of data that differ in purpose and timing are used for this report. The USDA National Agricultural Statistics Service (NASS) publishes two annual reports: *California Agricultural Statistics* and *Summary of County Agricultural Commissioners' Reports*. The *California Agricultural Statistics* report contains estimated cash receipts by crop used for farm income calculations while the *Summary of County Agricultural Commissioners' Reports* provides estimated gross value of production by county and crop. The annual commissioners' data is also available as Microsoft Excel files. NASS also produces the *Census of Agriculture*, which is completed every five years and measures crop sales for calendar years.

The value of sales for a particular crop from the *California Agricultural Statistics* reports is typically smaller than the gross value of production provided by the county agricultural commissioners' data. One exception is flowers and foliage; in that case, estimated sales are higher than estimated values of production.

The most current annual data available for California nursery and flower production come from the annual Nursery Advisory series published by the California Department of Food and Agriculture (CDFA) Nursery Program (see Table 4). Wholesale values from the Nursery Advisory bulletins are used in developing annual economic impact estimates.

There is no readily available published series offering retail sales data for California nursery and floral products. The California State Board of Equalization publishes annual sales data by type of retail outlet but not by product line. Annual retail sales data for florists and for farm and garden supply stores, two types of stores that tend to specialize in floral and nursery products, are available in annual reports of

taxable sales from the State Board of Equalization, which revised its "type of business" classification in 2009 from the Standard Industrial Classification (SIC) to the North American Industry Classification System (NAICS). Farm and garden supply stores became "lawn and garden equipment and supplies stores" while florists continued as "florists." Large multi-product retailers such as food stores, hardware stores, and general merchandise stores are important outlets for floral and nursery products. Aggregate sales data for such retailers are available, but the share of floral and nursery product sales within the retail store categories cannot be determined. The trade journal *Nursery Retailer* publishes estimates of U.S. retail sales of lawn and garden products. State estimates of lawn and garden retail sales were also reported through 2003 by *Nursery Retailer*.

Given the focus of the California Association of Nurseries and Garden Centers (CANGC), which is the major sponsor of this research, this report uses estimated sales of all lawn and garden products rather than solely nursery products in examining aggregate economic impacts. The *Nursery Retailer* data do not include floral product sales but information on those is available, as previously noted. No attempt is made to account for shipments of nursery and floral products in or out of California since no information on California's balance of trade for these products is available. Estimated total output effects, value added, and employment are based on (1) farm-level sales of California nursery and floral products and (2) estimated retail sales of lawn and garden products. The economic impacts outlined are thus a measure of the contributions of CANGC-represented sectors that are broader than nursery and floral products.

NURSERY AND FLORAL INDUSTRY GROWTH

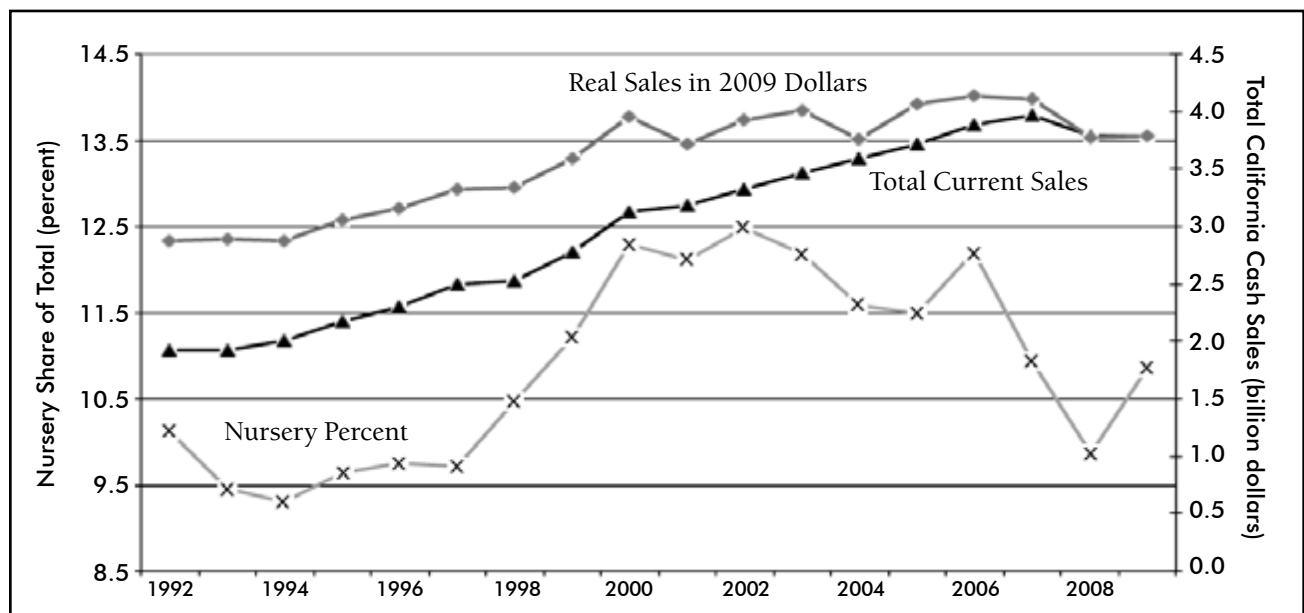
California’s nursery and floral industry enjoyed substantial, fairly constant growth over the two decades ending in 2007 despite major challenges presented by shipping restrictions related to pests and diseases (glassy-winged sharpshooter and *Phytophthora ramorum*), increased competition from imported flowers, the impact of increased energy costs on production and transportation, limited and expensive water supplies, and less than ideal weather. California’s estimated cash receipts from floriculture and nursery crops more than doubled between 1992 and 2007, rising from \$1.93 billion to more than \$3.97 billion (Figure 1). During the same period, annual data indicate that California’s total agricultural sales also grew—from a little more than \$19 billion in 1992 to nearly \$36.4 billion in 2007 and \$38.4 billion in 2008 (USDA, *California Agricultural Statistics*). Total U.S. cash receipts from floriculture and nursery crops rose from \$11.3 billion in 1996 to just under \$16.9 billion in 2006 (Jerardo, p. 12).

The nursery and floral industry could not, however, brush aside the impact of the 2007 financial crisis and bursting of the “housing bubble,” which led to the recession of 2008 and 2009. California’s estimated cash receipts from floriculture and nursery crops decreased

almost 4.8 percent in one year, dropping from \$3.97 billion in 2007 to \$3.78 billion in 2008 and then remaining at that level in 2009 (Figure 1). California’s total agricultural sales fell as well, from \$38.4 billion in 2008 to \$34.8 billion in 2009 (USDA, *California Agricultural Statistics* 2010). Some agricultural commodities enjoyed strong prices during the beginning of the recession as investors shifted from stocks and financial assets to commodities. Floriculture and nursery crops did not, however, as consumers, businesses, and homeowners reduced spending in response to sharply reduced home values, rising unemployment, and reduced incomes.

During many years, the growth rate for nursery and floral sales exceeded the rate of growth of total California agricultural sales. As a result, the nursery and floral share of total sales rose from 9.3 percent in 1993 to 12.5 percent in 2002. After 2002, the proportion held by nursery and floral products trended downward to a ten-year low of 9.9 percent in 2008 before recovering to 10.9 percent in 2009. The upper line in Figure 1, total nursery and floral sales in 2009 dollars, shows that real sales in 2008 and 2009 were essentially the same as they were in 2001 and 2004.

Figure 1. California Nursery and Floral Sales: Total and as a Percent of Total Agricultural Sales



Source: U.S. Department of Agriculture, *California Agricultural Statistics*, 1993–2010.

THE COMPARATIVE ROLE OF NURSERY AND FLORAL PRODUCTION

Many observers are surprised to learn that nursery and floral crop sales individually typically rank within the top ten California crops and that, when combined, their sales rank second, exceeded only by milk and cream (USDA, *California Agricultural Statistics* 2010). Table 1 shows the annual ranking by sales for California's top twenty crops for 2009 and the rankings for each of those same crops for 2003 through 2008. Note that nursery crops were ranked third every year except 2003, when they were ranked second. Floral crops ranked ninth in value of sales in 2009 after ranking tenth in the preceding three years. The commodities in the top ten in California that ranked below floral and nursery products combined in terms of 2009 gross cash income are grapes (2), almonds (4), lettuce (5), strawberries (6), cattle and calves (7), tomatoes (8), and rice (10).

The impact of the financial crisis and economic recession of 2008 and 2009 varies by commodity

(see Table 1). Sales of the number one commodity, milk and cream, decreased 38.2 percent from an all time high of more than \$7.34 billion in 2007 to \$4.54 billion in 2009, a \$2.8 billion decline. Note that the decrease in sales of milk and cream was larger than total 2009 sales for all other California commodities except grapes and nursery. Sales of other crops, such as strawberries, tomatoes, rice, broccoli, and oranges, increased in 2008 and again in 2009. Other top twenty commodities for which 2009 sales exceeded those in 2007 were grapes, lettuce, pistachios, carrots, and lemons. Total sales for nursery crops decreased from a high of \$2.94 billion in 2007 to \$2.73 billion in 2008 but then increased to \$2.85 billion in 2009. Thus, nursery sales in 2009 were only 3 percent below the 2007 high. The sales response for floriculture was much different. Sales increased from \$1.04 billion in 2007 to \$1.06 billion in 2008 and then dropped 11.7 percent to \$935 million in 2009.

Table 1. California's Top Twenty Commodities with Value of Sales and Rank for 2003–2009

Commodity	Value of Sales (million dollars)							2009 Rank
	2003	2004	2005	2006	2007	2008	2009	
Milk and cream	4,028 (1)	5,366 (1)	5,223 (1)	4,492 (1)	7,337 (1)	6,924 (1)	4,537	1
Grapes	2,298 (3)	2,765 (2)	3,198 (2)	3,000 (2)	3,079 (2)	2,923 (2)	3,268	2
Nursery	2,437 (2)	2,297 (3)	2,686 (3)	2,890 (3)	2,938 (3)	2,726 (3)	2,849	3
Almonds	1,600 (5)	2,189 (4)	2,337 (4)	2,259 (4)	2,402 (4)	2,343 (4)	2,294	4
Lettuce	1,932 (4)	1,749 (5)	1,688 (6)	2,054 (6)	1,697 (6)	1,581 (7)	1,726	5
Strawberries	1,172 (7)	1,206 (7)	1,110 (8)	1,199 (7)	1,411 (7)	1,578 (8)	1,725	6
Cattle and calves	1,556 (6)	1,634 (6)	1,740 (5)	1,676 (5)	1,784 (5)	1,885 (5)	1,676	7
Tomatoes	895 (9)	1,180 (8)	942 (10)	1,166 (8)	1,223 (9)	1,317 (9)	1,510	8
Floriculture	997 (8)	1,013 (10)	1,020 (9)	999 (10)	1,036 (10)	1,060 (10)	935	9
Rice	406 (16)	373 (19)	408 (18)	521 (16)	455 (17)	826 (11)	928	10
Hay	852 (10)	1,046 (9)	1,151 (7)	1,060 (9)	1,406 (8)	1,797 (6)	927	11
Walnuts	378 (18)	452 (17)	540 (15)	564 (15)	751 (11)	558 (17)	739	12
Broccoli	575 (12)	587 (13)	514 (16)	581 (13)	626 (14)	663 (13)	698	13
Chickens	537 (13)	714 (12)	715 (11)	630 (12)	713 (12)	725 (12)	692	14
Oranges	466 (14)	556 (14)	604 (13)	633 (11)	373 (19)	559 (16)	656	15
Pistachios	145 (32)	465 (16)	577 (14)	450 (18)	587 (17)	570 (15)	593	16
Carrots	427 (15)	451 (15)	455 (17)	431 (17)	462 (19)	518 (18)	500	17
Lemons	262 (20)	241 (25)	278 (20)	375 (19)	358 (20)	480 (19)	364	18
Celery	241 (25)	265 (22)	249 (23)	331 (21)	396 (18)	355 (21)	350	19
Peaches	247 (23)	251 (23)	280 (19)	270 (23)	332 (23)	295 (24)	326	20

Note: Rank for years earlier than 2009 is given in parentheses.

Source: U.S. Department of Agriculture, *California Agricultural Statistics*, 2003–2010.

STRUCTURAL CHARACTERISTICS OF CALIFORNIA'S NURSERY AND FLORAL INDUSTRY

Selected aspects of the changing structure of California's nursery and floral production are shown by *Census of Agriculture* data reported every five years for the period from 1982 through 2007 (USDA). California leads the nation, and Florida typically ranks second, in annual sales of nursery and floriculture crops. Total California sales of nursery and floriculture crops increased from just over \$957 million in 1982 to almost \$3.65 billion in 2007 (Table 2). California accounted for 21.9 percent of total U.S. nursery, greenhouse, floriculture, and sod sales in 2007, followed in order by Florida (12.7 percent), Oregon (5.9 percent), Pennsylvania (5.4 percent), and Texas (5.2 percent) (USDA, *Census of Agriculture*, 2009). California's average nursery farm sales of more than \$1 million in 2007 dwarfed similar sales in Florida (\$442,800), Texas (\$440,340), Oregon (\$383,080), and Pennsylvania (\$328,160).

Data in each row of Table 2 describe changes occurring over time in the California nursery and floral industry. The number of farms producing nursery and floriculture products increased steadily from 2,845 in 1982 to 4,388 in 2002 and then began declining, falling to 3,549 in 2007. With total sales of nursery products growing relative to the number of nursery farms, average sales per farm also grew through 2002 and then jumped significantly in 2007, when total sales increased and the number of farms decreased. A similar pattern of growth is shown for the average

value of land and buildings and the average value of machinery and equipment. The average age of the principal operator of California nursery and floriculture farms increased from 50.7 years in 1982 to 56.3 years in 2007. This pattern is similar to the average for all California farms: average age increased from 51.8 years in 1982 to 58.4 years in 2007.

The legal structure of California nursery operations has also changed somewhat over time. The distribution of nursery farms by legal organization in 1982 was sole proprietors, 61 percent; partnerships, 14 percent; corporations, 24 percent; and other, 1 percent.¹ In 1997 there was a modest shift toward sole proprietor control with sole proprietors, 69 percent; partnerships, 11 percent; corporations, 18 percent; and other, 2 percent. In the most recent census (2007), the legal structure was sole proprietors, 67 percent; partnerships, 9 percent; corporations, 22 percent; and other, 2 percent. The share of corporations that were family owned decreased from 81 percent in 1982 to 78 percent in 2007, while the number of non-family corporations increased in terms of both numbers and share. Note that corporate organization is more prevalent for nursery farms (22 percent) than for any other sector in California agriculture. Corporations account for 7.1 percent of all California farms. Nursery and floriculture farms accounted for just 4.4 percent of all California farms in 2007 but represented 13.6 percent of all California farm corporations.

¹ The "other" category includes cooperatives, estates and trusts, and institutions.

Table 2. Selected Characteristics of California Nursery and Floriculture Farms, 1982–2007

Characteristic	Census Year					
	1982	1987	1992	1997	2002	2007
Number of farms	2,845	2,993	3,319	4,285	4,388	3,549
Total sales (billion dollars)	0.957	1.413	1.662	2.211	3.287	3.647
Average sales (dollars/farm)	334,774	470,816	495,688	513,761	756,416	1,025,524
Average acres per farm	46	45	54	45	50	52
Average value of land and buildings (dollars/farm)	594,568	612,352	742,937	624,267	866,017	1,995,792
Average value of machinery and equipment (dollars/farm)	58,399	70,580	86,284	82,328	101,289	153,103
Average age of operator	50.7	51.5	52.3	54.0	54.8	56.3

Source: U.S. Department of Agriculture, *Census of Agriculture*, 1982–2007.

LOCATION OF PRODUCTION

Nursery products and/or flowers and foliage are produced in 55 of California's 58 counties but production is concentrated in central coast and south coast counties.² Of the sixteen California counties with the largest nursery, flower, and foliage production in 2009, nine had more than \$100 million of production, two fewer than in 2008 and three fewer than in 2007 (Table 3). Nine of the sixteen counties border the Pacific Ocean, and Santa Clara County has a coastal climate. Stanislaus County was the only Central Valley county with production of more than \$100 million in 2008 and no Central Valley county broke \$100 million in 2009.

San Diego County continues to dominate the nursery and floral industry in California with sales topping \$1 billion annually in 2007, 2008, and 2009. Since its sales increased in 2008 and 2009 at a time when California's statewide sales were decreasing, San Diego County expanded its share of California sales from 26.0 percent in 2007 to 27.6 percent in 2008 and 30.3 percent in 2009. The next five counties in the ranking (Monterey, Ventura, Riverside, Santa Barbara, and Orange) combined accounted for 29.9 percent of California's total 2009 production. The remaining ten of the top sixteen counties accounted for 27.0 percent of production. Only four of the top sixteen counties increased total sales between 2007 and 2009: San Diego, Santa Cruz, Santa Clara, and Siskiyou. The other twelve reported decreased sales with some of the reductions being quite significant (Table 3). Sales

for 2001 through 2005 for the sixteen counties ranked highest in 2005 are included as Appendix Table 1. The one difference in the ranking counties listed is that Siskiyou County, which ranked thirteenth in 2009, took the place of Sonoma County (ranked sixteenth in 2005) in the top sixteen counties.

Overall, these top-ranking counties produced 87.25 percent of California's total 2009 nursery, flower, and foliage crops. Nursery and floral crops ranked first among all crops produced in the county in terms of value of production in San Diego, Riverside, Orange, Los Angeles, San Mateo, Santa Clara, and Siskiyou.

Nursery, flower, and foliage crops are very important agricultural products for several California counties that are not among the top sixteen. For example, nursery crops are listed as the number one commodity in terms of gross value of production for two other counties in 2009: Humboldt (\$49.42 million) and Del Norte (\$12.09 million) (Appendix Table 3).

Unlike most of California's agricultural industries, nursery and floral production is located in the state's most populated counties. Almost 68.4 percent of California's 2009 population lived in the sixteen counties with the greatest nursery and floral production (Appendix Table 4). Nine of the counties had populations that exceeded one million in 2009. Five of those (Los Angeles, Orange, San Diego, Santa Clara, and Riverside) were among the largest nursery and flower producers in the state (Appendix Table 4).

² The gross value of nursery, flower, and foliage production by county is shown in Appendix Table 1. Note that the county agricultural commissioners' reports did not provide nursery and flower sales for three counties that have producers listed in the CDFA's *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California* available in February 2006 (www.cdffa.ca.gov/phpps/pe/nursery.htm). Those counties are Kings (3 producers), Plumas (8 producers), and Tuolumne (5 producers). The number of nursery and floriculture farms in each county, as reported in the *Census of Agriculture*, is provided in Appendix Table 4.

Table 3. California Production of Nursery Products, Flowers, and Foliage, 2006–2009, and Top Sixteen Counties' 2009 Share of State Total

Top Sixteen Counties	2006 Value of Production (\$1,000)	2007 Value of Production (\$1,000)	2008 Value of Production (\$1,000)	2009 Value of Production (\$1,000)	2009 Share of State Total (percent)
San Diego	991,255	1,042,461	1,042,704	1,054,314	30.34
Monterey	339,225	342,125	326,105	294,572	8.48
Ventura	316,346	341,635	349,987	234,063	6.74
Riverside	270,993	272,326	230,416	206,500	5.94
Santa Barbara	178,616	182,035	182,467	176,658	5.08
Orange	214,946	187,152	164,515	126,317	3.64
San Mateo	136,021	139,007	134,843	125,985	3.63
Los Angeles	192,460	174,440	137,967	119,903	3.45
Santa Cruz	80,143	117,816	107,782	118,528	3.41
Stanislaus	87,351	99,985	101,207	96,795	2.79
Santa Clara	94,087	93,468	93,861	95,588	2.75
San Luis Obispo	108,066	107,674	101,845	93,759	2.70
Siskiyou	54,827	41,485	74,930	76,210	2.19
San Joaquin	138,123	137,259	85,539	75,844	2.18
Tulare	88,253	90,185	85,413	72,747	2.09
Kern	109,330	105,317	84,822	63,861	1.84
Total	3,345,215	3,432,885	3,304,403	3,031,644	87.25
Rest of State	574,519	572,331	495,172	442,845	12.75

Source: U.S. Department of Agriculture, *Summary of County Agricultural Commissioners' Reports*, 2006–2010.

CROPS PRODUCED

California nursery, flower, and foliage producers market a tremendous variety of plant materials that range from cut flowers, potted flowering plants, flower seeds, bedding and garden plants, bulbs, and ornamentals to fruit and nut trees and strawberry plants. Buyers include consumers, landscape contractors, institutions, and agricultural producers.

The most recent data available indicate that the gross value of plant materials produced by the California nursery, flower, and foliage industry in 2009/10 totaled almost \$3.45 billion (Table 4). Values for the various categories of nursery products are shown in Table 4. Note that the value of cut flowers and cut greens dropped a little more than \$3 million from 2006/07 to 2007/08, decreased more than \$19 million in 2008/09, and then decreased another \$29 million in 2009/10. Flower seeds increased slightly from 2008/09 to 2009/10 while Christmas trees decreased by \$1.9 million. The total value of floral products for fiscal year 2009/10 was down almost \$30.7 million

from 2008/09 after decreasing almost \$21 million the year before. Thus, the most recent two-year decrease was more than \$51 million or about 10 percent of the 2007/08 total value of floral products. Similarly, the total value of nursery products decreased more than \$186 million from 2007/08 to 2008/09 and another \$295 million in 2009/10 for a two-year decline of almost \$481.5 million or 12 percent (Table 4). Small increases in the value of bulbs, corms, roots and tubers, and herbaceous perennials were overwhelmed by decreases in the value of all other nursery products (potted plants and flowering foliage; bedding plants; rose plants; woody, deciduous, and evergreen ornamentals; flowering propagative materials; turf and sod; and nursery stock other than ornamentals). The two-year decrease in the grand total for nursery and floral products was \$533 million or almost 13.4 percent. Values of California floral and nursery products by major categories for the six crop years from 2000/01 through 2005/06 are listed in Appendix Table 2.

Table 4. Wholesale Value of California Floral and Nursery Products by Major Categories, 2006/07 through 2009/10

	Wholesale Value			
	2006/07	2007/08	2008/09	2009/10
Floral Products				
Cut flowers and cut greens	\$508,273,800	\$505,036,000	\$485,607,500	\$456,493,100
Flower seeds	\$5,954,600	\$7,932,100	\$6,704,900	\$7,086,000
Christmas trees	\$7,234,100	\$6,547,080	\$6,255,800	\$4,311,900
Total	\$521,462,500	\$519,515,180	\$498,568,200	\$467,891,000
Nursery Products				
Potted plants and flowering foliage	\$665,903,800	\$677,819,500	\$663,092,600	\$585,715,500
Bulbs, corms, roots, and tubers	\$9,089,800	\$10,455,900	\$11,415,000	\$11,710,500
Flowering propagative materials	\$57,930,900	\$61,011,800	\$62,085,600	\$49,170,400
Bedding plants	\$454,219,700	\$438,601,600	\$419,378,200	\$383,405,420
Rose plants	\$38,982,000	\$45,703,700	\$35,627,700	\$27,201,000
Woody, deciduous, and evergreen ornamentals	\$1,208,605,100	\$1,239,918,600	\$1,164,761,200	\$996,499,500
Herbaceous perennials	\$41,576,600	\$46,134,900	\$58,255,400	\$55,272,900
Turf and sod	\$87,844,800	\$124,707,600	\$91,396,500	\$94,197,280
Nursery stock other than ornamentals	\$810,578,500	\$817,324,400	\$769,331,800	\$776,988,500
Total	\$3,374,731,200	\$3,461,678,000	\$3,275,344,000	\$2,980,161,000
Grand Total	\$3,896,193,700	\$3,981,193,180	\$3,773,912,200	\$3,448,052,000

Source: California Department of Food and Agriculture, *Value of Nursery Products*, 2008–2011.

NUMBERS AND TYPES OF NURSERY FIRMS

The annual *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California*, published by CDFA, lists firms involved in production, wholesaling, and retailing of floral and nursery products by county.³ The numbers and types of firms in each county and the physical count of firms have changed significantly over time. This is illustrated by summary tables for 2002 and 2011, included as Appendix Tables 5A and 5B. The number of producers licensed to sell nursery stock, defined as a producer that grows and sells \$1,000 or more of nursery stock in one year, decreased slightly from 2,999 in 2002 to 2,959 in 2011. In both years, the largest number of producers was located in San Diego County (551 in 2002 and 548 in 2011), Los Angeles County (375 and 310), and Riverside County (207 and 276). Other counties with more than 100 producers in 2002 were Orange, San Bernardino, Sonoma, and Ventura (Appendix Table 5A). In 2011, Orange County dropped out of the list of counties with more than 100 producers, leaving San Bernardino, Sonoma, and Ventura (Appendix Table 5B). At the other end of the range, there were between one and five producers in nine California counties in both 2002 and 2011 and no registered producers in three counties in 2002 and in two counties in 2011. Alpine County has no firms listed in the directory and is not included in Appendix Tables 5A and 5B.

There were 853 wholesalers and 476 jobber/broker/commission merchants dealing in nursery and floral products in California during 2002 and a similar number for 2011: 880 wholesalers and 460 merchants. There were 454 landscapers in 2002 and 463 in 2011. Thus, there was little change in the number of intermediate handlers in the nursery and floral distribution system.

The striking changes in the floral and nursery distribution system in California occurred at the retail level. There were 3,465 incidental retailers registered in California in 2002. These retail outlets offer multiple product lines that include nursery and floral products. Retail stores in the incidental classification include many of the largest nursery retailers: warehouse club stores, chain stores, and mass merchandisers such as Home Depot, Lowe's, Wal-Mart, and supermarket chains. By 2011, the number of incidental retailers had decreased to 736, a 78.8 percent reduction. The directory also lists retailers for which nursery and floral products are primary. This category included 3,756 firms in 2002 but was reduced to 2,158 firms in 2011 for a 42.5 percent reduction. Thus, there are 4,327 (59.9 percent) fewer firms in 2011 offering floral and nursery products at the retail level than there were in 2002.

The very significant reduction in the number of California retailers handling nursery and floral products has implications for both producers and consumers. Some producers undoubtedly lost their major retail customers while many lost important retail outlets. The impact of the loss of outlets was not uniform but it was widespread. Products are less available at the consumer level, which tends to reduce consumer choice and negatively impact impulse buying. This consolidation of outlets may offer some economies in distribution but the short-run impact on floral and nursery product sales will be negative.

³ According to the California Food and Agriculture Code (FAC), "It is unlawful to sell any nursery stock without an annual license from the Secretary of Food and Agriculture," and "Exemption from license is allowable to florists and others who only sell plants at retail for the sole purpose of indoor decoration, to persons who sell no nursery stock except seeds, and to persons who only sell cut Christmas trees" (Sections 6721 through 6744, FAC).

RETAIL SALES

As noted earlier, this report relies on several sources of data to develop retail sales estimates. Partial data on retail floral and nursery product sales in California are available from the State Board of Equalization, *Nursery Retailer*, some private data collections, and consultant reports.

Taxable retail sales reported by California florists and farm and garden supply stores for the thirteen-year period 1997–2009 are shown in Table 5. Note that combined sales for the two types of stores increased from \$2.75 billion in 1997 to more than \$3.04 billion in 2000 and to almost \$4.17 billion in 2007. The steady increase in sales was interrupted in 2008, when total sales for the two types of outlets dropped almost 15 percent to \$3.55 billion. In 2009, total sales for florists and farm and garden stores declined another 24.5 percent to \$2.68 billion, slightly below

the 1997 level. The two-year impact of the recession on California florists was especially severe. Their retail sales decreased almost 62 percent from a high of \$1.2 billion in 2007 to \$461 million in 2009. Farm and garden store sales decreased 25.3 percent from 2007 to 2009.⁴ Accompanying the sharp sales decrease, the number of sales tax permits for retail florists decreased from 6,427 on July 1, 2008, to 5,070 on July 1, 2009. The number of permits for farm and garden stores was 4,715 on July 1, 2008; the number of permits for lawn and garden equipment and supply stores, the categorization used in 2009, totaled 5,133 on July 1, 2009. Though the number of permits increased, total sales and average sales per store for the classification decreased.

A comparison of changes in farm-level sales of nursery and floral products with retail sales of lawn

Table 5. Statewide Taxable Sales by California Retail Florists and Farm and Garden Supply Stores, Calendar Years 1997–2009

Year	Sales in Thousand Dollars			Percent Change from Prior Year
	Florists	Farm and Garden Stores	Total	
1997	816,185	1,936,173	2,752,358	0.00
1998	843,978	1,967,564	2,811,542	2.15
1999	921,774	1,961,504	2,883,278	2.55
2000	983,396	2,060,713	3,042,436	5.52
2001	988,022	2,059,040	3,047,062	0.15
2002	998,781	2,135,472	3,134,253	2.86
2003	1,005,452	2,266,142	3,271,594	4.38
2004	1,077,694	2,386,377	3,464,071	5.88
2005	1,133,896	2,662,956	3,796,852	9.61
2006	1,172,658	2,930,230	4,102,888	8.06
2007	1,203,148	2,965,697	4,168,845	1.61
2008	793,882	2,751,233	3,545,115	-14.96
2009	461,349	2,216,767	2,678,116	-24.46

Source: California State Board of Equalization, *Taxable Sales in California*, annual reports.

⁴ California's total taxable transactions for all retail outlets decreased 18.6 percent from 2007 to 2009.

and garden stores and florists raises questions. For example, farm-level floriculture sales actually increased in 2008 before decreasing in 2009 (Table 1). The overall decrease from 2007 to 2009 was \$101 million or 9.75 percent. However, the decrease in sales for California retail florists for the same period was \$741.8 million or 61.65 percent. While one would expect the drop in retail sales to be about double the decrease at the farm (wholesale) level with a 50 percent gross margin, the percentage decrease should be similar, other factors equal. The much larger percentage decrease in florist sales versus wholesale sales of floral products, together with fewer retail florists, is presumed to be due to a significant change in retail market shares for floral products. Specifically, other

outlets such as supermarkets have gained market share for floral products at the expense of individual florists. The situation for nursery products is similar but not as pronounced. Lawn and garden store sales decreased \$748.9 million (25.3 percent) between 2007 and 2009 while producer-level nursery sales decreased \$89.0 million (3.0 percent). This differential change in sales could be partially due to a changing product mix for lawn and garden equipment and supply stores during the recession.

California is the largest single retail market for lawn and garden products in the United States, accounting for 7.6 to 10.4 percent of total annual sales since 1997 (Table 6).⁵ Estimated 2003 California lawn and garden sales comprised \$9.32 billion of the U.S.

Table 6. Estimated Annual U.S. and California Lawn and Garden Retail Sales, 1997–2009

Year	United States Sales (million dollars)	California Sales (million dollars)	California Share of U.S. Total (percent)
1997	76,500	7,896	10.32
1998	79,100	8,154	10.31
1999	81,700	8,422	10.31
2000	84,600	8,798	10.40
2001	88,400	9,193	10.40
2002	94,900	8,958	9.44
2003	98,690	9,316	9.44
2004	103,600	9,864	9.52
2005	110,900	10,811	9.75
2006	112,100	11,682	10.42
2007	114,300	11,870	10.38
2008	116,000	11,012	9.49
2009	117,200	8,872	7.57

Source: Published estimates of U.S. sales for 1997–2009 and estimated California sales for 1997–2003 came from *Nursery Retailer* summaries published in 1998–2009. California estimates for 2004–2007 were obtained by adjusting the 2003 *Nursery Retailer* sales estimate (\$9.316 billion) by the percentage changes in California State Board of Equalization sales shown in Table 5. Because of the hypothesized structural change in floral product sales, the California estimates for 2008 and 2009 were obtained by adjusting the 2007 California sales estimate of \$11.87 billion by the percentage changes in farm and garden supply store sales only (7.23 percent from 2007 to 2008 and 19.43 percent from 2008 to 2009).

⁵ Note that there are indications that total U.S. lawn and garden sales decreased rather than increased from 2008 to 2009. If so, California's share of U.S. sales would be larger than the tabled value of 7.57 percent.

total of \$98.69 billion (Morey 2004, p. 85). Estimates that use the California State Board of Equalization sales data shown in Table 5 as an index show that total California retail lawn and garden sales have increased 5.88 percent to \$9.86 billion in 2004, by 9.61 percent to \$10.81 billion in 2005, by 8.06 percent to \$11.68 billion in 2006, and by 1.61 percent to \$11.87 billion in 2007. When the index is applied to changes in farm and garden supply store sales only, California sales dropped an estimated 7.23 percent to \$11.01 billion in 2008 and another 19.43 percent to \$8.87 billion in 2009. For the United States as a whole, estimates of total sales for the product lines carried by lawn and garden stores were green goods, 54.0 percent; equipment and tools, 6.0 percent; chemicals, soils, and fertilizers, 18.0 percent; irrigation, 2.0 percent; and lawn furniture, accessories, and tree trim, 20.0 percent (Morey 2009, p. 41).

Market Shares

The locations in which consumers purchase floral and nursery products have changed significantly over time in response to changes in the structure of retailing, competition in local markets, and growing consumer demand. Greenidge, in a 1995 *Nursery Retailer* article (p. 52), listed three major lawn and garden product distribution channels with estimated shares of the total market in 1994: hardware/hardlines with 20.8 percent, garden centers/nurseries with 39.1 percent, and mass marketers/chain stores with 40.1 percent.⁶ In 2008, only fourteen years later, the growth of “big box” home centers such as Home Depot and Lowe’s had increased the hardware category share to 48.0 percent of the total market. The independent sector’s share (garden centers, nurseries, and farm stores) increased slightly to 45.0 percent and the share held by warehouse clubs, chain stores, and mass merchandisers (Wal-Mart and K-mart are the largest) plunged to 7.0 percent (Morey 2009, p. 44).

The changes in market share, while dramatic, are not surprising given the rapid growth at that time in the number of big box stores and typical sales of lawn, garden, and nursery items in those stores. An estimate

of lawn and garden sales in the average big box home improvement store in the United States in 2002, for example, put annual sales at the average Home Depot at \$5.0 million and the average Lowe’s at \$5.1 million (Morey, Morey and Morey 2003). Comparable 2005 averages were \$4.81 million for Home Depot and \$5.50 million for Lowe’s (Morey 2006). The “news” in 2008 was flat or declining same-store sales for both companies due to stocking and staffing problems while independent garden centers were “fighting back” for market share with improved shopping experiences and management tools and thanks to customer loyalty (Morey 2009).

Retail florists are not included in the store types or total sales figures reported in Table 6. In addition, *Nursery Retailer’s* independent sector (garden centers, nurseries, and farm stores), as previously discussed, undoubtedly includes more retailers than counted by the California State Board of Equalization in the farm and garden supply store category shown in Table 5. Retail florists have faced competition and loss of market share to other store types, especially supermarkets. Market share data over time are not available but estimates of California floral market shares in 2001 by type of retail outlet were provided by the American Floral Endowment (AFE).

The AFE collects detailed data on retail flower sales from a national consumer panel and uses this panel data to develop timely, detailed sales estimates for use by its subscribing members. Sales data are collected for three major types of flower products: cut flowers, flowering and greenhouse plants, and outdoor garden and bedding plants. These categories accounted for 43, 23, and 32 percent, respectively, of estimated total California retail flower sales in 2001. The importance of various retailer types varies significantly by flower product category (Table 7).

The dominant outlets for cut flowers in California in 2001 were florist shops (47.4 percent market share) and supermarkets (25.9 percent share). Home improvement/hardware stores, supermarkets, and garden centers each retailed about one-fifth of California’s flowering and greenhouse plants. Garden centers and home improvement/hardware stores had dominant

⁶ Greenidge noted that garden centers, nurseries, and farm stores had about 60 percent of the market in 1980.

market shares for outdoor garden and bedding plants. As mentioned earlier, a structural change appears to have occurred in the retail distribution of floral products in California with florist shops' share decreasing significantly. New data will be required to document any such changes.

Retail Margins

Gross profit margins (sales revenue minus cost of goods sold) vary across retail store types and among stores within a given type because of factors such as firm size, location, services provided, product mix, product perishability, and competitive conditions. Estimates of gross margins, which are an

essential component for deriving estimated economic contributions of California's floral and nursery industry, and 2009 retail sales are shown in Table 8. The gross margins range from a low of 30 percent for the retailers with the largest volume (hardware/home centers) to a high of 50 percent for retail florists. Note that these are estimated averages for the categories with individual stores within a category ranging above and below the estimate. The weighted average retail gross margin is 37.91 percent. Total 2009 California retail lawn and garden sales were estimated at \$8.87 billion and florist sales at \$461.35 million, bringing the total to more than \$9.33 billion. The estimated total margin or value added by retailing for 2009 was almost \$3.51 billion.

Table 7. Estimated Market Shares of Various Retail Store Types for Sales of Flower Products in California, 2001

Flower Product	Market Share Percent						
	Florist Shop	Garden Center	Discount Chain	Home Improvement/ Hardware	Supermarket	Warehouse/ Price Club	Other Stores
Cut flowers	47.4	0.6	0.7	0.2	25.9	8.3	16.9
Flowering and greenhouse plants	12.7	19.0	6.7	20.9	20.5	3.4	16.8
Outdoor garden/bedding	0.7	39.5	7.8	37.4	2.6	0.4	11.6

Source: Sales estimates provided by the American Floral Endowment, Glen Carbon, Illinois.

Table 8. Estimated Percentage Gross Margin for Floral and Nursery Products by Retail Store Type, Estimated Total Floral and Nursery Sales, and Total Margin, California, 2009

Retail Store Type	Gross Margin (percent)	2009 Retail Sales (million dollars)	Total Margin (million dollars)
Hardware/home center	30	4,258.560	1,277.568
Independent farm/garden	45	3,992.400	1,796.580
Chain/warehouse	33	621.040	204.943
Florist	50	461.349	230.675
Total		9,333.349	3,509.766

Source: Gross margin estimates were provided by members of the California Association of Nurseries and Garden Centers; retail sales estimates are from Tables 5 and 6 in this report, and estimated sales by store type are based on market shares of 48 percent for hardware/home centers, 45 percent for independent farm/garden centers, and 7 percent for chain/warehouse stores as described in Morey (2009).

ESTIMATED ECONOMIC IMPACTS

California’s floral and nursery sector is closely intertwined with other sectors of the state’s economy, and changes in flower and nursery production have ripple effects throughout the state. Each dollar earned in the floral and nursery sector stimulates economic activity in the form of jobs, income, and output. The effects of these changes on total economic activity can be estimated through multipliers developed from input-output models. This study employed the IMPLAN system developed by the U.S. Forest Service and USDA to estimate economic input-output models for individual California counties and the state.⁷ The models provide detailed economic multipliers for greenhouse and nursery production and retailing and for other sectors of the California economy. A brief description of the IMPLAN system is included as Appendix Table 6.

Economic Multipliers

In the IMPLAN model of the California economy constructed for this study, multipliers for California nursery production and retailing estimated three components of total change for the state: direct, indirect, and induced effects (see Table 9). The direct effects are initial changes in nursery production or retailing; the indirect effects are changes in inter-industry transactions as supplying industries respond to increased demand from nursery production or retailing; and induced effects are changes in local spending that result from income changes in directly and indirectly affected industry sectors. The sum of direct, indirect, and induced effects is the total effects multiplier. Type SAM (social accounting matrix) multipliers were estimated for output, employment, value added, and labor income.

Table 9. Estimated IMPLAN Multipliers for the California Nursery Industry

Type/Sector	Direct Effects	Indirect Effects	Induced Effects	Total Effects
Output				
Nursery	1.0000	0.1646	0.3407	1.5053
Retail	1.0000	0.0999	0.3760	1.4759
Employment (jobs/million dollars)				
Nursery	19.9723	2.1496	3.4478	25.5696
Retail	18.4669	1.0159	3.8046	23.2874
Value Added				
Nursery	0.8084	0.1029	0.2120	1.1232
Retail	0.8816	0.0626	0.2339	1.1781
Labor Income				
Nursery	0.4752	0.0657	0.1318	0.6727
Retail	0.5551	0.0393	0.1455	0.7399

Source: Minnesota IMPLAN Group, Inc., 2003.

⁷ This study used IMPLAN PRO software licensed from Minnesota IMPLAN Group, Inc. and associated databases for California. For a detailed description of the software and data, see *Implan Professional Social Accounting and Impact Analysis Software User’s Guide, Analysis Guide and Data Guide*, 2nd Edition, 1997, Minnesota IMPLAN Group, Inc., Stillwater, MN (www.implan.com).

Lindall and Olson describe the IMPLAN multipliers (p. 13–15). Type SAM multipliers are the direct, indirect, and induced effects where the induced effects are based on information in the social accounting matrix. This relationship accounts for social security and income tax leakage, institution savings, and commuting. Interpretation of the tabled multipliers is conducted as follows:

- Output multipliers relate the change in sales to final demand by one industry (nursery or retail) to the total change in output (gross sales) by all industries within the local area. An industry output multiplier of 1.50 indicates that a change in sales to final demand of \$1.00 by the industry in question would result in a total change in local output of \$1.50.
- Labor income and employment multipliers relate the change in direct production to changes in labor income and employment within the local economy. For example, a labor income multiplier for a direct industry change of 1.75 indicates that a \$1.00 change in output in the direct industry will produce an employment income change of \$1.75 in the local economy. Similarly, an employment multiplier of 25.0 indicates that 25 jobs are created for each million dollars of output by the industry.
- Multipliers for value added are interpreted the same way as labor income and employment multipliers. They relate a change in sales in the industry experiencing the direct effect to the total change in value added for the local economy. The value added includes employee compensation, proprietary income, income from other property types, and indirect business taxes. The total value added by an industry is comparable to the gross state product.

Estimated Economic Impacts

The economic multipliers shown in Table 9 were combined with floral and nursery sales at the producer level and lawn, garden, and floral retail gross margins to estimate the industry's total annual contribution to the California economy for 2001 through

2009. Estimates of annual producer output of floral and nursery products came from the data shown in Figure 1 and Tables 1 and 4 in this report. The data from Table 4 were used as the best current estimates of California output, and the estimates of gross retail margins listed in Table 8 were used as the measure of the direct output of lawn and garden product retailing.

It is important to note several procedures and assumptions used in the model. First, the direct effect multiplier of 1.0 for nursery and retail output was applied to the total wholesale value of California nursery products and to gross margins for lawn and garden retailing. The total effect multiplier, which includes the indirect and induced output multipliers, was applied to the direct output to obtain total output. Second, the direct effects for employment, value added, and labor income were all derived from the direct output values.

Estimates of the total economic impacts of California flower and nursery production and lawn and garden retailing for 2009 are shown in Table 10. Note that the direct output effects (from Tables 4 and 8) total almost \$6.96 billion. The indirect and induced economic multiplier effects expand the total California output effect to just over \$10.37 billion. Based on the input-output relationships shown in Table 9, flower and nursery production generated 88,165 jobs in California in 2009 while lawn and garden retailing added another 81,733 jobs, creating a combined total of 169,899. The estimated payroll for the two sectors totaled almost \$4.92 billion with \$2.32 billion from floral and nursery production and almost \$2.60 billion from lawn and garden retailing. Total value added for the two sectors was almost \$8.01 billion with \$3.87 billion from floral and nursery production and almost \$4.14 billion from lawn and garden retailing. The difference between total effect and direct effect for each row in Table 10 is the sum of the indirect and induced effects.

Initial estimates of direct and total economic impacts of California's flower and nursery production and lawn and garden retailing presented in *Economic Contributions of the California Nursery Industry* (Carman and Rodriguez 2004) were updated annually. In 2001, the estimated total output effect was almost

\$10.34 billion, total employment (including direct and multiplier effects) was estimated at 168,867 jobs, and total value added was estimated to be a little more than \$8 billion. As shown in Table 11, total output, total jobs, and value added attributed to production and retailing was estimated to have grown steadily from 2001 through 2007 with total output growing from \$10.34 billion to \$13.33 billion, employment rising from 168,867 to 217,557 jobs, and value added increasing to \$10.33 billion. Then, in 2008 and 2009, total wholesale revenue from flower and nursery production and lawn and garden retail sales decreased significantly due to the economic recession. This sales decrease was accompanied by a similar decline in total output (from \$13.33 billion in 2007 to \$10.37 billion in 2009) and a decrease in the estimated total number of jobs in flower and nursery production and lawn and garden retailing in California (from 217,557 in 2007 to 169,899 in 2009). During the same time period, total value added decreased from \$10.33 billion to \$8.01 billion, a level essentially equal to the value added in 2001. Unfortunately, estimated multiplier effects for basic production and retailing are symmetric with decreased sales leading to decreased total output, total employment, and value added.

Table 10. Estimated Direct and Total Economic Effects of California Flower and Nursery Production and Lawn and Garden Retailing, 2009

Type/Sector	Direct Effects	Total Effects
Output (million dollars)		
Nursery	3,448.0520	5,190.3527
Retail	3,509.7660	5,180.0636
Total	6,957.8180	10,370.4163
Employment (jobs)		
Nursery	68,866	88,165
Retail	64,814	81,733
Total	133,680	169,899
Value Added (million dollars)		
Nursery	2,787.4052	3,872.8520
Retail	3,094.2097	4,134.8553
Total	5,881.6149	8,007.7073
Labor Income (\$ million)		
Nursery	1,638.5143	2,319.5046
Retail	1,948.2711	2,596.8759
Total	3,586.7854	4,916.3804

Table 11. Estimated Total Economic Effects of California Flower and Nursery Production and Lawn and Garden Retailing, 2001–2009

Year	Total Output Effects (million dollars)	Total Employment (number of jobs)	Total Value Added (million dollars)
2001	10,337.2889	168,867	8,003.1916
2002	10,492.6605	171,571	8,116.3533
2003	10,961.9108	179,218	8,480.4482
2004	11,636.3217	190,257	9,001.6297
2005	12,217.5206	199,507	9,462.1183
2006	13,051.0252	213,009	10,112.3159
2007	13,329.4736	217,557	10,327.9192
2008	12,273.6802	200,522	9,501.4028
2009	10,370.4163	169,899	8,007.7073

Source: Author's annual updates.

CONCLUDING COMMENTS

Almost two decades of steady sales growth by California's nursery and floral industry and lawn and garden retailing sectors was interrupted by the economic recession in 2008 and 2009. After peaking at a record production value of \$3.98 billion in 2007, total California floral and nursery production dropped to \$3.77 billion in 2008 and, further, to \$3.45 billion in 2009. The plunge in estimated cash receipts in 2008 (a decrease of \$0.20 billion) resulted in nursery and floral products' share of total California agricultural sales to fall to 9.1 percent, the smallest share in the last twenty years. However, with essentially steady nursery and floral sales from 2008 to 2009 and an overall reduction in California agricultural sales, the nursery and floral share of total sales recovered to 10.9 percent in 2009.

The impact of the recession on retail florists was dramatic. California florists increased taxable sales from \$816 million in 1997 to a peak of \$1.2 billion in 2007, but sales thereafter plunged to less than \$794 million in 2008 and to only \$461 million in 2009, a decline of more than 61.5 percent in just two years. A significant number of retail florists also closed. The number of florists decreased from 6,427 in 2008 to 5,070 in 2009. Estimated retail sales for California farm and garden supply stores decreased more than 25 percent from the peak of \$2.966 billion in 2007 to \$2.217 billion in 2009. While not as dramatic as the decline experienced by florists, the two-year sales decrease for farm and garden supply stores was substantial.

Data for nursery and floral industry sales are typically reported separately. Annual USDA *California Agricultural Statistics* reports ranked the nursery industry as second or third among all California commodities in terms of value of production for 2001 through 2009 while the flower industry was ranked between seventh and tenth during the same period. At the same time, the value of sales for the two sectors, when combined, ranked second among all California agricultural products. At the national level, California's nursery and flower industry leads the nation with Florida in a distant second place.

Nursery and flower production occurs in 55 of California's 58 counties and tends to be concentrated in the coastal counties from San Mateo in the north to San Diego in the south. Sixteen counties accounted for 87.25 percent of all California floral and nursery production in 2009. Nursery and flower production was the number one agricultural product in terms of value of production in 2009 in nine counties with the value ranging from more than \$1.05 billion in San Diego County to more than \$12.09 million in Del Norte County. The presence of many of the state's nursery and flower producers in the most urbanized areas of California is a distinguishing feature of the industry. These producers are close to a large percentage of their customers, allowing them to deliver quality products while minimizing distribution costs.

The large and economically important California nursery and flower production sector is accompanied by an extensive, growing retail sector. California is the largest single market for lawn and garden products in the United States with 2009 retail sales estimated at more than \$9.33 billion. Note that this is down significantly from peak estimated retail sales of \$13.07 billion in 2007. The combined effect of nursery and flower production and lawn and garden retailing on the California economy is huge.

The total economic impact of California flower and nursery production and lawn and garden retailing in 2009 is estimated at \$10.37 billion. Based on the input-output relationships reported here, flower and nursery production generated an estimated 88,165 jobs in California in 2009 while lawn and garden retailing added another 81,733 jobs for a combined total of 169,899. Because of the economic downturn, this was a loss of 47,658 jobs from the estimate for 2007 of 217,557. The estimated payroll for the two sectors totaled almost \$4.92 billion in 2009 with \$2.32 billion from floral and nursery production and almost \$2.60 billion from lawn and garden retailing. Total value added for the two sectors was almost \$8.01 billion with \$3.87 billion from floral and nursery production and almost \$4.14 billion from lawn and garden retailing.

The important message that the nursery and flower industry should be delivering to policy makers, agricultural leaders, and the general public at every available opportunity is that the industry is large and economically important. In terms of total output, the California nursery industry is exceeded only by dairy and grapes, and when the nursery and flower industries are combined, only the dairy industry is larger. Nursery and flower production generates a greater sales output than many large, well-known, and world-class California agricultural sectors, including lettuce, cattle, strawberries, tomatoes, almonds, cotton, chickens, oranges, broccoli, carrots, walnuts, avocados, celery, melons, and peaches. Despite the disproportionate impact of the economic recession, almost \$1.09 out of every \$10.00 of California's 2009 gross cash income from farming was from nursery and flower products. And, even with reduced employment, more than one out of every one hundred jobs in California during 2009 could be attributed to the direct and indirect impacts of California nursery production and retailing.

REFERENCES

- California Agricultural Statistics Service. *California Agricultural Statistics, Floriculture*. Sacramento, CA, 2001 and 2002. Available at www.nass.usda.gov/ca/bul/agstat/indexcas.htm. Accessed in February 2004.
- California Department of Finance, *E-4 Population Estimates for Cities, Counties and the State, 2001–2010, with 2000 Benchmark*. Sacramento, CA, 2010. Available at www.dof.ca.gov/research/demographic/reports/estimates/e-4/2001-10.
- California Department of Food and Agriculture. *Resource Directory, California Agriculture: A Tradition of Innovation*. Sacramento, CA, 2002. Available at www.cdfa.ca.gov/card/card_new02.htm.
- California Department of Food and Agriculture. *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California*. Sacramento, CA, 2002 and 2011. Available at <http://plant.cdfa.ca.gov/nurserylicense/nlmenu.asp>.
- California Department of Food and Agriculture. *Value of California Nursery Products, Fiscal Year 2001/2002*. Sacramento, CA, 2002.
- California Department of Food and Agriculture. *Value of Nursery Products, Fiscal Year 2002/2003*. Sacramento, CA, 2003.
- California Department of Food and Agriculture. *Value of California Nursery Products, Fiscal Year 2003/2004*. Sacramento, CA, 2005.
- California Department of Food and Agriculture. *Value of Nursery Products, Fiscal Year 2004/2005*. Sacramento, CA, 2005.
- California Department of Food and Agriculture. *Value of Nursery Products, Fiscal Year 2005/2006*. Sacramento, CA, 2007.
- California Department of Food and Agriculture. *Value of Nursery Products, Fiscal Year 2006/2007*. Sacramento, CA, 2008.
- California Department of Food and Agriculture. *Value of Nursery Products, Fiscal Year 2007/2008*. Sacramento, CA, 2009.
- California Department of Food and Agriculture. *Value of California Nursery Products, Fiscal Year 2008/2009*. Sacramento, CA, 2010.
- California Department of Food and Agriculture. *Value of California Nursery Products, Fiscal Year 2009/2010*. Sacramento, CA, 2011.
- California Department of Food and Agriculture. *California Agriculture: Highlights 2005*. Sacramento, CA, 2005.
- California Employment Development Department. *Labor Market Information*. Sacramento, CA. (Historical Civilian Labor Force, 1990–2008.) Available at www.labormarketinfo.edd.ca.gov/?pageid=164.
- California State Board of Equalization. *Taxable Sales in California*. Sacramento, CA, 2000–2008 (annual reports). Available at www.boe.ca.gov/news/tsalescont.htm.
- Carman, H., and A.M. Rodriguez. *Economic Contributions of the California Nursery Industry*. Davis, CA: Giannini Foundation of Agricultural Economics Information Series No. 04-1, 2004. Available at <http://giannini.ucop.edu/infoseries.htm>.
- Council of Economic Advisors. *Economic Indicators*. Washington, DC: U.S. Government Printing Office. Available at www.gpoaccess.gov/indicators/04janbro.html.
- Greenidge, C. “Gaze into 1995. Will L&G Thrive?” *Nursery Retailer* 40(1) 1995:50–53.
- Greenidge, C. “2002 Looks Bright as Sales Steadily Rise.” *Nursery Retailer* 47(1) 2002. (Articles by Dr. Greenidge in the February/March issues for earlier years include similar data series.)
- Jerardo, A. *Floriculture and Nursery Crops Situation and Outlook Yearbook*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, FLO-2004, 2004. Available at www.ers.usda.gov/Publications/Flo.
- Jerardo, A. *Floriculture and Nursery Crops Yearbook*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, FLO-2006, 2006. Available at www.ers.usda.gov/Publications/Flo.
- Jerardo, A. *Floriculture and Nursery Crops Yearbook*. Washington, DC: U.S. Department of Agriculture, Economic Research Service, FLO-2007, 2007. Available at www.ers.usda.gov/Publications/Flo.

- Lindall, S.A., and D.C. Olson. *The IMPLAN Input-Output System*. Stillwater, MN: Minnesota IMPLAN Group, Inc., 2003.
- Minnesota IMPLAN Group, Inc. *IMPLAN Professional Social Accounting and Impact Analysis Software, User's Guide, Analysis Guide and Data Guide*, 2nd ed. Stillwater, MN, 1997. Available at www.implan.com.
- Minnesota IMPLAN Group, Inc. IMPLAN Pro 2.0.1016. Stillwater, MN (www.implan.com).
- Minnesota IMPLAN Group, Inc. 1998 California IMPLAN data. MIG version 1.08.01. Stillwater, MN (www.implan.com).
- Morey, D. "Nursery Retailer Facts and Figures, 2003." *Nursery Retailer* 48(1) 2003:52–57.
- Morey, D., J. Morey, and C. Morey. "Nursery Retailer Top 100, 19th Annual Ranking." *Nursery Retailer* 48(2) 2003. (The April/May issues for earlier years report the same data series.)
- Morey, J. "Market Share Report, 2004." *Nursery Retailer* January/February 2004:81–85.
- Morey, J. "Top 100 L&G Retailers, 2005." *Nursery Retailer* January/February 2005, special supplement.
- Morey, J. "Top 100 L&G Retailers, 2006." *Nursery Retailer* January/February 2006, special supplement.
- Morey, J. "Market Share Report, 2007." *Nursery Retailer* January/February 2007:48–56.
- Morey, J. "Market Share Report, 2008." *Nursery Retailer* January/February 2008:36–44.
- Morey, J. "Market Share Report, 2009." *Nursery Retailer* January/February 2009:41–47.
- Mulkey, W.D., and A.W. Hodges. *Using IMPLAN to Assess Local Economic Impacts*. Gainesville, FL: University of Florida Institute of Food and Agricultural Sciences Extension Fact Sheet, 2000. Available at <http://edis.ifas.ufl.edu/FE168>.
- Prince & Prince, Inc. *California Cut-Flower Production and Industry Trends 2000: A State-wide Survey of Cut-Flower Growers*. Columbus, OH: Prince & Prince, Inc., 2000.
- U.S. Department of Agriculture, National Agricultural Statistics Service, California Field Office. County Agricultural Commissioners' Data [Excel files]. Sacramento, CA, 1989–2010. Available at www.nass.usda.gov/Statistics_by_State/California/Publications/AgComm/Detail/index.asp.
- U.S. Department of Agriculture, National Agricultural Statistics Service, California Field Office. *Summary of County Agricultural Commissioners' Reports*. Sacramento, CA, 1993–2010. Available at www.nass.usda.gov/Statistics_by_State/California/Publications/AgComm/Summary/index.asp.
- U.S. Department of Agriculture, National Agricultural Statistics Service, California Field Office. *California Agricultural Statistics*. Annual issues, 1993–2010. Sacramento, CA. Available at www.nass.usda.gov/Statistics_by_State/California/Publications/California_Ag_Statistics/Reports/index.asp.
- U.S. Department of Agriculture, National Agricultural Statistics Service. *Census of Agriculture 2007, California State and County Data, Vol. 1, Geographic Area Series, Part 5, February 2009*. Washington, DC, 2009.
- U.S. Department of Agriculture, National Agricultural Statistics Service. *Census of Agriculture*. Washington, DC, 1982–2007 (issued every five years). Available at www.agcensus.usda.gov/Publications/2007/index.asp.
- United States Government Printing Office. *Economic Report of the President*. Washington, DC, 2003. Available at http://w3.access.gpo.gov/usbudget/fy2003/pdf/2002_erp.pdf.

APPENDIX

Appendix Table 1. Nursery, Flower, and Foliage Production for 2001–2005 for the Sixteen California Counties Ranked Highest in 2005

County	Value of Production (\$1,000)				
	2001	2002	2003	2004	2005
San Diego	855,139	879,126	927,059	972,858	990,900
Monterey	178,564	218,679	242,201	270,209	276,233
Ventura	223,368	214,245	217,777	287,877	265,412
Orange	218,833	232,096	214,232	211,439	240,610
Riverside	138,371	183,074	205,846	211,271	229,210
Los Angeles	172,046	177,117	184,956	193,691	181,145
Santa Barbara	131,419	149,263	155,864	183,644	175,820
San Joaquin	99,224	119,072	130,017	137,657	141,473
San Mateo	136,613	144,035	144,144	145,209	139,454
Kern	114,599	115,383	100,702	101,850	105,728
San Luis Obispo	91,128	97,377	91,476	101,156	101,942
Santa Clara	150,265	122,755	113,458	104,283	94,917
Tulare	65,175	70,463	66,775	69,423	82,260
Santa Cruz	75,025	61,004	67,177	73,060	73,780
Stanislaus	68,960	85,889	99,164	111,272	71,240
Solano	37,668	38,781	42,373	43,645	50,018
Total: Top Sixteen	2,756,397	2,908,359	3,003,221	3,218,544	3,220,142
Rest of State	414,678	401,740	437,235	440,921	505,406

Source: U.S. Department of Agriculture, *Summary of County Agricultural Commissioners' Reports*, 2001–2005.

Appendix Table 2. Wholesale Value of California Nursery Products by Major Categories for 2000/01 through 2005/06

	2000/01	2001/02	2002/03
Floral Products			
Cut flowers and cut greens	\$383,101,500	\$359,810,600	\$365,944,700
Flower seeds	5,830,700	6,074,100	4,775,700
Christmas trees	10,685,800	10,304,900	9,637,400
Total	399,618,000	376,189,600	\$380,357,800
Nursery Products			
Potted plants and flowering foliage	615,772,400	\$631,386,400	628,212,900
Bulbs, corms, roots, and tubers	10,295,200	35,712,300	38,961,600
Flowering propagative materials	75,590,000	75,700,800	71,976,600
Bedding plants	465,045,400	480,438,100	509,310,000
Rose plants	45,936,000	54,062,000	61,047,000
Woody, deciduous, and evergreen ornamentals	772,006,300	823,255,600	940,436,400
Herbaceous perennials	30,069,200	36,175,500	39,134,900
Turf and sod	42,750,300	56,724,700	74,853,100
Nursery stock other than ornamentals	639,508,900	598,606,600	564,752,800
Total	\$2,696,973,700	\$2,792,062,000	\$2,928,685,300
Grand Total	\$3,096,591,700	\$3,168,251,600	\$3,309,043,100
	2003/04	2004/05	2005/06
Floral Products			
Cut flowers and cut greens	\$396,748,200	\$484,151,000	\$460,419,100
Flower seeds	4,379,700	7,556,100	5,861,800
Christmas trees	7,974,600	7,918,125	7,506,800
Total	\$409,102,500	\$499,625,225	\$473,787,700
Nursery Products			
Potted plants and flowering foliage	\$654,604,800	\$612,802,500	\$658,588,100
Bulbs, corms, roots, and tubers	40,749,700	11,829,800	8,329,600
Flowering propagative materials	94,933,600	105,046,600	68,870,200
Bedding plants	522,659,600	492,449,200	453,664,600
Rose plants	50,558,000	45,353,000	56,251,000
Woody, deciduous, and evergreen ornamentals	966,151,800	1,035,597,600	1,092,487,300
Herbaceous perennials	42,369,600	42,904,500	41,752,200
Turf and sod	61,826,900	80,876,900	76,965,800
Nursery stock other than ornamentals	597,499,400	732,811,240	763,396,600
Total	\$3,031,353,400	\$3,159,671,340	\$3,220,305,400
Grand Total	\$3,440,455,900	\$3,659,296,565	\$3,694,093,100

Source: California Department of Food and Agriculture, *Value of California Nursery Products*, fiscal years 2001/02 through 2005/06.

Appendix Table 3. Value (\$1,000) of California Nursery, Flower, and Foliage Production by County, 1999–2009

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Del Norte	14,831	15,427	16,151	12,935	14,726	14,709	14,277	16,646	15,468	15,084	12,085
Humboldt	25,806	32,859	33,952	35,321	35,859	35,859	43,461	49,117	49,117	49,117	49,415
Mendocino	2,620	2,550	2,790	3,267	3,266	3,671	3,770	3,279	3,584	3,705	2,900
Shasta	9,534	8,212	8,830	8,757	8,018	9,995	32,664	32,296	34,273	32,435	32,741
Siskiyou	20,695	25,076	30,789	26,151	23,592	22,923	40,461	54,827	41,485	74,180	76,210
Trinity	32	32	32	32	29	29	29	29	29	29	29
Lassen	11,609	12,336	9,860	5,429	9,462	6,346	6,475	9,711	5,359	7,074	7,109
Modoc	–	–	–	–	–	25	25	50	50	50	50
Plumas	–	–	–	–	–	–	–	–	–	–	–
Alameda	19,058	14,049	15,108	14,229	17,730	17,491	21,065	20,451	23,130	19,317	13,679
Contra Costa	28,202	32,105	37,510	35,385	33,686	28,341	24,644	18,497	11,860	3,479	2,461
Lake	408	408	3,120	3,241	3,155	4,124	3,644	4,318	5,112	5,774	3,533
Marin	708	814	675	725	685	663	689	445	643	922	1,000
Monterey	180,822	194,252	178,564	218,679	242,201	270,209	276,233	339,225	342,125	326,105	294,572
Napa	3,156	3,250	4,720	4,655	4,543	3,965	3,226	3,557	6,433	3,348	2,273
San Benito	19,682	28,428	25,207	28,966	29,792	26,449	33,553	33,428	34,452	36,538	20,413
San Francisco	759	727	913	613	571	574	574	627	670	484	373
San Luis Obispo	85,149	89,168	91,128	97,377	91,476	101,156	101,942	108,066	107,674	102,300	93,759
San Mateo	142,842	154,756	136,613	144,035	144,144	145,209	139,454	136,021	139,007	134,843	125,985
Santa Clara	48,467	177,146	150,265	122,755	113,458	104,283	94,917	94,087	93,468	96,819	95,588
Santa Cruz	71,562	76,556	75,025	61,004	67,177	73,060	73,780	80,143	117,816	107,782	118,528
Sonoma	23,133	33,272	30,069	26,067	26,960	28,677	31,447	27,167	28,811	28,795	23,644
Butte	6,400	5,961	8,555	7,178	11,985	10,786	11,099	19,905	18,840	30,755	26,756
Colusa	–	–	–	–	–	–	–	–	–	–	–
Glenn	3,503	3,258	4,238	4,070	4,213	5,044	4,622	5,697	5,588	5,139	4,897
Sacramento	17,113	26,408	28,968	26,378	31,442	35,220	36,544	36,738	37,677	31,122	27,494
Solano	28,978	35,045	37,668	38,781	42,373	43,645	50,018	47,856	56,611	43,056	33,499
Sutter	11,819	8,025	9,387	8,929	7,558	12,140	11,058	12,737	9,882	12,061	11,244
Tehama	1,367	1,309	1,991	2,102	1,600	1,414	1,787	2,264	2,585	2,865	2,998
Yolo	4,954	4,533	6,991	6,420	5,896	4,715	6,029	8,133	7,306	9,298	9,912
Yuba	–	–	–	–	–	–	–	–	124	22	10

continued on following page

Appendix Table 3. Value (\$1,000) of California Nursery, Flower, and Foliage Production by County, 1999–2009 (continued)

County	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fresno	32,531	28,905	32,014	32,407	32,725	35,067	38,091	31,110	39,576	34,255	46,210
Kern	99,129	106,246	114,599	115,383	100,702	101,850	105,728	109,330	105,317	84,822	63,861
Kings	–	–	–	–	–	–	–	–	–	–	–
Madera	30,200	37,500	24,543	18,271	20,660	30,861	34,585	33,718	34,866	33,820	26,081
Merced	23,747	21,758	22,233	21,991	30,404	30,354	33,329	35,421	29,629	30,006	38,661
San Joaquin	81,937	88,257	99,224	119,072	130,017	137,657	141,473	138,123	137,259	85,539	75,844
Stanislaus	64,111	68,642	68,960	85,889	99,164	111,272	71,240	87,351	99,985	101,207	96,795
Tulare	69,682	72,730	65,175	70,463	66,775	69,423	82,260	88,253	90,185	85,413	72,747
Alpine	–	–	–	–	–	–	–	–	–	–	–
Amador	209	216	241	191	168	284	286	287	193	193	269
Calaveras	597	452	543	545	500	620	603	440	420	413	410
El Dorado	4,855	5,812	5,988	5,662	5,050	5,133	4,932	4,822	4,885	4,080	3,735
Inyo	2,981	3,515	4,020	3,810	2,340	2,340	3,104	3,000	3,200	3,200	2,285
Mariposa	136	152	147	150	160	150	96	82	71	80	64
Mono	–	–	–	–	–	–	–	–	–	–	–
Nevada	633	515	334	346	600	396	401	490	471	466	476
Placer	12,090	11,505	12,854	15,080	14,046	13,227	13,998	13,579	10,360	9,241	6,902
Sierra	–	–	–	–	–	–	–	–	–	–	–
Tuolumne	–	–	–	–	–	–	–	–	–	315	285
Imperial	–	–	–	–	–	–	–	–	2,070	3,076	3,076
Los Angeles	180,790	170,185	172,046	177,117	184,956	193,691	181,145	192,460	174,440	137,967	119,903
Orange	200,966	214,877	218,833	232,096	214,232	211,439	240,610	214,946	187,152	164,515	126,317
Riverside	90,377	107,520	138,371	183,074	205,846	211,271	229,210	270,993	272,326	231,904	206,500
San Bernardino	26,458	29,502	34,617	42,438	55,814	49,161	43,837	43,797	47,506	35,263	26,147
San Diego	773,081	790,140	855,139	879,126	927,059	972,858	990,900	991,255	1,042,461	1,042,704	1,054,314
Santa Barbara	135,042	150,669	126,846	149,263	155,864	183,644	175,820	178,616	182,035	182,467	176,658
Ventura	180,624	204,828	223,368	214,245	217,777	287,877	265,412	316,346	341,635	349,987	234,063
Total	2,793,385	3,099,888	3,169,214	3,310,100	3,440,456	3,659,297	3,724,548	3,919,736	4,005,216	3,776,114	3,474,489

Source: U.S. Department of Agriculture, *Summary of County Agricultural Commissioners' Reports*, 2000–2010.

Appendix Table 4. Population, Value of Nursery and Floral Production, and Number of Greenhouse, Nursery, and Floriculture Producers in California by County, 2007–2009

County	Population Jan. 1, 2009	2008 Value of Nursery Product (\$1,000)	No. of Farms in 2007	County	Population Jan. 1, 2009	2008 Value of Nursery Product (\$1,000)	No. of Farms in 2007
Alameda	1,557,749	13,679	31	Orange	3,134,858	126,317	101
Alpine	1,198	0	0	Placer	341,304	6,902	81
Amador	37,911	269	7	Plumas	20,602	0	6
Butte	220,673	26,756	52	Riverside	2,109,882	206,500	233
Calaveras	45,961	410	18	Sacramento	1,432,168	27,494	40
Colusa	21,955	0	3	San Benito	57,920	20,413	15
Contra Costa	1,061,325	2,461	26	San Bernardino	2,057,271	26,147	114
Del Norte	29,469	12,085	9	San Diego	3,185,462	1,054,314	793
El Dorado	180,713	3,735	105	San Francisco	846,610	373	6
Fresno	941,006	46,210	83	San Joaquin	687,854	75,844	44
Glenn	29,212	4,897	6	San Luis Obispo	270,901	93,759	99
Humboldt	132,713	49,415	76	San Mateo	745,654	125,985	74
Imperial	179,428	3,076	12	Santa Barbara	430,333	176,658	119
Inyo	18,103	2,285	3	Santa Clara	1,857,516	95,588	108
Kern	827,475	63,861	52	Santa Cruz	268,795	118,528	122
Kings	154,440	0	7	Shasta	183,095	32,471	35
Lake	64,075	3,533	22	Sierra	3,320	0	0
Lassen	35,569	7,109	6	Siskiyou	45,903	76,210	19
Los Angeles	10,355,053	119,903	247	Solano	425,740	33,499	32
Madera	152,104	26,081	17	Sonoma	487,259	23,644	153
Marin	258,602	1000	10	Stanislaus	525,090	96,795	46
Mariposa	18,248	64	1	Sutter	96,555	11,244	9
Mendocino	89,938	2,900	73	Tehama	62,609	2,998	10
Merced	255,591	38,661	14	Trinity	13,850	29	3
Modoc	9,685	50	0	Tulare	440,780	72,747	46
Mono	13,577	0	2	Tuolumne	56,089	285	12
Monterey	431,041	294,572	116	Ventura	835,298	234,063	151
Napa	137,723	2,273	17	Yolo	200,931	9,912	12
Nevada	98,649	476	44	Yuba	72,673	10	7
STATE	38,255,508	3,474,490	3,549				

Source: Population data are from State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties and the State, 2001–2010, with 2000 Benchmark*, 2010. Nursery and floral production data are from U.S. Department of Agriculture, *Summary of County Agricultural Commissioners' Reports, 2007–2008*. Numbers of greenhouse, nursery, and floriculture producers are from U.S. Department of Agriculture, *Census of Agriculture 2007, California State and County Data, Vol. 1, Geographic Area Series, Part 5, February 2009, 2009*.

Appendix Table 5A. Nursery and Floriculture Products: Number of Producers, Wholesalers, and Retailers Licensed to Sell Nursery Stock in California in 2002 by County

County	Cut Flowers/ Greens Wholesalers	Incidental Retailers ^a	Jobbers/ Brokers/ Commission Merchants	Landscapers	Producers ^b	Retailers ^c	Total No. of Companies
Alameda	15	84	15	13	43	129	273
Amador	1	9	0	1	7	4	20
Butte	6	31	6	6	38	45	107
Calaveras	1	10	0	3	7	10	27
Colusa	1	2	0	0	1	4	6
Contra Costa	10	86	5	7	24	111	229
Del Norte	0	2	0	1	11	6	21
El Dorado	6	26	2	3	23	25	70
Fresno	6	62	11	16	73	97	239
Glenn	2	3	0	0	7	5	14
Humboldt	9	13	4	2	40	30	87
Imperial	0	8	1	1	10	14	34
Inyo	1	3	1	0	4	7	12
Kern	4	58	6	7	59	81	204
Kings	0	5	0	0	2	12	22
Lake	1	10	1	0	14	12	38
Lassen	1	1	0	0	2	6	11
Los Angeles	83	605	74	73	375	824	1,737
Madera	2	9	3	4	25	15	52
Marin	4	21	3	9	16	38	89
Mariposa	2	4	1	0	4	4	13
Mendocino	5	16	5	8	64	32	103
Merced	1	10	1	0	13	20	50
Modoc	0	2	0	0	3	1	4
Mono	0	1	0	0	0	5	5
Monterey	93	34	14	7	89	46	231
Napa	8	12	9	5	23	24	69
Nevada	3	17	4	3	22	17	51
Orange	16	264	32	40	121	284	666
Placer	14	33	13	17	41	44	125
Plumas	0	5	0	1	3	5	13
Riverside	12	139	28	37	207	208	564
Sacramento	28	101	11	12	50	123	292
San Benito	1	2	2	0	10	7	20
San Bernardino	7	123	12	15	118	180	440
San Diego	176	303	95	49	551	333	1,207

continued on following page

Appendix Table 5A. Nursery and Floriculture Products: Number of Producers, Wholesalers, and Retailers Licensed to Sell Nursery Stock in California in 2002 by County (continued)

County	Cut Flowers/ Greens Wholesalers	Incidental Retailers ^a	Jobbers/ Brokers/ Commission Merchants	Landscapers	Producers ^b	Retailers ^c	Total No. of Companies
San Francisco	40	18	12	4	22	67	150
San Joaquin	9	27	9	6	59	59	162
San Luis Obispo	18	47	5	11	82	56	192
San Mateo	30	39	8	6	54	75	187
Santa Barbara	55	56	14	12	92	59	235
Santa Clara	25	97	11	5	47	161	337
Santa Cruz	46	25	17	4	66	40	167
Shasta	6	23	4	7	36	35	90
Sierra	0	1	0	0	0	0	1
Siskiyou	1	6	0	2	10	6	29
Solano	7	36	3	4	17	36	95
Sonoma	23	52	12	25	128	92	279
Stanislaus	9	28	4	6	37	48	139
Sutter	3	8	1	0	16	14	40
Tehama	1	7	0	1	15	12	29
Trinity	0	1	0	0	1	6	9
Tulare	9	22	3	6	63	46	137
Tuolumne	0	7	3	4	6	9	26
Ventura	45	83	8	9	126	103	304
Yolo	7	11	3	2	17	16	50
Yuba	0	7	0	0	5	8	18
State Total	853	2,715	476	454	2,999	3,756	9,821

Source: California Department of Food and Agriculture, *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California*, 2002.

^a An incidental retailer is an operator of a retail sales outlet for nursery stock that is handled incidental to other merchandise. Retailers such as Home Depot, Wal-Mart, Lowe's, and supermarkets are in this category.

^b A producer is a commercial producer who grows and sells a total of \$1,000 or more of nursery stock in one year.

^c A retailer is an operator of a sales outlet that has no growing grounds except small areas devoted to the production of plants for local distribution and those producing less than \$1,000.

Appendix Table 5B. Nursery and Floriculture Products: Number of Producers, Wholesalers, and Retailers Licensed to Sell Nursery Stock in California in 2011 by County

County	Cut Flowers/ Greens Wholesalers	Incidental Retailers ^a	Jobbers/ Brokers/ Commission Merchants	Landscapers	Producers ^b	Retailers ^c	Total No. of Companies
Alameda	14	15	12	10	50	70	130
Amador	3	5	4	1	5	11	20
Butte	8	13	5	7	45	45	94
Calaveras	2	9	1	3	10	13	32
Colusa	0	0	0	1	2	6	7
Contra Costa	4	14	6	7	39	59	96
Del Norte	0	4	0	1	10	8	21
El Dorado	4	12	3	3	20	26	57
Fresno	9	16	11	16	79	62	141
Glenn	0	2	0	0	3	4	9
Humboldt	9	13	2	7	46	26	83
Imperial	0	6	1	2	11	17	34
Inyo	1	3	0	0	3	8	11
Kern	14	23	7	8	56	46	128
Kings	2	6	0	0	1	17	22
Lake	2	10	1	1	13	17	33
Lassen	0	1	0	0	7	7	14
Los Angeles	94	56	69	57	310	217	602
Madera	2	6	1	3	24	15	41
Marin	6	9	5	7	18	29	60
Mariposa	1	3	0	0	4	5	11
Mendocino	3	14	3	9	48	37	85
Merced	4	10	1	1	24	27	54
Modoc	0	2	0	0	2	3	5
Mono	0	1	0	1	2	6	7
Monterey	62	14	8	6	64	28	146
Napa	4	13	2	4	16	23	49
Nevada	2	9	2	2	17	25	44
Orange	27	32	21	29	91	86	216
Placer	14	17	10	17	41	50	112
Plumas	0	2	0	4	6	11	17
Riverside	31	47	37	57	276	134	415
Sacramento	15	18	8	12	46	55	121
San Benito	2	5	1	0	9	7	19
San Bernardino	19	34	12	26	133	94	234
San Diego	203	59	102	42	548	172	851

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Appendix Table 5B. Nursery and Floriculture Products: Number of Producers, Wholesalers, and Retailers Licensed to Sell Nursery Stock in California in 2011 by County (continued)

County	Cut Flowers/ Greens Wholesalers	Incidental Retailers ^a	Jobbers/ Brokers/ Commission Merchants	Landscapers	Producers ^b	Retailers ^c	Total No. of Companies
San Francisco	46	8	15	4	26	29	100
San Joaquin	13	19	13	6	45	46	106
San Luis Obispo	17	12	6	8	71	47	129
San Mateo	26	11	13	5	50	36	104
Santa Barbara	44	21	10	14	81	39	160
Santa Clara	23	9	11	5	57	65	136
Santa Cruz	32	13	8	2	82	39	146
Shasta	6	15	2	6	35	33	75
Sierra	0	0	1	0	0	0	1
Siskiyou	1	6	0	3	10	6	22
Solano	5	11	4	5	24	31	61
Sonoma	25	24	14	27	125	70	211
Stanislaus	10	14	4	5	37	44	91
Sutter	5	6	2	2	13	20	39
Tehama	2	4	0	1	14	19	27
Trinity	2	1	0	1	5	6	11
Tulare	7	16	4	8	59	48	114
Tuolumne	3	6	1	3	8	19	29
Ventura	45	26	12	9	118	59	199
Yolo	5	6	3	4	12	19	38
Yuba	2	5	2	1	8	17	28
State Total	880	736	460	463	2,959	2,158	5,848

Source: California Department of Food and Agriculture, *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California*, 2011.

^a An incidental retailer is an operator of a retail sales outlet for nursery stock that is handled incidental to other merchandise. Retailers such as Home Depot, Wal-Mart, Lowe's, and supermarkets are in this category.

^b A producer is a commercial producer who grows and sells a total of \$1,000 or more of nursery stock in one year.

^c A retailer is an operator of a sales outlet that has no growing grounds except small areas devoted to the production of plants for local distribution and those producing less than \$1,000.

Appendix Table 6. The IMPLAN System

The following brief description of IMPLAN is from Mulkey and Hodges (2000).

IMPLAN, an acronym for Impact Analyses and Planning, was originally developed by the U.S. Forest Service in cooperation with the Federal Emergency Management Agency and the U.S. Department of the Interior's Bureau of Land Management to assist in land and resource management planning. It is a computer software package that consists of procedures for estimating local input-output models and associated databases. Since 1993, the IMPLAN system has been developed under exclusive rights by the Minnesota IMPLAN Group, Inc., which licenses and distributes the software to users, including universities, government agencies, and private companies.

The economic data for IMPLAN comes from the system of national accounts for the United States based on data collected by the U.S. Department of Commerce, the U.S. Bureau of Labor Statistics, and other federal and state government agencies. Data are collected for 528 distinct producing industry sectors of the national economy corresponding to the Standard Industrial Categories (SICs). Industry sectors are classified on the basis of the primary commodity or service produced. Corresponding data sets are also produced for each county in the U.S., allowing analyses at the county level or for individual states. Data on the technological mix of inputs and levels of transactions between producing sectors are taken from detailed input-output tables of the national economy. National- and county-level data are the basis for IMPLAN calculations of input-output tables and multipliers for local areas.

The IMPLAN software package allows the estimation of the multiplier effects of changes in final demand for one industry on all other industries within a local economic area. Multipliers may be estimated of a single county, for groups of contiguous counties, or for an entire state. The multipliers measure total changes in output, income, employment, or value added.

For a particular producing industry, multipliers estimate three components of total change within the local area:

- Direct effects represent the initial change in the industry in question.
- Indirect effects are changes in inter-industry transactions as supplying industries respond to increased demands from the directly affected industries.
- Induced effects reflect changes in local spending that result from income changes in the directly and indirectly affected industry sectors.

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