

## 3.0 Agriculture

### 3.1 San Diego County Water Authority

#### 3.1.1 San Diego is Unique

The San Diego region's mild climate, varied geography, close urban-rural interface, proximity to an international border and high cost of water, land and now energy make the region one of the most unique growing areas in the United States. As a result of these conditions, farms tend to be small, specializing in high-value crops with a high value per acre. The average farm in San Diego is only 79 acres compared to the statewide average of 373 acres. Sixty-five percent of San Diego farms are less than 9 acres. The regional trend is toward smaller but more numerous farms. Another trend is for agriculture to move away from the highly urbanized and expensive coast to the inland areas of North County.

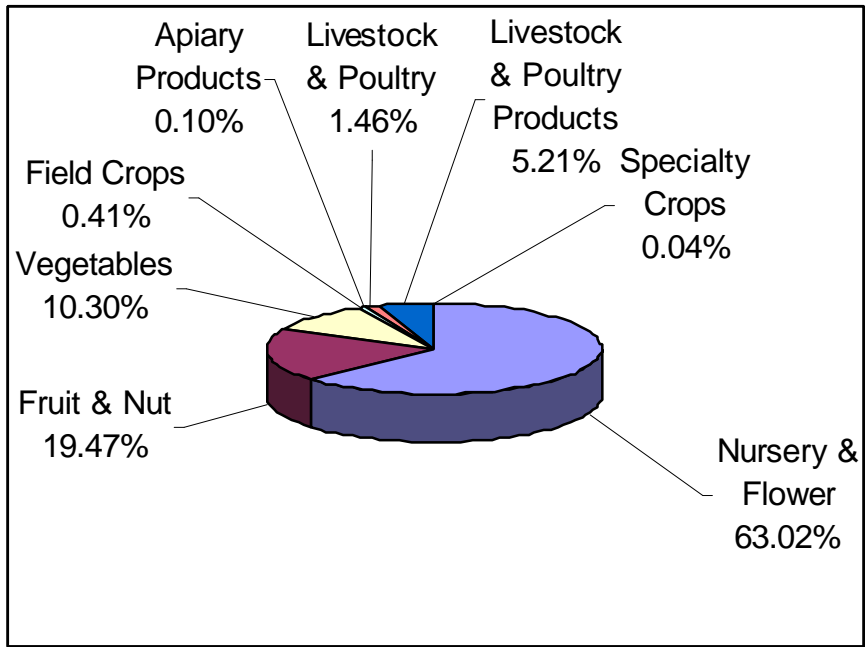
During the 1988 -1992 drought, some predicted that agriculture would steadily decline; instead, we have seen that agriculture has adapted to become stronger than before. According to the California Department of Finance, Demographic Research Unit, San Diego is the only California county that can be classified as both a major urban county while also being one of the top agricultural counties. Unique and adaptable are the two words that best describe San Diego agriculture.

#### 3.1.2 Economic Value of Agriculture

Total dollar value for agricultural products in San Diego County in 2000 was \$1,253,884,664. Agriculture's total economic impact is estimated to be 3.5 times the value of direct agricultural product or \$4,388,596,324. Agriculture's dollar value has grown steadily with 2000 being the seventh consecutive year of growth in agricultural income. Agriculture accounts for 1.5 percent of San Diego County's gross regional product, fourth behind manufacturing, tourism and defense. San Diego County's farm product value ranks seventh among all counties in the state and tenth in the nation.

**Figure 3-1** provides a graphic display of 2000 County crops by percent of their dollar value while **Table 3-1** lists 2000 San Diego County crops by acre and dollar value. Economic value numbers are from the San Diego County Department of Agriculture, Weights and Measures and represent the entire county. The Authority's service area is in the western third of the county and includes about 30 percent of agricultural acres in the county, among them some of the most economically valuable crops.

**Figure 3-1  
2000 San Diego County Crops by Percent Dollar Value**



**Table 3-1  
2000 San Diego County Crops by Acre and Dollar Value**

Crop Types	Acres	Value
Nursery & Flower	8,814	\$790,140,332
Fruit & Nut	44,503	\$244,152,511
Vegetables	9,240	\$129,159,542
Field Crops	101,800	\$5,140,211
Apiary Products		\$1,263,279
Livestock & Poultry		\$18,258,802
Livestock & Poultry Products		\$65,294,742
Specialty Crops		\$475,245
	<b>164,357</b>	<b>\$1,253,884,664</b>

### 3.1.3 Crops Grown in San Diego

The high costs of water, labor, real estate and recently energy have steadily increased, leading to a decreased farm profit. Consequently, the majority of crops grown are those that have a high gross return per acre or are semitropical crops that may not be grown in other parts of the country. The primary crops grown for the national and international markets are avocados, citrus, cut flowers, nursery products and fresh produce grown for the local market. Field crops such as barley, greenchop,

wheat, silage, range pasture, oats and hay are grown strictly with rainfall and for consumption by local livestock.

Avocados may lead in the total number of acres in the region with 26,346 acres, but indoor flowering and foliage plants are the number one crop in economic value. Indoor flowering and foliage plants are estimated to have a value of \$88,975 per acre but cover only 7,352 acres in the Authority's service area. Avocados are now third in value at \$147,846,527 behind indoor flower and foliage plants and ornamental trees and shrubs. Citrus crops represent another big change in the San Diego agricultural scene. Once a close second to avocados, citrus crops occupy 13,226 acres but rank eighth in economic value at \$79,378,027 after cut flowers, eggs and tomatoes. **Table 3-2** shows a breakdown of crops by acres among Authority member agencies.

**Table 3-2**  
**Member Agency Crop Acres - 1999**

	Citrus & Subtropical	Fruits & Vegetables	Avocados	Flowers & Nurseries	Corn & Field Crops	Pasture	Agency Total
CARLSBAD MWD	-	313	-	355	156	-	<b>823</b>
CITY OF ESCONDIDO	447	20	1,548	231	-	-	<b>2,245</b>
FALLBROOK PUD	765	35	3,142	275	-	36	<b>4,252</b>
HELIX WD	0	3	5	53	-	15	<b>77</b>
CITY OF OCEANSIDE	345	976	483	1,092	-	-	<b>2,897</b>
OLIVENHAIN MWD	607	85	77	218	-	244	<b>1,232</b>
OTAY WD	31	137	27	207	-	3	<b>404</b>
PADRE DAM MWD	24	26	387	86	-	241	<b>764</b>
PENDLETON MR	-	1,196		130	-	-	<b>1,326</b>
CITY OF POWAY	13	-	341	50	-	-	<b>404</b>
RAINBOW MWD	1,896	460	5,683	725	12	349	<b>9,124</b>
RAMONA MWD	370	49	2,064	292	-	260	<b>3,036</b>
RINCON DEL DIABLO	281	94	260	59	8	28	<b>731</b>
CITY OF SAN DIEGO	306	1,382	200	878	123	417	<b>3,306</b>
SAN DIEGUITO WD	-	10	7	772	-	-	<b>790</b>
SANTA FE ID	834	9	-	-	-	90	<b>933</b>
SWEETWATER	-	18	-	11	-	-	<b>29</b>
VALLECITOS WD	134	135	1,008	477	-	30	<b>1,784</b>
<b>VALLEY CENTER MWD</b>	<b>6,089</b>	<b>275</b>	<b>9,014</b>	<b>513</b>	<b>7</b>	<b>262</b>	<b>16,161</b>
VISTA ID	244	59	264	564	7	14	<b>1,152</b>
YUIMA MWD	840	73	1,833	363	-	60	<b>3,170</b>
<b>Crop Subtotal</b>	<b>13,226</b>	<b>5,355</b>	<b>26,346</b>	<b>7,352</b>	<b>313</b>	<b>2,049</b>	<b>54,641</b>

**TOTAL 54,641 ACRES**

Acres and types of crops were derived using the percentages and identity of crops from the Department of Water Resources applied to the number of acres provided by SANDAG (San Diego Association of Governments). California Avocado Commission provided avocado acreage data.

In addition to avocados and a wide variety of citrus crops, the area is known for cut flowers such as carnations, roses, proteas, leptospermum, wax flowers, eucalyptus and other exotics. Nurseries produce bedding plants, turf and a rainbow of bulbs and related root-type items, cactus and succulents, citrus, and avocado, cut Christmas trees, herbs, poinsettias, indoor flowering and foliage plants. Growers also produce an unusual assortment of exotic items such as macadamias, guavas, persimmons and cherimoyas. Vegetables from artichokes to zucchini are grown for fresh table use as are about \$12,695,012 worth of strawberries. Emerging crops on the market are chili peppers, blueberries, raspberries and blackberries. Wine grapes are still grown but, as of this writing, the threat of Pierce's disease is inhibiting expansion.

Local livestock industries include cattle, calves, hogs, pigs, chickens, lambs, sheep, eggs and dairy products. An emerging animal industry is ratites, flightless birds such as emus, rheas, and ostriches raised for their meat, hides and oil.

### **3.1.4 Agricultural Irrigation Water Requirement**

Water needs for the Authority service area are calculated using the number of acres of crop type as developed by SANDAG (San Diego Association of Governments), DWR, County of San Diego Department of Agriculture, Weights and Measures and the California Avocado Commission's count of avocado acres, reference evapotranspiration, crop coefficients and a leaching factor of 10 percent. An 80 percent irrigation efficiency factor was used, as that is a level achievable with efficient management of micro-spray systems. An insignificant amount of water is needed for cultural practices such as frost control, dust control and pesticide application. Using these parameters, the total agricultural irrigation water requirement is calculated to be 251,129 AF per year. **Table 8-2** in Section 8.3 shows the AF of calculated irrigation water requirement by crop and by member agency based upon 1999 acres. Note that agricultural water use is concentrated in the north county member agencies of Valley Center, Rainbow, Ramona and Yuima Municipal Water Districts, Fallbrook Public Utility District and the City of Escondido.

Fifty-four thousand plus acres of fruits, vegetables, flowers and semi-tropical tree crops need a significant amount of water to yield the full economic value of the crop. Do growers really use the full irrigation water requirement and do they use it correctly and efficiently to produce the highest economic yield per acre? Irrigation water use reported on member agency water billing and production records, including agricultural customers receiving municipal and industrial (M&I water), reclaimed water and estimates of private well water use indicate that reported agricultural water use was 135,047 AF in Fiscal Year (FY) 99. With the addition of historic, effective rainfall, estimated agricultural water use is 180,470 AF or 72 percent of the calculated irrigation water requirement. **Table 8-3** in Section 8.3 shows the estimated agricultural irrigation water use by agency and by crop.

Observations by the Agricultural Water Management Team at Mission Resource Conservation District, Natural Resources Conservation Service, University of California Cooperative Extension and their personal communications with growers indicate irrigation practices in the county vary widely. Some growers under-irrigate because of the high cost

of water. Other growers over-irrigate in an attempt to produce large, prime fruits and to extend production into the fringes of the growing season when produce has the highest market price.

Irrigation efficiency is one of several key factors to the success of any farming operation in San Diego as growers pay an average of \$650 per AF for water plus pumping costs. By comparison, growers in the Imperial Valley may pay only \$15/AF. Growers in Ventura County, an area similar to San Diego in agriculture, pay \$379/AF. Fortunately, the types of crops grown here and the steep, easily eroded hills are well suited to efficient micro-irrigation methods. If growers need technical assistance to improve the efficiency of their irrigation system, help is available from Mission RCD, Natural Resources Conservation Service, University of California Cooperative Extension and a number of private consultants.

Growers in the Authority's service area qualify for two irrigation water rate discounts. Metropolitan operates the Interim Agricultural Water Program (IAWP) that provides growers with a \$137 per AF discount for treated water and a \$113 per AF discount for untreated water in exchange for agreeing to cutbacks in water delivery in the event of water shortage from drought or pipeline failure. The Authority is the largest consumer of IAWP water within Metropolitan's service area, comprising over 60 percent of Metropolitan's total agricultural water demands each year.

The Authority also provides a Special Agricultural Water Rate (SAWR) which is currently \$10 per AF less than the full Municipal and Industrial (M&I) rate. The SAWR is available in exchange for agreeing to take cutbacks in water during emergency shortages. In times of shortage, the agricultural customers participating in the IAWP and SAWR will be cut back first up to 30 percent before M&I customers are asked to take cutbacks in delivery. Over the last few years, as water rates and other costs of agriculture have increased, more customers have signed up for the IAWP and SAWR programs. Water agencies and growers have expressed the concern that if Metropolitan discontinued the IAWP, agriculture would no longer be profitable and the industry would suffer. **Table 3-3** shows the AF of discounted IAWP water delivered to each participating member agency by month in FY 00.

Another factor that indirectly drives the cost of water is peak capacity. Although agriculture uses only 15 percent of the total annual water from imported and local sources, much of that use is in the summer when evapotranspiration is highest and urban demands are also high. To accommodate summer peak demands, extra capacity is built into the system, at additional cost, to transport water. Methods of financing peak system demands are currently under investigation at both the Authority and Metropolitan.

**Table 3-3  
INTERIM AGRICULTURAL WATER PROGRAM  
FY 00 Monthly Agricultural Credits in Acre Feet**

	<b>Jul-99</b>	<b>Aug-99</b>	<b>Sep-99</b>	<b>Oct-99</b>	<b>Nov-99</b>	<b>Dec-99</b>	<b>Jan-00</b>	<b>Feb-00</b>	<b>Mar-00</b>	<b>Apr-00</b>	<b>May-00</b>	<b>Jun-00</b>	<b>Total</b>
<b>Carlsbad MWD</b>	119	122	130	198	121	98	88	31	27	118	112	120	<b>1,283</b>
<b>Escondido, City of</b>	419	463	447	545	439	496	408	301	99	453	536	631	<b>5,237</b>
<b>Fallbrook P.U.D.</b>	926	859	811	924	713	619	548	206	200	563	771	829	<b>7,969</b>
<b>Oceanside, City of</b>	269	222	297	299	232	225	155	86	79	232	302	344	<b>2,744</b>
<b>Olivenhain MWD</b>	174	127	108	137	132	111	81	57	43	63	104	150	<b>1,287</b>
<b>Otay WD</b>	9	13	13	24	14	4	3	4	3	8	15	11	<b>120</b>
<b>Padre Dam MWD</b>	118	106	81	82	63	73	56	48	31	39	76	86	<b>857</b>
<b>Poway, City of</b>	45	89	79	120	95	60	43	16	22	39	56	58	<b>724</b>
<b>Rainbow MWD</b>	2,357	2,393	2,153	2,493	1,840	1,643	1,331	683	883	1,545	1,986	2,355	<b>21,660</b>
<b>Ramona MWD</b>	355	319	296	357	271	262	202	69	114	257	353	324	<b>3,180</b>
<b>Rincon Del Diablo</b>	125	112	110	113	99	89	61	41	50	72	112	125	<b>1,108</b>
<b>San Diego, City of</b>	11	18	16	17	18	15	15	8	8	7	15	24	<b>170</b>
<b>Santa Fe ID</b>	49	10	11	7	8	4	3	2	3	4	5	10	<b>115</b>
<b>Vallecitos WD</b>	239	268	256	280	263	219	201	144	117	124	228	250	<b>2,589</b>
<b>Valley Center MWD</b>	4,271	4,400	4,356	4,510	3,279	3,178	2,390	1,100	1,289	2,733	3,747	4,287	<b>39,540</b>
<b>Vista ID</b>	89	76	67	101	99	62	82	31	31	80	81	123	<b>921</b>
<b>Yuima MWD</b>	200	338	311	435	355	297	137	64	14	119	178	366	<b>2,814</b>
	<b>9,774</b>	<b>9,934</b>	<b>9,541</b>	<b>10,641</b>	<b>8,041</b>	<b>7,454</b>	<b>5,804</b>	<b>2,893</b>	<b>3,011</b>	<b>6,455</b>	<b>8,675</b>	<b>10,094</b>	

**TOTAL 92,317 AF**

### **3.1.5 Environmental and Urban Benefits**

With increasing concern for environmental protection, growers are now held to the same standards as developers concerning grading and irrigation runoff. Many growers have realized that full implementation of Agricultural Best Management Practices (Ag BMPs), **Appendix C**, as developed by the Department of Water Resources' Eco-Lab are good for the environment, their land and crops as well as their profits. Agricultural BMPs are included in all agricultural water management reports produced for growers by Mission RCD.

Agriculture not only provides many jobs for urban residents but it also has other values to the region besides purely economic ones. San Diego farmers contribute to the quality of life by maintaining land in non-urban uses. Farmers are truly stewards of the land who contribute to the quality of the environment by controlling soil erosion and run-off contaminated with agricultural chemicals. With few exceptions, urban San Diegans enjoy the close juxtaposition of agricultural and urban development observed in the region. In San Diego, agriculture is not the farm on the other side of the county, but is the greenhouses, flower and vegetable fields and small groves in and near urban neighborhoods. Agriculture adds a refreshing quality of life and economic opportunity to urban as well as rural residents.

### **3.1.6 Pests and Quarantine Issues**

San Diego's proximity to the Mexican border and its mild climate make the area susceptible to the introduction of foreign pests. An example is the introduction of the Mexican fruit fly. In October 1999, Mexican fruit flies were found in the Fallbrook area leading to a quarantine of 11,000 acres producing 20 crops with a value of \$49 million dollars. Hardest hit were organic growers and those growing high value, semi-tropical soft fruits such as persimmons, guavas, cherimoyas, pomegranates and sapotes. For these growers, there was no viable treatment enabling them to market their crops thus leading to a total loss. The area learned some important lessons from this painful exercise:

- More research is needed to determine the most effective way to eliminate pests and safely treat infected fruit;
- More law enforcement is needed to stop illegal importation of fruit across the border and coincidentally theft of fruit from local groves;
- More San Diego County Department of Agriculture employees are needed to staff inspection points, perform monitoring and surveillance; and
- Economic relief is needed for growers to enable them to economically survive quarantines. Agricultural insurance policies do not cover quarantines.

Given the proximity to an international border with much legal and illegal traffic in agricultural products, it is unlikely that foreign pests can be entirely excluded. Growers and government agencies can only prepare for the next invasion. When the next quarantine comes, the area will be much better prepared to handle the emergency. Quarantines, like droughts, cannot be prevented, but growers can prepare for them.

### **3.1.7 Foreign Competition**

San Diego growers face competition from foreign producers with lower water, labor, land, regulatory and now energy costs. Ready access to U.S. markets via airfreight makes local growers even more vulnerable to imported fruit, flowers and vegetables. Surprisingly, NAFTA, North American Free Trade Agreement and GATT, General Agreement on Tariffs and Trade, have less of an effect than cost of production and airfreight. While NAFTA and GATT may open San Diego markets to competition from other countries, it is the low cost of production and shipping enabling foreign countries to compete successfully against local producers.

Foreign competition also increases the danger from introduced pests and disease, despite strict phytosanitary standards. If developing technologies, such as gamma radiation, to treat foreign products for pest and disease are perfected and are approved, local growers will have serious difficulty competing with foreign markets.

A bright spot on the agricultural horizon is the nursery industry. Phytosanitary laws prohibiting the importation of plant products with foreign soils and the year-round growing season make the nursery industry the most vigorous sector in agriculture and the only one that is expanding.

### **3.1.8 Energy**

Recent developments in energy deregulation are having a severe impact on local growers. Electric costs have quadrupled and gas costs have doubled. Many cut flowers and holiday, potted plants are grown in greenhouses under carefully controlled light and temperature conditions to bring the plants to market at the right time in peak bloom. High-energy costs add yet another uncertainty to the profits and futures of growers. Water districts pumping water up to higher elevations are also bearing increased energy costs that are passed onto growers. Growers pumping their own well water or pumping district water to higher elevations on their property directly bear increased energy costs. Farmers are unable to pass along increased energy costs as consumers will choose less costly products from another region.

Little relief is in sight other than growers operating their greenhouses, pumps, irrigation systems and industrial refrigerators in the most efficient manner possible. San Diego Gas & Electric (SDG&E), the regional energy retail distributor, has recently implemented agricultural conservation programs. The San Diego County Farm Bureau is investigating the possibility of growers forming their own energy cooperative. The Farm Bureau is also working to inform growers of the availability of free pump tests and retrofit assistance from the California Energy Commission's (CEC) Agricultural Peak Load Reduction Program.

### 3.1.9 Future of Agriculture in San Diego

The future of agriculture in San Diego can best be described as uncertain and changing. After the 1988-92 drought, there were those who thought farming would gradually dwindle to a curiosity in the county's backcountry. Now, even with the high cost of water and real estate, urban competition for labor, foreign market competition and foreign pest invasion, agriculture is not only surviving, but it is thriving. Agriculture has survived because growers are not only excellent farmers but because they are also excellent resource managers and business people. Additional issues that will affect the future of agriculture in San Diego are discussed in Section 3.1.6 through 3.1.8.

Given all the stresses on this sector, total agricultural water demand is projected to decrease by about 17 percent over the next 20 years to an estimated 91,500 AF of Authority and local agency water. Section 8.0 Water Demand and Section 9.0 Water Accounting discuss water quantification in more detail.

### 3.2 Valley Center Municipal Water District

Valley Center is one of the few areas in the county that is almost exclusively agricultural, with an average of only 3 people per acre and with 80 percent of all water going to agriculture. Approximately 9.5 percent of all agricultural acres in the county and 30.3 percent of all agricultural acres in the Authority's service area are in Valley Center. Lack of water and sewer service and soils underlaid by clay pans complicating the use of septic tanks mean that much of Valley Center will remain rural and undeveloped for the foreseeable future.

The economic value of Valley Center's crops was estimated by calculating the percentage of Valley Center's crops in the county and applying that figure to the dollars earned by all county crops as stated in the County of San Diego, Department of Agriculture's 2000 Annual Crop Report. The Valley Center area produces \$117 million of income on 9.5 percent of the county's agricultural acreage. Notably, flower and nursery crops that account for only 3.2 percent of agricultural acres in Valley Center account for 38.9 percent of that area's agricultural income.

Agriculture in Valley Center is dominated by 9,014 acres of avocados and 6,089 acres of citrus, primarily oranges with smaller amounts of lemons and grapefruit. A smaller number of acres are devoted to flowers and nurseries but contribute economically almost as much as avocados. Miscellaneous subtropicals are grown along with some small acreage in deciduous crops. Valley Center MWD customers were not affected by the quarantine in October 1999. New crops such as blueberries, lychees and avocados on salt tolerant rootstock are being explored.

Approximately 20.3 percent, 7,991 AF of the 39,195.1 AF, of water sold by Valley Center MWD is used by M&I customers with the remaining 79.7 percent used by agricultural customers. See **Tables 3-3, 8-3 and 9-1** for IAWP and other sources of agricultural water data. Even with the IAWP discount, growers pay \$1.0769 per hundred

cubic feet for treated water plus pumping charges or between \$491 to \$652 per AF. No untreated Metropolitan water is delivered to Valley Center MWD. Valley Center MWD uses between 40 percent and 45 percent of IAWP deliveries in the Authority's service area and between 20 percent and 25 percent in Metropolitan's service. They are the largest single agricultural water user for both agencies. Valley Center's avocado and citrus growers are particularly dependent upon discounted water to remain profitable, making the continuance of Metropolitan's IAWP a concern to local growers. At this writing, rapidly escalating energy costs to pump water to higher elevations are negatively impacting the water district and growers.

No water in Valley Center MWD is designated solely for environmental or recreational uses. However, like much of the Authority's service area, growers strive to be environmentally sensitive by implementing the Agricultural Best Management Practices (Ag BMPs) because it is good for the environment and their profits. In the event that avocados no longer remain profitable, large numbers of acres on steep slopes would most likely revert to native vegetation as the land cannot be readily developed for any other use.

Agriculture is expected to remain strong in Valley Center although a gradual shift to large single-family lots and residential-agricultural mix is expected to take place. Any increase in water and energy rates or any other change making agriculture less profitable will accelerate this trend.