

California Continues to Lead Nation in Nursery and Floral Production

by Hoy Carman - Retired, University of California, Davis

In 2005-06*, the California nursery industry increased to another record high in California farm value—the combined value of floral and nursery production totaled almost \$3.79 billion—despite problems caused by shipping restrictions due to pests and diseases (glassywinged sharpshooter and *Phytophthora ramorum*), increased competition from imported flowers, the impact of increased energy costs on production and transportation, and adverse spring and summer weather. The USDA Economic Research Service lists California's 2005 market share for nursery and floriculture crops at 21.2 percent of the United States total,

ranking California first in the nation. Seven of eleven counties in California with over \$100 million in nursery and floral production increased 2005 value of production over the previous year. Based on reported input-output relationships, flower and nursery production generates a total of 94,689 jobs in California.

Value Within California

The California nursery and floriculture industry has grown significantly over time, both in relation to other states and to the rest of California agriculture.

California Continues to Lead cont. on page 2

Just a Taste of the Fire Effects in Northern San Diego County

by James A. Bethke - UCCoperative Extension, San Diego County

I recently finished writing an article for *CORF News* where I talk about the serious water issues facing San Diego County, yet it is ironic that I sit here during one of the most serious fire disasters in San Diego history. I live close, but I cannot possibly empathize with those that live in San Diego County proper. It has affected just about everyone I know, from growers and co-workers to the teachers that teach my children. One large field-grown ornamental producer on a hillside close to my

Just a Taste cont. on page 11

Growers Share How Marketing Strategies Have Changed

by Julie P. Newman - UCCoperative Extension, Ventura County
James A. Bethke - UCCoperative Extension, San Diego County
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“What changes have you made to your marketing plan in the last ten years? What has had the greatest impact?” These questions were asked of several growers recently. Their responses indicate that the industry has changed significantly over the past 10 years, and successful operations have changed their marketing strategies to remain competitive.

Marketing Strategies cont. on page 15

Editor's Note:

This issue of CORF News focuses on the floriculture and nursery industry's economic status and marketing. The state-wide economic picture is presented in a feature story, and the regional reports provide local economic information. The fires in Southern California will certainly take a bite out of this year's overall revenues, just as the freezes last winter did. In this issue, Farm Advisor Jim Bethke reports on the fire devastation, as it unfurled around him. During tough times, it is especially important to review your marketing plan and make appropriate changes. The best way to fight increased production costs is to increase revenue. Be sure to check out our feature story, in which savvy growers share successful sales ventures and marketing tips. Other ideas can be found in our regional reports, and by visiting the marketing websites provided by Don Merhaut.

-Julie Newman, Acting Editor CORF News

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California's farm value of combined floral and nursery production grew from \$1.90 billion in 1992-93 to \$3.79 billion in 2005-06 (an overall increase of almost double). At the same time, the nursery and floral products share of total California agricultural output grew from 8.7 percent to 9.8 percent. With floral and nursery product sales combined, the industry ranks second among all California agricultural products.

United States Top 5 Nursery, Flower and Foliage Producing States, 2004-05 vs. 2005-06

Top 5 States	2004 Grower Cash Receipts	2004 % of U.S.	2005 Grower Cash Receipts	2005 % of U.S.
California	\$3,328,147,000	21.2	\$3,448,470,000	21.3
Florida	1,628,672,000	10.4	1,879,038,000	11.6
Texas	1,388,443,000	8.8	1,323,040,000	8.2
Oregon	951,452,000	6.1	979,943,000	6.0
North Carolina	932,871,000	5.9	975,142,000	6.0
TOTAL TOP STATES	\$8,229,585,000	52.4%	\$8,605,633,000	53.1%

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. There were 11 counties with over \$100 million in nursery, flower and foliage production in 2005. Nine of the 15 largest producing counties border the Pacific Ocean, and Santa Clara County has a coastal type climate. Note that Kern and San Joaquin counties are the only Central Valley counties with production of over \$100 million in 2005.

San Diego County dominates the industry with almost 26.6 percent of total state production. The next five counties: Monterey, Ventura, Orange, Riverside and Los Angeles, combine for 32 percent of total California production. The remaining nine of the top 15 counties account for 26.5 percent of production. The 11 counties with production over \$100 million, accounted for over \$2.85 billion (76.46%) of California's 2005 nursery, flower and foliage production. There were four counties: Santa Clara, Tulare, Santa Cruz and Stanislaus, with nursery, flower and foliage production in the range of \$50 to \$100 million. They accounted for 8.65 percent

Wholesale Value of California Nursery Products by Major Categories, 2004-05 vs. 2005-06

Floral Products	2004-05 Value	2005-06 Value
Cut Flowers and Cut Green	484,151,000	460,457,400
Christmas Trees	7,918,125	7,506,800
Flower Seeds	7,556,100	5,861,800
Floral Products Total	\$499,625,225	\$473,826,000
Nursery Products	2004-05 Value	2005-06 Value
Woody, Deciduous and Evergreen Ornamentals	1,035,597,600	1,100,287,300
Nursery Stock Other Ornamentals	732,811,240	763,396,600
Potted Plants and Flowering Foliage	612,802,500	658,588,100
Bedding Plants	492,449,200	454,909,600
Turf and Sod	80,876,900	76,965,800
Flowering Propagative Materials	105,046,600	68,870,200
Rose Plants	45,353,000	56,251,000
Herbaceous Perennials	42,904,500	41,752,200
Bulbs, Corm, Roots and Tubers	11,829,800	8,329,600
Nursery Products Total	\$3,159,671,340	\$3,229,350,400
GRAND TOTAL	\$3,659,296,565	\$3,703,176,400

of total 2005 production. Overall, 15 counties produced 85.1 percent of California's total 2005 nursery, flower and foliage crops. Among these top 15 counties, nursery and floral crops was number one in value of production in San Diego, Orange, Los Angeles, Santa Clara and San Mateo

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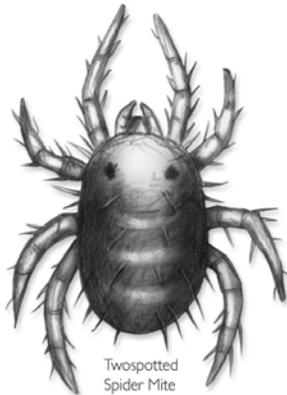
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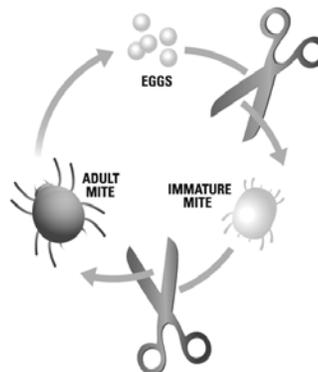
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California's Top 15 Nursery, Flower and Foliage Producing Counties for 2004-05 vs. 2005-06

Top 15 Producing Counties	2004 Value of Production (\$1,000)	2005 Value of Production (\$1,000)	2005 Share of State Total (%)	2005 Population (people)
SAN DIEGO	972,858	990,900	26.6	3,084,634
MONTEREY	270,209	276,233	7.42	423,478
VENTURA	287,877	265,412	7.13	821,698
ORANGE	211,439	240,610	6.46	3,083,894
RIVERSIDE	211,271	229,210	6.15	2,004,608
LOS ANGELES	193,691	181,145	4.86	10,292,723
SANTA BARBARA	183,644	175,820	4.72	421,656
SAN JOAQUIN	137,657	141,473	3.80	674,323
SAN MATEO	145,209	139,454	3.74	729,366
KERN	101,850	105,728	2.84	796,331
SAN LUIS OBISPO	101,156	101,942	2.74	263,824
SANTA CLARA	104,283	94,917	2.55	1,791,869
TULARE	69,423	82,260	2.21	425,600
SANTA CRUZ	73,060	73,780	1.98	263,385
STANISLAUS	111,272	71,240	1.91	519,276
Top 15 Producing Counties Total	\$3,174,899	\$3,170,124	85.11%	25,596,665 people
Rest of State	\$484,566	\$555,424	14.91%	11,847,720 people

counties. There were nine California counties with population exceeding 1 million persons in 2005. Five of these counties (Los Angeles, Orange, San Diego, Santa Clara, and Riverside) were among the largest nursery and flower producers. The 15 largest nursery and flower producing counties accounted for almost 68.4 percent of California's 2005 population.

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 crops are listed as the number one commodity in terms of gross value of production for five counties that are not included in the top 15. These counties include Alameda (\$21.07 mil), Contra Costa (\$24.64 mil), Del Norte (\$14.28 mil), Humboldt (\$43.46 mil) and Solano (\$50.02 mil).

Overall State Impact of Production and Retailing

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.

Overall, nursery and floral production and lawn and garden retailing contributed over \$12.217 billion to 2005 California output and was responsible for 199,507 jobs. This was 1.35 percent of total California employment in 2005. The estimated payroll for the two sectors totaled over \$5.82 billion. Total value added for the two sectors was over \$9.46 billion. Almost \$.98 out of every \$10.00 of California agricultural gross sales was from nursery and flower products. More than one out of every hundred jobs in California during 2005 could be attributed to the direct and indirect impacts of California nursery production and retailing. ■

*Editor's note: 2006-2007 County Agricultural Commissioner crop report data is not included in this analysis. Further economic information can be found in the USDA's Economic Research report *Background Statistics: California's Cut Flower Industry* at <http://www.ers.usda.gov/News/CutFlowers.htm> and the *2007 Floriculture and Nursery Yearbook Summary Report* at <http://www.ers.usda.gov/Publications/Flo/>.

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An Overview of RMA Nursery Crop Insurance

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Nursery producers constantly balance many risks related to production, employees, the market, climate, and natural disasters. Crop insurance is one risk management option that growers may want to consider in conjunction with other risk management strategies. RMA (Risk Management Agency) nursery crop insurance is available to wholesale nurseries that generate 50% or more of their income through marketing of nursery plants. Between 2003 and 2006, the number of RMA crop insurance policies in California ranged from 210 to 233 with the majority of policies purchased for catastrophic coverage. Only 11 to 21 policies each year purchased the higher coverage through the buy-up option.

Nursery crop insurance is subsidized by the federal government and subsidies cover 100% of the total premium at the 27.5% coverage level under a catastrophic coverage plan for a \$100 administrative fee. Growers can also elect to buy-up the coverage level but premium rates and subsidies will vary. Coverage levels for insurable crops are available from 50% to 75% of the plant inventory value and premium subsidies range from 65% for the lowest coverage level to 55% for the highest coverage level. Both the basic catastrophic or the buy-up plans require a one time per year \$100 administrative fee from the producer. The eligible plant list contains more than 20,000 plants which can be grown from liners with a 1-inch minimum diameter up to containers with a capacity of greater than 100 gallons, as well as field-grown plants.

Starting in 2007, the crop year for insurance purposes starts June 1 and ends on May 31.

The insured crop and plants have to be grown according to acceptable production practices for which they are insured. A wholesale catalog or price list with the issue date must be available. At the time an application for crop insurance is submitted, a plant inventory value report must be submitted. Causes of loss covered by insurance are adverse weather conditions such as wind, hurricane, and freeze (provided adequate freeze protection measures were taken). Failure of irrigation water supply, delay in marketability of plants, fire, and wildlife damage are covered as well under the specific conditions listed in the contract. For specific information on RMA crop insurance policies and to purchase a policy, an agent should be consulted. The RMA website includes agent locators by state, city and zip code.

More information on the federal nursery crop insurance program can be found on the Risk Management Agency website: <http://www.rma.usda.gov>

How Does this Program Differ from the National Crop Disaster Program?

Eligibility for the Crop Disaster Program requires that a producer has crop insurance coverage or has signed up through the Farm Service Agency for the noninsured crop disaster assistance program for the year the loss occurred. Details of this program are found at <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topic=landing>. ■

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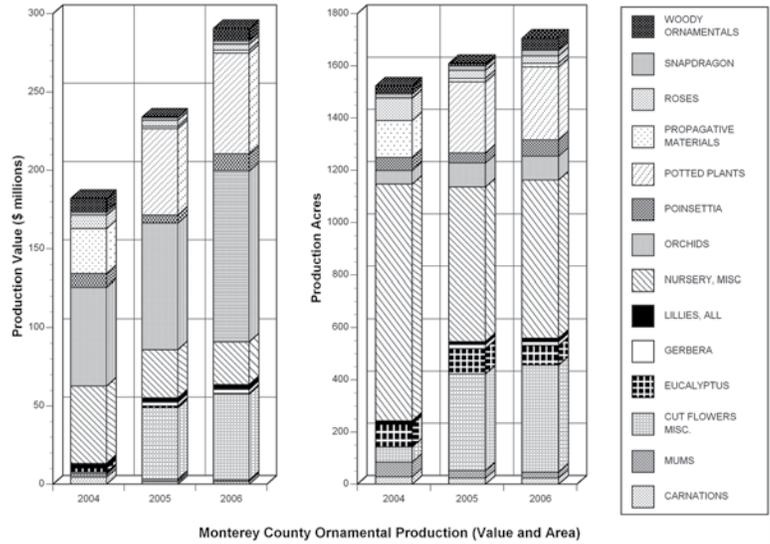
Regional Report

SANTA CRUZ & MONTEREY COUNTIES

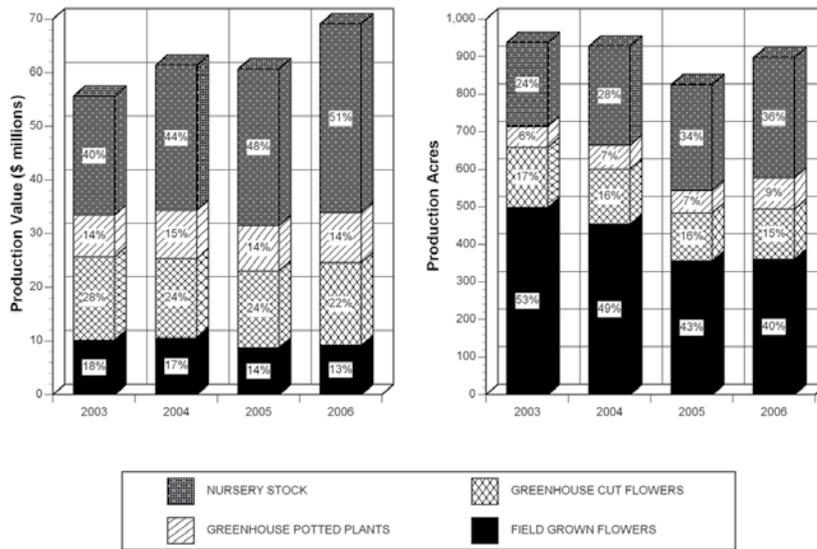
Ornamental Crop Trends

by Steve Tjosvold - UC Cooperative Extension, Santa Cruz and Monterey Counties

For this regional report on ornamental crop trends, I have taken the Agricultural Commissioners' most recent annual crop reports for Santa Cruz and Monterey Counties and summarized the production area and dollar value data for each county. (Vegetable transplants grown in greenhouses are a significant part of nursery production in Santa Cruz and Monterey counties, with approximately \$11 and \$47 million in production respectively, but that data was not included in these charts). For Monterey County charts, I grouped similar crops into larger, less-specific, groups when an individual crop was valued at less than \$1,000,000. There were significant changes in the way nursery commodities were grouped and reported in Monterey County since 2003, so I did not include data for 2003 from Monterey County. In addition, there were other inconsistencies in how some commodities were reported between 2004 and 2005 for Monterey County. In general, however, several trends can be seen with this data.



Santa Cruz County Ornamental Production (Value and Area)



In summary, the ornamental industry in Santa Cruz County, as a whole, is relatively stable. Field cut flower production continues to decline moderately, greenhouse cut flower and pot plant production is stable, and nursery stock production is increasing moderately. In Monterey County, overall production value and acreage is increasing moderately. Many of the main stay crops of a decade ago—carnations, mums, and roses—are stable but just discernable in these charts where they are compared to the wide range of other significant crops.

Snapdragons, gerbera, lilies, and eucalyptus crops are worth over \$1 million. Poinsettia and orchids are important potted plant crops in Monterey County. Potted orchids have increased in per pot value during the last four years. For more information, the crop reports can be obtained at the Commissioners' websites: <http://www.agdept.com/> and <http://www.co.monterey.ca.us/ag/>. ■

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Nursery Crop Value in Ventura and Santa Barbara Counties

by Julie P. Newman - UC Cooperative Extension, Ventura and Santa Barbara Counties

Ventura County Crop Value

According to the latest Ventura County Agricultural Commissioner's Crop Report, the estimated gross value of floriculture and nursery crops for 2005-2006 is \$316,346,000. Production continues to show moderate growth, with an increase over the previous year of 16%. Woody ornamentals remain the largest crop category at \$143,788,000. The second largest category is cut flowers, at \$52,456,000. Other important nursery categories in order of economic importance are bedding plants, groundcover and turf; potted plants; fruit and nut trees; and herbaceous perennials. The top cut flower crops are lilies and iris, followed by stock, larkspur, delphinium and snapdragons. There is a total of 19,247,720 square feet



Photo by: Julie Newman

of greenhouses and 4,617 field acres. Although the data for the 2006-2007 crop report are still being collected, it is anticipated that this year's annual gross value of nursery crops will be down from 2006 due to an estimated loss of \$85.4 million caused by the January 2007 freeze.

Santa Barbara County Crop Value

The Santa Barbara County Agricultural Commissioner's Crop Report places the current value of floriculture and nursery crops at \$178,615,940. Production held fairly steady over last year with only a 2% increase in growth. Cut flowers continue to be the most important crop category, worth over \$95 million. This is followed by potted plants (over \$35 million), and various nursery products which include woody ornamentals (over \$41 million). The top individual crops are cut gerberas and lilies (each worth over \$18 million), followed by potted orchids (over \$9 million), cut chrysanthemums (over \$8 million), and cut roses (over \$6 million). There is a total of 20,602,495 square feet of greenhouses and 1,928 field acres.

Comments

One limitation of the annual crop reports is that the figures are not adjusted for inflation, so comparing this year's numbers to those from last year is not particularly meaningful. When gross value figures have been adjusted for total

California agricultural production, the otherwise optimistic progression of ever-higher numbers that is reported evaporates, revealing an industry that's been stagnant since 1979. It would be useful to have a report with inflation-adjusted crop revenue figures for the nursery industry. Another limitation is that

Nursery Crop Value cont. on page 9



Photo by Jack Kelly Clark, UC DANR Communication Services

Observations

Marketing Strategies for Carpinteria Cut Flowers

In 2005, almost three-quarters of domestically grown cut flowers came from California and approximately 40% of California flowers came from the Carpinteria Valley. In spite of this optimistic statistic, growing cut flowers in Carpinteria and maintaining a profit has been difficult. Foreign competitors are gobbling up markets because they can grow products cheaply due to lower labor and operating costs. As a result, from 1972 to 2006, the amount of flowers that were produced in the US shrunk nearly 70%. Add increased energy and labor costs, farm worker housing shortages, as well as county government regulations that have restricted new greenhouse development to this gloomy statistic, and you could have a recipe for disaster in this leading cut flower production area.

But growers in Carpinteria are coping. With the drastic shrinkage in wholesale markets, some have switched directions and are now growing for mass markets. Others are sticking with high quality and developing niche markets to set them apart from the imports.

A trend that some growers are following reflects growing sales in the health food industry. Customers are paying more for organic food and for products produced in an eco-friendly way, so maybe they will do the same for cut flowers. Some Carpinteria growers are using the eco-label program Veri-Flora that certifies "best practices" by an independent agency. One crop that is certified by some growers is gerbera, which is produced more in Carpinteria than anywhere else in the US. Carpinteria growers produce gerberas using biological control methods and other eco-friendly techniques, thus making it a natural for eco-labeling.



Regional Report

SAN DIEGO COUNTY

Production of Fresh Market Protea: Costs and Returns per Acre

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It's not often that a group of producers come together to share their costs and returns in the production of a commodity. Recently, however, the California Protea Association met with us several times to determine the actual costs of production with the ultimate goal of forming a collaboration or cooperative. The study, of course, requires a number of assumptions and the caveat that cultural practices, materials, and protea production costs vary by grower and region, and differences can be significant. It requires the development of a hypothetical farm operation, production practices, and overhead that is based on actual numbers from all of the cooperators.

The study is intended to be used as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The cultural practices and inputs described in the study are based on production procedures considered typical for this crop and area, and will not apply to every farm or every production year, and the assumptions pertain to sample costs to establish and produce protea in the South Coast Region - San Diego County. Sample costs for labor, materials, equipment and custom services are based on current figures.

This study assumes a hillside farm operation size of 20 contiguous acres owned and operated by the grower. The plantings will most likely be on slopes greater than 15%. Protea is planted on 10 of the 20 acres, and it is very common

for other ornamental crops to be grown on eight of the acres. Roads or open space and buildings are on the remaining two acres.

The following inputs and costs are well described in the study and tables and figures are available for each cost value.

Establishment of operating inputs

- Land prep, plants, fertilization, plant establishment, irrigation, pruning, pest management (weeds, disease, insects and molluscs), and harvesting.

Production operating inputs

- Pruning, replants, irrigation, fertilization, pest management, and harvest, cooling costs, packing, and marketing.

Labor, equipment operating costs, interest on operating capital, and risk.

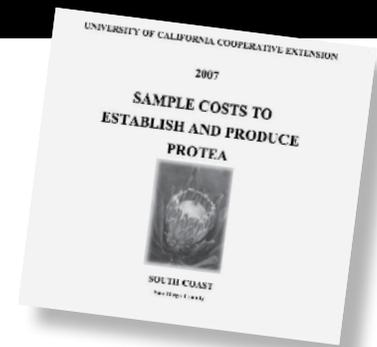
Cash overhead

- Property taxes, insurance, office expense, sanitation services, and supervisor/management salaries.

Non-Cash overhead

- Capital recovery costs, salvage value, capital recovery factor, interest rate, irrigation system, buildings, land, establishment costs, shop/field tools/equipment, and other equipment.

For this study, based on current grower input, their average seasonal returns (less 30% for packing, shipping and marketing costs taken



by wholesalers) is rounded to \$1.20 per flower stem providing an estimated gross return of \$30,000 per producing acre. Prices vary by genus and species of protea from \$0.42 to \$1.93 per stem. Average for the Protea species is \$1.18 per stem.

We hardily thank the participating growers, industry representatives, and businesses associated with the protea industry for their cooperation and contributions to this study.

Sample cost of production studies for protea as well as many other commodities can be downloaded at the following web site:
<http://coststudies.ucdavis.edu>

For more information about production and other information on protea, go to the following web site:
<http://www.californiaprotea.com> ■

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San Diego County Observations on page 9

Observations

“WATER, WATER EVERYWHERE, NOT A DROP TO DRINK”

S.T. COLERIDGE

by James A. Bethke - UC Cooperative Extension, San Diego County

My title usually refers to the ocean where there is an abundance of water, but not a drop to drink. Unfortunately, there is water available to San Diegans, but due mostly to law suits, that water supply is about to come to a halt for a while, at least 6 months during the delta smelt breeding period. The threat to agriculture in the county has been brewing for a while now, but it is about to come to fruition. The San Diego County Farm Bureau has been deep in discussions with the Municipal Water District, but the fact is that rather than emphasize water use by the public and on landscape, they have decided to place a mandatory 30% reduction in water use on the agricultural industry. Growers have been urged to become very familiar with their water meters because the Water Districts are using water use recorded in the past as a baseline. It is expected that growers would then reduce the amount of water used from baseline by 30%, and if they go over that amount, they will pay, as they say, through the nose. In addition, if growers are consistently going over their allotment in some districts, a restriction flow meter will be installed on their system. That's dramatic and growers are coming up with some novel ideas on how to avoid the penalties. One saving grace is that if growers stay under their use limits, the water saved can be stored as credits, and the credits can then be used during months where the needs are greater.



the cost of production is not reported. Considering how much labor, water and land costs have increased in real dollars over the years, plus the added costs associated with increasing environmental regulations, the actual profits for many growers have been shrinking, not growing. In fact, when I recently queried growers about the actual profits generated from ornamental commodities, it appears that some crops, such as many field cut flower crops, generate little or no profit.

Another downward trend that is not reflected in the crop reports is that a number of the operators of small nurseries and the less business-savvy growers have gone out of production in recent years. Though the number of nursery operations in Ventura and Santa Barbara counties may not be shrinking, there are fewer owners and operators, with more growers becoming owners of multiple operations. ■

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Get Cultured

Key Cultural Practices Associated with Marketing of Containerized Plants and Cut Flowers and Foliage

by Donald J. Merhaut - Department of Botany and Plant Sciences, University of California, Riverside

Marketing of plants has become an exciting business, with new varieties of plants, flowers and foliage being introduced every season and new packaging and pots that are as attractive as the plants. However, the most frustrating dilemmas with consumers are the quick death of recently purchased plants or the short shelf-life of the cut flowers and foliage. Likewise, retailers may not have the experience and/or the time to care for the plants' needs while the plants are sitting on displays. If your product begins to senesce at the retail center or shortly after purchase, chances are the retailer or consumer will not purchase the same plant or cut flowers again.

When considering new marketing techniques, remember that the shelf-life of containerized plants and cut flowers and foliage can be extended by observing several cultural practices during plant production.

1. FLOWER VARIETY - Carefully choose varieties of flowers which have better post-harvest characteristics. Some varieties of flowers have been developed that have a longer shelf-life or better quality after being harvested. For example, there are sunflower varieties which do not shed pollen. Similarly, some flower varieties are more resistant to various post-harvest diseases which may affect certain flower types.

2. POTTED PLANT TYPE - Many types of potted plants are being marketed in small decorative pots for use in small spaces such as office cubicles or home offices. Choose plant types that are more drought tolerant, such as *Kalanchoe*. During the past few years, cultivars of *Kalanchoe* have become available in a variety of colors for all holidays including oranges for Halloween, reds for Christmas and Valentine's Day, and pastel shades for Easter. These flowers will last for a couple of weeks, and minimal watering is required. Other low water use plants such as bromeliads, *Dykias*, cactus, and other succulents are marketed in small decorative containers for indoor culture.

3. CONTAINER TYPE - Containers are available in a variety of shapes, colors and sizes. While containers should be aesthetically appealing to the consumer, keep in mind the cultural needs of the plant.

- a. **Drainage** - Roots require aeration; therefore, drainage holes are essential. Consider a pot-in-pot approach to production-marketing whereby a standard container is used to grow the plant and then the plant and container are placed in a decorative pot. In this way, the marketed decorative pot does not get dirty during the growing process. The consumer can take the potted plant out of the decorative container to water, then place the plant back into the decorative container after allowing the excess water to drain.

- b. **Size** - Make sure that the container size is suitable for the roots. Some plants have shallow fibrous roots, while other plants, such as *Ariocarpus*, have deep fleshy roots, which require deeper containers.

Also, remember that with smaller root systems, more frequent watering may be necessary.

4. 'COLOR BOWLS' - If a mixture of plants is being done for 'color bowls', be sure that the plants are compatible with regard to cultural requirements such as water and light.

5. CAUTION - Proper labeling, bar codes and SKU numbers can be a matter of life and death. Proper packaging also means correct names on labels accompanied with correct bar codes and SKU numbers. This is not only important for correct pricing, but also correct plant identification. Consumers and retailers need correct information for proper cultural practices. More importantly, some plants are poisonous to people and pets. For example, if a consumer purchases an *Oleander* that is incorrectly labeled as *Ligustrum*, and the homeowner plants the oleander in their backyard, and their dog Fido chews on the plant and dies, the wholesaler as well as the retailer may be liable for the death of this pet.

6. SUBSTRATE TYPE - Select a substrate that has the physical and chemical properties suitable for the plant being grown. Substrates which retain moisture, but provide proper aeration are ideal. The less watering required by the retailer and consumer will be preferred.

7. 'HARDENING OFF' OF PLANTS - Ideally, plants should be 'hardened off' before shipping. With containerized plants, active, fleshy new growth will require more frequent irrigation during retail displays. Young vegetative growth is also more likely to be damaged during shipping. In addition, the young vegetation of many plants is usually light green in color, which a consumer may misinterpret as not healthy. A good example of this is privet (*Ligustrum*), which has rich dark green mature foliage, but light green leaves during the early stages of a vegetative flush.

8. CORRECT STAGE OF DEVELOPMENT OF INFLORESCENCES - Some flowers should be harvested at a certain stage of opening. Some flowers, like most roses, are harvested in an unopened stage. This is easier for shipping, and the flowers will open and last longer after purchase.

By following these protocols, your nursery products will have consumers and retailers coming back for more. ■

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home has lost nearly everything, and I'm confident that others I have not been able to get a hold of have lost all as well. There are too many to speak about. I called one grower today that I thought for sure would be gone because his facility and home are on the top of a hillside in an evacuated area. They were untouched. Why? These fires are completely unpredictable. Some growers that are not threatened by the fire at the moment have power outages, which is affecting the heating and cooling of their greenhouses and in some cases it has shut down the pumps of those that use well water. (City water pressure has been low for obvious reasons.) One grower I called could not get to his facility because the entire city of Fallbrook was evacuated, and he was not sure of his farm's disposition.



Photo by: James A. Bethke

Gary Bender, UCCE San Diego County Farm Advisor for Fruit Trees and Exotic Tropicals, was evacuated from his home with no real idea when he can return. I have not been able to contact others, and I am especially worried about one that owns horses in a bad fire-prone area. Even the CDFA representatives I have worked with on the Diaprepes Project have been evacuated. Jan Hall from Paul Ecke Poinsettias was evacuated from her home and then evacuated from Ecke Ranch after moving there for protection. Ecke Ranch was also used as an evacuation site for horses since they have stables available. (I'm not sure if they remained after the evacuation order came in.) In addition, like others, Ecke's has isolated their computer servers so that they cannot be damaged due to power outages and fluctuations, and Olive Hill Greenhouses in Fallbrook have had to divert their phone business to another location due to the evacuations in Fallbrook. Another grower in Fallbrook snuck back in, but is afraid to leave because armed National Guard are now protecting all roads leading into the area. You can imagine that they are probably there to protect against looters, etc.

At my home, we are being showered with ash and the air has been filled with smoke now that the winds have changed. We are able to watch the flames at night of one of the fires that is going up and down the hillsides on Mount Palomar. From experience, I know that it will take many days before all of the fires have been extinguished, which means that many more facilities will be threatened. As I write, the radio has just announced a new area that has just been evacuated, and it is an area where I have cooperated with hundreds of acres of eucalyptus foliage growers on the Chrysophtharta beetle studies. The local schools are closed because of the air quality, and two suspicious fires were started within about two miles of my home at the base of the hillsides here in the Elsinore Valley. A teacher of my children is sleeping in her classroom because she was evacuated from Fallbrook. Another teacher who teaches with my wife has lost his home. As I said, it has affected just about everyone down here in one way or another.

It seems that they are evacuating liberally, but that may be why there is so little loss of life. Hoorah, to those who are fighting this disaster. That big firefighting seaplane from Canada (http://www.pe.com/localnews/inland/stories/PE_News_Local_S_mars27.3ee39ec.html) is going over my house back and forth from Lake Elsinore to the San Diego Fires. It's quite a sight.

When I know more and can relay that information, I will get it out. ■

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Campus News



UC RIVERSIDE

We are very pleased to announce that Jim Bethke, staff research associate at UC Riverside, has joined the Department of Agriculture and Natural Resources as floriculture and nursery crop production farm advisor for San

Diego and southern Riverside counties, as of September 1. For the past 22 years, Jim conducted research in UC Riverside's Department of Entomology, where he earned his bachelor's and master's degrees. More recently he filled in for the vacant farm advisor position in San Diego County, formerly occupied by Karen Robb, while also maintaining his position at UC Riverside.

Jim has worked with many UC researchers, CE specialists, advisors, the ornamental industry and growers during his career at UC Riverside. Most of his work has dealt with understanding and solving insect problems in ornamental plants. He is widely recognized for his work on the national sweet potato whitefly Q-Biotype and its implications for the nursery and ornamental industries on a national level. Recently, he has been a leader in the efforts to eradicate the Diaprepes root weevil, a new invasive insect in Southern California. He can be reached at jabethke@ucdavis.edu or (760) 752-4715 at the UCCE San Diego North County office in San Marcos.

Research Updates

UC DAVIS

Pacific Area Wide Methyl Bromide Alternatives Program (PAW-MBA) for Ornamental Crops

by Susanne Klose - University of California, Davis
 Jim Gerik - USDA, ARS, Parlier
 Husein Ajwa - University of California, Davis
 and Cheryl Wilen - UCCE, San Diego County

Producers of cut flowers and ornamental bulbs are highly dependent on pre-plant soil fumigation with methyl bromide/chloropicrin (MB/Pic) for profitable production. Of the total MB consumption by this commodity, about 2/3 are used in open field operations and 1/3 under cover (mainly greenhouses). Alternative fumigants that have shown potential to replace MB/Pic include chloropicrin,

1,3-dichloropropene, metam sodium, and, previously not registered, iodomethane, applied alone or in combination by shank or drip injection. In October 2007, iodomethane (trade name Midas®) received a one-year registration under highly restrictive conditions across the US, except in California. The use of virtually impermeable film (VIF) appeared to further enhance the efficacy of alternative fumigants on soil-borne pests and reduce fumigant emissions. Although some alternative fumigants in combination with novel soil sealing techniques have shown similar efficacy as MB/Pic in some situations, these alternative systems may not be feasible for all species due to the complexity and diversity of this commodity, and the on-farm and greenhouse viability of these systems for each of the major species of ornamentals grown in California remains to be demonstrated. Therefore, a five-year demonstration and educational outreach pest management program, funded by the USDA, dedicated to MB alternatives and use optimization was initiated in order to facilitate stable adoptions of MB alternatives by the cut flower and ornamental industries. The viability of minimum rates of drip- and shank-applied alternative fumigants under improved application and sealing methods are currently tested at three locations in coastal California for calla lily, *Gladiolus* and *Iris* production systems. Future trials will focus on MB alternatives used under cover (e.g., greenhouses, shade houses), problems of small-scale growers and other production systems (e.g., bulb crops, perennial deep-rooted crops), and test alternative non-fumigant and/or non-chemical management strategies for the cut flower and ornamental industries, which are currently served by Critical Use Exemptions for pre-plant soil fumigation.

Soil Disinfestation in Field-Grown Flower Fields with a Portable Steam Generator

by Steve Fennimore - University of California, Davis

All fumigants face increased regulatory restrictions; therefore, non-fumigant alternatives such as steam are worth revisiting. We are evaluating steam to disinfest flower field soil to control soil borne pests. Our objective is to find a practical and economical means of steam distribution in field soil using a portable steam generator. We have

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successfully used a “steam blanket” - a pad used to thaw permafrost in the Canadian arctic. We are working with Golden State Bulb Growers to try to develop a portable steam system for calla lily production. We are evaluating weed and disease control. In our early testing, we have been able to reach 6-in soil temperatures of >158°F in 20 to 30 minutes. So far we have set our soil temperature treatment threshold as >158°F for 30 minutes. We have a limited amount of Federal funding to determine whether this method can be made practical. We believe that the results are promising enough that we will be applying for full funding this winter. If successful in acquiring additional funding, we hope to conduct demonstrations of our mobile steam treatments in flower and strawberry fields at multiple locations around California.

UC RIVERSIDE

Blueprint for the Discovery and Study of Disease-Suppressive Soils

by J.O. Becker - Departments of Nematology and Plant Pathology, UC Riverside

J. Borneman - Departments of Nematology and Plant Pathology, UC Riverside

Tiny parasitic worms (nematodes) that typically feed on or in underground plant parts are responsible for an estimated \$8-10 billion crop damage in the US. Non-chemical management of these pathogens is an area of plant disease science that has progressed slowly. No biological control product against plant-parasitic nematodes has ever received California EPA registration, and soil-applied pesticides are still the predominant tools of choice. For the past decade we have investigated nematode-suppressive soils, in which biological control occurs naturally and plant-parasitic nematode populations are typically maintained below the economic threshold. Our strategy has been to define the parameters of suppressiveness, identify the causal agent(s), and analyze the interactions among the host plant, the parasitic nematodes and associated microorganisms. These soils may harbor previously unknown potent biocontrol organisms and enable us to gain a better understanding of the ecosystem. Applying such knowledge to the production and use of nematode-antagonists is likely to provide the basis for

development of efficacious biocontrol products. Thus, our methodology of studying plant disease-suppressive soils has become a model system for similar research. Details of the methods and examples of their application are summarized in a recently published review article:

Borneman, J., and J.O. Becker 2007. Identifying Microorganisms Involved in Specific Pathogen Suppression in Soil. *Annual Review of Phytopathology* 45: 153-72. ■

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Pacific Area Wide Methyl Bromide Alternatives Program (PAW-MBA) for Ornamental Crops

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Soil Disinfestation in Field-Grown Flower Fields with a Portable Steam Generator

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Blueprint for the Discovery and Study of Disease-Suppressive Soils

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Websites Associated with Marketing of Plants and Cut Flowers

Compiled by Don Merhaut, University of California, Riverside

Below is a list of several websites related marketing strategies. A couple are from Australia. There are other sites available, but they are private companies and may be biased towards their products. This is not to say that these commercial sites are not worth investigating.

<http://www.uq.edu.au/lcafs/documents/marketingstrategy.pdf> This is from the University of Queensland, Gatton, Australia. The article is by Dr. Lilly Lim-Camacho and Dr. Tony Dunne at the Centre for Native Floriculture. They also have another article under the same website, except the last word is ValueChain.pdf instead of marketingstrategy.pdf.

<http://www.corf.org> Hosted by our very own California Ornamental Research Federation, this site has back issues of the newsletter, which talks about closely related postharvest issues.

http://www.agric.wa.gov.au/pls/portal30/docs/FOLDER/IKMP/HORT/FLOR/FLORICULTURENEWS_61.PDF This site is hosted by the Department of Agriculture Western Australia. This article talks about specific Australian crops, but also talks about floriculture marketing in general.

<http://www.S290.org/S290%20Project%202005%20to202010.pdf> This article is titled 'Marketing, Managing, and Producing Environmental Plants in a Technical and Economically Efficient Manner'. It is a multistate project in the U.S. which is still in progress. However, the literature review is well done. In addition, the proposal shows what universities are involved in research of plant marketing.

<http://www.ascfg.org> This website, hosted by the Association of Specialty Cut Flower Growers, has many links related to new cut flowers and marketing, as well as most other aspects of cut flower and foliage production and harvesting.

<http://www.cfc.org> This website has information regarding California's cut flowers and cut greens industry. The CCFC is a governmental agency that conducts promotion, marketing, governmental relations, and research projects among others. ■



CORF News Goes On-Line

In the spring of 2008, *CORF News* will launch a brand new format on-line. This will allow multiple access for each business, provide a library for past issues, and improve the over-all look of the newsletter with the addition of color photos. It will also help save our precious natural resources and increase efficiency. Printed copies will be available by subscription, but we are still working on the details. More information about this important change will be sent to you as that date approaches, or go to www.corf.org and register for your electronic version of *CORF News* today.

Please contact our office at (831) 479-9724 or via email at: jwills@corf.org with questions or comments. ■

CCFC Provides Resources to Industry

In the wake of the wildfires that ravaged Southern California, the California Cut Flower Commission created a webpage (http://www.cfc.org/fires/socal_fires.html) to provide fire-related resources for affected growers and a place for concerned people to find information about growers who are in the affected areas.

While at least one cut flower grower experienced significant damage, overall, cut flowers escaped major damage in the devastation.

The California Cut Flower Commission continues to monitor the relief and recovery effort and will provide assistance as requested and necessary.

In addition to providing recovery insurance information for cut flower growers, the CCFC also serves as a clearinghouse of information to the industry's publications.

The California Cut Flower Commission is a governmental agency that was created by and for California's cut flower industry. Programs include marketing, promotion, governmental relations, research and education. ■

Westland Floral is a cut flower nursery in Carpinteria consisting of about 45 acres of greenhouses and 20 acres in the field. Major crops are grown primarily for bouquets and include gerberas, chrysanthemums, lilies, and cymbidiums. Co-owner Case Van Wingerden says their marketing plan 10 years ago was completely different. "Back then we marketed to wholesalers. That market shrunk so much we clearly had to make a change if we were to remain in business."

Today Westland Floral markets bouquets exclusively to retail supermarkets nation-wide. In addition, they initiated a separate floral gifts on-line service, marketing their own bouquets to the consumer.

"Retail florists have faced severe competition from supermarkets with well-stocked florist sections. As a result, a new revenue source opened up for us." Case feels that direct on-line marketing is an area that will really take off for Westland Floral in the future.

Mellano and Company produces cut flowers, fillers and greens on over 500 acres in San Luis Rey and 75 acres in Carlsbad. In addition, they market imported flowers to their customers. Michael A. Mellano states that their customer base is also shifting heavily towards bouquet makers and those operating in the super/mass markets, with traditional wholesale florists comprising a lower percentage now than ten years ago. "We are currently doing more with direct mail pieces and less with trade publications and trade shows. Today we spend more effort on direct visits to customers." Mike believes that the one-on-one visits have had a positive effect on their marketing success. But, as Mike states, "Having quality products and availability is the best marketing tool we have, in my mind."

Scott Klittich is the owner of **Otto and Sons Nursery**, a family-run, 22-acre nursery in Fillmore that grows containerized landscape materials for retail nurseries and specializes in garden roses. Scott says that over the past ten years his marketing plan has been to increase their overall sales. For example, ten years ago they were not doing business on the internet. Now they have a web page that they use to attract new customers, as well as provide existing customers with rose cultural requirements and availability information. Today, they are also doing trade shows, which increases their exposure, resulting in more sales. Increased revenue from their marketing efforts allowed them to add two sales staff that also has led to increased sales. As a result of their increased customer base, the mailing list expanded, which has brought further opportunities to advertise through customer mailers and faxes. All these efforts have contributed to increased sales, and Scott says it's difficult to pinpoint which has had the most impact. "Every thing you do to increase sales works synergistically with other sales tactics."

Keeline-Wilcox is a 40-acre nursery known primarily for producing acclimatized kentia palms for interiorscapers and wholesale nurseries in California and nation-wide. They also grow and provide unusual indoor plants, as well as cast iron plants, the evergreen *Corynocarpus*, New Zealand Laurel, and *Ficus nitida*.

Keeline-Wilcox's market plan is to sell quality items and not try to compete with competitors offering cheap plant materials. They leave the "mass-market" to others. A problem is that interiorscapers are often forced to bid low and are apt to buy Hawaiian-grown palms that have been produced less expensively but may not be as durable for use in interior commercial settings. Sarah Wilcox, executive vice-president, explains that Keeline-Wilcox developed a niche market by selling specimen-sized acclimatized kentias, which are more expensive than other palms but last much longer. Capitalizing on marketing specialty materials, they have mounted a considerable effort over the years to educate potential clients as to why quality (especially California-grown quality) and knowledgeable customer service are important. In recent years, this has included adding web-based reference materials, in addition to providing e-newsletters and e-mailers to clients.

A new approach that has been especially successful has been brokering plants to consolidate for special projects. Large wholesale nurseries and contractors don't want to take the time to find small amounts of unusual plants required for special jobs. This is where Keeline-Wilcox has found a new market by offering one-stop shopping of unique and hard-to-find plant materials for these specialized projects.

These growers recognize how critical it is to produce quality products. Moreover, they have determined that it is important to review and adjust marketing strategies and plans to fit the changing industry. How long has it been since you reviewed your marketing plan? ■

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