INVASIVE SPECIES

- ASIAN CITRUS PSYLLID
- MEDITERRANEAN FRUIT FLY
- GYPSY MOTH
- PLUS MANY MORE!

MONTEREY COUNTY 2019 CROP REPORT

INVASIVE SPECIES

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MEDITERRANEAN FRUIT FLY

In accordance with Sections 2272 and 2279 of the California Food and Agricultural Code, I am pleased to release the 2019 Annual Crop Report for the County of Monterey. This report reflects a production value of $4,409,992,000 which is an increase of 3.6% from 2018. It is important to note that the values represented in this report reflect the gross value of agricultural commodities grown in Monterey County and not the costs associated with labor, field preparation, planting, irrigating, harvesting, and other production activities. As is always the case, we saw some crops increase in value while others decreased. The following are the major increases and decreases for our highest value crops.

Leaf lettuce is our top crop again with a value of $840,555,000 representing a 14.6% increase from 2018 largely attributed to better pricing for Romaine lettuce. Strawberries came in as the 2nd most valuable crop at $732,761,000 with an increase of 4.9% or $34,251,000. The increase mostly resulted from improved pricing for fresh strawberries. Head lettuce was again the 3rd most valuable crop at $514,088,000, an increase of 11.9% or $54,636,000. The increased value in head lettuce was due to increased production and higher average pricing for carton packed lettuce. Broccoli repeated its 4th place ranking with a 17.6% increase to $457,390,000. Broccoli's increased value was mostly due to increased production.

The Vegetable Crops category had an increase in value of $227,989,000 to $3,099,088,000. The Fruits and Nuts category decreased $15,710,000 to $1,028,146,000 primarily due to the reduction in Wine Grapes of $61,662,000 or 24.8% for a total of $186,096,000. Fruits and Nuts without Wine Grapes increased $45,952,000 or 5.7% to $842,050,000. Nursery Crops suffered a decrease of 29.5% or $60,310,000 due to decreases in acreage, production, and prices once again due to increased imports and demand for cannabis greenhouse production.

Several crops such as livestock, alfalfa, and pastureland were influenced by above average late season rains. Field Crops increased in value by $806,000 to $24,554,000. Livestock and Poultry remained stable at $110,580,000.

This report would not be possible without the voluntary contribution of the agricultural industry in providing us with their data. This year, in addition to presenting our crop values, we are drawing awareness to Invasive Species which adversely affect agricultural production by resulting in quarantines and increasing the use of pesticides. Credit for the successful creation of this report goes to our talented staff Rich Ordonez, Graham Hunting, Shayla Neufeld, Yvonne Perez, and Mayra Marrufo.

Sincerely,

Henry S. Gonzales
Agricultural Commissioner

COUNTY OF MONTEREY AGRICULTURAL COMMISSIONER
1428 Abbott Street, Salinas, California 93901
tel (831) 759-7325 • fax (831) 422-5003 • ag.co.monterey.ca.us

TEN OF THE MOST SERIOUS INVASIVE PESTS

Ranking of invasive species varies in each county based on the threat of the pest, crops grown and climatic conditions of the area.

MEDITERRANEAN FRUIT FLY

MELON FRUIT FLY

GLASSY-WINGED SHARPSHOOTER

JAPANESE BEETLE

GYPSY MOTH

MEXICAN FRUIT FLY

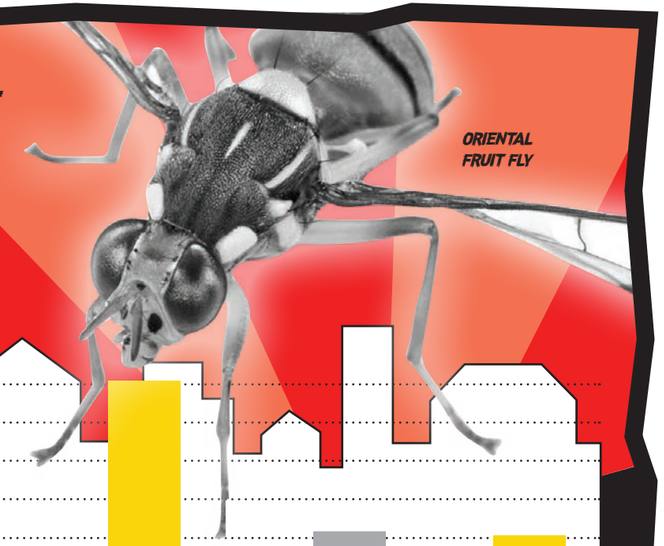
ASIAN CITRUS PSYLLID

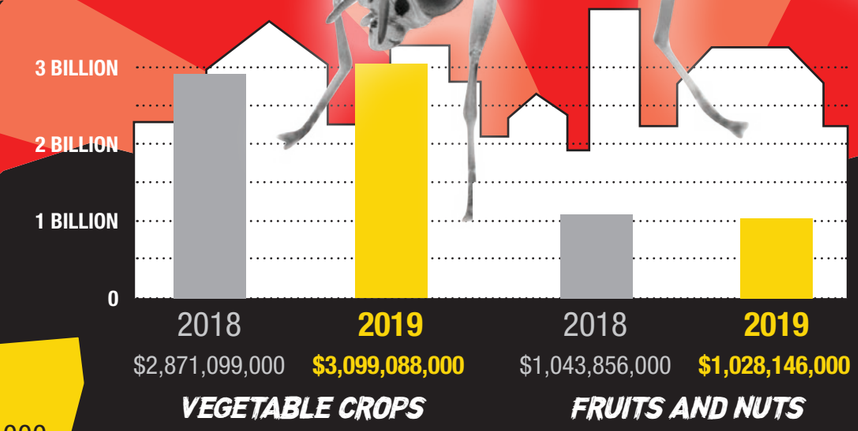
LIGHT BROWN APPLE MOTH

ORIENTAL FRUIT FLY

EUROPEAN GRAPEVINE MOTH

GROSS PRODUCTION VALUE

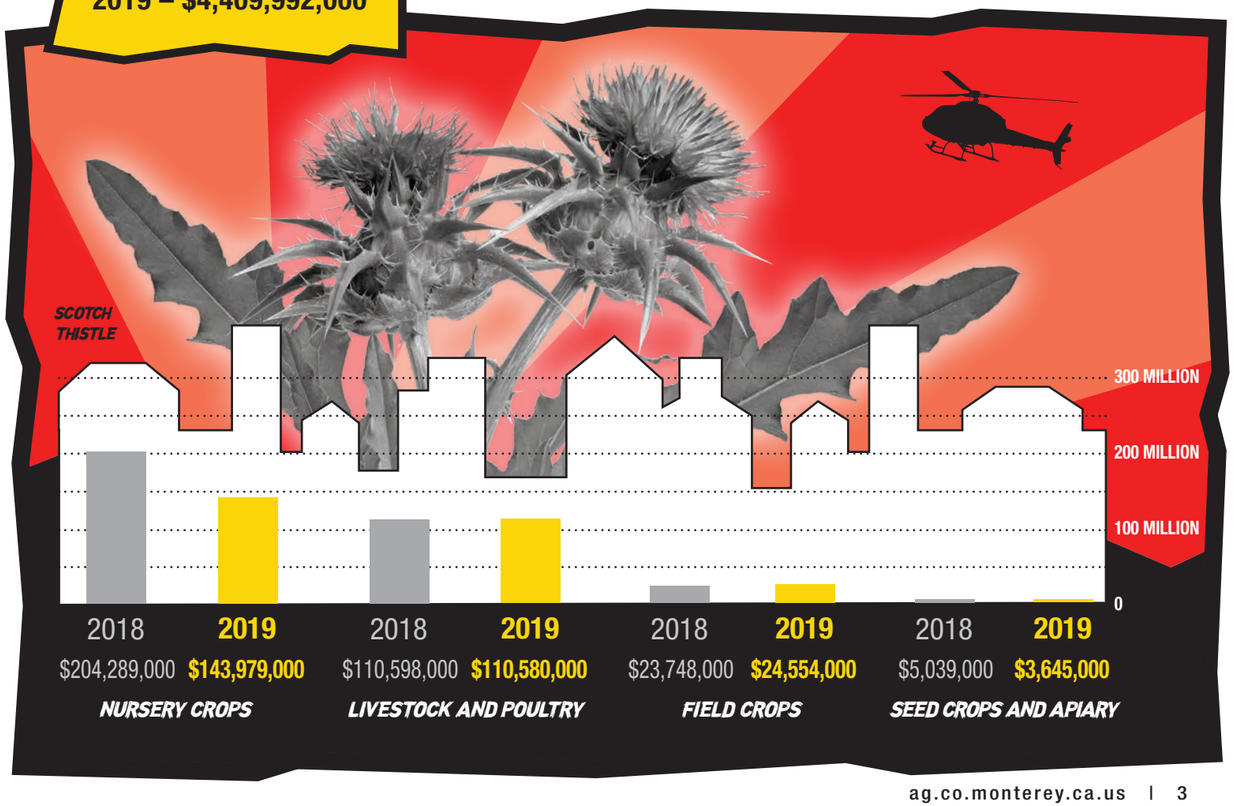




TOTAL

2018 – $4,258,629,000

2019 – $4,409,992,000



MONTEREY COUNTY'S MAJOR CROP TRENDS

CROP		1999	2009	2019
Artichoke	Acre	6,720	4,375	3,835
	Value	$43,014,000	$48,084,000	$53,152,000
	CPI Adjusted*	$63,256,000	$54,953,000	-
Broccoli	Acre	53,880	56,423	54,027
	Value	$241,554,000	$280,236,000	$457,390,000
	CPI Adjusted	$355,226,000	$320,270,000	-
Cauliflower	Acre	17,538	18,817	18,989
	Value	$105,015,000	$112,040,000	$212,375,000
	CPI Adjusted	$154,434,000	$128,046,000	-
Celery	Acre	9,655	11,801	10,005
	Value	$87,132,000	$172,227,000	$186,391,000
	CPI Adjusted	$128,135,000	$196,831,000	-
Grapes (Wine)	Acre	34,187	41,114	44,683
	Value	$157,926,000	$238,082,000	$186,096,000
	CPI Adjusted	$232,244,000	$272,094,000	-
Head Lettuce	Acre	59,634	48,691	40,277
	Value	$315,644,000	$435,952,000	$514,088,000
	CPI Adjusted	$464,182,000	$498,231,000	-
Leaf Lettuce	Acre	42,950	94,491	58,846
	Value	$268,659,000	$736,570,000	$840,555,000
	CPI Adjusted	$395,087,000	$841,794,000	-
Mushroom	Pounds	47,584,000	37,264,000	45,703,000
	Value	$61,400,000	$68,938,000	$86,836,000
	CPI Adjusted	$90,294,000	$78,786,000	-
Nursery	Acre	2,635	2,491	745
	Value	$180,822,000	$294,572,000	$143,979,000
	CPI Adjusted	$265,915,000	$336,654,000	-
Spinach	Acre	13,001	9,519	13,550
	Value	$64,959,000	$131,996,000	$127,120,000
	CPI Adjusted	$95,528,000	$150,853,000	-
Strawberry	Acre	6,864	11,247	9,232
	Value	$217,600,000	$756,144,000	$732,761,000
	CPI Adjusted	$320,000,000	$864,165,000	-
TOTAL OF MAJOR CROPS ABOVE	**Acre**	**247,064**	**298,969**	**254,189**
	Value	**$1,743,725,000**	**$3,274,841,000**	**$3,540,730,000**
	CPI Adjusted	**$2,564,301,000**	**$3,742,677,000**	**-**

* Consumer Price Index Conversion http://liberalarts.oregonstate.edu/sites/liberalarts.oregonstate.edu/files/polisci/faculty-research/sahr/inflation-conversion/pdf/cv2018.pdf

MONTEREY COUNTY'S TOP CROPS

CROP	2019 CROP VALUE	2019 CROP RANKING	2018 CROP RANKING
Leaf Lettuce	**$840,555,000**	**1**	**1**
Strawberry	**$732,761,000**	**2**	**2**
Head Lettuce	**$514,088,000**	**3**	**3**
Broccoli	**$457,390,000**	**4**	**4**
Cauliflower	**$212,375,000**	**5**	**6**
Misc. Vegetables	**$196,840,000**	**6**	**7**
Celery	**$186,391,000**	**7**	**9**
Wine Grape	**$186,096,000**	**8**	**5**
Nursery	**$143,979,000**	**9**	**8**
Spinach	**$127,120,000**	**10**	**10**
Livestock & Poultry	$110,580,000	11	11
Brussels Sprout	$95,452,000	12	13
Mushroom	$86,836,000	13	12
Cabbage	$61,680,000	14	19
Artichoke	$53,152,000	15	15
Peas	$52,640,000	16	14
Lemon	$44,880,000	17	17
Raspberry	$43,714,000	18	21
Onion, Dry	$36,403,000	19	18
Carrot	$30,160,000	20	22
Kale	$30,084,000	21	16
Spring Mix	$22,717,000	22	20
Rangeland	$20,316,000	23	23
Blackberry	$13,453,000	24	26
Chard	$12,275,000	25	25
Garlic	$11,352,000	26	24

"MONTEREY COUNTY CURRENTLY GROWS OVER 150 SPECIALTY CROPS AND EXPORTS NEARLY **400 BILLION POUNDS OF PRODUCE** FROM THE SALINAS VALLEY EVERY YEAR. DESPITE THIS PROSPERITY, OUR THRIVING INDUSTRY AND NATURAL RESOURCES REMAIN **THREATENED BY INVASIVE SPECIES**."

VEGETABLE CROPS

CROP[1]	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL[2]
Anise / Fennel	2019	863	19.10	16,500	ton	$1,150.00	$18,975,000
	2018	848	18.93	16,100	ton	$903.00	$14,538,000
Artichoke	2019	3,835	7.87	30,200	ton	$1,760.00	$53,152,000
	2018	4,469	6.13	27,400	ton	$1,940.00	$53,156,000
Asparagus	2019	552	3.75	2,070	ton	$2,590.00	$5,361,000
	2018	1,297	4.24	5,500	ton	$2,620.00	$14,410,000
Bok Choy	2019	284	11.25	3,200	ton	$1,020.00	$3,264,000
	2018	387	11.49	4,450	ton	$818.00	$3,640,000
Broccoli, Bulk[3]	2019	—	—	106,000	ton	$835.00	$88,510,000
	2018	—	—	94,900	ton	$795.00	$75,446,000
Broccoli, Fresh	2019	40,520	7.85	318,000	ton	$1,160.00	$368,880,000
	2018	39,332	7.24	285,000	ton	$1,100.00	$313,500,000
Broccoli, Total	2019	54,027	—	—	—	—	$457,390,000
	2018	52,442	—	—	—	—	$388,946,000
Brussels Sprout	2019	4,891	9.95	48,700	ton	$1,960.00	$95,452,000
	2018	4,187	10.39	43,500	ton	$1,800.00	$78,300,000
Cabbage, Bulk	2019	—	—	70,500	ton	$270.00	$19,035,000
	2018	—	—	49,200	ton	$238.00	$11,710,000
Cabbage, Fresh	2019	2,740	26.80	73,400	ton	$581.00	$42,645,000
	2018	2,516	20.36	51,200	ton	$512.00	$26,214,000
Cabbage, Total	2019	5,372	—	—	—	—	$61,680,000
	2018	4,934	—	—	—	—	$37,924,000

1 Organic production included.
2 Totals may not calculate due to rounding.
3 Bulk may include one or more of the following: food service, processing and/or value added.

VEGETABLE CROPS (CONTINUED)

CROP	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL
Carrot, Bulk	2019	—	—	42,000	ton	$360.00	$15,120,000
	2018	—	—	37,700	ton	$407.00	$15,344,000
Carrot, Fresh	2019	1,290	18.20	23,500	ton	$640.00	$15,040,000
	2018	1,160	19.82	23,000	ton	$648.00	$14,904,000
Carrot, Total	2019	2,690	—	—	—	—	$30,160,000
	2018	2,417	—	—	—	—	$30,248,000
Cauliflower, Bulk	2019	—	—	27,800	ton	$693.00	$19,265,000
	2018	—	—	31,500	ton	$848.00	$26,712,000
Cauliflower, Fresh	2019	16,141	9.75	157,000	ton	$1,230.00	$193,110,000
	2018	16,691	10.71	179,000	ton	$1,020.00	$182,580,000
Cauliflower, Total	2019	18,989	—	—	—	—	$212,375,000
	2018	19,636	—	—	—	—	$209,292,000
Celery, Bulk	2019	—	—	24,900	ton	$488.00	$12,151,000
	2018	—	—	23,800	ton	$400.00	$9,520,000
Celery, Fresh	2019	9,305	35.50	330,000	ton	$528.00	$174,240,000
	2018	9,382	33.68	316,000	ton	$430.00	$135,880,000
Celery, Total	2019	10,005	—	—	—	—	$186,391,000
	2018	10,088	—	—	—	—	$145,400,000
Chard	2019	1,249	7.50	9,370	ton	$1,310.00	$12,275,000
	2018	1,237	8.25	10,200	ton	$1,490.00	$15,198,000
Cilantro	2019	1,150	7.60	8,740	ton	$1,560.00	$13,634,000
	2018	1,268	7.01	8,890	ton	$1,610.00	$14,313,000
Garlic	2019	844	10.19	8,600	ton	$1,320.00	$11,352,000
	2018	886	10.56	9,360	ton	$1,750.00	$16,380,000
Kale	2019	2,183	10.00	21,800	ton	$1,380.00	$30,084,000
	2018	2,611	10.30	26,900	ton	$1,790.00	$48,151,000
Leek	2019	684	11.97	8,190	ton	$1,470.00	$12,039,000
	2018	589	13.30	7,830	ton	$1,390.00	$10,884,000

> IT IS ESTIMATED THAT CALIFORNIA **LOSES THREE BILLION DOLLARS ANNUALLY IN AGRICULTURAL REVENUES** DUE TO DAMAGE FROM INVASIVE PESTS THAT HAVE BEEN INTRODUCED THROUGHOUT THE STATE.

VEGETABLE CROPS (CONTINUED)

CROP	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL
Lettuce, Total[4]	2019	99,123	—	—	—	—	$1,354,643,000
	2018	95,529	—	—	—	—	$1,192,623,000
Misc. Vegetables, Bulk	2019	—	—	171,000	ton	$710.00	$121,410,000
	2018	—	—	179,000	ton	$735.00	$131,565,000
Misc. Vegetables, Fresh	2019	11,300	7.03	79,400	ton	$950.00	$75,430,000
	2018	11,424	6.65	76,000	ton	$970.00	$73,720,000
Misc. Vegetables, Total[5]	2019	35,624	—	—	—	—	$196,840,000
	2018	40,602	—	—	—	—	$205,285,000
Mushroom	2019	144	—	45,703,000	lbs	$1.90	$86,836,000
	2018	145	—	46,020,000	lbs	$2.07	$95,261,000
Napa Cabbage	2019	436	15.52	6,770	ton	$1,040.00	$7,041,000
	2018	336	14.11	4,740	ton	$864.00	$4,095,000
Onion, Dry	2019	2,146	27.49	59,000	ton	$617.00	$36,403,000
	2018	1,919	39.86	76,500	ton	$500.00	$38,250,000
Parsley	2019	250	10.70	2,680	ton	$1,460.00	$3,913,000
	2018	261	11.49	2,990	ton	$1,400.00	$4,186,000
Peas[6]	2019	5,357	—	—	—	—	$52,640,000
	2018	5,338	—	—	—	—	$61,387,000
Peppers[7]	2019	590	18.70	11,000	ton	$406.00	$4,466,000
	2018	518	24.71	12,800	ton	$390.00	$4,992,000
Radish	2019	195	11.46	2,230	ton	$1,000.00	$2,230,000
	2018	193	12.64	2,440	ton	$1,090.00	$2,660,000
Spinach, Bulk	2019	—	—	114,000	ton	$960.00	$109,440,000
	2018	—	—	122,000	ton	$984.00	$120,048,000
Spinach, Fresh	2019	1,530	8.50	13,000	ton	$1,360.00	$17,680,000
	2018	1,900	8.50	16,200	ton	$1,440.00	$23,328,000
Spinach, Total	2019	13,550	—	—	—	—	$127,120,000
	2018	16,200	—	—	—	—	$143,376,000
Spring Mix	2019	2,771	8.95	24,800	ton	$916.00	$22,717,000
	2018	4,618	8.25	38,100	ton	$982.00	$37,414,000
Squash	2019	104	10.55	1,100	ton	$595.00	$655,000
	2018	116	11.72	1,360	ton	$581.00	$790,000
VEGETABLE CROPS **TOTAL**	**2019**	**267,898**					**$3,099,088,000**
	2018	**273,071**					**$2,871,099,000**

4 See Lettuce Production, page 10
5 Includes: Arugula, Beet, Broccolini, Cactus Pear, Collard Green, Cucumber, Fava Bean, Frisee, Green Onions, Herbs, Kohlrabi, Mache, Mustard, Pumpkin, Radicchio, Rappini, Salad Products, Tomato and Turnip.
6 Includes: Bulk
7 Includes: Bell Pepper, Chili Pepper and Pimento.

MEDITERRANEAN FRUIT FLY

Labeled the most important agricultural pest in the world by the United States Department of Agriculture (USDA) and the California Department of Food and Agriculture (CDFA), the Ceritits capitata, commonly known as the Mediterranean fruit fly (Medfly) lays its eggs in over 250 fruits, nuts, and vegetables including raspberries, grapes, and stone fruits. When the eggs hatch into larva, they feed on their hosts, causing them to prematurely fall and rot. Native to Africa, the Medfly has been found and established in areas on six continents, including Hawaii in the United States. If this fruit fly becomes established in California, estimates put potential losses at approximately $1.2 billion to the agricultural industry.

First detected in California in 1975, state and local officials have been battling Medfly invasions ever since. In the 1980s, California had two major outbreaks in Santa Clara and Los Angeles, and many smaller outbreaks throughout the state. It is estimated that eradication projects and production losses can cost $300,000 to $200 million per incident. Like the varying locations of Medfly outbreaks, eradication programs also have varied over the years.

In the 1980s, California used helicopters to spray the pesticide Malathion over residential areas that had outbreaks in an effort to kill the pest. While it was effective and considered safe, these sprays were not popular among residents in the spray zones. In 1990, the program ended due to public pressure.

Attempting to find better and less intrusive forms of control, USDA and CDFA officials introduced the sterile Medfly release program in 1996. The premise is simple — to flood areas with sterile male flies that will mate with any females present —resulting in no viable offspring. Since beginning, the program has been steadily releasing sterile males preventatively to combat outbreaks in high risk zones and is currently releasing 62,500 to 125,000 flies per square mile every week. Also used in outbreak situations, sterile male releases are combined with on-the-ground surveys, individual tree treatments, and established quarantine zones. These tactics have resulted in positive eradication efforts. The cost of the sterile release program reaches $16 million annually but is preferrable compared to alternative eradication and production losses.

Locally, the Monterey County Agricultural Commissioner's Office is doing its part to detect any Medfly in the county. County staff place and monitor approximately 240 traps covering all residential areas throughout the county from April to October. Staff also provides public outreach and support services to members of the agricultural industry so they are aware of state Medfly quarantine zones. Working together, officials have been able to keep this destructive agricultural pest from becoming established in California.

LETTUCE PRODUCTION

CROP	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL
HEAD LETTUCE							
Naked	2019	—	—	5,656,000	ctn[8]	$13.60	$76,922,000
	2018	—	—	5,457,000	ctn	$12.50	$68,213,000
Wrapped	2019	—	—	21,536,000	ctn	$14.90	$320,886,000
	2018	—	—	20,735,000	ctn	$13.70	$284,070,000
Bulk	2019	—	—	306,000	ton	$380.00	$116,280,000
	2018	—	—	257,000	ton	$417.00	$107,169,000
HEAD LETTUCE, TOTAL	**2019**	**40,277**	**1,020**	**41,083,000**	**ctn**	**—**	**$514,088,000**
	2018	**38,172**	**1,000**	**38,172,000**	**ctn**	**—**	**$459,452,000**
LEAF LETTUCE							
Butter Leaf	2019	1,045	950	993,000	ctn	$10.90	$10,824,000
	2018	1,161	950	1,103,000	ctn	$9.22	$10,170,000
Endive	2019	318	1,100	350,000	ctn	$9.26	$3,241,000
	2018	287	1,100	316,000	ctn	$9.28	$2,932,000
Escarole	2019	171	1,100	188,000	ctn	$13.50	$2,538,000
	2018	154	1,100	169,000	ctn	$11.40	$1,927,000
Green Leaf	2019	6,406	950	6,086,000	ctn	$10.59	$64,451,000
	2018	8,278	950	7,864,000	ctn	$9.97	$78,404,000
Red Leaf	2019	3,194	950	3,034,000	ctn	$11.10	$33,677,000
	2018	3,546	950	3,369,000	ctn	$10.10	$34,027,000
Romaine, Bulk	2019	—	—	238,000	ton	$807.00	$192,066,000
	2018	—	—	226,000	ton	$702.00	$158,652,000
Romaine, Fresh[9]	2019	35,203	1,000	35,203,000	ctn	$14.28	$502,699,000
	2018	32,030	1,000	32,030,000	ctn	$13.30	$425,999,000
Leaf Lettuce, Bulk	2019	—	—	49,300	ton	$630.00	$31,059,000
	2018	—	—	35,100	ton	$600.00	$21,060,000
LEAF LETTUCE, TOTAL	**2019**	**58,846**	**—**	**58,728,000**	**ctn**	**—**	**$840,555,000**
	2018	**57,357**	**—**	**57,242,000**	**ctn**	**—**	**$733,171,000**
LETTUCE CROPS **TOTAL**	**2019**	**99,123**					**$1,354,643,000**
	2018	**95,529**					**$1,192,623,000**

8 Carton
9 Includes Romaine Hearts

FRUIT AND NUT CROPS

CROP	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL
Avocado	2019	225	6.56	1,480	ton	$2,500.00	$3,700,000
	2018	256	4.52	1,160	ton	$2,250.00	$2,610,000
Blackberry	2019	226	8.94	2,020	ton	$6,660.00	$13,453,000
	2018	303	8.10	2,450	ton	$5,980.00	$14,651,000
Grapes (Wine)[10]	2019	44,683	2.95	132,000	ton	—	$186,096,000
	2018	44,924	4.00	180,000	ton	—	$247,758,000
Lemon	2019	1,270	29.41	37,400	ton	$1,200.00	$44,880,000
	2018	1,269	32.47	41,200	ton	$1,010.00	$41,612,000
Misc. Fruit[11]	2019	425	3.29	1,400	ton	$2,530.00	$3,542,000
	2018	413	3.27	1,350	ton	$2,480.00	$3,348,000
Raspberry	2019	570	9.80	5,590	ton	$7,820.00	$43,714,000
	2018	602	7.90	4,760	ton	$7,430.00	$35,367,000
Strawberry, Fresh	2019	9,232	35.64	329,000	ton	$2,200.00	$723,800,000
	2018	9,839	50.72	499,000	ton	$1,380.00	$688,620,000
Strawberry, Processing	2019	—	—	18,400	ton	$487.00	$8,961,000
	2018	—	—	21,500	ton	$460.00	$9,890,000
Strawberry, Total	2019	9,232	—	347,000	ton	—	$732,761,000
	2018	9,839	—	521,000	ton	—	$698,510,000
FRUIT & NUT CROPS **TOTAL**	**2019**	**56,631**					**$1,028,146,000**
	2018	**57,606**					**$1,043,856,000**

10 Represents Bearing Acres only; see Wine Grape Production, pages 22-23.
11 Includes: Apple, Blueberry, Kiwi, Loganberry, Olallieberry, Olive and Walnut.

> **FREIGHT TRUCK SHIPMENTS, PARCEL DELIVERIES, AND AIRLINE BAGGAGE ARE CONSIDERED HIGH RISK ENTRY POINTS TO MONTEREY COUNTY. THESE AVENUES ARE CONSTANTLY MONITORED BY PEST EXCLUSION INSPECTORS FOR INCOMING SOIL, PLANTS, SEEDS AND PLANT PROPAGATIVE PARTS THAT COULD HARBOR HITCHHIKING PESTS.**

IMPACTS FROM INVASIVE SPECIES

BY HEATHER HEALY, TIM LEWIS AND HANNAH WALLIS

Known for its beautiful coastline, diverse landscapes, and rich history, Monterey County is a prime destination spot for people from around the world. With 4.6 million visitors every year, tourism contributes an annual revenue of $1.3 billion to the local economy. Aside from its world-renowned beauty, Monterey County is a leader in the agricultural industry, generating $4.4 billion in 2019 alone. With an extensive farming history dating back to the 1850s, Monterey County currently grows over 150 specialty crops and exports nearly 400 billion pounds of produce from the Salinas Valley every year.

Despite this prosperity, our thriving industry and natural resources remain threatened by invasive species. The National Invasive Species Council (NISC) defines an invasive species as any non-native insect, plant, animal, or disease that can "...cause economic or environmental harm, or harm to human, animal, or plant health." It is estimated that California loses three billion dollars annually in agricultural revenues due to damage from invasive pests that have been introduced throughout the state. The NISC has identified certain invasive species whose establishment in the United States would increase those damages exponentially and directly impact Monterey County agriculture if they were to become established locally.

SCOTCH THISTLE

The Monterey County Agricultural Commissioner's Office (MCAC) works in conjunction with the United States Department of Agriculture (USDA) and the California Department of Food and Agriculture (CDFA) to prevent the introduction and establishment of invasive species. While the USDA is responsible for protecting the United States as a whole, CDFA works throughout the state of California and assists the MCAC in protecting the region. The Monterey County Agricultural Commissioner, Henry Gonzales, utilizes resources from USDA and CDFA to support invasive pest detection efforts and safeguard the interests of all Monterey County residents.

At the state level, CDFA utilizes a rating system to identify all non-native species based on overall significance. These ratings of A, B, C, D, or Q identify the action that agricultural commissioners will take when a non-native pest is identified. A-, B-, and C-rated pests are identified as invasive species while D-rated pests are simply considered non-native species because they do not pose any harm. Once a non-native species is identified as an invasive species, action must be taken statewide.

The MCAC quarantine unit protects against invasive species establishment. Made up of 10 Agricultural Inspectors/Biologists and 13 Agricultural Assistants, the quarantine unit is split into three units of pest exclusion, pest detection, and pest management. Exclusion is prioritized to ensure harmful organisms are not brought in, then the detection and pest management branches control pests already present in the county. These highly trained professionals run a network of programs that mitigate any potential damages caused by invasive species.

The quarantine pest exclusion unit is Monterey County's first line of defense against A- and B-rated invasive species. The MCAC is tasked with intercepting those pests before they can be introduced into the county. This is accomplished by inspecting all incoming shipments that could harbor pests like the Gypsy Moth, Glassy-Winged Sharpshooter, exotic fruit flies, Japanese Beetle, and the Asian Citrus Psyllid (ACP), to name a few. Freight truck shipments, parcel deliveries, and airline baggage are considered high risk entry points to Monterey County. These avenues are constantly monitored by pest exclusion inspectors for incoming soil, plants, seeds and plant propagative parts that could harbor hitchhiking pests.

Monterey County's second line of defense, the pest detection unit, monitors for the presence of targeted A-rated pests with trapping programs. These programs were designed to capture insects which were not subject to, or may have been missed, during initial incoming inspections. The potential to spread pests is heightened when people move fruits, vegetables, plants, seeds, or animals from one area to another. Therefore, insect monitoring traps are strategically placed and moved throughout the County's neighborhoods, farmland, nurseries, and natural areas. They target pests like exotic fruit flies,

JAPANESE BEETLE

the Japanese Beetle, and the ACP in order to find invasive insects before they can become established. This early warning detection system alerts MCAC staff if an invasive insect is present. In 2019, the pest detection staff placed and serviced approximately 4,500 traps throughout Monterey County.

The pest management unit is the third line of defense. The MCAC works to control or remove A-, B-, and C-rated pests and weeds that are present within the county. Pest eradication programs such as Scotch Thistle, Skeleton Weed, and Puna Grass target complete removal, while control programs such as Yellow Starthistle and French Broom seek to limit spread. This protects agricultural and native landscapes and prevents these noxious weeds from pushing out local flora and fauna in rangelands, natural and public lands.

GYPSY MOTH

The damage and impacts from invasive species can be seen across the state. When introduced into a new favorable habitat with no natural predators to keep them in control, invasive species can quickly proliferate and become established. They can also cause damage to the agricultural industry through commodity loss, chemical control costs, and the loss of markets, which often results in increased food costs to the consumer. The general public is negatively impacted by their proliferation as well. These pests can cause damage to backyard fruit and vegetable gardens and compromise home structures, leading to indoor infestations. Ornamental trees in neighborhoods, parks, and natural lands are also suspectable to invasive bacteria, fungi, and viruses. Sudden Oak Death, an invasive plant pathogen, is particularly detrimental and has decimated numerous Coast Live Oak trees throughout Monterey County and the state at large.

Monitoring programs for invasive species also lower the need for control methods such as pesticides, which could negatively impact the environment and people in proximity. Utilizing beneficial insects is one way to reduce reliance on the use of pesticides. For instance, Tamarixia radiata, a minute parasitic wasp, was released in Soledad to prey on the ACP and mitigate its spread.

When all avenues are exhausted, control programs will then utilize pesticides to ensure harmful organisms do not become established and cause serious damage. Pesticides are used strategically in conjunction with beneficial releases, lowering the amount of pesticides necessary. This holistic approach helps protect native species, water, and people, and reduces the costs associated with the use of pesticides. Without pest detection programs, California's annual $3 billion loss from damages would skyrocket.

SKELETONWEED

The effects of invasive species are being felt globally. By understanding how they move, people can help to keep them from spreading and becoming established. Buying fruits, vegetables, plants, and seeds locally is one way to help reduce their spread. When traveling abroad, purchase fruit and vegetables at your destination and enjoy them there. If you notice any non-native species, alert your local agricultural department. The Monterey County Agricultural Commissioner's Office is fully committed to protecting our community by working together to reduce the impact of invasive species.

GLASSY-WINGED SHARPSHOOTER

CUT FLOWERS AND CUT FOLIAGE

CROP	YEAR	ACREAGE	PRODUCTION QUANTITY SOLD	UNIT	VALUE PER UNIT	TOTAL
Chrysanthemum	2019	10.0	649,000	per bloom	$2.31	$1,499,000
	2018	12.0	933,000	per bloom	$1.96	$1,829,000
Eucalyptus	2019	73.0	181,000	per bunch	$2.30	$416,000
	2018	72.8	213,000	per bunch	$1.76	$375,000
Gerbera	2019	4.0	1,808,000	per bloom	$0.61	$1,103,000
	2018	4.7	2,056,000	per bloom	$0.58	$1,192,000
Misc. Cut Flowers & Cut Foliage[12]	2019	176.0	2,286,000	various	$3.18	$7,269,000
	2018	133.3	1,708,000	various	$2.84	$4,851,000
Roses	2019	9.5	1,917,000	per bloom	$1.19	$2,281,000
	2018	9.4	2,427,000	per bloom	$1.26	$3,058,000
CUT FLOWERS & CUT FOLIAGE TOTAL	**2019**	**273**				**$12,568,000**
	2018	**232**				**$11,305,000**

12 Includes: Agrostemma, Alstroemeria, Amarnthus, Asiatic Lily, Asters, Belladonna, Bells of Ireland, Birds of Paradise, Boronia, Bulperum, Calla Lily, Calendula, Campanula, Carnations, Cornflower, Craspedia, Curly Willow, Dahlias, Delphinium, Euphorbia, Freesia, Gladiolas, Godetia, Gypsophila, Hydrangea, Iris, Kale, Kangaroo Paw, Larkspur, Lavender, Leather Leaf, Lily, Limonium, Lisianthus, Marigold, Millet, Montbretia, Narcissus, Oriental Lily, Protea, Ranunculus, Rosemary, Saponaria, Scabiosa, Snapdragon, Statice, Strawflower, Stock, Sunflower, Tulips, Tweedia, Yarrow and Zinnia.

NURSERY PRODUCTS

CROP	YEAR	ACREAGE	PRODUCTION QUANTITY SOLD	UNIT	VALUE PER UNIT	TOTAL
Misc. Nursery Products[13]	2019	251.0	12,217,000	various	$1.33	$16,249,000
	2018*	394.7	26,740,000	various	$1.89	$50,648,000
Orchids	2019	57.0	6,167,000	per plant	$8.01	$49,398,000
	2018	89.4	9,387,000	per plant	$7.85	$73,688,000
Poinsettia	2019	25.0	555,000	per plant	$4.25	$2,359,000
	2018	46.0	864,000	per plant	$4.10	$3,542,000
Potted Plants	2019	89.6	2,200,000	per plant	$4.85	$10,670,000
	2018	156.9	4,613,000	per plant	$5.51	$25,418,000
Vegetable Transplants	2019	49.0	1,054,691,000	per plant	$0.05	$52,735,000
	2018	78.7	992,205,000	per plant	$0.04	$39,688,000
NURSERY PRODUCTS **TOTAL**	**2019**	**472**				**$131,411,000**
	2018	**766**				**$192,984,000**
NURSERY, FLOWER & FOLIAGE **TOTAL**[14]	**2019**	**745**				**$143,979,000**
	2018	**998**				**$204,289,000**

13 Includes: Annuals, Bedding Plants, Begonia, Bulbs, Christmas Trees, Corms, Cypress, Dusty Miller, Fruit & Nut Trees, Hakea, Herbs, Jasmine, Money Tree, Myrtle, Native Plants, Propagative Materials, Rhizomes, Tubers, Turf and Woody Ornamentals.
14 Totals from Cut Flower & Cut Foliage and Nursery Products.
* Adjusted figure to include Bedding Plants

ASIAN CITRUS PSYLLID

An ongoing threat to California's citrus trees is the Diaphorina citri, commonly known as the Asian Citrus Psyllid (ACP). The ACP is native to southern Asia and utilizes many varieties of citrus trees—such as orange, lemon, and grapefruit—to feed and lay their eggs. It's not the feeding habits of this tiny psyllid that pose a threat to citrus trees, but the bacteria called Huanglongbing (HLB) that the insect may vector-transmit. The HLB disease, also known as Citrus Greening Disease, is deadly and as of now, has no known cure. Symptoms of the HLB disease can take two to five years to show symptoms and include yellowing of the leaves, impaired fruit growth, and eventual death of the tree. Federal, state, and local officials have been working diligently to keep this psyllid and disease from becoming established throughout the country at a cost of more than $380 million dollars from 2009 to 2015. At risk in California are not only residential citrus trees, but also the state's $7.1 billion citrus industry.

The California Department of Food and Agriculture (CDFA) and the citrus industry saw the destruction HLB caused after it became established in Florida and reduced production by 70%. Not wanting to meet the same fate, CDFA established more restrictive guidelines for the movement of citrus trees and fruit in California. By requiring and enforcing Compliance Agreements for growers, haulers, and sellers of citrus, CDFA and County Agricultural Commissioners are working together to protect local communities and groves from the devastation of the HLB disease.

The Monterey County Agricultural Commissioner's Office is also running a network of programs in conjunction with CDFA to protect our residents as well as our local citrus industry. County staff inspect all incoming citrus trees for the presence of ACP, issue and enforce Compliance Agreements, and provide public education about properly moving citrus trees and fruit around California. County staff also place and monitor 490 insect traps in neighborhoods and citrus groves all year long to locate ACP. Early detection is the key to eradicating any populations before they become established.

Monterey County has had five ACP detection incidents since 2016, with the biggest in 2018-19 in Soledad. Working together, state and county staff surveyed and treated the area and continue to monitor for the presence of more psyllids that may have been missed. Among successful treatments was the use of the biological parasitoid, Tamarixia radiata, which lays its eggs inside juvenile ACP, and their larva eat the ACP from the inside out. Over 11,000 of these beneficial parasitoids were released in the Soledad treatment zone. Fortunately, no HLB has been detected in Monterey County.

The ACP and HLB programs are a great example of the joint efforts by federal, state, and local governments, as well as the citrus industry, to eradicate these harmful invasive species and protect agriculture, residents, and the environment.

FIELD CROPS

CROP	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL
Barley, Grain	2019	3,841	1.13	4,340	ton	$156.00	$677,000
	2018	4,482	0.96	4,300	ton	$143.00	$615,000
Bean[15]	2019	903	1.39	1,260	ton	$1,850.00	$2,331,000
	2018	822	1.52	1,250	ton	$2,100.00	$2,625,000
Hay, Alfalfa	2019	1,048	3.67	3,850	ton	$122.00	$470,000
	2018	1,284	4.75	6,100	ton	$110.00	$671,000
Misc. Field Crops[16]	2019	2,591	—	—		—	$654,000
	2018	2,110	—	—		—	$507,000
Oat[17]	2019	358	1.84	659	ton	$116.00	$76,400
	2018	465	1.75	814	ton	$110.00	$89,500
Rangeland	2019	1,069,238	—	—	acre	$19.00	$20,316,000
	2018	1,063,918	—	—	acre	$18.00	$19,151,000
Wheat, Grain	2019	210	0.80	168	ton	$175.00	$29,400
	2018	420	1.12	470	ton	$190.00	$89,300
FIELD CROPS TOTAL	**2019**	**1,072,189**					**$24,554,000**
	2018	**1,073,501**					**$23,748,000**

15 Includes: Peruano, Pintos, Pink, Pinquito and Lima Beans
16 Includes: Pastureland
17 Includes: Hay Oats and Misc. Oats.

> INSECT MONITORING TRAPS ARE STRATEGICALLY PLACED AND MOVED THROUGHOUT THE COUNTY'S NEIGHBORHOODS, FARMLAND, NURSERIES, AND NATURAL AREAS. IN 2019, THE PEST DETECTION STAFF PLACED AND SERVICED APPROXIMATELY **4,500 TRAPS THROUGHOUT MONTEREY COUNTY**.

LIVESTOCK AND POULTRY

CROP	YEAR	HEAD	PRODUCTION	UNIT	VALUE PER UNIT	TOTAL
Cattle & Calves	2019	25,000	175,000	cwt[+]	$135.00	$23,625,000
	2018	25,100	177,000	cwt	$136.00	$24,072,000
Stocker	2019	60,400	428,000	cwt	$137.00	$58,636,000
	2018	60,500	427,000	cwt	$137.00	$58,499,000
Sheep & Lambs	2019	1,200	1,490	cwt	$160.00	$238,000
	2018	1,210	1,500	cwt	$166.00	$249,000
Hogs	2019	1,600	433,000	lbs	$0.65	$281,000
	2018	1,650	446,000	lbs	$0.65	$290,000
Misc. Livestock[18] & Poultry[19] Products	2019	—	—	—	—	$27,800,000
	2018	—	—	—	—	$27,488,000
LIVESTOCK & POULTRY TOTAL	**2019**					**$110,580,000**
	2018					**$110,598,000**

18 Includes: Bulls, Cull Cows, Dairy Cows, Milk Manufacturing and Market Milk.
19 Includes: Eggs, Hatcheries and Poultry.
[+]Hundredweight (100 pounds)

> INVASIVE SPECIES CAN QUICKLY PROLIFERATE AND BECOME ESTABLISHED. THEY CAN ALSO CAUSE **DAMAGE TO THE AGRICULTURAL INDUSTRY** THROUGH **COMMODITY LOSS, CHEMICAL CONTROL COSTS,** AND **THE LOSS OF MARKETS**, WHICH OFTEN RESULTS IN INCREASED FOOD COSTS TO THE CONSUMER.

INVASIVE WEEDS

YELLOW STARTHISTLE

BY HANNAH WALLIS

Monterey County's Invasive Weed program preserves agriculture, valuable habitat and community infrastructure by controlling noxious and invasive weeds.

Roads are prime corridors for invasive plants that can be carried by passing vehicles and their loads. Roadside Treatment programs performed along county roads work to limit spread of weeds and eliminate new weeds before they are problematic.

The Monterey County Weed Management Area (WMA) is a cooperative effort composed of county departments, state agencies, and nonprofit groups concerned with the spread of invasive weeds and the protection of local environments. This group hosts the annual Central Coast Invasive Weed Symposium in collaboration with partners from the Santa Cruz County WMA to showcase regional projects, share developments in management strategies, circulate recent research and communicate regional priorities.

Residents and visitors to Monterey County can help reduce the spread of invasive weeds by cleaning their boots and tires after hiking and biking, watching for unusual plants and informing the Agricultural Commissioner's Office if they suspect an invasive plant in the county.

Gardeners and Landscapers can vet their plant choices with PlantRight.org to find excellent horticultural alternatives to common invasive landscape plants.

Visit the California Invasive Plant Council website, www.cal-ipc.org, for extensive information on California's invasive plants, their regional prioritization and best management practices.

WEEDS OF CONCERN IN MONTEREY COUNTY

- Fertile Capeweed, Arctotheca calendula
- French Broom, Genista monspessulana
- Cape Ivy, Delairia odorata
- Arundo, Arundo donax
- Pampas Grass, Cortaderia selloana
- Purple Pampas Grass, Cortaderia jubata
- Yellow Starthistle, Centaurea solstitialis
- Veldt Grass, Ehrharta calycina
- Taurian Thistle, Onopordum tauricum
- Puna Grass, Achnatherum brachychaetum
- Skeletonweed, Chondrilla juncea
- Scotch Thistle, Onopordum acanthium
- Sticky Eupatorium, Ageratina adenophora

WEED ACTIVITIES SUMMARY

Gross Acres Surveyed	1,030.5
Gross Acres Treated	1,353
Net Acres Treated	812
Properties Surveyed	29
Properties Treated	3

PAMPAS GRASS

SUMMARY OF PEST MANAGEMENT

Pest Management and Eradication is the concerted effort to abate incipient and established infestations of biologically or economically important pests. 2,407 gross acres were surveyed for Fertile Capeweed and mapped. A community effort to reduce French Broom was aided with complementary manual removal on adjacent rights of way. 881 gross acres of Yellow Starthistle infested rights of way were managed in South Monterey County. 1,094 gross acres were surveyed for Scotch Thistle. The Monterey County Weed Management Area had one group meeting, visited the Capitol to advocate for invasive species awareness and funding, and organized a plenary session for the California Invasive Plant Council's annual symposium.

ACTIVITY	CONTROL MECHANISM	SCOPE OF PROGRAM
COUNTY BIOLOGICAL CONTROL		
Yellow Starthistle, *Centaurea solstitialis*	Seedhead Weevils/Fly, *Bangasternus orientalis*, *Eustenopus villosus*, *Urophora sirunaseva*, *Larinus curtus*	47 sites
Italian Thistle, *Carduus spp.*	Seedhead weevil, *Rhinocyllus conicus*	General Distribution
Russian Thistle, *Salsola australis*	Leaf & stem mining moths, *Coleophora spp.*	General Distribution
Puncture Vine, *Tribulus terrestris*	Stem & Seed weevils, and *Microlarinus spp.*	General and Local Distribution
Ash Whitefly, *Siphoninus phillyreae*	Parasitic wasp, *Encarsia inaron*	General Distribution
PEST ERADICATION		
Scotch Thistle, *Onopordum acanthium*	Mechanical/Chemical	One Infestation
Skeletonweed, *Chrondrilla junceae*	Mechanical/Chemical	One Infestation
Puna Grass, *Achnatherum brachychaetum*	Mechanical/Chemical	Nine Infestations
Hydrilla, *Hydrilla verticillata*	Mechanical/Chemical	Eradicated
Biddy-biddy, *Acaena novae-zelandiae*	Mechanical/Chemical	Eradicated
PEST MANAGEMENT		
Portuguese Broom, French Broom	Manual	One Site, Two Sites
Roadside, Targeted Noxious Weeds	Chemical	County right-of-ways, spot treatment
Lettuce Mosaic Virus	Virus-Free Seed	Indexing of all county-planted seed
Lettuce Mosaic Virus	Host-Free Period	No lettuce above ground during Dec. 7-21
Celery Mosaic Virus	Host-Free Period	No celery above ground in January
Lettuce Root Aphid	Host-Free District	Lombardy poplar prohibition

APIARY PRODUCTION

CROP	YEAR	COLONIES	PRODUCTION	UNIT	VALUE PER UNIT	TOTAL
Honey	2019	—	11,500	lbs	$2.26	$26,000
	2018	—	8,500	lbs	$2.12	$18,000
Pollination[20]	2019	2,579	—	colony	$65.30	$168,000
	2018	3,370	—	colony	$69.60	$235,000
Wax	2019	—	360	lbs	$4.50	$1,620
	2018	—	350	lbs	$4.50	$1,580
APIARY PRODUCTION **TOTAL**	**2019**					**$196,000**
	2018					**$255,000**

SEED PRODUCTION

CROP	YEAR	ACREAGE	PRODUCTION PER ACRE	TOTAL	UNIT	VALUE PER UNIT	TOTAL
Bean Seed	2019	577	1.07	617	ton	$3,310.00	$2,042,000
	2018	509	1.17	596	ton	$3,240.00	$1,931,000
Misc. Seed[21]	2019	477	0.94	448	ton	$3,140.00	$1,407,000
	2018	984	0.98	964	ton	$2,960.00	$2,853,000
SEED PRODUCTION **TOTAL**	**2019**	**1,054**					**$3,449,000**
	2018	**1,493**					**$4,784,000**

20 Seed Crops Pollination Services
21 Includes: Barley, Broccoli, Cauliflower, Corn, Cucumber, Pea and Sunflower Seeds

GYPSY MOTH

The Lymantria dispar dispar, commonly known as a the Gypsy Moth (GM), poses a major threat to many hardwood forests across the United States due to its potential to defoliate millions of acres of trees. Manzanita, Douglas fir, pine, and various oak tree species across California's 33 million acres of forest land are all at risk from the destructive behavior of this invasive species, including Monterey County's 240,026 acre Ventana Wilderness of Los Padres National Forest. The defoliation of these native trees would cause irreparable damage to the existing habitats, forever changing the ecosystems. Also at risk by these pests, are many different types of shade, fruit, and ornamental trees found at homes, parks, and agricultural orchards.

GMs were introduced into the United States in 1869 when they were accidently released in Massachusetts. Without any natural predators to reduce its numbers, the moth larva soon became a serious pest across many states in the northeast, defoliating and killing trees with its voracious appetite. Researchers determined the moth can spread by traveling long distances, hitchhiking on different types of yard items like chairs, lawnmowers, and barbeques. In 1992, the USDA launched a program designed to slow the spread of GMs across the northeastern United States. The program has been successful and is projected to cost more than $184 million from 2007 to 2026.

In California, CDFA has teamed with local County Agricultural Commissioners to keep GMs from becoming established. Our border stations inspect and tag all incoming shipments from infected states that could harbor this invasive moth. Inspectors forward shipment information to the destination county and county staff inspect the shipments again. State and County staff also monitor for GMs in urban and rural areas using insect traps designed to lure males to them. In Monterey County, staff place and monitor over 200 traps in high risk areas during the season.

These combined efforts have been successful in Monterey County and no viable eggs, larva, or adults have been found outside of shipments. However, as recently as 2018, GMs have been detected in Santa Cruz County so Monterey County staff will continue to be vigilant with inspections and monitoring to keep this invasive species from becoming established.

WINE GRAPE PRODUCTION

WHITE GRAPE VARIETIES	HARVESTED ACRES	AVERAGE PRICE PER TON	TOTAL TONS	TOTAL VALUE
Chardonnay	16,926	$1,340.00	43,800	$58,692,000
Pinot Gris	1,246	$1,200.00	5,980	$7,176,000
Sauvignon Blanc	1,071	$1,190.00	3,660	$4,355,000
Gewurztraminer	789	$773.00	5,270	$4,074,000
Riesling	1,523	$812.00	3,830	$3,110,000
Pinot Blanc	103	$1,260.00	550	$693,000
Muscat Blanc	148	$1,190.00	517	$615,000
Malvasia Bianca	116	$1,250.00	338	$423,000
Gruner Veltliner	101	$1,210.00	303	$367,000
Chenin Blanc	127	$1,430.00	122	$174,000
Viognier	112	$1,600.00	64	$102,000
Grenache Blanc	20	$1,660.00	46	$76,400
Other Whites[22]	41	$1,170.00	174	$204,000
SUBTOTAL WHITE GRAPE	**22,323**		**64,700**	**$80,061,000**

RED GRAPE VARIETIES	HARVESTED ACRES	AVERAGE PRICE PER TON	TOTAL TONS	TOTAL VALUE
Pinot Noir	10,386	$1,880.00	35,100	$65,988,000
Cabernet Sauvignon	4,927	$1,340.00	14,900	$19,966,000
Merlot	4,219	$981.00	6,090	$5,974,000
Syrah	1,203	$1,280.00	3,880	$4,966,000
Grenache	316	$1,310.00	2,330	$3,052,000
Malbec	306	$1,380.00	1,570	$2,167,000
Petite Sirah	365	$1,420.00	1,430	$2,031,000
Cabernet Franc	109	$1,590.00	250	$398,000
Petit Verdot	199	$1,470.00	220	$323,000
Zinfandel	148	$759.00	418	$317,000
Gamay Valdiguie	30	$1,020.00	243	$248,000
Mouvedre	18	$2,470.00	72	$178,000
Other Reds[23]	134	$1,020.00	419	$427,000
SUBTOTAL RED GRAPE	**22,360**		**66,900**	**$106,035,000**

22 Grenache Gris, Marsanne, Melon, Picpoul Blanc, Sauvignon Musque, Semillon, and Vermentino
23 Barbera, Carignane, Cinsaut, Dolcetto, Dornfelder, Fresia, Nebbiolo, Negrette, Primitivo, Sangiovese, Tannat, Tempranillo, and Trousseau

WINE GRAPE TRENDS

YEAR	NONBEARING ACRES	BEARING ACRES	TOTAL TONS	VALUE
2019	1,147	44,683	132,000	$186,096,000
2018	1,137	44,924	180,000	$247,758,000
2017	896	44,299	171,000	$239,027,000
2016	1,496	44,771	172,000	$238,892,000
2015	2,549	44,296	140,300	$185,925,000
2014	2,512	45,993	200,000	$247,357,000
2013	1,531	42,986	185,000	$226,982,000
2012	1,936	45,130	172,000	$214,306,000
2011	2,006	43,034	124,000	$140,976,000
2010	2,572	43,321	177,000	$172,916,000
2009	3,975	40,792	204,000	$238,082,000

EUROPEAN GRAPEVINE MOTH

The Lobesia botrana, commonly known as the European Grapevine Moth (EGVM), was reported in the United States in 2009, signifying the first discovery of this serious agricultural pest in North America. Native to Italy, the EGVM has invaded most of Europe and is found in Africa, Asia, and South America. Preferring grapes as a primary host, the larva of this moth feed on the flowers and the fruit of grapevines as they develop. The destruction caused by their feeding is highest late in the season as the grapes reach maturity. Open wounds on the grapes allow fungi like botrytis to colonize and spread throughout vineyards like wildfire. Control methods for botrytis are primarily based on prevention of the fungus, leaving vineyards vulnerable if it gets introduced.

In 2016, the California grape industry had approximately 841,000 acres of wine, table, and raisin grapes in production worth an estimated $5.5 billion annually, not including home vintners. The presence of the EGVM in California in 2009 threatened this lucrative industry and sparked fear among grape growers everywhere. After the first detection in Napa County, USDA, CDFA, and County Agricultural Commissioners launched a survey project to determine population densities across California. The destructive moth was found in multiple counties, including Monterey County. By 2010, over 100,000 EGVM had been detected.

Relatively quickly, state researchers were able to determine proper treatment protocols for grape growers to control the moth. Chemical treatments were combined with cultural practices to clean up culled fruit, and the use of synthetic pheromones disrupted mating. It was also determined that the moth had most likely moved around the state by human means, so quarantine zones were established around areas where the moths were detected and public education was done to prevent further spread. By 2014, no EGVM moths were detected in monitoring traps across California, and in 2016, it was declared a successful eradication. USDA and CDFA officials estimated the cost of eradication at approximately $100 million, a relatively small amount compared to the $5.5 billion the industry generates yearly.

The Monterey County Agricultural Commissioner's Office continues to provide trapping and mating disruption support for grape growers. County staff placed approximately 2,500 insect traps with synthetic pheromone lures in 2019 and 2,100 for 2020. Traps are monitored from March through September in grape vineyards throughout the county. The successful eradication of the EGVM shows how joint efforts from members of the agricultural industry and government officials generate positive outcomes for the state of California.

ORGANIC PRODUCTION

YEAR	PRODUCERS	ACRES	GROSS SALES
2019	286	89,566	$562,702,000
2018	185	68,868	$412,347,000
2017	222	40,859	$390,295,000
2016	179	32,947	$365,199,000
2015	178	30,413	$335,090,000
2014	158	28,270	$277,294,000
2013	131	33,381	$214,437,000

SUMMARY OF PEST DETECTION AND EXCLUSION ACTIVITIES

Pest Detection is the systematic search for detrimental pests throughout the county by means of trapping, luring and surveying. The goal is to detect novel pests before they become established so that eradication is biologically and economically feasible. Detection trapping is performed primarily by the County Agricultural Commissioner's offices. Targeted pests include Asian Citrus Psyllid, Glassy Winged Sharp Shooter, Gypsy Moth, and Japanese Beetle.

Pest Exclusion is the process of monitoring the channels of trade through routine inspections and commodity certification to prevent the transport and introduction of economically important pests and pathogens. Phytosanitary field inspections for seed diseases accounted for 971 hours, with a total of 303 inspections being completed on 1,012 acres. Special surveys were made for Phytophthora ramorum (Sudden Oak Death) in nurseries. A total of 1,071 pest exclusion inspections at parcel terminals for incoming plant shipments occurred in 2019, with 2 rejections issued. Another 374 inspections of incoming plant material were performed for in-state and out-of-state shipments. 1,022 inspections were completed under the Glassy Winged Sharp Shooter Program on incoming nursery stock shipments originating from regulated areas and no viable life stages were detected.

PEST TRAPPING

TARGET PEST	INSECT HOSTS	TRAPS PLACED	SERVICINGS
Medfly	Fruit Trees	230	4,120
Melon Fruit Fly	Vegetable Gardens	92	1,055
Mexican Fruit Fly	Fruit Trees	109	3,373
Oriental Fruit Fly	Fruit Trees	230	4,095
Misc. Fruit Fly	Fruits and Vegetables	102	1,189
Gypsy Moth	Shade Trees	205	1,245
Japanese Beetle	Turf, Rose	196	1,355
Khapra Beetle	High Hazard Commodities	0	0
Light Brown Apple Moth	Ornamental/Commercial Crops	377	2,492
European Grapevine Moth	Grapes	2,506	27,256
Asian Citrus Psyllid - Urban/Commercial	Citrus	484	7,821
Glassy-Winged Sharpshooter	Nurseries/Urban Areas	600	8,957
TOTAL TRAPPING PROGRAM ACTIVITIES		**5,131**	**62,958**

EXPORTS BY COMMODITY

COMMODITY	2019 TOTAL POUNDS
Lettuce	110,203,000
Strawberry	87,229,000
Broccoli	37,081,000
Celery	22,638,000
Cauliflower	18,904,000
Spinach	17,599,000
Cabbage	8,208,000
Raspberry	4,311,000
Radicchio	4,083,000
Carrot	3,405,000
Leek	2,153,000
Brussels Sprout	1,490,000
Other	10,190,000
TOTAL	**327,494,000**

COMMODITY	2018 TOTAL POUNDS
Lettuce	128,261,000
Strawberry	121,542,000
Celery	45,599,000
Broccoli	40,738,000
Cauliflower	27,648,000
Raspberry	5,595,000
Carrot	5,648,000
Radicchio	3,262,000
Spinach	3,012,000
Blackberry	2,865,000
Cabbage	2,438,000
Brussels Sprout	1,882,000
Other	10,495,000
TOTAL	**398,985,000**

EXPORTS BY TRADE PARTNERS

COUNTRY	2019 TOTAL POUNDS
Mexico	98,945,000
Canada	96,083,000
Taiwan	74,940,000
Japan	23,212,000
Hong Kong	8,690,000
Saudi Arabia	7,756,000
Korea, Republic of	4,376,000
Kuwait	2,336,000
United Arab Emirates	2,155,000
Singapore	2,089,000
European Union	1,754,000
Puerto Rico	1,554,000
Qatar	1,367,000

COUNTRY	2018 TOTAL POUNDS
Canada	169,958,000
Taiwan	78,856,000
Mexico	73,637,000
Japan	37,866,000
Hong Kong	16,320,000
Saudi Arabia	6,106,000
Singapore	4,057,000
European Union	3,282,000
United Arab Emirates	3,088,000
Panama	1,281,000
Puerto Rico	1,209,000
Kuwait	1,075,000
Qatar	594,000

"THE **EFFECTS OF INVASIVE SPECIES** ARE BEING FELT **GLOBALLY.** BY UNDERSTANDING HOW THEY MOVE, PEOPLE CAN HELP TO KEEP THEM FROM SPREADING AND BECOMING ESTABLISHED. BUYING FRUITS, VEGETABLES, PLANTS, AND SEEDS LOCALLY IS ONE WAY TO **HELP REDUCE THEIR SPREAD.**"

1428 Abbott Street, Salinas, CA 93901
tel: 831-759-7325 • fax: 831-422-5003
ag.co.monterey.ca.us

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