

The California Nursery Industry: Economic Impacts and Trends

by

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INTRODUCTION

The nursery and floral industry, a very important component of California's agricultural economy, is slowly emerging from the effects of the "housing bubble" and the economic recession following its 2007 "burst". The effects of recession are evident throughout the industry, ranging from the sales of plants and material to structural aspects of wholesale and retail product distribution. The California floral and nursery sector's ties to the real estate industry and the unique nature of its crops contributed to uninterrupted sales growth between 1993 and 2007 despite major challenges presented by shipping restrictions related to pests and diseases, 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 conditions. Combined sales of California nursery and floral products reached a record high of \$3.97 billion in 2007 but then declined to \$3.29 billion in 2008 before recovering to \$3.70 billion in 2011. Nursery and floral sales were increasing relative to the rest of California production through 2002 when they accounted for 12.5 percent of total California agricultural sales. The floral and nursery sales plunge relative to other commodities reduced its share of total agricultural sales to 9.1 percent in 2008 and further to 7.8 percent in 2011, the smallest share in the last twenty years.

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 income ripple effects throughout the state. The nature and extent of these ripple effects is estimated through multipliers developed from input-output models. As sales increased, the total economic impact of the nursery and floral production and retail sectors was magnified, but the impact of decreased sales on income and employment is also magnified downward. For example, the estimated total economic impact (including both direct and secondary effects) of the sector increased steadily from output of \$10.3 billion and 168,867 jobs in 2001 to output of over \$13.3 billion and employment of 217,557 in 2007. With the recession in 2008, total output decreased to \$11.74 billion (12 percent decrease) and total jobs decreased to 192,065. The estimated loss of 25,492 jobs in nursery and floral production and retailing from 2007 to 2008 was an 11.7 percent job loss. While there has been some improvement since 2008, total 2011 estimated output of almost \$11.30 billion and employment of 184,202 is still significantly less than the 2007 highs.

This report updates previous studies on the California nursery and floral sector, using 2011-2012 fiscal year and 2011 calendar year data (the most recent available) to update a study by

Carman (2011) covering the period from 2001 through 2009. Nursery and floral production and sales are compared with other California crops and changes in sales over time are presented. The changing nature of California nursery and floral production is outlined and the location of production within California is shown using County Commissioners Annual Reports. Estimated retail sales and margins for California's lawn and garden sector are developed together with value added estimates. A regional economic model is used to trace the direct, indirect and induced multiplier effects of California nursery and floral production and lawn and garden retailing through the California economy.

NURSERY AND FLORAL INDUSTRY SALES TRENDS

Data from USDA's annual publication, *California Agricultural Statistics* indicate that nursery production and sales typically ranked third among all California crops (following dairy and grapes) while floral crops usually ranked around tenth. When combined, nursery and floral production typically ranked second in value of production among all California crops.

Table 1. California's Top 20 Commodities in 2011, With Value of Cash Sales and Rank, 2006 through 2011

Commodity	2006	2007	2008	2009	2010	2011
	million dollars					
Milk and Cream	4,492 (1)	7,337 (1)	6,924 (1)	4,537 (1)	5,928 (1)	7,681 (1)
Almonds	2,259 (4)	2,402 (4)	2,343 (3)	2,294 (4)	2,903 (3)	3,867 (2)
Grapes, all	3,000 (2)	3,076 (2)	2,938 (2)	3,260 (2)	3,209 (2)	3,860 (3)
Cattle and Calves	1,676 (5)	1,784 (5)	1,823 (5)	1,676 (7)	2,068 (5)	2,825 (4)
Nursery	2,890 (3)	2,962 (3)	2,274 (4)	2,513 (3)	2,357 (4)	2,683 (5)
Strawberries	1,199 (7)	1,411 (7)	1,578 (8)	1,725 (6)	1,814 (6)	1,948 (6)
Hay, all	1,060 (9)	1,406 (8)	1,797 (6)	927 (10)	1,033 (10)	1,735 (7)
Lettuce, all	2,054 (6)	1,697 (6)	1,581 (7)	1,744 (5)	1,605 (7)	1,513 (8)
Walnuts	564 (15)	751 (11)	558 (16)	747 (12)	1,028 (11)	1,323 (9)
Tomatoes, all	1,166 (8)	1,223 (9)	1,317 (9)	1,540 (8)	1,246 (8)	1,265 (10)
Floriculture	999 (10)	1,036 (10)	1,015 (11)	937 (11)	1,015 (12)	1,012 (11)
Cotton Lint, All	557 (14)	599 (14)	297 (24)	286 (24)	592 (17)	894 (12)
Pistachios	450 (18)	587 (17)	570 (15)	593 (16)	1,159 (9)	879 (13)
Rice	521 (16)	708 (13)	1,183 (10)	937 (9)	931 (13)	774 (14)
Chickens, all	630 (12)	713 (12)	788 (12)	692 (14)	722 (14)	702 (15)
Broccoli	581 (13)	626 (14)	663 (13)	751 (13)	685 (16)	684 (16)
Carrots, all	431 (17)	462 (19)	518 (17)	500 (17)	546 (18)	660 (17)
Oranges, all	633 (11)	518 (15)	609 (14)	596 (15)	721 (15)	656 (18)
Avocados	342 (20)	251(24)	328 (23)	201 (33)	415 (19)	461 (19)
Eggs, Chicken	224 (27)	346 (21)	441 (19)	320 (22)	368 (20)	392 (20)

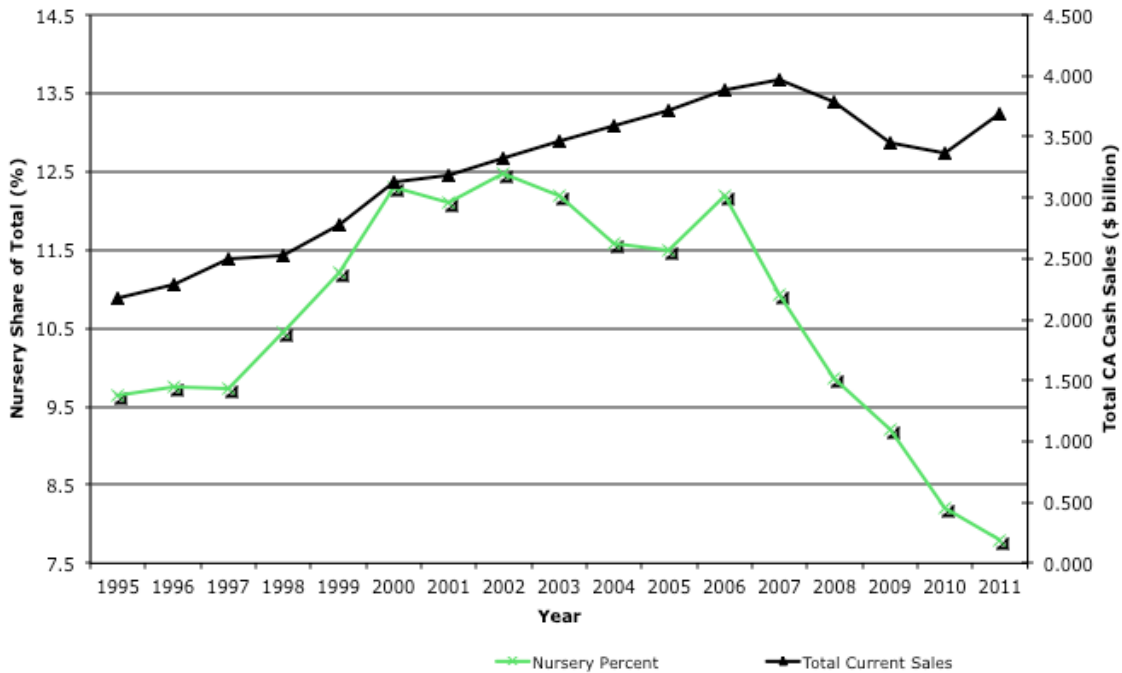
Source: California Agricultural Statistics, annual editions, 2007-2012.

Sales for California's top 20 commodities in 2011 are shown in Table 1 for 2006 through 2011. From 2000 through 2007 a ranking of California agricultural commodities by annual

sales typically had dairy products in first place followed by grapes, nursery products and almonds. Floral crops typically fell between 7th and 10th place and when combined with nursery crops, sales of nursery and floral crops were in 2nd place, following dairy. Even though nursery crops dropped to 4th place in 2008 and 2010 and floral crops to 11th place in 2008 and 12th place in 2010, combined sales of nursery and floral crops continued in second place among all commodities. In 2011, however, sales of nursery and floral products dropped to fourth place following dairy, almonds and grapes. As expected, nursery and floral products' share of total California agricultural sales have also changed over time.

Total sales of California nursery and floral crops increased steadily from \$2.71 billion in 1995 to a record \$3.97 billion in 2007, then decreased to about \$3.37 billion in 2010 before recovering to \$3.69 billion in 2011 (Figure 1). Nursery and floral products' share of total California agricultural sales increased from 9.6 percent in 1995 to a high of 12.5 percent in 2002 and then, with the exception of 2006, decreased steadily to 7.8 percent in 2011. Nursery and floral products' decreasing share of total California agricultural sales beginning in 2002 is due to two major factors. Most important, for most of the period from 2002 through 2007 the rate of growth for other agricultural products outpaced the growth for nursery and floral products. Then with the onset of recession, combined nursery and floral sales decreased while some other major California commodities enjoyed increasing sales. Annual nursery and

Figure 1. California Nursery and Floral Sales: Total and As A Percent of Total Agricultural Sales



floral product sales decreased 4.7 percent from 2007 to 2008, then decreased 9.0 percent from 2008 to 2009, and 2.2 percent from 2009 to 2010. Finally, combined farm level nursery and floral sales increased 9.5 percent from 2010 to 2011.

LOCATION OF PRODUCTION

Nursery products and/or flowers and foliage are produced in 55 of California's 58 counties but production tends to be concentrated in Central Coast and South Coast counties.¹ From the 15 California Counties with the largest nursery, flower and foliage production in 2011, there were 8 counties with over \$100 million of production (Table 1). As shown in Table 1, San Diego County dominates the industry with 33.0 percent of total state production in 2011. The next five counties, Monterey, Ventura, Riverside, Santa Barbara and Santa Cruz combine for 29.8 percent of total California production. The remaining nine of the top 15 counties account for 23.7 percent of production. Nine of the 15 largest producing counties border the Pacific Ocean and Santa Clara County has a coastal type climate. Among the four Central Valley counties (Stanislaus, San Joaquin, Tulare, Kern), only Stanislaus had annual production of over \$100,000 (in 2008 and 2010). The eight counties with production over \$100 million in 2011 accounted for \$2.29 billion (69.4 %) of California's 2011 nursery, flower and foliage production. There were seven counties with nursery, flower and foliage production in the range of \$60 to \$100 million. They accounted for 17.2 percent of total 2011 production. Overall, 15 counties produced 86.6 percent of California's total 2011 nursery, flower and foliage crops. Among these top 15 counties, nursery and floral crops was the number one ranked crop in value of production in San Diego, Orange, Los Angeles, Santa Clara and San Mateo counties. Nursery, flower and foliage crops are very important agricultural products for several California counties that are not among the 15 largest value producers discussed above. For example, nursery and floral crops are listed as the number one commodity in terms of gross value of production for four counties that are not included in the top 15. These counties include Alameda (\$12.15 mil), Del Norte (\$11.77 mil), Humboldt (\$43.40 mil), and San Francisco (\$483,000).

Nursery and flower producers are rather unique among California farmers in that a large number continue to be located in the most urbanized areas of the state. The climatic conditions favorable for nurseries are also very attractive to people, and population and housing growth have been high in areas where nurseries have traditionally located. There were nine California counties with population exceeding 1 million persons in 2013. Five of these counties (Los Angeles, Orange, San Diego, Santa Clara, and Riverside) were among the

¹ The gross value of nursery, flower, and foliage production by county is in Appendix Table 2. Note that the County Agricultural Commissioners' Reports do not include nursery and flower sales for four counties that do have producers listed in the CDFA Directory, Nurserymen and Others Licensed to Sell Nursery Stock in California available July 2013 (<http://plant.cdfa.ca.gov/nurserylicense/nlmenu.aspx>). These counties and the number of producers include Colusa (1), Kings (2), Mono (2) and Plumas (4).

Table 2. California Gross Value of Production of Nursery, Flowers, and Foliage in 2008 through 2011, Top 15 Counties With 2011 Share of State Total.

County	2008 Value of Production (\$1,000)	2009 Value of Production (\$1,000)	2010 Value of Production (\$1,000)	2011 Value of Production (\$1,000)	2011 Share of State Total (%)
Top 15 Counties					
San Diego	1,042,704	1,054,314	1,107,558	1,092,917	33.07
Monterey	326,105	294,572	266,121	260,703	7.89
Ventura	349,987	234,063	227,405	216,010	6.54
Riverside	230,416	206,500	169,342	200,155	6.06
Santa Barbara	182,467	176,658	178,116	185,024	5.60
Santa Cruz	107,782	118,528	118,786	122,598	3.71
San Mateo	134,843	125,985	119,328	111,431	3.37
Los Angeles	137,967	119,903	103,891	104,409	3.16
San Luis Obispo	101,845	93,759	94,708	96,454	2.92
Stanislaus	101,207	96,795	114,363	95,645	2.89
Santa Clara	93,861	95,588	96,733	92,384	2.80
Orange	164,515	126,317	90,043	79,117	2.39
San Joaquin	85,539	75,844	76,951	77,370	2.34
Tulare	85,413	72,747	64,621	65,717	1.99
Kern	84,822	63,861	67,405	61,816	1.87
Top 15 County Total	3,229,473	2,955,434	2,895,371	2,861,750	86.60
Rest of State	546,641	519,055	456,568	442,917	13.40

Source: California County Agricultural Commissioners' Reports, 2009-2012.

largest nursery and flower producers(Appendix Table 2), and have a combined population of 20.29 million. The 15 largest nursery and flower producing counties have a population of 25.78 million and accounted for almost 67.9 percent of California's 2013 population. The proximity of nursery and floral production to urban population centers has advantages and disadvantages. Short distribution channels tend to have comparative low transportation costs while providing fresh and quality product. Many nurseries distribute their product directly to retailers and some are also integrated into retailing. Other costs, however, such as water and land are comparatively high. An important consideration for urban locations, given the recent economic issues facing the industry, is that the land resource can easily and quickly be shifted to other uses. Thus, it may be very difficult to re-establish an urban nursery, once closed.

CROPS PRODUCED

California nursery, flower and foliage producers market a tremendous variety of plant materials ranging 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 2011-2012 totaled almost \$3.29 billion (Table 4).

Table 4. Wholesale Value of California Floral and Nursery Products by Major Categories, 2008/2009 through 2011/2012.

Floral Products	2008/2009 Value	2009/2010 Value	2010/2011 Value	2011/2012 Value
Cut Flowers and Cut Greens	485,607,500	456,493,100	473,512,800	477,185,000
Flower Seeds	6,704,900	7,086,000	5,737,000	5,735,000
Christmas Trees	6,255,800	4,311,900	4,441,600	4,232,500
Floral Products Total	498,568,200	467,891,000	483,691,400	487,152,500
Nursery Products				
Potted Plants and Flowering Foliage	663,092,600	585,715,500	569,479,600	593,728,000
Bulbs, Corm, Roots and Tubers	11,415,000	11,710,500	12,842,000	7,779,000
Flowering Propagative Materials	62,085,600	49,170,400	42,206,000	42,779,000
Bedding Plants	419,378,200	383,405,420	387,885,000	400,586,000
Rose Plants	35,627,700	27,201,000	16,600,000	26,663,000
Woody, Deciduous and Evergreen Ornamentals	1,164,761,200	996,499,500	956,877,570	936,614,000
Herbaceous Perennials	58,255,400	55,272,900	50,178,000	50,881,000
Turf and Sod	91,396,500	94,197,280	72,001,000	39,477,000
Nursery Stock Other Than Ornamentals	769,331,800	776,988,500	705,552,150	702,981,900
Nursery Products Total	3,275,344,000	2,980,161,000	2,813,621,320	2,801,788,900
Grand Total	3,773,912,200	3,448,052,000	3,297,312,720	3,288,641,400

Source: California Department of Food and Agriculture. *Value of Nursery Products, Fiscal Year*. CDFA Nursery Program, Nursery Advisory No. 01-2011, February 16, 2011 and Nursery Advisory No. 01-2013, April 12, 2013.

Values for the various categories of nursery products for the four crop years, 2008/2009 through 2011/2012 are shown in Table 4. Comparable data for the four crop years 2004/2005 through 2007/2008 are included as Appendix Table 3.

The wholesale value of California produced floral products reached a maximum of \$521.46 million in 2006/2007 while maximum sales of nursery products (\$3.46 billion) and high combined floral and nursery sales of \$3.98 billion occurred in 2007/2008 (Appendix Table 3). Floral products total wholesale value then decreased almost \$53.6 million (10.3%) to \$467.89 million in 2009/2010 before recovering to \$487.15 million in 2011/2012. The value of nursery products decreased each of the next four years to \$2.80 billion in 2011/2012, a reduction of \$0.66 billion or 19 percent. Note that combined wholesale value for floral and nursery products in 2011/2012 had decreased over 17.3 percent from the 2007/2008 maximum.

Note that the estimated wholesale value of floral and nursery products in Table 4 shows a slightly different annual pattern than do cash sales reported by California Agricultural Statistics as shown in Table 1 and Figure 1. Total cash sales reached a low in 2010 and recovered slightly in 2011 (Figure 1) while the wholesale value totals in Table 4 were essentially constant in 2010/2011 and 2011/2012. By all indications, total cash sales and wholesale values have both bottomed and are now recovering.

RETAIL SALES

Several sources were utilized to develop retail sales estimates for this study. Partial data on retail floral and nursery product sales in California are available from government statistics. There are private data collection efforts and consultant reports that include retail sales that we utilize and reference where appropriate. The California State Board of Equalization publishes sales data by type of retail outlet but not by product line. There are annual retail sales data for florists and farm and garden supply stores, two types of stores that tend to specialize in floral and nursery products. The Board of Equalization revised their “type of business” classification in 2009 from the Standard Industrial Classification (SIC) to the North American Industry Classification System’s (NAICS) classifications. Farm and garden supply stores became “lawn and garden equipment and supplies stores” while florists continued as “florists.” There are also aggregate sales data for large multi-product retailers such as food stores, hardware stores, and general merchandise stores, but it is not possible to determine the share of floral and nursery product sales for each of these retail store categories.

Taxable retail sales reported by California florists and farm and garden supply stores for the 13-year period 1997 through 2009 are shown in Table 5. Note that combined sales for the two types of stores shown in Table 5 increased from \$2.75 billion in 1997 to over \$3.04 billion in 2000 and further to almost \$4.17 billion in 2007. The steady sales increase was interrupted in

2008 when total sales for the two types of outlets dropped almost 15 percent to \$3.55 billion. Then, 2009 total sales for florists and farm and garden stores were down another 24.5 percent to \$2.68

Table 5. Statewide Taxable Sales by California Retail Florists and Farm and Garden Supply Stores, Calendar Year, 1997 – 2011.

YEAR	FLORISTS	FARM and GARDEN	TOTAL	CHANGE FROM PRIOR YEAR
				-----thousand dollars----- % change
1997	816,185	1,936,173	2,752,358	0
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
2010	449,893	2,269,297	2,719,190	1.53
2011	464,761	2,392,542	2,857,303	5.08

Source: California State Board of Equalization, Annual Reports.

billion, a total that was below the 1997 level. Retail sales then increased slightly in 2010, with the sales increase for farm and garden stores offsetting the loss for florists. Total sales for both types of retailers increased in 2011.

Changes in store numbers and average annual sales for California florists between 2000 and 2011 are dramatic (Table 6). The number of California florists increased from 5161 in 2000 to a peak of 6427 in 2008 (24.5 %), with store numbers increasing in 2008 even as sales began to plunge. Annual florists' sales decreased over 34.0 percent from 2007 to 2008, 41.9 percent from 2008 to 2009, and another 2.5 percent from 2009 to 2010. Total sales by California florists in 2010 were only 37.4 percent of their level just three years earlier in 2007. Large numbers of florists began closing in 2008 with total numbers decreasing 25.3 percent by 2011 (from 6,427 in 2008 to 4,798 in 2011). Average sales per florist were highest in 2006, a year before total sales peaked in 2007 and average sales were lowest in 2010 before recovering slightly in 2011 (Table 6).

Table 6. Number of Retailers and Average Sales Per Retailer, California Florists and Farm and Garden Retailers, 2000-2011.

Year	Florists			Farm and Garden Stores		
	Number*	Sales (\$1,000)	Sales per Florist	Number*	Sales (\$1,000)	Sales per Store
2000	5161	983,396	190,544	3601	2,060,713	572,261
2001	5338	988,022	185,092	3711	2,059,040	554,848
2002	5474	998,781	182,459	3834	2,135,472	556,983
2003	5572	1,005,452	180,447	3943	2,266,142	574,725
2004	5703	1,077,694	188,970	4061	2,386,377	587,633
2005	5708	1,133,896	198,650	4188	2,662,956	635,854
2006	5825	1,172,658	201,315	4188	2,930,230	699,673
2007	6160	1,203,148	195,316	4285	2,965,697	692,111
2008	6427	793,882	123,523	4715	2,751,233	583,506
2009	5070	461,349	90,996	5133	2,216,767	431,866
2010	4950	449,893	90,887	5427	2,269,297	418,149
2011	4798	464,761	96,866	5600	2,392,542	427,240

Source: California State Board of Equalization. Taxable Sales In California, 2000 – 2011.

* Number of licenses, July 1 of each year.

Sales for California lawn and garden stores increased from just over \$2.06 billion in 2000 to a high of over \$2.96 billion in 2007 and then decreased over 25.2 percent the next two years before increasing slightly in 2010 (Table 6). However, the number of stores increased each year from 2000 through 2011. Average sales per farm and garden store reached a high point in 2006 and then decreased to a low 2010 (as was true for florists) before increasing slightly in 2011.

Firms Licensed to Sell Nursery Products

Firms must be licensed by the California Department of Food and Agriculture to sell nursery products in California and licensed firms are listed in the annual *Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California*.² The firms by category were tabulated

² 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).

for 2003 and 2011 in a previous report and data for 2013 were tabulated for this report.³ The data in Table 6 show a significant reduction in the number of retailers between 2003 and 2011 with a slight recovery in 2013. There were also less dramatic decreases in the total numbers of middlemen (wholesalers, jobbers and brokers) as well as landscapers and producers from 2011 to 2013.

Table 7. Number of California firms licensed to sell nursery stock by category and total, 2003, 2011 and 2013.

Year	Cut flowers & greens wholesalers	Jobbers & brokers	Landscapers	Producers*	Incidental retailers**	Retailers***	Total
2003	853	476	454	2999	2715	3756	9821
2011	880	460	463	2959	736	2158	5848
2013	854	447	421	2833	842	2180	5834

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

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

** 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, Lowes and supermarkets are in this category.

*** 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.

Structural Changes

Changing sales and reductions in the number of firms producing and marketing California nursery and floral products point to some rather basic structural changes with implications for both producers and consumers. First is the sharp reduction in the number of California florists and their total sales associated with the recession. The number of florists in 2011 dropped 1629 (25.3 %) from the peak of 6427 in 2008 while sales decreased \$753.26 million (62.6 %) from 2007 to 2010. The change in farm sales of floral products was much less dramatic. California farm level floral product sales reached a high of \$1.036 billion in 2007. Sales then dropped to \$1.015 billion in 2008 and further to \$937.0 million in 2009 before recovering to \$1.015 billion in 2010. The large decrease in sales by florists with only a small change in farm level sales is presumed to be due to a significant change in retail market shares for floral products. Specifically, other outlets such as supermarkets gained market share for floral products at the expense of individual florists.

³ See Carman, H. 2011. *Economic Aspects of the California Nursery and Floral Industry, 2001–2009*. Berkeley: University of California Agricultural Experiment Station, Giannini Foundation Information Series No. 11-1.

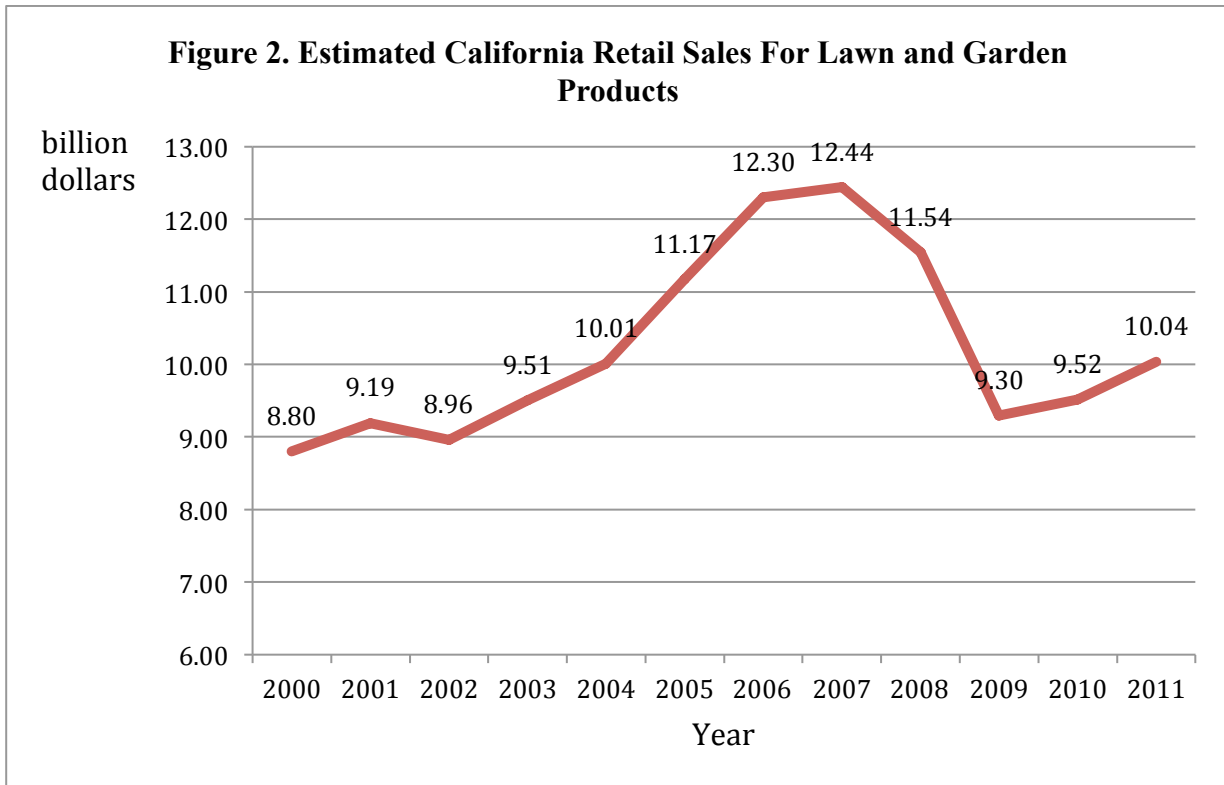
The situation for lawn and garden equipment and supplies stores is much different than florists or other retailers of nursery products. While total sales decreased after the peak occurring in 2007, the number of retail licenses continued to increase (Table 6). This is not the case for other retailers handling nursery products. As shown in Table 7, there are fewer producers (including some with direct sales to consumers) as well as incidental and specialized nursery retailers. The number of retailers licensed to sell nursery stock decreased from a total of 6,471 in 2003 to 3,022 in 2013, a 3,449 (53.3%) reduction in number of outlets. Given much smaller reductions in wholesale nursery sales, the surviving retailers are larger on average and probably have smaller operating margins than was typical for florists.

This 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 not as available at the consumer level as previously, 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. A change from specialized to multiproduct retailers tends to reduce customer service and may reduce product assortments. And, finally, the changes noted may be associated with more market power in the hands of surviving retailers.

Estimated Total Retail Sales for Lawn and Garden Products

The typical nursery/garden department in large multiproduct retail stores and lawn and garden retailers carry a mix of products with live plants (green goods) accounting for about one-half of sales. For the total U.S., the estimated total sales composition 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).

California is the largest single market for lawn and garden products in the United States, accounting for about 10 percent of total annual sales. Estimated 2003 California lawn and garden sales totaled \$9.316 billion out of the U.S. total of \$98.69 billion (Morey, 2004, p. 85). Using the California State Board of Equalization sales data for farm and garden stores in Table 5 as an index, total retail lawn and garden sales are estimated for the period from 2000 through 2011 (Figure 2). As shown, estimated total sales increase to a peak of \$12.44 billion in 2007, then drop to \$9.30 billion in 2009, and recover to just over \$10.04 billion in 2011. Note that estimated sales in 2011 were about the same as sales in 2004. The index used to obtain estimated total sales is based on changing annual retail sales for farm and garden supply stores (Table 5). There are other types of multi-product retail outlets that carry lawn



and garden products that do not have retail sales reported by separate product lines. These include “big box” home center/hardware type stores such as Home Depot and Lowes and warehouse clubs, chain stores and mass merchandisers. The index approach to deriving a retail sales estimate implicitly assumes that market shares have remained relatively stable over the last ten years. If the farm and garden store share decreased, the total sales estimate will be too low and if the farm and garden store share increased, the total sales estimate will be too high.

Morey in a 2009 *Nursery Retailer* article (p. 44), listed three major lawn and garden products distribution channels with estimated 2008 market shares. The channels and shares were hardware/home centers with 48.0 percent; garden centers/nurseries/farm stores with 45.0 percent; and mass marketers/chain stores/warehouse clubs with 7.0 percent of the total market. These continue to be the best estimates available for current market shares.

Retail florists are not included in the store types or estimated total sales in Figure 2. As noted, retail florists have faced competition and loss of market share to other store types, especially supermarkets. If producer/retail floral products sales ratios were maintained from 2007 forward, it appears that in 2011 florists lost about \$710 million sales to other outlets. This amount will be added to florists’ sales to derive estimated gross margins since the margins for floral sales in supermarkets are similar to margins for florists. Sales that will be used by store

category to estimate gross margins are hardware/home centers, \$4.8175 billion; garden centers/nurseries/farm stores, \$4.5164 billion; mass marketers/chain stores/warehouse clubs, \$702.55 million; and florists (including supermarkets), \$1.1749 billion.

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 are an essential component for deriving estimated economic contributions of California’s floral and nursery industry. Estimated gross margins and 2011 retail sales are shown in Table 8. Gross margins range from a low of 30 percent for the largest volume retailers (hardware/home centers) to a high of 50 percent for retail florists and supermarket floral departments. Note that these are estimated averages for the categories, with individual

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, 2011.

Retail Store Type	Gross Margin	2011 Retail Sales	Total Margin
	%	\$ million	\$ million
Hardware/home centers	30.0	4,817.5	1,445.25
Independent farm/garden	45.0	4,516.4	2,032.38
Chain/warehouse	33.0	702.55	233.95
Florists	50.0	1,174.9	587.45
TOTAL		11,211.35	4,299.03

Source: Gross margin estimates provided by members of California Association of Nurseries and Garden Centers.

stores within a category ranging above and below the estimate. The weighted average retail gross margin is 38.35 percent. Total 2011 California retail lawn and garden sales were estimated at \$10.036 billion and retail floral sales were \$1.175 billion for total estimated retail lawn, garden and floral product sales of almost \$11.211 billion (Table 8). The estimated total margin or value added by retailing for 2011 was over \$4.299 billion.

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 changes in floral and nursery production on total economic activity are estimated through multipliers developed from input-output models. For this study, we use the IMPLAN system developed by the U.S. Forest Service/U.S. Department of Agriculture to estimate economic input-output models for individual California

counties and the state.⁴ The input-output models provide detailed economic multipliers for greenhouse/nursery production and retailing as well as all other sectors of the California economy. A brief description of the IMPLAN system is included as Appendix Table 4.

Economic Multipliers

An IMPLAN model of the California economy was constructed. IMPLAN multipliers for California nursery production and retailing estimate three components of total change for the State. The estimated multipliers for California nursery production and lawn and garden retailing are in Table 9. The direct effects are for the initial change in nursery production or retailing; the indirect effects are changes in inter-industry transactions as supplying industries respond to increased demands from nursery production or retailing; and, induced effects are for changes in local spending that result from income changes in the directly and indirectly affected industry sectors. The sum of direct, indirect and induced effects is the total effects multiplier. We estimate Type SAM multipliers for output, employment, value-added and labor income.

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

- Output multipliers relate the changes in sales to final demand by one industry (nursery or retail) to total changes in output (gross sales) by all industries within the local area. An industry output multiplier of 1.50 would indicate 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 one million dollars of output by the industry.
- Value added multipliers are interpreted the same as labor income and employment multipliers. They relate changes in sales in the industry experiencing the direct effect to total changes in value added for the local economy. Value added includes employee compensation, proprietary income, other property type income, and indirect business taxes.

⁵ We use the IMPLAN PRO software licensed from MIG, Inc. and the 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, MIG, Inc., Stillwater, MN. (<http://www.implan.com>)

Table 9. Estimated IMPLAN Multipliers for California Nursery Industry

Type/Sector	Direct Effects	Indirect Effects	Induced Effects	Total Effects
OUTPUT (\$ million)				
Nursery	1.0000	0.1646	0.3407	1.5053
Retail	1.0000	0.0999	0.3760	1.4759
EMPLOYMENT (jobs/\$ million)				
Nursery	19.9723	2.1496	3.4478	25.5696
Retail	18.4669	1.0159	3.8046	23.2874
VALUE ADDED (\$ million)				
Nursery	0.8084	0.1029	0.2120	1.1232
Retail	0.8816	0.0626	0.2339	1.1781
LABOR INCOME (\$ million)				
Nursery	0.4752	0.0657	0.1318	0.6727
Retail	0.5551	0.0393	0.1455	0.7399

Source: Minnesota IMPLAN Group (MIG), Inc., Stillwater, MN, 2003.

Estimated Economic Impacts

The economic multipliers in Table 9 are combined with floral and nursery sales at the producer level and lawn, garden and floral retail gross margins to estimate total contributions of the industry to the California economy. Procedures and important assumptions used to estimate economic impacts follow. First, the direct effects multipliers of 1.0 for nursery and retail output are applied to the total 2011 wholesale value of California nursery products and gross margins for lawn and garden retailing. The total effects multiplier, which includes the indirect and induced output multipliers, is applied to the direct output to obtain total output. Second, the direct effects for employment, value added, and labor income are all derived from the direct output values.

Estimated total economic impacts of California flower and nursery production and lawn and garden retailing are shown in Table 10. Note that the direct output effects, from Table 4 and Table 8, total almost \$7.6 billion. The indirect and induced economic multiplier effects expand the total California output effect to just over \$11.29 billion. Based on reported input-output relationships, flower and nursery production generates a total of 84,089 jobs in California while lawn and garden retailing add another 100,113 jobs, for a combined total of 184,202 California jobs.⁵ The estimated payroll for the two sectors totaled over \$5.39 billion, with \$2.21 billion from floral and nursery production and over \$3.18 billion from lawn and garden retailing. Total value added for the two sectors was almost \$8.76 billion with over

⁵ The estimated number of jobs is based on average input-output relationships shown in Table 9.

Table 10. Estimated Direct and Total Economic Effects of California Flower and Nursery Production and Lawn and Garden Retailing, 2011.

Type/Sector	Direct Effects	Total Effects
OUTPUT (\$ million)		
Nursery	3,288.6414	4,950.3919
Retail	4,299.0300	6,344.9384
Total Output	7,587.6714	11,295.3303
JOBS (number)		
Nursery	65,682	84,089
Retail	79,390	100,113
Total Jobs	145,071	184,202
VALUE ADDED (\$ million)		
Nursery	2,658.5377	3,693.8020
Retail	3,790.0248	5,064.6872
Total Value Added	6,448.5626	8,758.4893
LABOR INCOME (\$ million)		
Nursery	1,562.7624	2,212.2691
Retail	2,386.3916	3,180.8523
Total Labor Income	3,949.1539	5,393.1214

\$3.69 billion from floral and nursery production and over \$5.06 billion from lawn and garden retailing. The difference between total effects and direct effects for each row in Table 10 is the sum of indirect and induced effects.

Total output and employment impacts of California flower and nursery production and lawn and garden retailing have been estimated for most years since 2001 (Carman, 2011 p. 21). Estimated total output effects were almost \$10.34 billion in 2001 and total employment, including direct and multiplier effects was estimated at 168,867 jobs. Estimated total output and jobs increased annually to a maximum of about \$13.33 billion and 217,557 jobs in 2007. With recession following the burst of the housing bubble in 2007, estimated total output and jobs dropped to \$10.37 billion and 169,899, respectively in 2009. A slow economic recovery, with 2011 total output and employment at \$11.29 billion and 184,202 jobs, respectively, is some 8.8 and 8.4 percent above the low output and jobs numbers observed in 2009.

CONCLUDING COMMENTS

Almost two decades of steady sales growth by the California nursery and floral industry and lawn and garden retailing sectors was interrupted by the economic recession. After peaking at a record \$3.98 billion wholesale value of production in 2007, total California floral and nursery production dropped to \$3.45 billion in 2009 and, further, to \$3.30 billion in 2010 and

\$3.29 billion in 2011. Estimated floral and nursery sales followed a similar pattern, peaking in 2007, reaching a low in 2010 and recovering slightly in 2011 (Figure 1). Decreasing floral and nursery sales while some other agricultural sectors increased sales resulted in the floral and nursery share of total California agricultural sales dropping from 12.2 percent in 2006 to a low of 7.8 percent in 2011.

The impact of the recession on retail sales was also dramatic, with California retail florist sales diving from just over \$1.2 billion in 2007 to less than \$450 million in 2010 before recovering slightly in 2011. Estimated retail sales for combined California retail florists and farm and garden supply stores were down over 31 percent from 2007 to 2011.

Data for the nursery and floral industries are typically reported separately. Annual California Agricultural Statistics reports ranked the nursery industry in second or third place among all California commodities, in terms of value of production, from 2001 through 2007, with the flower industry ranking from 7th to 10th place during the same time frame. The 2007 value of sales from the combined nursery and floral industries ranked second among all California agricultural products. However, in 2011, the nursery industry dropped to fifth among all California commodity industries and floriculture dropped to number 11. Combined sales of nursery and floral products dropped to fourth place following dairy, almonds and grapes. At the national level, California's nursery and flower industry leads the nation with Florida in a distant second place.

Nursery and flower production is located in 55 of California's 58 counties. As noted, nursery and flower production tends to be concentrated in coastal counties ranging from San Mateo County in the north to San Diego County in the south. Fifteen counties account for 86.60 percent of total production. Nursery and flower production was the number one agricultural product in terms of value of production in 9 counties, with values ranging from over \$1.09 billion in San Diego County to less than one-half million dollars in San Francisco. The location of many nursery and flower producers in the most urbanized areas of California is a distinguishing feature of the industry. These producers are close to many of their customers, helping them deliver quality product and minimize distribution costs.

The large, and economically important California nursery and flower production sector is accompanied by a large and growing retail sector. California is the largest single market for lawn and garden products in the United States, annually accounting for about 10 percent of total U.S. retail sales. The combined effects of nursery and flower production and lawn and garden retailing on the California economy are very large. The total economic impacts of California flower and nursery production and lawn and garden retailing were estimated to be almost \$11.3 billion in 2011. Based on reported input-output relationships, flower and nursery production generated an estimated total of 84,089 jobs in California while lawn and garden

retailing added another 100,113 jobs for a combined total of 184,202 California jobs. Because of the economic downturn, this was a loss of 33,355 jobs from the estimated 2007 total of 217,557. The estimated payroll for the two sectors totaled over \$5.39 billion, with \$2.21 billion from floral and nursery production and \$3.18 billion from lawn and garden retailing. Total value added for the two sectors was over \$8.75 billion with \$3.69 billion from floral and nursery production and over \$5.06 billion from lawn and garden retailing. Sales and employment are slowly recovering from recent lows.

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 and flower industries combined sales are exceeded only by the dairy, almond and grape industries. Nursery and flower production exceeds the output of many large, well-known, and world-class California agricultural industries, including for example, lettuce, cattle, strawberries, tomatoes, cotton, chickens, oranges, broccoli, carrots, walnuts, avocados, celery, melons and peaches. Despite the disproportionate impacts of the economic recession, almost \$.73 out of every \$10.00 of California's 2011 gross cash income from farming was from nursery and flower products. And, even with reduced employment, slightly more than one out of every hundred jobs in California during 2011 could be attributed to the direct and indirect impacts of California nursery production and retailing (California Employment Development Department).

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Appendix Table 1. Gross Value of California Nursery, Flower, and Foliage Production by County, 2004-2011.

County	2004	2005	2006	2007	2008	2009	2010	2011
	\$1,000							
Del Norte	14709	14277	16646	15468	15084	12085	11715	11769
Humboldt	35859	43461	49117	49117	49117	49415	44858	43396
Mendocino	3671	3770	3279	3584	3705	2900	3187	2105
Shasta	9995	32664	32296	34273	32435	32741	32104	19968
Siskiyou	22923	40461	54827	41485	74180	76210	31920	36147
Trinity	29	29	29	29	29	29	853	853
Lassen	6346	6475	9711	5359	7074	7109	10538	0
Modoc	25	25	50	50	50	50	50	50
Plumas	0	0	0	0	0	0	0	0
Alameda	17491	21065	20451	23130	19317	13679	11476	12147
Contra Costa	28341	24644	18497	11860	3479	2461	2627	2493
Lake	4124	3644	4318	5112	5774	3533	2961	793
Marin	663	689	445	643	922	1000	992	1005
Monterey	270209	276233	339225	342125	326105	294572	266121	260703
Napa	3965	3226	3557	6433	3348	2273	2467	2303
San Benito	26449	33553	33428	34452	36538	20413	18392	16902
San Francisco	574	574	627	670	484	373	444	483
San Luis Obispo	101156	101942	108066	107674	102300	93759	94708	96454
San Mateo	145209	139454	136021	139007	134843	125985	119328	111431
Santa Clara	104283	94917	94087	93468	96819	95588	96733	92384
Santa Cruz	73060	73780	80143	117816	107782	118528	118786	122598
Sonoma	28677	31447	27167	28811	28795	23644	22983	24538
Butte	10786	11099	19905	18840	30755	26756	23843	21734
Colusa	0	0	0	0	0	0	0	0
Glenn	5044	4622	5697	5588	5139	4897	4509	3524
Sacramento	35220	36544	36738	37677	31122	27494	28925	26457
Solano	43645	50018	47856	56611	43056	33499	23352	23630
Sutter	12140	11058	12737	9882	12061	11244	13309	16102
Tehama	1414	1787	2264	2585	2865	2998	2931	11103
Yolo	4715	6029	8133	7306	9298	9912	9432	13975
Yuba	0	0	0	124	22	10	15	12
Fresno	35067	38091	31110	39576	34255	46210	37478	35750
Kern	101850	105728	109330	105317	84822	63861	67405	61816
Kings	0	0	0	0	0	0	0	0
Madera	30861	34585	33718	34866	33820	26081	24445	19057
Merced	30354	33329	35421	29629	30006	38661	45855	41828
San Joaquin	137657	141473	138123	137259	85539	75844	76951	77370
Stanislaus	111272	71240	87351	99985	101207	96795	114363	85645
Tulare	69423	82260	88253	90185	85413	72747	64621	65717
Alpine	0	0	0	0	0	0	0	0
Amador	284	286	287	193	193	269	249	214
Calaveras	620	603	440	420	413	410	420	424
El Dorado	5133	4932	4822	4885	4080	3735	3999	3867
Inyo	2340	3104	3000	3200	3200	2285	1614	1112
Mariposa	150	96	82	71	80	64	62	59
Mono	0	0	0	0	0	0	0	0
Nevada	396	401	490	471	466	476	452	392
Placer	13227	13998	13579	10360	9241	6902	5049	8823
Sierra	0	0	0	0	0	0	0	0
Tuolumne	0	0	0	0	315	285	257	244
Imperial	0	0	0	2070	3076	3076	4146	4484
Los Angeles	193691	181145	192460	174440	137967	119903	103891	104409
Orange	211439	240610	214946	187152	164515	126317	90043	79117
Riverside	211271	229210	270993	272326	231904	206500	169342	200155
San Bernardino	49161	43837	43797	47506	35263	26147	28660	35176
San Diego	972858	990900	991255	1042461	1042704	1054314	1107558	1092917
Santa Barbara	183644	175820	178616	182035	182467	176658	178116	185024
Ventura	287877	265412	316346	341635	349987	234063	227405	216010
Total	3659297	3724548	3919736	4005216	3776114	3474489	3351939	3304667

Source: Annual Summary of California County Agricultural Commissioner's Reports.

Appendix Table 2. Population, Value of Nursery and Floral Production, and Number of Greenhouse, Nursery, and Floriculture Producers in California by County.

County	Population Jan. 1, 2013	2011 Value of Nursery Product 1,000 dollars	No. of Farms 2007	County	Population Jan. 1, 2013	2011 Value of Nursery Product 1,000 dollars	No. of Farms 2007
Alameda	1,548,681	12,147	31	Orange	3,081,804	79,117	101
Alpine	1,087	0	0	Placer	357,463	8,823	81
Amador	36,741	214	7	Plumas	19,643	0	6
Butte	221,485	21,734	52	Riverside	2,255,059	200,155	233
Calaveras	44,932	424	18	Sacramento	1,445,806	26,457	40
Colusa	21,674	0	3	San Benito	56,669	16,902	15
Contra Costa	1,074,702	2,493	26	San Bernardino	2,076,274	35,176	114
Del Norte	28,380	11,769	9	San Diego	3,150,178	1,092,917	793
El Dorado	182,286	3,867	105	San Francisco	825,111	483	6
Fresno	952,166	35,750	83	San Joaquin	698,414	77,370	44
Glenn	28,349	3,524	6	San Luis Obispo	272,177	96,454	99
Humboldt	135,209	43,396	76	San Mateo	735,678	111,431	74
Imperial	180,061	4,484	12	Santa Barbara	429,200	185,024	119
Inyo	18,573	1,112	3	Santa Clara	1,842,254	92,384	108
Kern	857,882	61,816	52	Santa Cruz	266,662	122,598	122
Kings	152,007	0	7	Shasta	178,601	19,968	35
Lake	64,531	793	22	Sierra	3,166	0	0
Lassen	33,422	0	6	Siskiyou	44,796	36,147	19
Los Angeles	9,958,091	104,409	247	Solano	418,387	23,630	32
Madera	152,711	19,057	17	Sonoma	490,423	24,538	153
Marin	254,007	1,005	10	Stanislaus	524,124	95,645	46
Mariposa	18,026	59	1	Sutter	95,851	16,102	9
Mendocino	88,291	2,105	73	Tehama	63,772	11,103	10
Merced	262,478	41,828	14	Trinity	13,443	853	3
Modoc	9,522	50	0	Tulare	455,599	65,717	46
Mono	14,493	0	2	Tuolumne	54,360	244	12
Monterey	421,494	260,703	116	Ventura	835,436	216,010	151
Napa	138,383	2,303	17	Yolo	205,999	13,975	12
Nevada	97,019	392	44	Yuba	73,439	12	7
STATE TOTAL	37,966,471	3,304,669	3,549				

Source: Population data are from State of California, Department of Finance, Report *E-1, Population Estimates for Cities, Counties and the State, January 1, 2012 and 2013*. Sacramento, CA, May 1, 2013. Nursery and floral production from California Agricultural Statistics Service, *Summary of County Agricultural Commissioners' Reports*, 2011, December 17, 2012. Number of greenhouse, nursery and floriculture producers from USDA, NASS, *Census of Agriculture 2007, California State and County Data*, Vol. 1, Geographic Area Series, Part 5, February 2009.

Appendix Table 3. Wholesale Value of California Floral and Nursery Products by Major Categories, 2004/2005 through 2007/2008.

Floral Products	2004/2005 Value	2005/2006 Value	2006/2007 Value	2007/2008 Value
Cut Flowers and Cut Greens	\$484,151,000	\$460,419,100	508,273,800	505,036,000
Flower Seeds	7,556,100	5,861,800	5,954,600	7,932,100
Christmas Trees	7,918,125	7,506,800	7,234,100	6,547,080
Floral Products Total	\$499,625,225	\$473,787,700	521,462,500	519,515,180
Nursery Products				
Potted Plants and Flowering Foliage	\$612,802,500	\$658,588,100	665,903,800	677,819,500
Bulbs, Corm, Roots and Tubers	11,829,800	8,329,600	9,089,800	10,455,900
Flowering Propagative Materials	105,046,600	68,870,200	57,930,900	61,011,800
Bedding Plants	492,449,200	453,664,600	454,219,700	438,601,600
Rose Plants	45,353,000	56,251,000	38,982,000	45,703,700
Woody, Deciduous and Evergreen Ornamentals	1,035,597,600	1,092,487,300	1,208,605,100	1,239,918,600
Herbaceous Perennials	42,904,500	41,752,200	41,576,600	46,134,900
Turf and Sod	80,876,900	76,965,800	87,844,800	124,707,600
Nursery Stock Other Than Ornamentals	732,811,240	763,396,600	810,578,500	817,324,400
Nursery Products Total	\$3,159,671,340	\$3,220,305,400	3,374,731,200	3,461,678,000
Grand Total	\$3,659,296,565	\$3,694,093,100	3,896,193,700	3,981,193,180

Appendix Table 4.
The IMPLAN System

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

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, 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.