

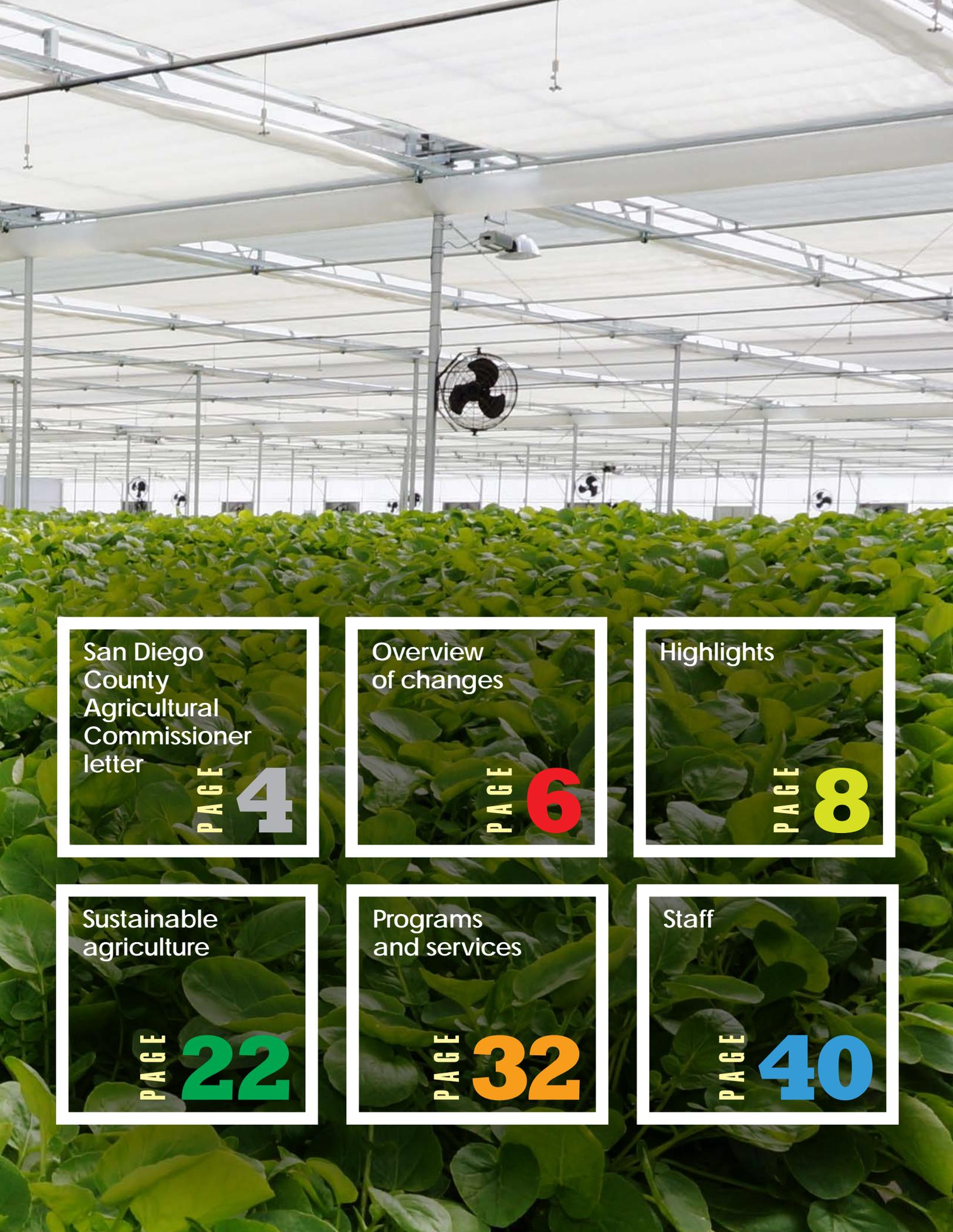


# 2018

CROP STATISTICS & ANNUAL REPORT



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A wide-angle photograph of a vast agricultural field filled with rows of green squash plants. The plants have large, lobed leaves and several bright yellow flowers are visible. The field extends to the horizon under a clear blue sky with a few wispy clouds. In the distance, there are some trees and a building, possibly a farm or a small town. The overall scene is bright and sunny, suggesting a clear day.

COUNTY AGRICULTURAL  
COMMISSIONER LETTER



# County of San Diego

**HA DANG**  
AGRICULTURAL COMMISSIONER/  
SEALER OF WEIGHTS & MEASURES

DEPARTMENT OF AGRICULTURE WEIGHTS AND MEASURES  
9325 HAZARD WAY, STE. 100, SAN DIEGO, CA 92123-1217  
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**MĒGAN MOORE**  
ASST. AGRICULTURAL COMMISSIONER/  
SEALER OF WEIGHTS & MEASURES

Karen Ross, Secretary,  
California Department of Food and Agriculture  
and  
The Honorable Board of Supervisors of the County of San Diego  
Supervisor Dianne Jacob, Chair  
Supervisor Greg Cox, Vice Chair  
Supervisor Kristin Gaspar  
Supervisor Nathan Fletcher  
Supervisor Jim Desmond

I respectfully submit our 2018 report of acreage, yield and value of agricultural production for San Diego county. In 2018, the direct economic output from agricultural production in San Diego county totaled \$1,769,815,715. This equates to a 0.2% decrease from 2017's total value of \$1,774,206,410. The overall acreage devoted to commercial agriculture went from 243,029 acres in 2017 to 242,554 acres in 2018, for a 0.2% decrease overall.

The 2018 Crop Statistics and Annual Report details crop information and highlights the many diverse programs within the Department of Agriculture, Weights and Measures to support the County's focus on building better health, living safely, and sustainable environments/thriving.

Special thanks to the many producers, industry groups, and public agencies who provided vital information for this Report. I'd also like to express gratitude for your leadership and support. Finally, much appreciation to my outstanding staff for continually providing our community with superior service.

Ha Dang  
Agricultural Commissioner/  
Sealer of Weights and Measures

A large indoor greenhouse filled with rows of hanging green plants and trays of seedlings on a wooden floor. The plants are arranged in long, parallel rows, creating a sense of depth. The lighting is bright, highlighting the vibrant green of the foliage. The structure of the greenhouse is visible, with metal frames and a translucent covering. The overall atmosphere is one of a well-maintained and productive agricultural space.

# OVERVIEW OF CHANGES



# 2018 Overview of Changes

**T**he overall value of commercial agriculture in San Diego county had a slight reduction of 0.2% from 2017 to 2018. This was driven in large part by a 3% decrease in the value of Fruit and Nut Crops grown in the county. The overall reduction in agricultural value was minimized by an increase in value of 1% in Nursery and Cut Flowers. There were decreases in the value of Vegetable and Vine Crops, Field Crops, Livestock and Poultry Products, and Apiary Products while Livestock and Poultry saw slight increases in value.

Ornamental Trees and Shrubs remain the top crop, bringing in a total of \$442,808,436, or 25% of the total value of agricultural production in San Diego county. Following close behind, Indoor Flowering and Foliage Plants valued at \$329,527,905, equaling 19% of the county's overall agricultural production.

Nursery and Cut Flower Products value rose, totaling \$1,247,987,124, making it 71% of the total value of agricultural production. This increase was largely due to Cacti and Succulents' total value increasing by 34%.

Fruit and Nut Crops value declined slightly as a whole. Its value equaled \$322,949,527, a 3% decrease from the previous year. Citrus and avocados value had a slight decline of 1%. This was due to reductions in citrus acreage and the price per ton of avocados.

Vegetable and Vine Crops value decreased to \$131,260,784, a 4% decrease from last year. Cucumbers, peppers and squash value reduced due to a decrease in acreage. The total decrease of acreage for Vegetable and Vine Crops was 1%.

Apiary Products were valued at \$3,437,378, a decrease of 9% from the previous year. The decline was caused by honey value declining 46%, due to a decrease in honey production.

Livestock and Poultry were valued at \$18,759,533, increasing 3% due to an increase in the value of chickens, cattle and calves.

Livestock and Poultry Products value fell 13%, totaling \$40,825,539. This was attributed to the decrease in value of Chicken Eggs. This is part of a general trend of the production of Chicken Eggs decreasing from a high in 2013. As a result of Proposition 2 which went into effect in 2015, egg production has become more expensive, causing some chicken ranches to either go out of business or downsize their flocks.



HIGHLIGHTS

## 2018 HIGHLIGHTS

Total Value of Production	\$1,769,815,715
Total Acreage	242,554
Commodity with Highest Reported Dollar Value	Ornamental Trees & Shrubs
Highest Dollar Value Per Acre	Indoor Flowering & Foliage Plants
Lowest Dollar Per Acre	Rangeland
Greatest % Increase in Total Dollar Value from 2017	Cacti & Succulents
Greatest % Decrease in Total Dollar Value from 2017	Honey
Commodity with Greatest Amount of Planted Acreage	Avocados

## CROPS BY GROUP

Group	Year	Acres	Total Value
Nursery & Cut Flower Products	2018	12,275	\$1,247,987,124
	2017	12,549	\$1,232,556,856
Fruit & Nuts	2018	33,049	\$322,949,527
	2017	30,710	\$331,590,283
Vegetables & Vines	2018	3,217	\$131,260,784
	2017	3,264	\$136,940,824
Field Crops	2018	194,013	\$3,763,857
	2017	196,506	\$4,120,952
Apiary	2018		\$3,437,378
	2017		\$3,765,421
Forest Products	2018		\$831,974
	2017		\$836,872

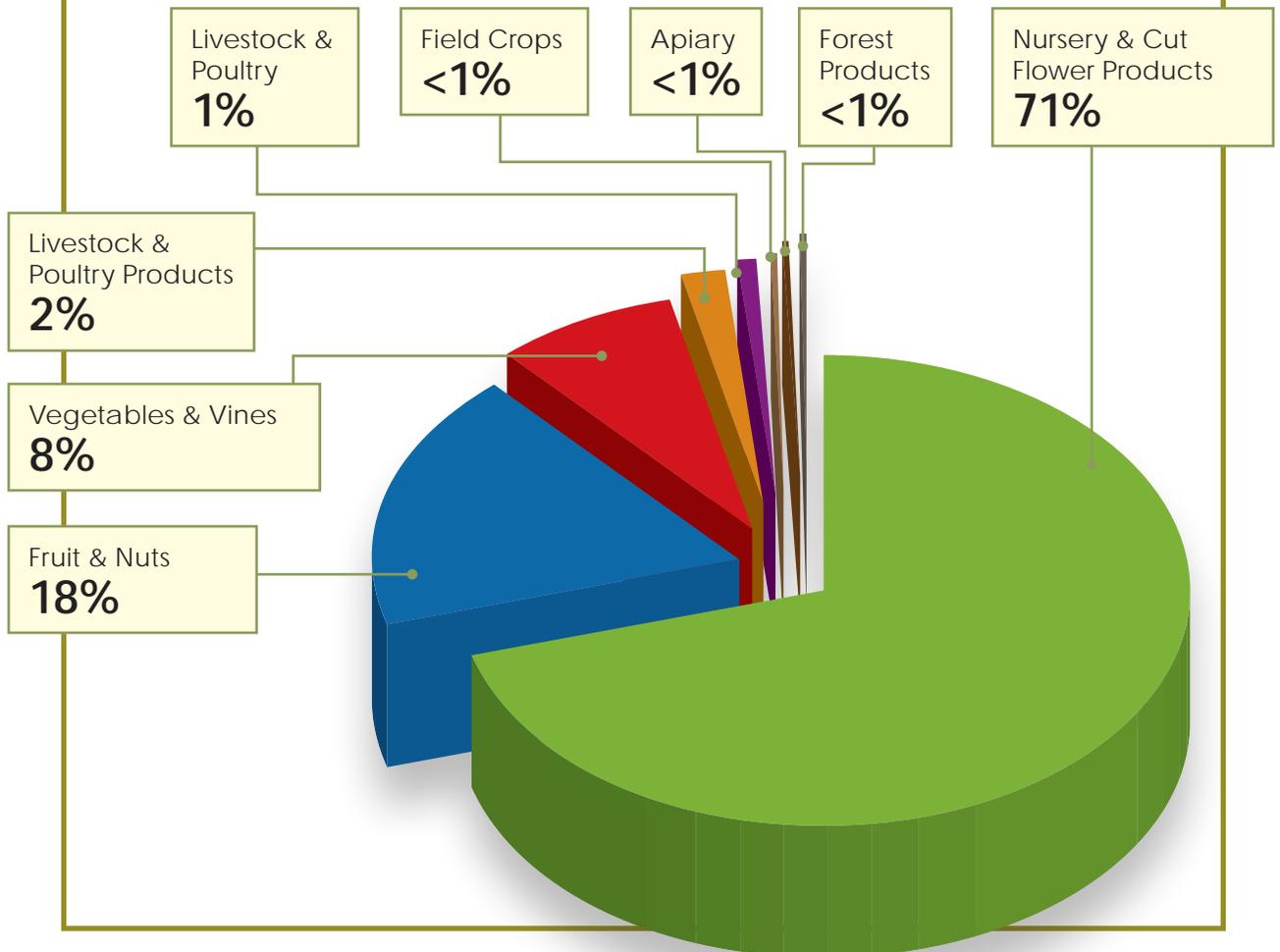


## CROPS BY GROUP CONTINUED

Livestock & Poultry	2018		\$18,759,533
	2017		\$18,167,205
Livestock & Poultry Products	2018		\$40,825,539
	2017		\$46,227,998
Totals	2018	242,554	\$1,769,815,715
	2017	243,029	\$1,774,206,410

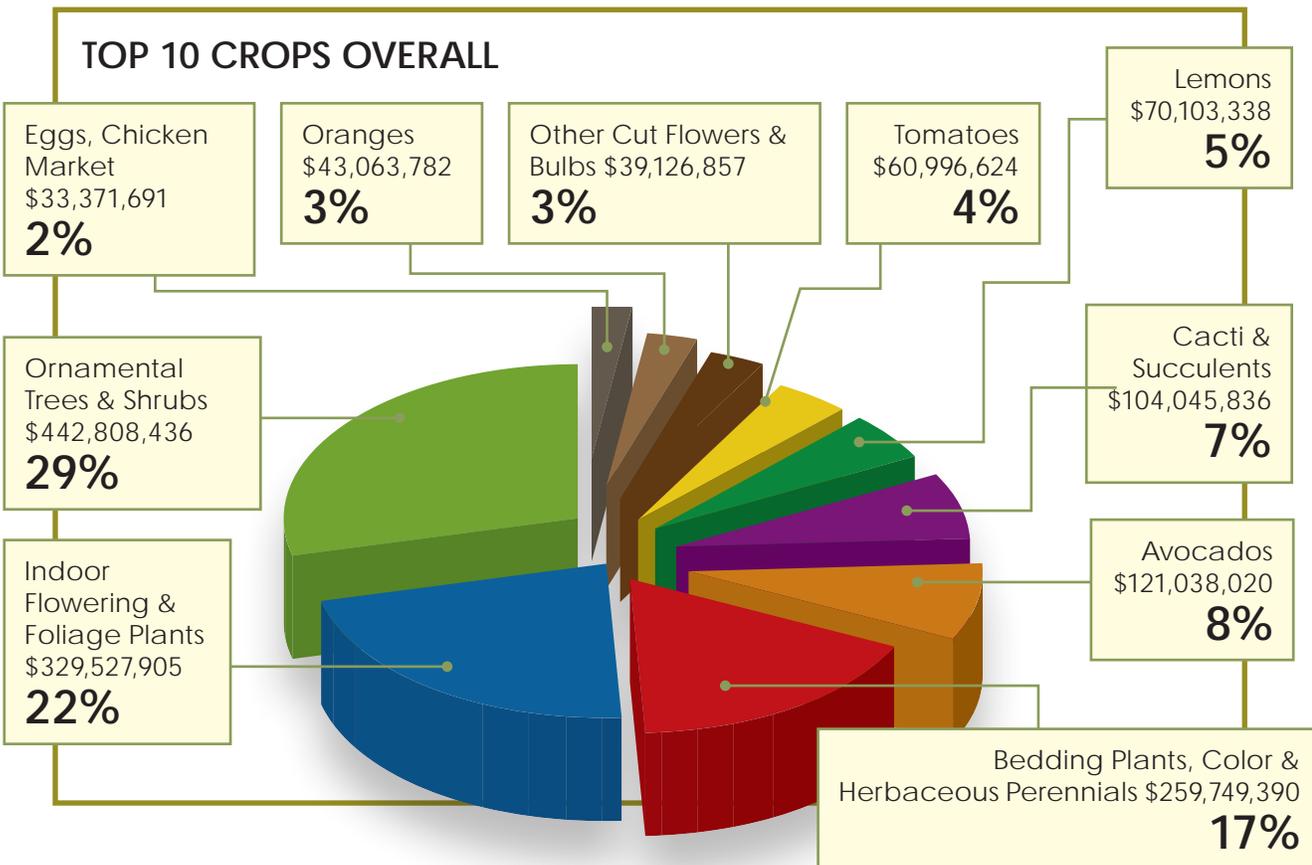


## CROPS BY GROUP OVERALL



# TOP TEN CROPS

TOP TEN CROPS	2018 VALUE
Ornamental Trees & Shrubs	\$442,808,436
Indoor Flowering & Foliage Plants	\$329,527,905
Bedding Plants, Color & Herbaceous Perennials	\$259,749,390
Avocados	\$121,038,020
Cacti & Succulents	\$104,045,836
Lemons	\$70,103,338
Tomatoes	\$60,996,624
Oranges	\$43,063,782
Other Cut Flowers & Bulbs	\$39,126,857
Eggs, Chicken Market	\$33,371,691



## NURSERY PRODUCTS

CROP	YEAR	ACRES	TOTAL VALUE
Bedding Plants, Color & Herbaceous Perennials	2018	1,284	\$259,749,390
	2017	1,274	\$255,446,295
Cacti & Succulents	2018	685	\$104,045,836
	2017	464	\$77,435,057
Citrus, Avocado, & Subtropical Fruit Trees	2018	259	\$29,099,909
	2017	267	\$27,026,942
Indoor Flowering & Foliage Plants (including Poinsettia)	2018	960	\$329,527,905
	2017	995	\$378,744,760
Ornamental Trees & Shrubs	2018	5,052	\$442,808,436
	2017	5,261	\$401,614,960
Turf & Cut Christmas Trees	2018	610	\$14,783,291
	2017	690	\$16,890,993
Total Nursery Products	2018	8,850	\$1,180,014,768
	2017	8,951	\$1,157,159,007



## NURSERY AND CUT FLOWER PRODUCTS

CROP	YEAR	ACRES	TOTAL VALUE
Leptospermum Outdoor	2018	372	\$1,394,565
	2017	390	\$1,404,000
Proteas Outdoor	2018	538	\$4,853,419
	2017	565	\$4,780,465
Wax Flowers Outdoor	2018	709	\$6,736,165
	2017	740	\$6,642,980
Other Cut Flowers & Bulbs	2018	1,154	\$39,126,857
	2017	1,212	\$41,497,668
Foliage	2018	650	\$15,861,350
	2017	691	\$21,072,736
Total Flower Products	2018	3,424	\$67,972,356
	2017	3,598	\$75,397,849
Total Nursery & Cut Flower Products	2018	12,275	\$1,247,987,124
	2017	12,549	\$1,232,556,856



## FRUIT AND NUT CROPS

CROP	YEAR	ACRES	TONS/ ACRE	TONS	US \$/TON	TOTAL VALUE
Apples	2018	204	1	204	\$2,115	\$431,460
	2017	244	1	244	\$1,980	\$483,120
Total Avocados	2018	17,741	3	47,070	\$2,571	\$121,038,020
	2017	15,003	2	34,507	\$3,541	\$122,190,463
Hass	2018	16,760	3	45,309	\$2,579	\$116,866,953
	2017	14,171	2	32,524	\$3,578	\$116,376,970
Lamb-Hass	2018	733	2	1,495	\$2,452	\$3,665,449
	2017	621	3	1,600	\$3,088	\$4,941,504
Other Types	2018	248	1	266	\$1,901	\$505,617
	2017	211	2	383	\$2,277	\$871,989
Berries, Misc.	2018	257	6	1,542	\$12,000	\$18,501,120
	2017	292	8	2,336	\$10,000	\$23,360,000
Total Citrus	2018	11,701	13	148,946	\$1,019	\$151,713,209
	2017	12,210	10	145,631	\$1,587	\$153,442,758
Grapefruit	2018	1,450	17	24,653	\$760	\$18,735,938
	2017	1,473	16	23,273	\$741	\$17,245,589
Kumquats	2018	54	3	162	\$3,650	\$591,300
	2017	69	2	138	\$3,604	\$497,352
Lemons	2018	3,175	16	50,800	\$1,380	\$70,103,338
	2017	3,312	15	49,680	\$1,399	\$69,502,320

## FRUIT AND NUT CROPS

CROP	YEAR	ACRES	TONS/ ACRE	TONS	US \$/TON	TOTAL VALUE
Limes	2018	213	6	1,275	\$1,870	\$2,384,699
	2017	218	5	1,046	\$1,833	\$1,918,051
Oranges	2018	5,819	10	58,194	\$740	\$43,063,782
	2017	6,086	10	57,817	\$853	\$49,317,901
Tangerines, Tangelos	2018	990	14	13,863	\$1,214	\$16,834,153
	2017	1,052	13	13,676	\$1,094	\$14,961,544
Grapes, Wine	2018	1,642	2	3,284	\$1,398	\$4,591,032
	2017	1,210	2	2,783	\$1,385	\$3,854,455
Misc. Fruit & Nuts	2018	1,090				\$8,785,836
	2017	1,265				\$8,497,005
Persimmons	2018	162	4	648	\$2,100	\$1,360,800
	2017	196	4	686	\$2,387	\$1,637,482
Strawberries	2018	252	27	6,678	\$2,475	\$16,528,050
	2017	290	25	7,250	\$2,500	\$18,125,000
Total Fruit & Nuts	2018	33,049				\$322,949,527
	2017	30,710				\$331,590,283

## VEGETABLE AND VINE CROPS

CROP	YEAR	ACRES HARVESTED	TONS/ACRE	TONS	US \$/TON	TOTAL
Cucumbers	2018	61	10	610	\$1,274	\$777,219
	2017	99	10	1,023	\$1,159	\$1,185,286
Herbs/Spices	2018	148	10	1,482	\$5,400	\$8,003,880
	2017	135	10	1,350	\$5,567	\$7,515,450
Peppers	2018	130	14	1,872	\$1,329	\$2,487,888
	2017	169	16	2,704	\$1,214	\$3,282,656
Squash	2018	373	8	2,987	\$1,530	\$4,570,661
	2017	411	9	3,576	\$1,375	\$4,916,588
Tomatoes	2018	1,227	16	19,632	\$3,107	\$60,996,624
	2017	1,136	15	17,040	\$3,107	\$52,943,280
Miscellaneous Vegetables	2018	1,277				\$54,424,512
	2017	1,314				\$67,097,564*
Total Vegetable & Vine Crops	2018	3,217				\$131,260,784
	2017	3,264				\$136,940,824

\* 2017 Miscellaneous vegetables total value includes the total value of mushrooms.

## LIVESTOCK AND POULTRY

COMMODITY	YEAR	NUMBER OF HEAD	WEIGHT CWT	US \$/ CWT	TOTAL
Cattle & Calves	2018	10,900	98,100	\$137	\$13,407,327
	2017	10,800	97,200	\$136	\$13,176,432
Hogs & Pigs	2018	1,382	3,455	\$58	\$200,390
	2017	1,302	3,255	\$51	\$166,656
Chickens	2018		65,149	\$77	\$5,045,034
	2017		63,280	\$74	\$4,711,829
Lambs & Sheep	2018	962	962	\$111	\$106,782
	2017	968	968	\$116	\$112,288
Total Livestock & Poultry	2018				\$18,759,533
	2017				\$18,167,205



**FOREST PRODUCTS**

COMMODITY	YEAR	TOTAL VALUE
Timber	2018	\$15,740
	2017	\$12,394
Firewood	2018	\$816,233
	2017	\$824,478
Total Forest Products	2018	\$831,974
	2017	\$836,872

## FIELD CROPS

COMMODITY	YEAR	ACRES HARVESTED	TONS/ ACRE	TONS	US \$/ TON	TOTAL
Hay, Oat	2018	2,035	1.0	2,035	\$135	\$274,725
	2017	2,133	1.0	2,080	\$126	\$261,706
Pasture, Irrigated	2018	749				\$1,449,180
	2017	823				\$1,592,505
Range	2018	189,110				\$1,245,327
	2017	190,778				\$1,243,873
Miscellaneous Field	2018	2,119				\$794,625
	2017	2,772				\$1,022,868
Total Field Crops	2018	194,013				\$3,763,857
	2017	196,506				\$4,120,952



## LIVESTOCK AND POULTRY PRODUCTS

COMMODITY	YEAR	NUMBER	WEIGHT CWT	US \$/ UNIT	TOTAL
Milk, Market	2018		429,617	\$17	\$7,453,849
	2017		425,363	\$17	\$7,380,048
Eggs, Chicken Market	2018	21,530,123		\$2	\$33,371,691
	2017	26,427,177		\$1	\$38,847,950
Total Livestock & Poultry Products	2018				\$40,825,539
	2017				\$46,227,998



### APIARY PRODUCTS

COMMODITY	YEAR	TOTAL VALUE
Honey	2018	\$418,563
	2017	\$769,371
Bees Wax	2018	\$14,620
	2017	\$21,600
Pollination	2018	\$3,004,195
	2017	\$2,974,450
Total Apiary Products	2018	\$3,437,378
	2017	\$3,765,421

# AGRICULTURAL TRADING PARTNERS

IN 2018 WE CERTIFIED 8,755 SHIPMENTS OF PLANT MATERIAL (INCLUDING FRUITS AND VEGETABLES) GOING TO 49 COUNTRIES



## TOP TRADING PARTNERS

Mexico	5906
Canada	1601
Total	7507

## CENTRAL AMERICA & THE CARIBBEAN

Nicaragua	12
El Salvador	8
Guatemala	7
Costa Rica	6
Trinidad and Tobago	4
Honduras	2
Bahamas	2
Dominican Republic	1
Aruba	1
Total	43

## South America 0.3%

## SOUTH AMERICA

Chile	12
Ecuador	5
Colombia	5
Peru	2
Argentina	2
Total	26

## EUROPE

Netherlands	27
Germany	14
United Kingdom	5
Italy	5
Estonia	4
France	3
Belgium	2
Sweden	2
Spain	2
Ukraine	2
Portugal	1
Total	67

## AFRICA

South Africa	4
Total	4

## ASIA

Japan	564
Korea, Republic of	203
Taiwan	47
China	45
Thailand	35
Hong Kong	34
Singapore	21
Macao	4
Vietnam	3
Mongolia	2
United Arab Emirates	1
Malaysia	1
Russian Federation	1
India	1
Israel	1
Philippines	1
Total	964

## Oceania & Australia 1.6%

## OCEANIA & AUSTRALIA

Australia	92
New Zealand	49
New Caledonia	1
Micronesia,	1
Federated States of	1
Vanuatu	1
Total	144

# SUSTAINABLE AGRICULTURE





## Sustainable Agriculture – 2018

**S**ustainable Agriculture promotes the economic viability of agriculture while preserving natural resources and the environment. Pest prevention activities are essential to inhibiting the spread of exotic pests and ensuring a sustainable agricultural industry in California.

The Department of Agriculture, Weights and Measures administers programs for the detection, control and eradication of insect pests, plant diseases and invasive weeds, as well as for the enforcement of quarantines to prevent the spread of invasive pests.

Pest ratings are intended as aids to inform county agricultural commissioners and other interested persons as to a particular pest's environmental, agricultural, and biological significance, as well as its importance to the general public, and the

action recommended by the California Department of Food and Agriculture to deal with the pest.

- 
- ▶ "A"-rating: Organism of known economic importance subject to state (or agricultural commissioner) enforced action.
- 
- ▶ "Q"-rating: Organism requiring a temporary "A" rating pending determination of a permanent rating. The organism is suspected to be of economic importance, but its status is uncertain because of incomplete identification, inadequate information, etc.
- 

Our Entomology and Plant Pathology Labs provide rapid insect, and plant disease identification allowing for a quick response to pests of known economic importance

(A-rated) and those suspected of economic importance (Q-rated).

- ▶ 17 A-rated pests were identified by Plant Pathology, 148 A-rated pests identified by Entomology.
- ▶ 42 Q-rated pests were identified by Plant Pathology, 78 Q-rated pests identified by Entomology.

In 2018, AWM inspectors intercepted and remedied a total of 73 A and Q rated pests from the order Hemiptera, true bugs, consisting of armored scales, magnolia white scale *Pseudaulacapsis cockerelli*, as well as *Planococcus* and *Pseudococcus* sp. mealybugs.

These pests were intercepted on imported horticultural products originating from Florida, Hawaii, Costa Rica and Guatemala preventing introduction into San Diego's horticultural industry.

### High-Risk Pest Exclusion

- ▶ 4,980 incoming plant shipments were inspected.
- ▶ 180 Notices of Rejection were issued.
- ▶ 206 pests were found (35 A-rated, 107 B-rated, and 64 Q-rated).
- ▶ 3 international border operations with Homeland Security, Customs and Border Protection and U.S. Department of Agriculture were conducted.

### Detector Dog Teams

- ▶ Detector dogs alerted on 6,377 packages shipped through FedEx, UPS and Ontrac.
- ▶ 34 pests were found (6 A rated, 3 B rated, and 25 Q rated).
- ▶ 277 Notices of Rejections were issued, of which 232 were for incorrectly marked packages.
- ▶ 11 inspections were conducted at the USPS main shipping terminal in San Diego county resulting in alerts on 205 packages.
- ▶ Of the 205 packages alerted on, 78 Notices of Rejection were issued to shippers in violation of the Food and Agricultural Code.

### Organic Farming

San Diego county is at the forefront of organic farming with 360 registered organic producers. In 2018, organic growers in the county produced more than 160 unique crops, and over 400 unique crop varieties.

The majority of organic produce grown locally is sold to wholesalers who in turn sell it to markets across the United States. A portion of the produce is sold directly to local restaurants and natural food stores.

Organic growers also sell directly to the public through produce stands, Certified Farmers' Markets throughout the county

Weed Species	Rating	Acreage Survey/ Treated
Volutaria, <i>Volutaria</i> sp.	A	30.2
Spotted knapweed, <i>Centaurea maculosa</i>	A	24.1
Bridal broom, <i>Retama monosperma</i>	B	1.5
Canary Island St. John's wort, <i>Hypericum canariense</i>	B	22.31
Carnation Spurge, <i>Euphorbia terracina</i>	B	8.6
Medusahead, <i>Elymus caput-medusae</i>	C	10
Yellow starthistle, <i>Centaurea solstitialis</i>	C	32.8
French Broom, <i>Genista monspessulana</i>	C	12.8
Algerian sea lavender, <i>Limonium ramosissimum</i>	Invasive	15.35
Eupatory, <i>Ageratina adenophora</i>	Invasive	2.3
European sea lavender, <i>Limonium duriusculum</i>	Invasive	19.95
Ward's weed, <i>Carrichtera annua</i>	Invasive	7.6
Rattle Box, <i>Sesbania punicea</i>	Invasive	8.6
<b>Total Acreage</b>		<b>196.11</b>

of San Diego, and Community Supported Agriculture (CSA) programs.

The USDA's National Organic Standards Board defines "organic agriculture" as an ecological production management system that promotes and enhances biodiversity, biological cycles, and soil biological activity. San Diego county has 10.6% of the total number of organic growers in the state.

### Noxious / Invasive Weed Control

The Integrated Pest Control Program (IPC) protects the county's agriculture, sensitive habitats, native wildlife, and endangered species by controlling noxious and invasive weeds in cooperation with other County departments and agencies. Additional funding secured by AWM enabled IPC to increase their early detection rapid response efforts on rated noxious and invasive weeds.

- ▶ Two A-rated, three B-rated, and three C-rated species of noxious weeds, as well as five species of invasive weeds were treated for control and eradication by the IPC program, totaling 196.11 acres treated.

**Weed Control Performed on County Property**

IPC preserves road visibility and clearance; reduces fire danger along roadways and intersections; enhances drainage to prevent flooding; and keeps safety pull-over areas visible and easy to access. We perform weed control work along county roads and rights-of-way. We also control weeds along flood control conveyances to enhance the flow of water.

**Structural Pest Control**

Integrated Pest Control implements Board of Supervisors’ Policy F-45, which requires the use of Integrated Pest Management

protocols at all County facilities in order to reduce the use of chemical pest control methods by the County of San Diego while still ensuring effective pest management.

We use current scientific information and control methods to manage and eradicate pests by the most economical means with the least possible hazard to people, property, and the environment.

199 County facilities were inspected and treated for various structural pests in 2018.



Weed Control Locations	Removal Method	Acreage Surveyed/Treated
Habitat Restoration at County Parks	Herbicides/Hand Removal	32.6
Roadside Rights-of-Way	Herbicides	2,947.79
Airports	Herbicides	1,002.1
Flood Control District	Herbicides	14.3
Sanitation District	Herbicides	17
<b>Total Acreage</b>		<b>4,013.79</b>

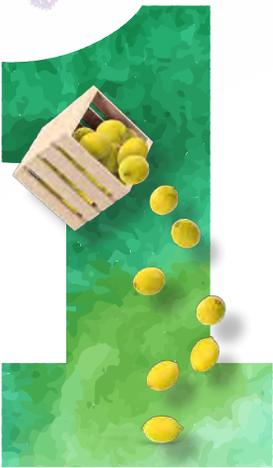
# C O U N T Y P R O F I L E

TOP AGRICULTURAL COMMODITIES	RANK	
	California	Nation
Nursery, greenhouse, floriculture and sod value of sales	1	2
Floriculture and bedding crops acres	1	1
Avocados acres	2	2



## 12,335

Labor workers in agriculture



**RANK  
1ST  
IN THE  
NATION**

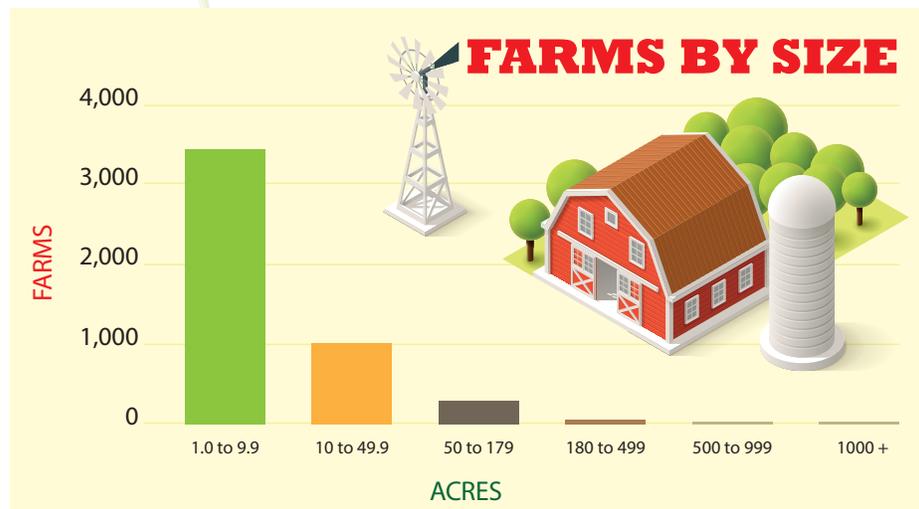


## 69%

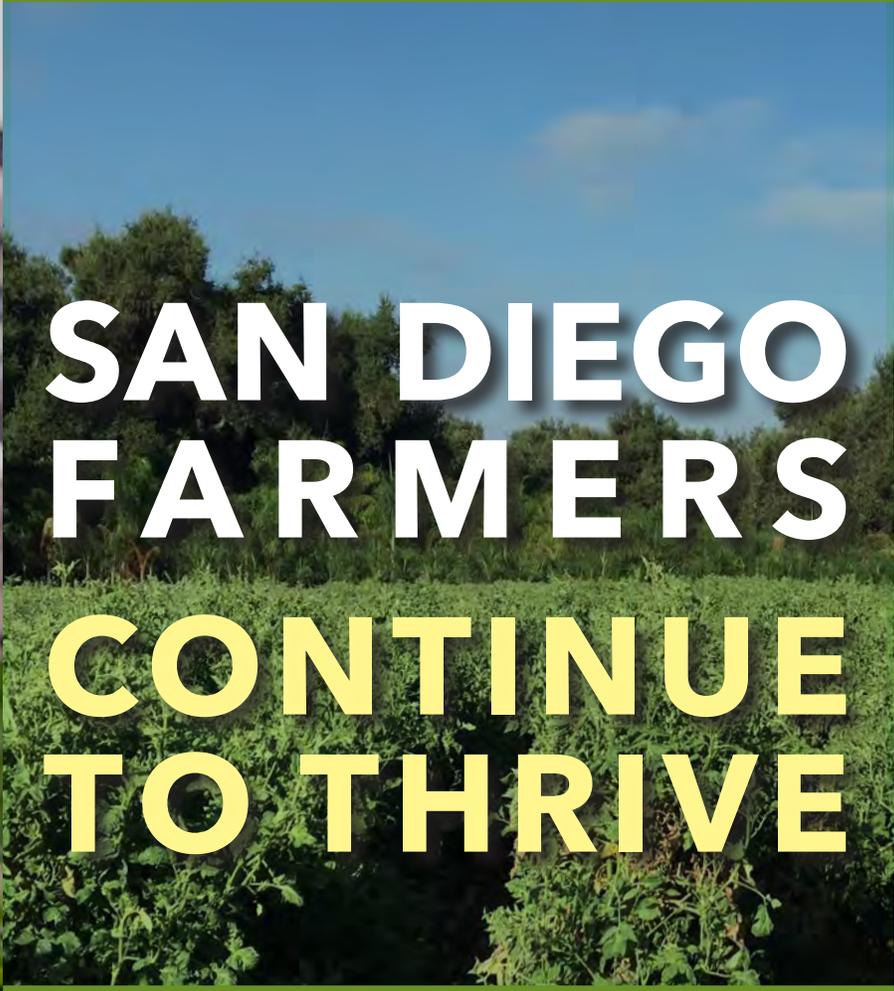
of farms in San Diego county are 1 to 9 acres



The county has the largest number of USDA certified organic farms



Source: 2017 Census of Agriculture. The Census of Agriculture is conducted every five years to collect agriculture data at the county level throughout the nation. For more information you may visit: <https://www.nass.usda.gov/AgCensus/index.php>



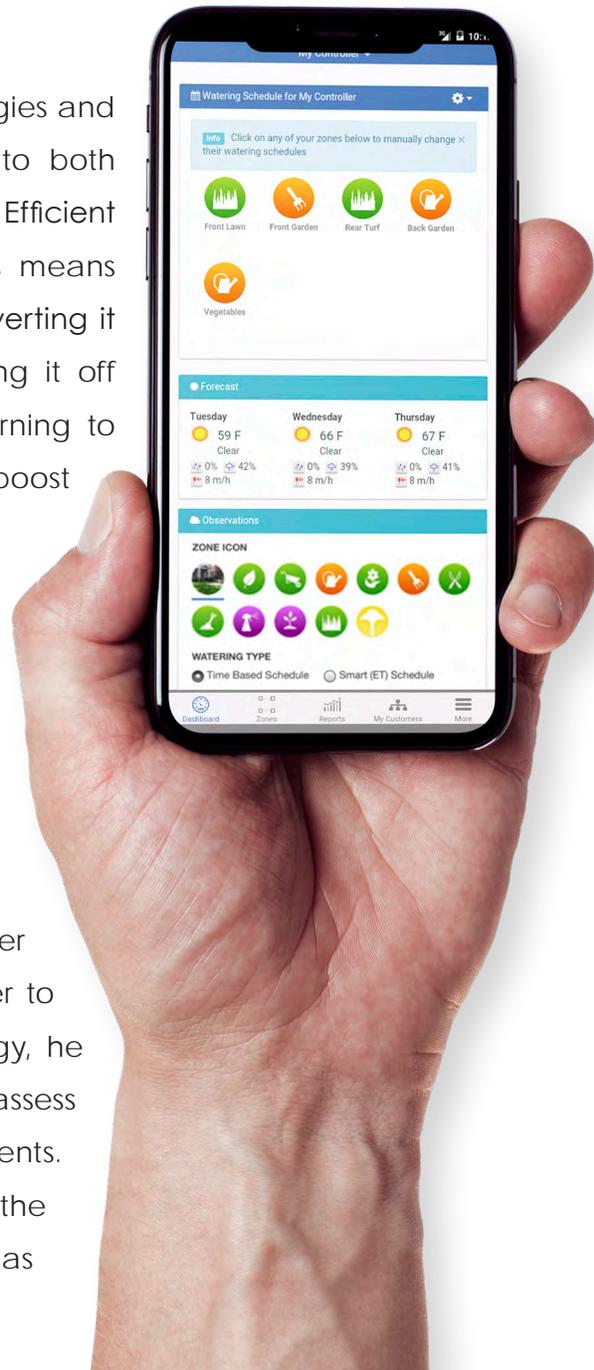
# SAN DIEGO FARMERS CONTINUE TO THRIVE



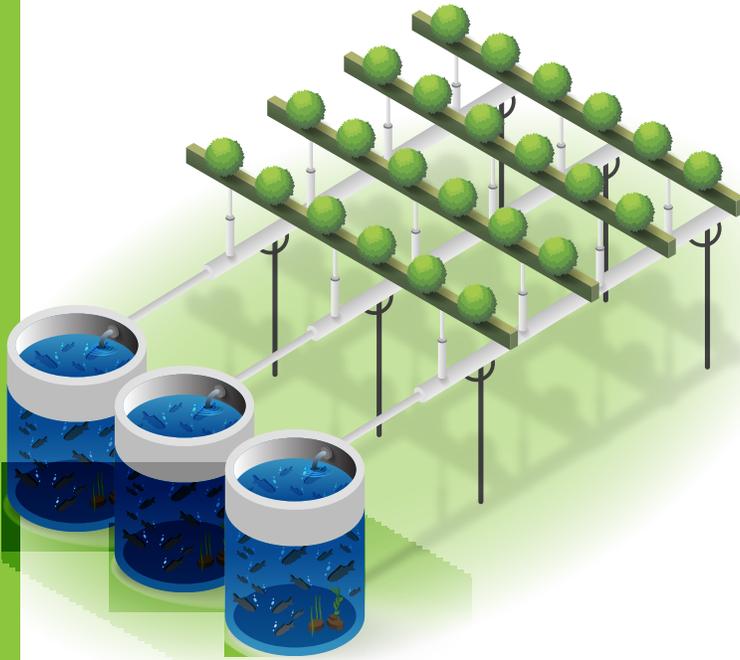
**SAN DIEGO FARMERS CONTINUE TO THRIVE DESPITE THE CHALLENGES CAUSED BY INCREASED WATER COSTS, LABOR SHORTAGES, AND INVASIVE PESTS.** ADAPTING TO PERPETUAL STATES OF TRANSITION AND ADJUSTMENTS IS THE MAINSTAY OF SAN DIEGO FARMERS. OUR FARMERS ARE PROVING TO BE INGENUOUS, PROGRESSIVE, AND EARLY ADOPTERS OF MODERN TECHNOLOGIES THAT TURN A DESERT INTO A CORNUCOPIA. **SOME PIONEERING MOMENTS WERE REALIZED USING IRRIGATION, AQUAPONICS, PLANTING SCHEMES, AND INFRASTRUCTURE.**

**T**he use of innovative irrigation technologies and aquaponics are successful responses to both water and land resource constraints. Efficient water use is tantamount to conserving it. This means letting water flow to where it is needed and diverting it from oversaturated production areas or shutting it off during rain events. San Diego farmers are learning to stretch beyond traditional farming methods to boost production yields while conserving water.

Wireless sensory technology coupled with automatic drip irrigation allowed one farmer to customize drip flow in his avocado orchard. Sensors embedded in the soil wirelessly send information to the farmer's mobile device which allows him to remotely monitor the irrigation and then adjust it accordingly. This resulted in the farmer conserving water as he now only applied water to his avocados as needed. Before the technology, he had to be on-site to hike through the orchard, assess each irrigation line, and make manual adjustments. Eliminating the need to be on-site meant the farmer could now focus on other tasks such as



administration, marketing the product, or contacting customers. Overall, less labor hours spent in the field and the water saved from applying this technology lead to lower cost of production which lead to higher profits.



Another farmer utilized an aquaponic production system to grow lettuce and tilapia fish simultaneously. Lettuce is grown hydroponically in one area, in soilless water-regulated channels, that receives nutrient-rich water originating from fish tanks in an adjacent area. This technology brings tremendous benefits to modern agriculture. The farmer uses less land, as he is not using soil to grow the lettuce. Also, having the lettuce in an enclosed area means no need to use pesticides and no need for the farmer to work in the heat or under inclement weather. Lastly, aquaponic production saves water as the water is filter between the lettuce and the tilapia.



Besides irrigation technology and aquaponics addressing water constraints, the change of conventional planting design schemes is addressing labor shortages. Farmers who are impacted by labor shortages may not have enough field workers to pick the avocados before they overripen on the tree. Nonetheless, a new planting design scheme is overcoming this obstacle.

A conventional planting scheme is to grow tall avocado trees planted 100 trees per acre. A Hass avocado farmer changed this conventional planting scheme at his farm by pruning the avocado trees shorter and planting them closer together, which allowed him to grow at a higher density of 400 trees per acre. The orchard farmer produced about 20,000 pounds of Hass avocados per acre, compared to the average in San Diego of 4,000 pounds per acre that were

grown using the conventional scheme. The shorter trees were easier to pick, as there was no longer a need to climb ladders to reach the fruit. As a result, the farmer reduced his labor needs during the harvest season and increased his production yield.



In addition, invasive pests are a familiar issue that farmers have to address. Today, the presence of the Asian citrus psyllid (ACP) and the disease it vectors, Huanglongbing (HLB) has become a concern to the production and movement of citrus through California. HLB is a concern because once it infects a tree, there is no cure. San Diego is free of HLB at this time; however, if it were to be detected in the county, citrus from our farms would be under quarantine to prevent its movement to non-affected counties and countries. San Diego county farmers are finding a way to keep ACP/HLB out of their farms.

To meet quarantine requirements, a local farmer built a specially adapted screen house to keep out ACP/HLB. The screen mesh material is fine enough to act as a barrier that prevents ACP from entering



the growing area while allowing sufficient sunlight through to meet the needs of the plants. This means that if HLB were found in San Diego, he would be able to continue selling his citrus plants to other counties because his plants would be protected from exposure to ACP carrying HLB.

Undoubtedly, the contributions of local farmers to the agricultural industry and economy in the region extend far beyond the diversity of fruits, vegetables, and nursery stock they bring to markets. In various ways, farmers adapt to the uncertainty in the farming industry by seeking to modernize production methods and maintain vitality. There seems to be no limit insight for local farmers' imaginative solutions to successfully overcome the challenges of increasing water costs, labor shortages, and invasive pests. San Diego residents can look forward to a robust and bountiful harvest for years to come.



# PROGRAMS AND SERVICES



## PROGRAMS AND SERVICES – 2018 HIGHLIGHTS

**Pest Exclusion Division** is the first line of defense in keeping unwanted pests out of our county. Inspections of incoming and outgoing plant shipments and production nurseries are conducted to look for pests harmful to agricultural production.

- ▶ 4,980 incoming plant shipments inspected with 206 actionable pest finds.
- ▶ 643 nurseries, comprising 11,930 acres, inspected for pests and diseases.
- ▶ 163,132 glassy-winged sharpshooter traps were inspected in nurseries.

**Detector Dog Team Program** supports the statewide pest prevention network via parcel shipments by using agricultural detector dogs at parcel facilities.

- ▶ 242 incorrectly marked packages containing plant material intercepted by the Detector Dog Teams at terminal facilities.

**Pest Detection Program** is a critical component of our statewide pest prevention network. Our Pest Detection Program performed 197,224 insect trap inspections throughout the county. The traps are used to detect insect pests, such as exotic fruit flies, Gypsy moth, Japanese beetle, and light brown apple moth which pose threats to California's agricultural and horticultural crops. There were several pests detected within the county, and the Pest Detection Program assisted both state and federal agencies in conducting activities to promptly and effectively eradicate the pests. Through early detection, damage to crops, the environment and economy, and the subsequent use of pesticides was reduced.



**Citrus Quarantine Program** was formed in 2017 and is tasked with ensuring that the citrus industry is in compliance with state regulations and quarantines when it comes to the Asian citrus psyllid (ACP). ACP spreads Huanglongbing (HLB), the most destructive disease known to citrus. The program's primary goal is to prevent the spread of HLB into the county. HLB was not found in San Diego county in 2018.

- ▶ 84 Grower inspections performed.
- ▶ 101 Transporter inspections performed.
- ▶ 137 Packinghouse inspections performed.
- ▶ 346 Compliance agreements issued.

**Pesticide Regulation Program** enforces state pesticide laws and regulations. Inspections, complaint and illness investigations, and evaluations of restricted material permits all serve to ensure pesticides are used in a safe and legal manner while protecting human and animal health, as well as the environment.

- ▶ Conducted 1,585 inspections.
- ▶ Conducted 86 hazardous materials inventory inspections.
- ▶ Completed 89 pesticide/antimicrobial investigations.

- 
- ▶ Investigated 61 complaints.
- 
- ▶ Issued 186 restricted materials permits.
- 
- ▶ Conducted 22 outreach events involving over 1,400 people.
- 
- ▶ Participated in 17 stakeholder meetings.
- 
- ▶ Issued 15 Cease and Desist Orders.
- 
- ▶ 62 enforcement actions were taken.
- 

**Agricultural Standards Division** supports the sustainability of local agriculture, ensures integrity in the marketplace, and promotes healthy families by inspecting fruits, vegetables, and honey for compliance with laws, regulations, and food standards. Activities include inspecting Certified Farmers' Markets and Certified Producers, conducting citrus maturity testing, and pesticide testing of organic produce for pesticide residue.

- 
- ▶ Issued certificates to 39 farmers' markets and 218 local growers certified in San Diego county.
- 
- ▶ 137 fruit and vegetable standardization inspections conducted.
- 
- ▶ 360 registered organic growers in San Diego county.
- 

**Agricultural Water Quality Program** performs inspections at nurseries, greenhouses, golf courses, cemeteries, and pest control businesses ensuring compliance with the county's Stormwater Permit, mandated by the San Diego Regional Water Quality Control Board. Inspections, education, and investigations are aimed at stopping the potential for discharging pollutants such as fertilizers, pesticides, and sediment into local waterways.

- 
- ▶ 277 inspections completed.
- 
- ▶ 23 complaints investigated.
- 

**Entomology and Plant Pathology Labs** provide rapid insect and plant disease identification allowing a quick response in the fight against pests.

- 
- ▶ Entomology lab performed 10,714 determinations.
- 
- ▶ Plant pathology lab performed 1,822 determinations.
-



**Honey Bee Protection Program** educates beekeepers on county and state apiary regulations including the requirement of beekeepers to register their hive locations with the County Agricultural Commissioner. Registration supports contact with beekeepers for exchange of important information on pesticide applications, quarantines, and best management practices.

- 
- ▶ 253 Beekeepers registered, totaling 26,129 managed honey bee colonies in 662 apiary locations.
- 

**Integrated Pest Control Program** works under the Board of Supervisors' policy mandating the use of Integrated Pest Management (IPM), which is an effective and environmentally sound approach to performing pest control. IPM incorporates current scientific information and control methods to manage and eradicate weeds and pests by the most economical means with the least possible hazard to people, property, and the environment. Integrated Pest Control's weed control work preserves road visibility and clearance; reduces fire danger along roadways and intersections; enhances drainage to prevent flooding; and keeps safety pull-over areas visible and easy to access.

- 
- ▶ 4,014 acres of weeds within the county were treated with herbicides or manually removed.
- 
- ▶ 199 county facilities treated for structural pests.
- 

**Civil Actions Program** advocates for the department on civil penalty actions in an effort to gain regulatory compliance.

- 
- ▶ 224 civil actions for weights & measures violations.
- 
- ▶ 25 civil actions for structural pesticide use violations.
- 
- ▶ 5 civil actions for agricultural standards violations.
- 
- ▶ 37 civil actions for agricultural pesticide use violations.
- 
- ▶ 4 civil action for quarantine violation.
- 

**Weights and Measures Division** ensures consumers get what they pay for and supports fair competition amongst businesses in the marketplace. The division performs inspections to verify accuracy of product weight, measure, and price.

These inspections include testing of commercial weighing and measuring devices, labeling and advertising requirements for petroleum products, price verification (scanners), quantity control for packages, and weighmaster compliance.

- 
- ▶ 56,334 commercial weighing and measuring devices inspected with 87.8% compliance rate.
- 
- ▶ 305 consumer complaints investigated regarding commercial meters, petroleum, and price overcharges.
- 
- ▶ 30,494 items scanned at 1,923 retail locations for price verification inspections.
- 



PROGRAM	SERVICES	HOW TO REACH STAFF
Agricultural Hazardous Materials Inventory	Inspections and registrations of agricultural hazardous materials; and California Environmental Reporting System help	858-694-8980 FAX: 858-467-9277
Agricultural Standards	Certified farmers' markets and certified producer certificates; organic handler/producer; fruit and vegetable standardization; agricultural stormwater	858-614-7786 FAX: 858-467-9273
Citrus Quarantine	Conducts inspections to verify compliance with the Asian citrus psyllid quarantine	858-614-7770 FAX: 858-467-9697
Detector Dog Teams	Parcel inspections	858-614-7770 FAX: 858-467-9697
Entomology	Insect identification; pest surveys	858-614-7738 FAX: 858-467-9697
Honey Bee Protection	Apiary registration, hive inspections, honey bee education, and outreach	858-614-7738 FAX: 858-467-9697
Integrated Pest Control	Invasive/Noxious Weed Control Information	858-614-7750 www.SDWMA.org FAX: 858-467-9279
Pest Exclusion (Import/Export; Nursery; Light Brown Apple Moth; Pierce's Disease; Sudden Oak Death)	Inspect incoming and outgoing plant commodity shipments; phytosanitary and quarantine compliance certificates; nursery inspections; Gypsy moth inspections	760-752-4700 Inspection Request Line: 760-752-4713 FAX: 760-724-4098
Pest Detection	Invasive insect trapping, such as exotic fruit flies, Gypsy moth, and Japanese beetle	858-614-7770 800-300-TRAP(8727) FAX: 858-467-9697
Pesticide Regulation	Pest control business registration; operator identification numbers; pesticide use reporting; restricted materials permits; employee pesticide training requirements; pesticide complaints	858-694-8980 FAX: 858-467-9277
Plant Pathology/Nematology	Plant disease diagnostic services; plant disease surveys	858-614-7734 FAX: 858-467-9697
Weights & Measures	Scanner and commercial weighing & measuring device registration; weighmaster; petroleum quality/labeling; package & labeling inspection	858-694-2778 FAX: 858-467-9278 Meter Testing Lab Hours: 8:00am-5:00pm M-F

**The 2018 Crop Statistics and Annual Report was produced by Administrative Analyst II, Jennifer Alipio, and Operations Research Analyst, Porfirio Mancillas.** All reported figures represent Freight on Board (F.O.B.) values for products. These are not net values and do not reflect cost of production. Total values may not add precisely due to rounding. Gross value of farm products does not reflect the total value to the economy.



A photograph of a nursery aisle. On either side of a dirt path are rows of trees, each planted in a large wooden crate. The trees have dense foliage with green and reddish-brown leaves. The path is covered with fallen leaves. The word "STAFF" is overlaid in white text in the center of the image.

STAFF

Ha Dang  
County Agricultural Commissioner/Sealer of Weights and Measures

**Megan Moore**  
Assistant County Agricultural Commissioner/Sealer of Weights and Measures

**Marisela Garcia-Centeno**  
Deputy Director

ADMINISTRATION

HR

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**Belinda Rushton** HR Specialist

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**Mark Lindstrom** Admin. Services Mgr. I  
**Aida Foronas** Sr. Accountant  
**Melissa Balino** Admin. Analyst III  
**Fery Samani** Associate Accountant  
**Sandra Luck** Admin. Analyst I  
**Armando Belenzo** Accounting Technician  
**Erlinda Espiritu** Purchasing Clerk  
**Cirila Pieper** Account Clerk Specialist  
**Josephine Aguinaldo** Office Support Specialist  
**Nahid Chizani** Office Support Specialist

ORA

**Lisa Guo** Operations Research Analyst  
**Porfirio Mancillas** Operation Research Analyst

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**Jeffery Westrick** Sr. ASI  
**Lorie Roberts** GIS Technician

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**Bonnie Wheeler** Supervising ASI  
**Elinor Weed** Office Support Specialist

SR. ASI

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ASI

**Kimberly Greene**  
**Nestor Silva**  
**Patricia Watkins**  
**Monica Winters**

INTEGRATED PEST MGMT

**Mark Martinez** Supervising Pest Mgmt. Tech.

PEST MGMT TECHNICIAN II

**Paul Cadena**  
**Dustin Hylton**  
**Danny Luna**  
**Ivan Robles**  
**Raymond Wood**

PEST MGMT TECHNICIAN I

**Raul Macias**  
**Marcel Sanchez**

DETECTION, DIAGNOSTICS,  
QUARANTINE

**Priscilla Yeane** Deputy Ag Commissioner/  
Sealer  
**Jason Sapp** Supervising ASI  
**Tracy Ellis** Agricultural Scientist  
**Patricia Nolan** Agricultural Scientist  
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**Rosa Sotomayor** Office Assistant

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**Jaime Garza**  
**Jasmine Lopez**  
**Kyle Moranton**  
**Jeremy Partch**

ASI

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**Tyler Tkachuk**  
**William Walsh**

IDS II

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**Camthao Ho**  
**Alice Larphaveesarp**  
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**Deborah De La Riva**

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**Lynne Gardner** Sr. IDS  
**Siobhan Lozada** Sr. IDS  
**Ivonne Torres** Sr. IDS

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**Brian Burkman**  
**Raul Burquez**  
**Manuel Casillas**  
**Chun Cheung**  
**Casey Choate**  
**De'Rein Daniel**  
**Sulay Felix**  
**Jorge Fregoso**  
**Valerie Galarze**  
**Sebastian Hampton**  
**Kimberly Hock**  
**Benjamin Jacobs**  
**Mohamed Jama**  
**Joseph Johnson**  
**Roy Joseph**  
**Vincent Kunkel**  
**Marissa Mariscal**  
**Rita McElroy**  
**Belinda Moss**





**Mary Rowin**  
**Mirna Shaker**  
**Keegan Smock**  
**Jerald Throckmorton**  
**John Utterback**  
**John Velardi**  
**Suchavady Vilikchai**  
**Daniel Villada**  
**Valerie Wagner**

#### WEIGHTS AND MEASURES

**Marco Mares** Deputy Ag Commissioner/Sealer  
**John Kinkaid** Supervising ASI  
**Claudia Verdugo** Supervising ASI  
**Andrei Brezoica** Supervising ASI  
**Mark Roughton** Sr. Office Assistant  
**Areleous Burton** Office Assistant

#### SR. ASI

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**Randy Carrera**  
**Neil Connelly**  
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**Atlaw Kebede**  
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**Quang Ong**  
**John Porter**  
**Bradley Shipley**  
**Annie Silva**  
**Mazen Stevens**

#### ASI

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**Garrett Giles**  
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**Victoria Ochoa**  
**Christopher Placek**

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**Jennifer Alipio** Admin Analyst II  
**Paul Rushton** Office Support Specialist

#### PESTICIDE REGULATION

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**Gabriel Hernandez** Supervising ASI  
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**Sabumon Joseph** Office Assistant  
**Suzanne Raymond** Office Assistant

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**Jennepher Tate-Murphy**  
**Nancy Wickus**

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**Tyler Lew**  
**David Navarro**  
**Brian Pennington**  
**Joseph Sullivan**

#### PEST EXCLUSION

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**Austin Shepherd** Supervising ASI  
**Robert Roma** Supervising ASI  
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**Charity McGuire** Administrative Secretary II  
**Judith Arredondo** Sr. Office Assistant  
**Cambria Jensen** Office Assistant

#### SR. ASI

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**James Byers**  
**Robert Delaval**  
**Nicole Goss**  
**Saiqa Javed**  
**Narriman McNair**  
**Jorge Olivares**  
**Gregory Terhall**

#### ASI

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**Cindel Carballo**  
**Candice Evans**  
**Kahsai Ghebretnsea**  
**Lila Marko**  
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**James Riley**  
**Melissa Sinkovits**  
**Joseph Wilson**

#### IDS II

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**Arthur Drum**  
**Loren Libolt**  
**Dusko Pantovic**  
**Juan Zazueta**

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Appreciation goes to staff who no longer work at AWM. Their hard work and commitment continued to make a positive impact.

#### PHOTO CREDITS:

AWM's ASIs and IDSs







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