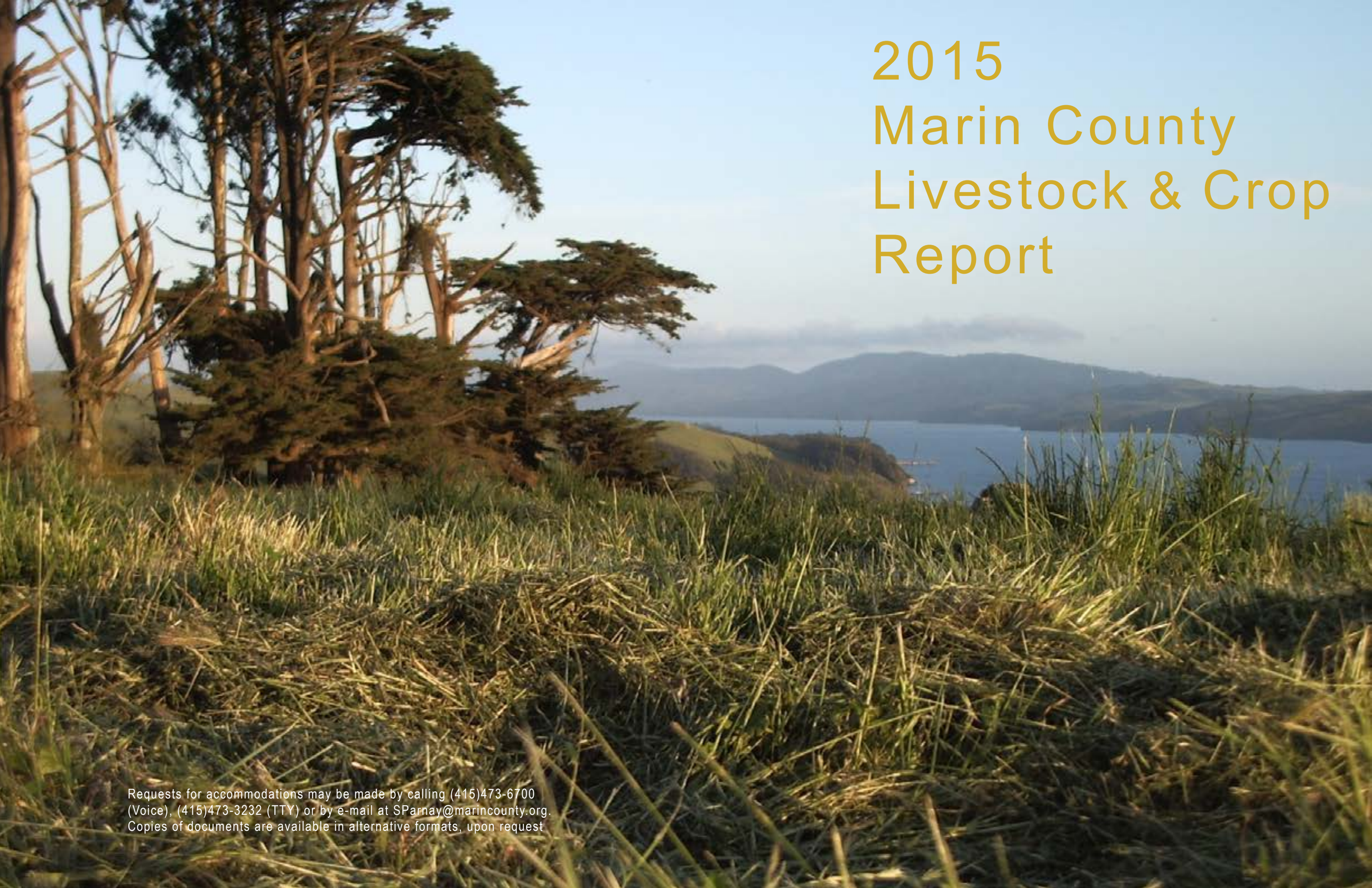
California Department of Food and Agriculture

Agricultural Commissioners' Crop Reports

Marin County

2015-2018

2015 Marin County Livestock & Crop Report



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Stacy K. Carlsen, Commissioner/Director
Stefan Parnay, Deputy Commissioner/Director

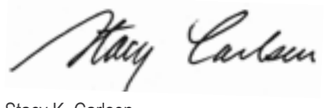
In accordance with the provisions of Section 2279 of the California Food and Agricultural Code, I am pleased to submit the annual Livestock and Crop Report for 2015. This report is a summary of counts, acreage, yields, and gross value of agricultural production in Marin County. The 2015 gross value of all production is estimated to be the highest value ever recorded at $111,061,000. This represents an increase of approximately $10,108,400, which is 10 percent higher than the reported 2014 total agricultural production value of $100,952,600. The report represents gross returns to the producer and does not indicate actual net profit.

Milk is the long-standing premier commodity for Marin, accounting for 40 percent of the crop report's total value. Production of both organic milk and conventional remained relatively steady. The average Market Milk Price was significantly up for organic milk, and significantly down for conventional milk in 2015. While milk production remained steady, the value increased approximately $6,066,000.

Poultry production increased by $5,249,000, or 44% from 2014 to 2105. This change in value was due to increased production and higher returns on eggs and meat. Wine Grape yields suffered greatly in Marin County in 2015. Growers reported lower yields due to the weather, including reports of no wine grape harvest at all from some vineyards. A reported harvest of less than one-third the tonnage of the previous year's resulted in a 51 percent decrease in wine grape value, or $356,000. Marin County's Aquaculture revenue decreased by $4,200,000, or 40 percent, over recorded figures for 2014. This decrease in value represents, in part, a significant decrease in production between 2014 and 2015.

My appreciation goes to the many growers, producers, individuals and organizations for their cooperation in providing the information necessary for this report. I would like to extend special thanks to members of my staff, especially Kyle Lindstrom, Ellen Breazeale, Scott Wise and Jeff Stiles, for their help in producing this report.

Respectfully submitted,



Stacy K. Carlsen
Agricultural Commissioner
Director of Weights and Measures

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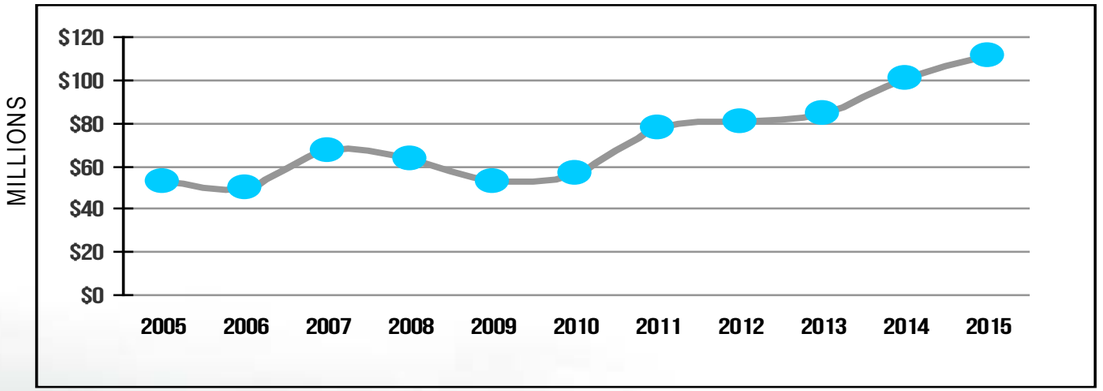
AGRICULTURAL PRODUCTION SUMMARY

TEN-YEAR SUMMARY



The gross value of all agricultural production in the County of Marin for 2015 is

$111,061,000

This represents an increase of approximately

10%

Compared to the gross value of 2014, which was approximately $100,919,600.

LIVESTOCK & AQUACULTURE

	Head	$ / Head	Dollar Value
↑ 9% Cattle	13,972	$1,596	$22,302,000
	13,757	$1,483	$20,402,000
↓ -22% Sheep	9,824	$158	$1,552,000
	10,111	$196	$1,982,000
↑ 44% Poultry	Poultry figures include poultry fryers and chicken eggs for consumption.		$17,175,000
			$11,926,000
↓ -40% Aquaculture	Aquaculture figures include oysters, mussels and clams.		$6,400,000
			$10,600,000
	Total Value:		$47,429,000
			$44,910,000

LIVESTOCK PRODUCTS

	Production	$ / Unit	Unit	Dollar Value
↑ 22% Milk (Organic)	1,096,797	$37.50	CWT	$41,130,000
	1,083,148	$31.00	CWT	$33,578,000
↓ -26% Milk (Conv.)	274,199	$15.38	CWT	$4,217,000
	270,787	$21.06	CWT	$5,703,000
↑ 8% Wool	58,943	$0.58	lbs	$34,000
	44,500	$0.70	lbs	$31,600
		Total Value:		$45,381,000
				$39,312,600

2014 data has been revised to reflect rounding conventions. All totals are rounded.
2015 data is presented in **red** above; the 2014 data is in **gold**.

2015
2014

FIELD CROPS

	Harvested Acres	Total Tons	$ / Ton	Dollar Value
↑ 69% Hay **	1,600	5,915	$215	$1,272,000
	1,712	3,923	$192	$753,000
↓ -15% Silage	1,669	13,488	$40	$540,000
	1,441	14,165	$45	$637,000

	Harvested Acres	$ / Acre	Dollar Value
↑ 18% Pasture	154,000	$71	$10,934,000
	154,000	$60	$9,240,000
	Total Value:		$12,746,000
			$10,660,000

FRUITS, VEGETABLES & NURSERY

	Harvested Acres	Total Tons	Dollar Value
↓ -4% Fruits & Vegetables	309		$4,793,000
	424		$4,990,000
↓ -51% Wine Grapes	175	103	$347,000
	175	325	$703,000
↓ -2% Nursery Products	7.61		$365,000
	7.23		$374,000
		Total Value:	$5,505,000
			$6,067,000

** Values include Grass Hay, Oat Hay, Oat Seed, and Vetch Seed.
Following the National Agricultural Statistics Service for Acreage Harvested, acreage harvested and planted repeatedly during the year is counted each time. Harvested acreage for 2014 Fruits & Vegetables represents 226 actual acres.

SUSTAINABLE AGRICULTURE PROGRAM OVERVIEW

PEST DETECTION

Pest prevention encompasses several activities aimed at preventing the introduction and spread of exotic pests in Marin County. Pest exclusion focuses on preventing the entry and establishment of exotic pests and limiting the intrastate movement of newly discovered pests. Marin County inspectors monitor all primary pathways of pest entry into the county, including nurseries and points of entry, such as UPS and FedEx package terminals.

Pest detection is the systematic search for exotic pests outside a known infested area. The goal is to find infestations of harmful exotic pests as early as possible and eradicate them before eradication becomes biologically or economically infeasible. The cost to keep a pest out of specific regions is a small investment compared to trying to eradicate a pest once it becomes established. For every dollar spent on pest detection, about twenty dollars are spent on eradication efforts.

INTEGRATED PEST MANAGEMENT

Integrated pest management (IPM) is a common-sense approach to pest management that uses various methods and tools to control pests. IPM programs focus on preventing pest problems through cultural and biological measures, although pesticides may be part of an IPM program. The goal is to eliminate or reduce pesticide applications wherever possible and take reasonable measures to ensure that the long-term prevention or suppression of pests has minimal negative impact on human health, non-target organisms, and the environment.

PROTECTION OF THE ENVIRONMENT

The Department operates a Pesticide Use Enforcement program that includes a permitting process for restricted pesticides as well as education and assistance for pesticide users. While reviewing, collecting and analyzing data and records associated with pesticide sales and use, our Department also monitors pesticide use applications, investigates pesticide-related citizen complaints, and conducts pesticide-related illness investigations. The ultimate goal of this program is to ensure the safe and effective use of pest control methods in order to protect public health and the environment, while strongly promoting the production of healthy, safe food and fiber through sustainable practices.

LIVESTOCK PROTECTION PROGRAM

The Marin County Board of Supervisors has continued to support and appropriate funds for the Livestock Protection Program. Recognized non-lethal control methods such as protection animals (llamas, livestock guardian dogs, etc.), electric fencing, scare devices, and herd shepherding are initiated through cost share funds to livestock ranchers. The Department administers verification inspections for cost share funding for ranchers participating in this program.

MARIN ORGANIC CERTIFIED AGRICULTURE (MOCA)

The Marin County Agricultural Commissioner's Office is accredited by the United States Department of Agriculture (USDA) as an official organic certification agency.

Marin Organic Certified Agriculture (MOCA) serves the local agricultural community growers who are employing organic farming practices. Organic production systems strive to achieve agro-ecosystems that are ecologically, socially, economically, and environmentally sustainable. Organic farming emphasizes a greater cooperation with nature without reliance on synthetic inputs.

Consumer demand for certified organic products is increasing, with an expectation by consumers that organic products are verifiable. MOCA was developed to provide a professional service to local individual and business operations engaged in the production and distribution of organically grown commodities.

The primary responsibility of MOCA is to uphold the standards of the USDA National Organic Program, and document/verify operations' practices of sustainable agriculture. One of the most important benefits of the MOCA program is as a local service that promotes the production of organic value-added products by Marin's family farms.

In 2015, the number of MOCA certified operations totaled 55, including 2 processors; 41 of the operations are located within Marin County. The remaining 12 operations are located in Sonoma County, with the exception of two in Riverside County (managed by Marin County operations to ensure a year-round supply of fresh produce in the off season). All organic producers in California must register in their principal county of operation. In 2015 there were 69 registered organic producers in Marin County, farming 40,676 acres, which includes 40,450 acres in pasture, producing a total gross value of approximately $54,046,007.

PEST PREVENTION PROGRAMS

PEST EXCLUSION

In 2015, Marin County inspectors conducted 1,904 incoming plant quarantine inspections.

Plant shipments were monitored at Federal Express, UPS, nurseries, ethnic markets, aquatic supply stores, and post entry quarantine sites.

The Department performed 48 Gypsy Moth inspections of household goods from infested states, as well as 1,520 Glassy-Winged Sharpshooter inspections on plant material from infested California counties.

Five rejections of plant material were made to protect Marin's agriculture and environment.

PEST DETECTION

In 2015, inspectors from Marin and the California Department of Food and Agriculture placed and serviced 704 traps for exotic insect pests.

The targeted pests included: Mediterranean Fruit Fly, Oriental Fruit Fly, Melon Fly, Gypsy Moth, Japanese Beetle, Glassy-Winged Sharpshooter (GWSS), Light Brown Apple Moth, and False Codling Moth.

Traps are strategically placed within the county on or near preferred hosts. For example, GWSS traps were placed in nurseries, vineyards, and urban areas; Mediterranean Fruit Fly traps were placed in fruit trees; Gypsy Moth traps were placed on hardwood trees; and Japanese Beetle traps were placed in urban landscaped areas.

BIOLOGICAL CONTROL

Biological pest control is the use of pests' natural enemies to help suppress pest populations to economically and environmentally acceptable levels.

Once the agent becomes established, control is generally self-perpetuating, potentially eliminating or reducing the need to use pesticides.

The following are pests found in Marin and some of the methods that have been used to control them:

PEST	BIOLOGICAL AGENT
Gorse	Gorse Mite, Seed Weevil
Bull Thistle	Bull Thistle Gall Fly
Yellow Star Thistle	Peacock Fly
Scotch Broom	Stem Boring Moth
Ash White Fly	Parasitic Wasp
Italian Thistle	Seed Weevil
Purple Star Thistle	Seed Weevil
Klamath Weed	Beetle
Olive Fruitfly	Parasitic Wasp

The following additional pests were intercepted in Marin County in 2015:

SCIENTIFIC NAME	COMMON NAME/RATING	SCIENTIFIC NAME	COMMON NAME/RATING
Bagrada hilarus	Bagrada bug (B)	Diaspis boisduvalii	Citrus mealybug (C)
Epiphyas postvittana	Light brown apple moth (A)	Plantynota stultana	Omnivorous leafroller (C)
Diapididae lantaniae	Lantania scale (C)	Siphanta acuta	Torpedo bug (B)
Diaspis coccois	Armored scale (C)	Pseudococcus longispinus	Long tailed mealy bug (C)
Pseudococcus viburni	Obscure mealy bug (C)	Phyllocnistis citrella	Citrus leaf miner (C)
Coccus hesperidum	Brown soft scale (C)	Aleurodicus dispersus	Spiraling white fly (C)
Saissetia coffeae	Hemispherical scale (C)		

GLASSY-WINGED SHARPSHOOTER

The Glassy-Winged Sharpshooter (GWSS), Homalodisca vitripennis, is a very serious threat to California agriculture. First observed in the state around 1990 and now found throughout Southern California and portions of the San Joaquin Valley, GWSS is a particular threat to vineyards due to its ability to spread Xylella fastidiosa, the bacterium that causes Pierce's disease in grapevines. Pierce's disease is lethal to grapevines and significant resources are committed annually to find effective treatments. GWSS also spreads other diseases to a variety of agricultural and ornamental plants, having the potential to substantially impact California's agriculture and environment if left unchecked.

To prevent the introduction of this leafhopper into Marin County, Department staff inspect incoming nursery plant shipments containing GWSS hosts from infested California counties. In 2015, a total of 1,520 shipments were inspected for GWSS, with two adult finds which turned out to be isolated hitchhikers. Detection traps are strategically placed to monitor for this unwanted pest, keeping Marin County free from GWSS.

Glassy-Winged Sharpshooter (Homalodisca vitripennis)

LIGHT BROWN APPLE MOTH

In early 2007, Light Brown Apple Moth (LBAM), Epiphyas postvittana, was confirmed in Alameda County, California. This represented the first time LBAM had been detected in the contiguous 48 states. The infestation has affected coastal counties throughout central and southern California to varying degrees.

LBAM is not established in the rest of the lower 48 states. These states and other countries want to keep this pest out and have enacted quarantines and restrictions on plant, fruit, and vegetable movement from California, which adversely impact the marketing of California agricultural and horticultural products.

Marin County, working in cooperation with the CDFA/USDA LBAM Cooperative Program, continues to manage and control LBAM through detection traps, visual inspections of nurseries located in the quarantine boundary, and education of nursery owners and farmers. Production nurseries that ship plants out of the quarantine areas are required to follow "Best Management Practices", including regular monitoring for LBAM. More information on LBAM may be viewed at *www.cdfa.ca.gov/lbam*

SUDDEN OAK DEATH

Marin County continues to be infested with Sudden Oak Death (SOD), the disease caused by the pathogen Phytophthora ramorum. Increased infestations have been detected in West Marin. Tree mortality in wildland and urban/wild land interface areas causes dramatic changes in the landscape, affecting ecosystems, increasing fire and safety hazards, and decreasing property values.

Phytophthora ramorum hosts include native woodland trees and understory plants, and ornamental nursery plants. Currently, there are over 100 native and ornamental hosts; new hosts continue to be found and added to the state and federal quarantines.

On oaks, P. ramorum causes potentially lethal trunk cankers; on other hosts it causes leaf or twig blight, which is rarely lethal. Tanoaks may have both trunk cankers and leaf dieback. Unlike oaks, some hosts (i.e., California Bay Laurel) are not killed by this pathogen; instead these hosts act as a vector, allowing inoculum to spread through natural or artificial means (i.e., rainwater, soil, infested nursery stock) under moist conditions.

Prevention is the only treatment to protect trees from P. ramorum. Best preventative practices include keeping trees healthy so they maintain their natural defenses, pruning overstory California Bay Laurels, and strategically utilizing phosphonate treatment products.

INVASIVE WEED MANAGEMENT

INVASIVE WEED MANAGEMENT STRATEGY

Over the past two decades, noxious and invasive weeds have become an extremely serious, challenging, and widespread issue in Marin County. Several different species of injurious weeds have become established in Marin County and have rendered thousands of acres of pastureland, rangeland, and natural areas unusable, increased the risk of wildfires, and successfully outcompeted numerous native plant species. It will take the combined effort, cooperation, and collaboration of numerous organizations, ranchers, and private landowners to successfully manage these damaging weeds. The Department has worked diligently to forge productive partnerships and build confidence with industry, community groups, and various other interested stakeholders through a collaborative and inclusive approach on a long-term strategy to manage noxious weeds.

The centerpiece of a longterm approach to noxious weed management will be a focus on education and outreach to landowners about best land management practices (e.g., grazing, soil heath, native forage restoration, early detection and rapid response to invasive weeds, carbon sequestration, etc.).

These land management practices will help protect productive land that is currently free of invasive weeds and will also fortify soil health, increase soil water retention capabilities, and encourage biodiversity. Landowners will be provided practical, proven Integrated Pest Management (IPM) solutions to control existing invasive weed populations through effective land management practices, and a significant emphasis will be placed on early detection and rapid response. Education and outreach will also be provided to the general public and other organizations and agencies.

In 2013, the department drafted a proposed 10-year invasive weed management plan, which has not yet been presented to the Marin County Board of Supervisors. This plan received public support from 24 local, state, and federal organizations and agencies, and can be viewed at http://www.marincounty.org/depts/ag/weed-plan

MARIN/SONOMA WEED MANAGEMENT AREA

MSWMA, the Marin/Sonoma Weed Management Area group, includes representatives from federal, state, county and city agencies, private industry, and landowners. MSWMA's goals include improving the effectiveness of local weed management efforts, increasing public awareness of invasive weeds, advancing responsible land stewardship practices, and working collaboratively with partner organizations by sharing resources and knowledge to manage and/or eradicate invasive weed populations. The MSWMA helps control weeds across land ownership boundaries by uniting landowners with public agencies and providing an opportunity to share resources in mapping and planning. Visit the Marin/Sonoma Weed Management Area website: http://marinsonomawma.blogspot.com

FARMERS' MARKETS

The purpose of farmers' markets is to allow local producers to sell their certified commodities directly to the public. Marin County certificates were issued to 31 producers in 2015. The following 11 farmers' markets were certified by the Agricultural Commissioner to market local and regional produce in Marin County. Check our website at marincounty.org/depts/ag to stay up to date with current market schedules.

CIVIC CENTER
Thursdays 8:00 pm -1:00 pm
Sundays 8:00 pm -1:00 pm
Open all year

CORTE MADERA
Corte Madera Town Center
Wednesdays 12:00 pm - 5:00 pm
Open all year

DOWNTOWN SAN RAFAEL
Fourth Street, San Rafael
Thursdays 6:00 pm - 9:30 pm
April - September

FAIRFAX
Peri Park
Wednesdays 4:00 pm - 8:00 pm
May - September

FAIRFAX
Sir Francis Drake @ Broadway
Sunday 10:00 am - 2:00 pm
Open all year

MARINWOOD COMMUNITY
Marinwood Plaza
Saturdays 9:00 am - 1:00 pm
Open all year

MARIN COUNTRY MART
Larkspur Landing Circle, Larkspur
Saturdays 9:00 am - 2:00 pm
Open all year

MILL VALLEY
E. Blithedale Ave @ Ashford Drive
Fridays 9:30 am - 2:30 pm
Open all year

NOVATO
Grant Avenue, Novato
Tuesdays 4:00 pm - 8:00 pm
May - September

POINT REYES
Toby's Feed Barn (11250 Hwy 1)
Saturdays 9:00 am - 1:00 pm
June - November

TAM VALLEY
Tamalpais Community Center, Mill Valley
Tuesdays 3:00 pm - 7:00 pm
May - November

COUNTY OF MARIN

DEPARTMENT OF AGRICULTURE,
WEIGHTS AND MEASURES

2016
Livestock & Crop Report

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Cover photo: Cows resting in pasture by Jeffrey Stiles

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COUNTY OF MARIN

Stacy K. Carlsen, Commissioner/Director
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In accordance with the provisions of Section 2279 of the California Food and Agricultural Code, I am pleased to submit the 2016 Annual Livestock and Crop Report for Marin County. This publication is a summary of counts, acreage, yields, and gross value of all agricultural production in Marin County.

The total gross value of agricultural crops and products in 2016 was $96,506,000. This represents a decrease of approximately $14,555,000, or 13% less, compared to the 2015 total gross value of $111,061,000. It should be emphasized that the values stated in this report represent gross returns and do not indicate actual net profit.

Milk remains the top commodity for Marin at $43,135,000, and accounts for 45% of the total gross value. Poultry eclipsed Cattle as the second highest grossing commodity with a value of $19,117,000, or 20% of the total gross value.

The value of Cattle decreased 53% to $10,543,000, the largest value decrease for a commodity in 2016. Although production increased in 2016, the significant value decrease is largely attributed to the reduction in the price paid per pound as it recedes from a historic high. This $11,759,000 reduction in value accounts for the majority of the 13% reduction in total gross value of agricultural crops and products in 2016.

Hay crop values dropped 47% due to a decrease in reported values per ton as well as total tons harvested. Similarly, the total value of Fruits and Vegetables decreased 29% due to lower reported vegetable values. Aquaculture values decreased 26% because of decreased oyster production.

After unfavorable weather caused an abnormally small harvest in 2015, Marin County's Wine Grape production rebounded in 2016 to a more typical harvest with total values up 150%. Wool values, up 49% from 2015, continue to rise as production increases and higher prices are paid for premium fleeces.

My appreciation goes to the many growers, producers, individuals and organizations for their cooperation in providing the information necessary for this report. I would like to extend special thanks to members of my staff, especially Allison Klein and Jeff Stiles, for their help in producing this report.

Respectfully submitted,

Stacy K. Carlsen
Agricultural Commissioner
Director of Weights & Measures

Supervisor Steve Kinsey Leaves a Remarkable Legacy:

20 Years of Dedicated Service as Marin County's 4th District Supervisor

Photo: Fence post and barnyard by Jeffrey Stiles

It's hard to imagine Marin County without the pastoral and fertile lands that bring us a bounty of local produce, fresh meats, and a multitude of value-added products. Agriculture is a vital contributor to Marin's diverse and healthy economy. The uniqueness of agriculture in Marin requires visionary leaders, producers, and advocates with the ability to guide and support county government in effectively addressing critical agricultural issues, and ensuring agriculture remains viable into the future.

In December 2016, after 20 years of service to Marin County, 4th District Supervisor Steve Kinsey stepped down from government. Supervisor Kinsey is a visionary and has helped the agricultural industry grow and evolve into what it is today. He was first elected to the Marin County Board of Supervisors in November 1996. He was re-elected to four more terms, giving him one of the longest tenures in County history.

> "Less rules, more relationships - that's what moves a community"

Throughout his tenure, Supervisor Kinsey was steadfast and passionate in his pursuit of protecting the agricultural landscape and historic ranching community in West Marin. Nearly 171,000 acres in the County are farms or ranches located in West Marin. This amounts to half of the land in Marin County.

When Supervisor Kinsey took office in 1997, Marin County's agricultural industry was valued at $57 million, and by 2015 it valued over $111 million. The 1997 and 2010 Marin County Agricultural Summits, co-sponsored by Supervisor Kinsey, were significant moments of convening and planning that led to real changes and innovations within Marin County's agricultural industry.

Many recommendations from both summits (and subsequent Ag Roundtable meetings) were pursued and successfully implemented. A few key accomplishments (out of many) of both summits include:

1997 Ag Summit
- Farmland preservation
- The creation of Marin Organic
- Consumer education to buy locally grown products
- Increasing education to our youth about agriculture and its importance
- The establishment of the Marin Organic Certified Agriculture (MOCA) program

2010 Ag Summit
- Support for carbon farming
- Increased agricultural tourism
- Streamlined permitting process
- Improved marketing opportunities created by the "Grown in Marin" campaign
- Animal processing capacity in the region, including local processing of poultry

Supervisor Kinsey worked collaboratively with numerous agencies and individuals to help protect the historic ranching families in Point Reyes National Seashore. He championed farmers' market expansions in Point Reyes and at the Civic Center. In addition, Supervisor Kinsey had a lot to do with expanding the role of the Marin Agricultural Land Trust (MALT), the organization whose goal is protecting agricultural land in the County.

West Marin's agriculture and community character is ultimately important to all of Marin, and Supervisor Kinsey has played an instrumental role in how it has grown into an internationally recognized leader in sustainability.

The 4th District includes the rural areas of West Marin, representing about two-thirds of the county's area, but it also includes Corte Madera, San Quentin Village, the Canal neighborhood of San Rafael, western Novato, and parts of Larkspur. Given the expansive and diverse nature of the 4th District, Kinsey was fully engaged in a broad range of interests that affected his constituents, including transportation, natural resource policy, social services, land use planning, fiscal management, and sustainable agriculture.

One of Supervisor Kinsey's mottos was, "Less rules, more relationships — that's what moves a community. If government can learn to be less regulatory and more the convener of partnerships we will go further together."

Agricultural Production Summary

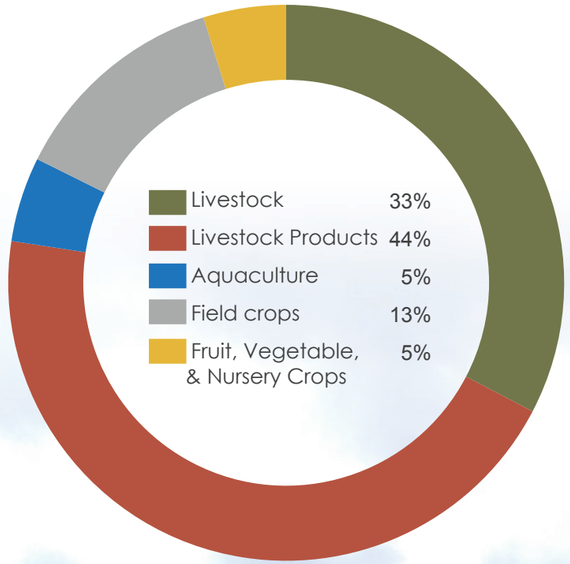
The gross value of all agricultural production in the County of Marin for 2016 is approximately

$96,506,000

which represents a change of approximately

-13%

compared to the gross value of 2015, which was approximately $111,061,000.



Percentage of total production value

TEN YEAR SUMMARY

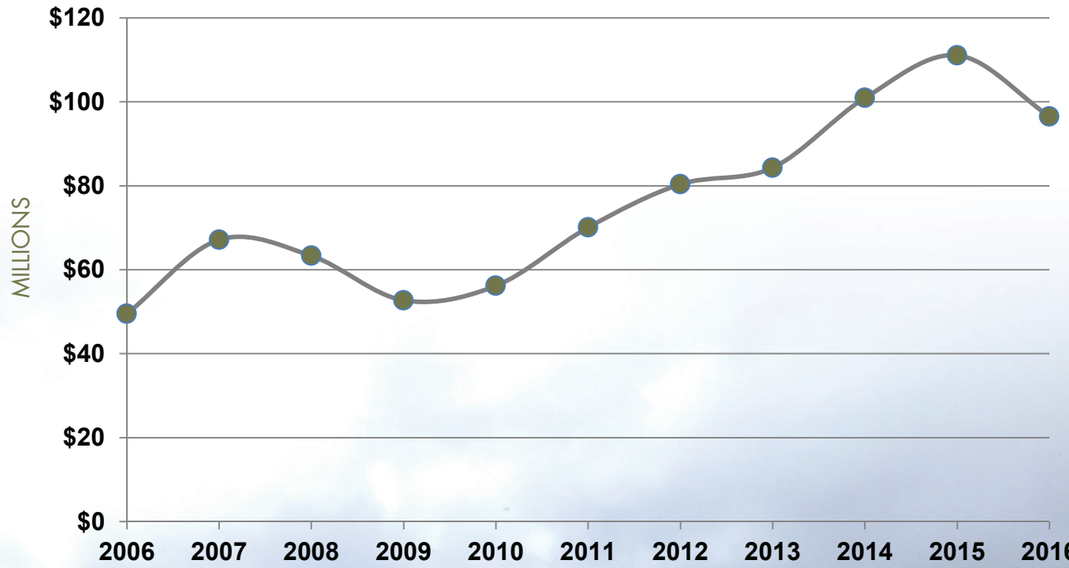


Photo: Rolling hills by Allison Klein

Livestock & Aquaculture

	Head	$ / Head	Dollar Value
↓ -53% Cattle	14,562	$724	$10,543,000
	13,972	$1,596	$22,302,000
↑ 16% Sheep	10,074	$178	$1,793,000
	9,824	$158	$1,552,000
↑ 12% Poultry	Poultry figures include poultry fryers and chicken eggs for consumption.		$19,177,000
			$17,175,000
↓ -26% Aquaculture	Aquaculture figures include oysters, mussels and clams.		$4,760,000*
			$6,400,000
Total Value:			$36,273,000
			$47,429,000

Livestock Products

	Production	$ / Unit	Unit	Dollar Value
↓ -5% Milk (Organic)	1,062,252	$36.85	CWT	$39,144,000
	1,096,797	$37.50	CWT	$41,130,000
↓ -5% Milk (Conv.)	265,563	$15.03	CWT	$3,991,000
	274,199	$15.38	CWT	$4,217,000
↑ 49% Wool	60,441	$0.84	LBS	$51,000
	58,943	$0.58	LBS	$34,000
Total Value:				$43,186,000
				$45,381,000

*Aquaculture value based on report prepared by California Department of Fish and Wildlife.
2015 totals have been revised to reflect rounding conventions. All totals are rounded.
2016 data is presented in **green** above; the 2015 data is presented in **red**.

20 16
20 15

Field Crops

	Acreage	Total Tons	$ / Ton	Dollar Value
↓ -47% Hay**	2,533	4,773	$141	$673,000
	1,600	5,915	$215	$1,272,000
↑ 20% Silage	1,558	9,510	$68	$647,000
	1,669	13,488	$40	$540,000

	Harvested Acreage	$ / Acre	Dollar Value
↑ 1% Pasture	154,000	$72	$11,088,000
	154,000	$71	$10,934,000
Total Value:			$12,408,000
			$12,746,000

Fruits, Vegetables & Nursery

	Acreage	Total Tons	Dollar Value
↓ -29% Fruits & Vegetables	410		$3,412,000
	309		$4,793,000
↑ 150% Wine Grapes	182	250	$867,000
	175	103	$347,000
↓ -1% Nursery Products	9.43		$360,000
	7.61		$365,000
Total Value:			$4,639,000
			$5,505,000

**Values include Grass Hay, Oat Hay, Oat Seed, and Vetch Seed.
Following the National Agricultural Statistics Service for Acreage Harvested, acreage harvested and planted repeatedly during the year is counted each time. Harvested acreage for 2016 Fruits & Vegetables represents 227 actual acres.

Sustainable Agriculture Program Overview

PEST PREVENTION & DETECTION

Pest prevention encompasses several activities aimed at preventing the introduction and spread of exotic pests in Marin County. Pest exclusion focuses on preventing the entry and establishment of exotic pests and limiting the intrastate movement of newly discovered pests. Marin County inspectors monitor all primary pathways of pest entry into the county including nurseries and points of entry such as UPS and FedEx package terminals.

Pest detection is the systematic search for exotic pests outside a known infested area. The goal is to find infestations of harmful exotic pests as early as possible and eradicate them before eradication becomes biologically or economically infeasible.

INTEGRATED PEST MANAGEMENT

Integrated pest management (IPM) is a common-sense approach to pest management that uses a variety of methods and tools to control pests. IPM programs focus on preventing pest problems through cultural and biological measures, although pesticides may be part of an IPM program. The goal is to eliminate or reduce pesticide applications wherever possible and take reasonable measures to ensure that the long-term prevention or suppression of pests has minimal negative impact on human health, non-target organisms, and the environment.

PRODUCT QUALITY

Marin County inspectors protect consumers by inspecting agricultural products for compliance with laws, regulations, and standards. They also ensure that businesses are afforded a fair and equitable opportunity to market their products. Inspections are conducted at horticultural nurseries, farmers' markets, organic farms, and locations selling wholesale and retail eggs.

PROTECTION OF THE ENVIRONMENT

The Department operates a Pesticide Use Enforcement program that includes a permitting process for restricted pesticides as well as education and assistance for pesticide users. While reviewing, collecting and analyzing data and records associated with pesticide sales and use, our Department also monitors pesticide use applications, investigates pesticide-related citizen complaints, and conducts pesticide-related illness investigations. The ultimate goal of this program is to ensure the safe and effective use of pest control methods in order to protect public health and the environment, while strongly promoting the production of healthy, safe food and fiber through sustainable practices.

Additionally, the Department recommends Integrated Pest Management (IPM) strategies for long-term pest control such as the use of cultural, biological, and mechanical control methods (with chemical control as a last option).

LIVESTOCK PROTECTION PROGRAM

The Marin County Board of Supervisors continues to support and appropriate cost-share funds for the Livestock Protection Program to eligible ranchers who qualify for non-lethal depredation improvements and/or practices. Recognized non-lethal control methods include the use of protection animals (e.g., livestock guardian dogs, llamas, etc.), electric fencing, scare devices, and herd shepherding, which are eligible for cost-share funds to support ranchers. The Department administers verification inspections for cost-share funding for ranchers participating in this program.

Marin Organic Certified Agriculture (MOCA)

ORGANIC CERTIFICATION

The Marin County Department of Agriculture is accredited by the United States Department of Agriculture (USDA) as an official organic certification agency.

Marin Organic Certified Agriculture (MOCA) serves the local agricultural community growers who are employing organic farming practices. Organic production systems strive to achieve agro-ecosystems that are ecologically, socially, economically, and environmentally sustainable. Organic farming emphasizes a greater cooperation with nature without reliance on synthetic inputs.

Consumer demand for certified organic products continues to increase, with an expectation by consumers that organic products are verifiable. MOCA was established to provide a professional service to local individual and business operations engaged in the production and distribution of organically grown commodities.

The primary responsibility of MOCA is to uphold the standards of the USDA National Organic Program, and document/verify operations' practices of sustainable agriculture. One of the most important benefits of the MOCA program is as a local service that promotes the production of organic, value-added products by Marin's family farms.

In 2016, the number of MOCA certified operations totaled 51, including 2 processors; 36 of the operations are located within Marin County. The remaining 13 operations are located in Sonoma County, with the exception of two in Riverside County (managed by Marin County operations to ensure a year-round supply of fresh produce in the off-season).

All organic producers in California must register in their principal county of operation. In 2016, there were 65 registered organic producers in Marin County, farming 46,321 acres, which includes 45,933 acres in pasture, producing a total gross value of approximately $66,123,269.

Pest Prevention Programs

PEST EXCLUSION

In 2016, inspectors conducted 2,337 incoming plant quarantine inspections. Plant shipments were monitored at Federal Express, UPS, nurseries, ethnic markets, aquatic supply stores, and post entry quarantine sites. The Department performed 39 Gypsy Moth inspections of household goods from infested states, as well as 1,605 Glassy-Winged Sharpshooter inspections on plant material from infested California counties. Four rejections of plant material were made to protect Marin's agriculture and environment.

PEST DETECTION

In 2016, inspectors from the Marin County Department of Agriculture and the California Department of Food and Agriculture placed and serviced 1292 traps for exotic insect pests. The targeted pests included: Mediterranean Fruit Fly, Oriental Fruit Fly, Melon Fly, Gypsy Moth, Japanese Beetle, Glassy-Winged Sharpshooter (GWSS), Light Brown Apple Moth, and Asian Citrus Psyllid. Traps are strategically placed within the county on or near preferred hosts. For example, GWSS traps were placed in nurseries and urban areas; Mediterranean Fruit Fly traps were placed in fruit trees; Gypsy Moth traps were placed on hardwood trees; and Japanese Beetle traps were placed in urban landscaped areas.

BIOLOGICAL CONTROL

Biological pest control is the use of pests' natural enemies to help suppress pest populations to economically and environmentally acceptable levels. Once the agent becomes established, control is generally self-perpetuating, potentially eliminating or reducing the need to use pesticides.

The following are pests found in Marin and some of the methods that have been used to control them:

PEST	BIOLOGICAL AGENT
Gorse	Gorse Mite, Seed Weevil
Bull Thistle	Bull Thistle Gall Fly
Yellow Star Thistle	Peacock Fly
Scotch Broom	Stem Boring Moth
Ash White Fly	Parasitic Wasp
Italian Thistle	Seed Weevil
Purple Star Thistle	Seed Weevil
Klamath Weed	Beetle

The following pests were intercepted in Marin County in 2016:

SCIENTIFIC NAME	COMMON NAME	RATING
Epiphyas postvittana	Light brown apple moth	A
Bagrada hilarus	Bagrada bug	B
Siphanta acuta	Torpedo bug	B
Ceroplastes cirripediformis	Barnacle scale	C
Icerya purchasi	Cottony cushion scale	C
Pseudococcus longispinus	Longtailed mealybug	C

GLASSY-WINGED SHARPSHOOTER

The Glassy-Winged Sharpshooter (GWSS), *Homalodisca vitripennis*, is a very serious threat to California agriculture. First observed in the state around 1990 and now found throughout Southern California and portions of the San Joaquin Valley, GWSS is a particular threat to vineyards due to its ability to spread *Xylella fastidiosa*, the bacterium that causes Pierce's disease in grapevines. Pierce's disease is lethal to grapevines and significant resources are committed annually to find effective treatments. GWSS also spreads other diseases to a variety of agricultural and ornamental plants, having the potential to substantially impact California's agriculture and environment if left unchecked.

To prevent the introduction of this leafhopper into Marin County, Department staff inspect incoming nursery plant shipments containing GWSS hosts from infested California counties. In 2016, a total of 1,605 shipments were inspected for GWSS, with no finds. In 2015, there were two adult GWSS finds which turned out to be isolated hitchhikers. Detection traps are strategically placed throughout the county to monitor for this unwanted pest.

SUDDEN OAK DEATH

Marin County continues to be infested with Sudden Oak Death (SOD), the disease caused by the pathogen *Phytophthora ramorum*. Due to increased rainfall in 2016, increased infestations have been detected in several coastal counties, including Marin. Tree mortality in wildland and urban/wild land interface areas causes dramatic changes in the landscape, affecting ecosystems, increasing fire and safety hazards, and decreasing property values.

P. ramorum hosts include various native woodland trees and understory plants, as well as assorted ornamental nursery plants. State and federal quarantines regulate the movement of host nursery stock to prevent further spread.

On certain oaks such as Coast Live Oak, *P. ramorum* causes potentially lethal trunk cankers; on other hosts it causes leaf or twig blight, which is rarely lethal. Tanoaks may have both trunk cankers and leaf dieback. Unlike oaks, some hosts (i.e., California Bay Laurel) are not killed by this pathogen; instead these hosts act as a vector, allowing inoculum to spread through natural or artificial means (i.e., rainwater, soil, infested nursery stock) under moist conditions.

Prevention is the only treatment to protect trees from *P. ramorum*. Best preventative practices include keeping trees healthy so they maintain their natural defenses, pruning overstory California Bay Laurels, and strategically utilizing phosphonate treatment products. For more information about diagnosis, distribution, and best management practices, please visit: *http://www.suddenoakdeath.org*.

Invasive Weed Management

MARIN/SONOMA WEED MANAGEMENT AREA (MSWMA)

The Marin/Sonoma Weed Management Area (MSWMA) group includes representatives from federal, state, county and city agencies, private industry, and landowners. MSWMA's goals include improving the effectiveness of local weed management efforts, increasing public awareness of invasive weeds, advancing responsible land stewardship practices, and working collaboratively with partner organizations by sharing resources and knowledge to manage and/or eradicate invasive weed populations. The MSWMA helps control weeds across land ownership boundaries by uniting landowners with public agencies and providing an opportunity to share resources in mapping and planning. Visit the Marin/Sonoma Weed Management Area website at *http://marinsonomawma.blogspot.com*.

Some high priority invasive weeds are found on private lands. The Rapid Response/Bay Area Early Detection Network (*http://baedn.org/*) connects MSWMA with ranchers, farmers, and private landowners to help address these infestations, with the goal of eradicating them before they become too large.

PROPOSED 10-YEAR INVASIVE WEED MANAGEMENT PLAN

Over the past two decades, noxious and invasive weeds have become an extremely serious, challenging, and widespread issue in Marin County. Several different species of injurious weeds have become established and have rendered thousands of acres of pastureland, rangeland, and natural areas unusable, increased the risk of wildfires, and successfully outcompeted numerous native plant species. It will take the combined effort, cooperation, and collaboration of numerous organizations, ranchers, and private landowners to successfully manage (and hopefully eradicate many of) these damaging weeds from Marin County. In preparing this draft plan in 2013, the Department worked diligently to forge productive partnerships and build confidence with industry, community groups, and various other interested stakeholders through a collaborative and inclusive approach.

The centerpiece of this proposed plan will be education and outreach to landowners about best land management practices (e.g., grazing, soil health, native forage restoration, early detection and rapid response to invasive weeds, carbon sequestration, etc.). These land management practices will help protect productive land that is currently free of invasive weeds and will also fortify soil health, increase soil water retention capabilities, and encourage biodiversity. Landowners will be provided practical, proven IPM solutions to control existing invasive weed populations through effective land management practices, and a significant emphasis will be placed on early detection and rapid response. Education and outreach will also be provided to the general public, as well as to other organizations and agencies. The proposed management plan can be viewed at *http://www.marincounty.org/depts/ag/weed-plan*.

This proposed invasive weed management plan has been on hold since 2014. The Department hopes to move forward with the proposed plan in the future. The Department also intends to update Marin County's weed ordinance, which was last updated in 1959.

Marin Certified Farmers' Markets

Certified Farmers' Markets are community events bringing together farmers and consumers, offering the opportunity to meet local certified producers and learn how and where food is grown. Farmers may only sell what they grow so consumers are guaranteed the food is fresh and seasonal.

Marin Certified Farmers' Markets showcase the diversity and abundance of local and regional produce. Twenty-five Certified Producer Certificates were issued to producers and 12 farmers' markets were certified in 2016.

Check our website at *http://www.marincounty.org/depts/ag* to stay up to date with current market schedules.

MARIN COUNTY CIVIC CENTER
Thursday 8:00 am -1:00 pm
Sunday 8:00 am -1:00 pm
Open all year

CORTE MADERA
Corte Madera Town Center
Wednesday 12:00 pm - 5:00 pm
Open all year

SAN RAFAEL
Fourth Street, San Rafael
Thursday 5:30 pm - 9:00 pm
April - September

FAIRFAX
Peri Park
Wednesday 4:00 pm - 8:00 pm
May - September

FAIRFAX
Fairfax Library Parking Lot
Sunday 12:00 pm - 3:00 pm
October - April

LARKSPUR
Marin Country Mart
Saturday 9:00 am - 2:00 pm
Open all year

MILL VALLEY
E. Blithedale Ave @ Ashford Dr
Friday 9:30 am - 2:30 pm
Open all year

NOVATO
Grant Avenue
Tuesday 4:00 pm - 8:00 pm
May - September

POINT REYES
Toby's Feed Barn
Saturday 9:00 am - 1:00 pm
June - November

TAM VALLEY
Tam Valley Community Center
Tuesday 3:00 pm - 7:00 pm
May - November

TIBURON
Main Street @ Tiburon Blvd
Thursday 3:00 pm - 7:00 pm
June - October

COUNTY OF
MARIN

DEPARTMENT OF AGRICULTURE,
WEIGHTS AND MEASURES

2017 Livestock & Crop Report

CONTENTS

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If you require accomodations to view this document, or would like to request the document in alternate formats, contact Stefan Parnay at (415) 473-6700, TTY (415) 473-3232, or sparnay@marincounty.org.

Cover photo: Windrows west of Novato by Scott Wise

DEPARTMENT OF AGRICULTURE • WEIGHTS & MEASURES
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COUNTY OF MARIN

Stacy K. Carlsen, Commissioner/Director
Stefan Parnay, Deputy Commissioner/Director

In accordance with the provisions of Section 2279 of the California Food and Agricultural Code, I am pleased to submit the 2017 Annual Livestock and Crop Report for Marin County. This publication is a summary of counts, acreage, yields, and gross value of all agricultural production in Marin County.

The total gross value of agricultural crops and products in 2017 was $87,198,000. This represents a decrease of approximately $9,308,000, or 10% less, compared to the 2016 total gross value of $96,506,000. It should be emphasized that the values stated in this report represent gross returns and do not indicate actual net profit.

Despite a decrease in value of 21% from the previous year, Milk continues to remain the top commodity for Marin at $34,153,000, and 39% of the total gross value. This $8,982,000 reduction in value accounts for the majority of the 10% reduction in total gross value of agricultural crops and products in 2017.

Production of both organic and conventional milk decreased 4.8% in 2017. The average market milk price was down significantly for organic milk, and slightly for conventional milk in 2017. Organic dairy farmers have attributed the price drop to a surplus of organic milk being produced as more dairy farmers have entered the organic market.

The second, third, and fourth ranking commodities in 2017 were Poultry at $17,816,000, Pasture at $10,934,000, and Cattle at $10,784,000. The values of these commodities remained relatively stable compared to the previous year with Poultry down 7%, Pasture down 1%, and Cattle up 2%.

The gross value of Silage dropped 23% to $499,000, due to a decrease in the total tons harvested as well as a drop in price. Nursery Products decreased 33% to $243,000 due to fewer acres in production. The gross value of Fruits & Vegetables increased 17% to $3,987,000. Aquaculture values increased 14% due to increased oyster and clam production. Marin County's Wine Grape production continues to improve after unfavorable conditions in 2015, with the number of producing acres and total tonnage harvested up from 2016. The gross value of Wine Grapes in 2017 was $894,000, up 3% from 2016, and representing 195 harvested acres.

My appreciation goes to the many growers, producers, individuals and organizations for their cooperation in providing the information necessary for this report. I also thank the members of my staff, especially Allison Klein, for their help in producing this report.

Respectfully submitted,

Stacy K. Carlsen
Agricultural Commissioner
Director of Weights & Measures

Agricultural Production Summary

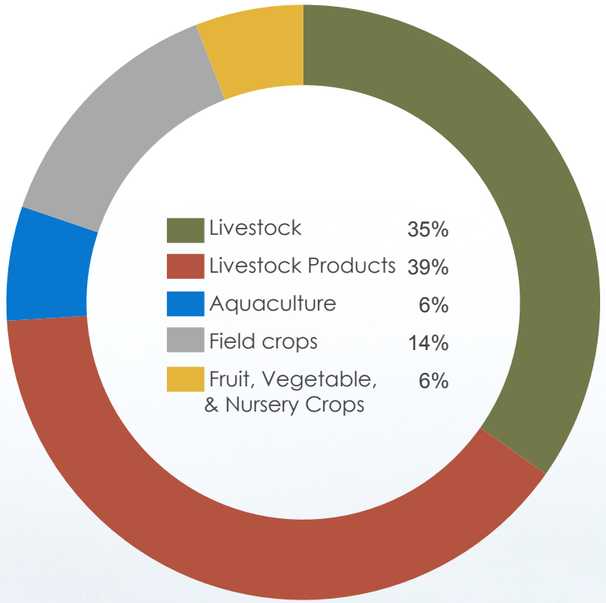
The gross value of all agricultural production in Marin County for 2017 is approximately

$87,198,000

which represents a change of approximately

-10%

compared to the gross value of 2016, which was approximately $96,506,000.



Percentage of total production value

TEN YEAR SUMMARY

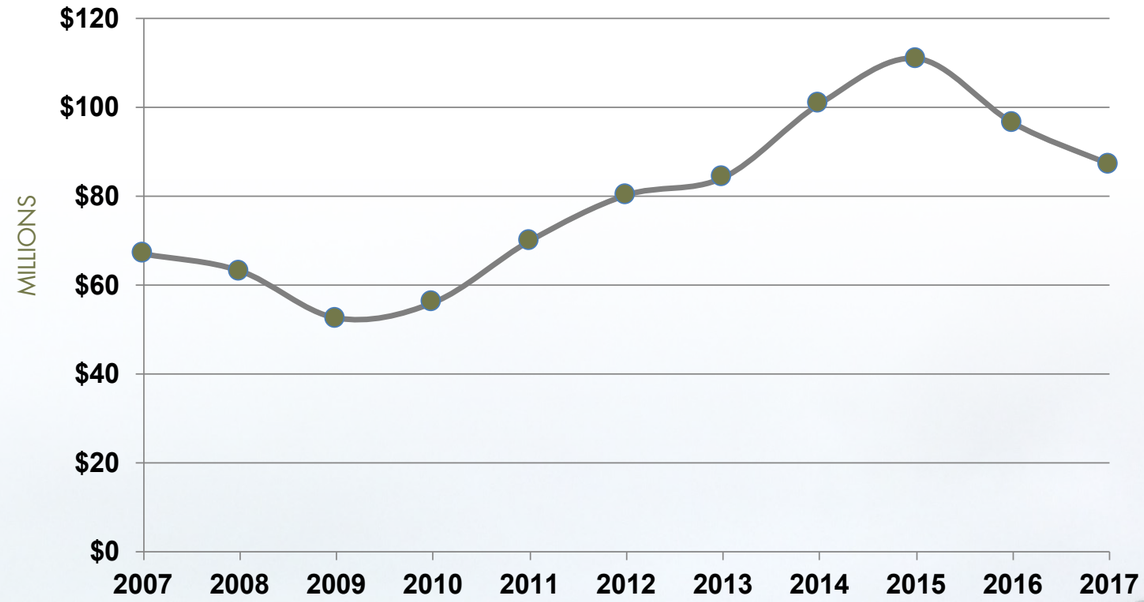


Photo: Cows resting in Petaluma pasture by Allison Klein

Livestock & Aquaculture

	Head	$ / Head	Dollar Value
↑ 2% Cattle	14,398	$749	$10,784,000
	14,562	$724	$10,543,000
↓ -3% Sheep	9,536	$182	$1,735,000
	10,074	$178	$1,793,000
↓ -7% Poultry	Poultry figures include poultry fryers and chicken eggs for consumption.		$17,816,000
			$19,177,000
↑ 14% Aquaculture	Aquaculture figures include oysters, mussels and clams.		$5,414,000 *
			$4,760,000
Total Value:			$35,749,000
			$36,273,000

Livestock Products

	Production	$ / Unit	Unit	Dollar Value
↓ -22% Milk (Organic)	1,010,578	$30.02	CWT	$30,338,000
	1,062,252	$36.85	CWT	$39,144,000
↓ -4% Milk (**Conv.)	252,644	$15.10	CWT	$3,815,000
	265,563	$15.03	CWT	$3,991,000
↓ -2% Wool	58,320	$0.86	LBS	$50,000
	60,441	$0.84	LBS	$50,800
Total Value:				$34,203,000
				$43,186,000

*Aquaculture value based on report prepared by California Department of Fish and Wildlife.
**"Conv." means conventional
Figures may not add due to rounding.
2017 data is presented in **blue** above; the 2016 data is presented in **green.**

2017
2016

Field Crops

	Acreage	Total Tons	$ / Ton	Dollar Value
↑ 2% Hay***	1,775	4,331	$159	$689,000
	2,533	4,773	$141	$673,000
↓ -23% Silage	1,524	8,749	$57	$499,000
	1,558	9,510	$68	$647,000

	Harvested Acreage	$ / Acre	Dollar Value
↓ -1% Pasture	154,000	$71	$10,934,000
	154,000	$72	$11,088,000
Total Value:			$12,122,000
			$12,408,000

Fruits, Vegetables & Nursery

	Acreage	Total Tons	Dollar Value
↑ 17% Fruits & Vegetables	440		$3,987,000
	410		$3,412,000
↑ 3% Wine Grapes	195	291	$894,000
	182	250	$867,000
↓ -33% Nursery Products	7.94		$243,000
	9.43		$360,000
Total Value:			$5,124,000
			$4,639,000

*** Values include Grass Hay, Oat Hay, Oat Seed, and Vetch Seed.
Following the National Agricultural Statistics Service for Acreage Harvested, acreage harvested and planted repeatedly during the year is counted each time. Harvested acreage for 2017 Fruits & Vegetables represents 316 actual acres.

Sustainable Agriculture Program Overview

PEST PREVENTION & DETECTION

Pest prevention encompasses several activities aimed at preventing the introduction and spread of exotic pests in Marin County. Pest exclusion focuses on preventing the entry and establishment of exotic pests and limiting the intrastate movement of newly discovered pests. Marin County inspectors monitor all primary pathways of pest entry into the county including nurseries and points of entry such as UPS and FedEx package terminals.

Pest detection is the systematic search for exotic pests outside of a known infested area. The goal is to find infestations of harmful exotic pests as early as possible and eradicate them before eradication becomes biologically or economically infeasible.

PROTECTION OF THE ENVIRONMENT

The Department operates a Pesticide Use Enforcement program that includes a permitting process for restricted pesticides as well as education and assistance for pesticide users. While reviewing, collecting and analyzing data and records associated with pesticide sales and use, our Department also monitors pesticide use applications, investigates pesticide-related citizen complaints, and conducts pesticide-related illness investigations. The ultimate goal of this program is to ensure the safe and effective use of pest control methods in order to protect public health and the environment, while strongly promoting the production of healthy, safe food and fiber through sustainable practices.

Additionally, the Department recommends Integrated Pest Management (IPM) strategies for long-term pest control such as the use of cultural, biological, and mechanical control methods (with chemical control as a last option).

INTEGRATED PEST MANAGEMENT

Integrated pest management (IPM) is a common-sense approach to pest management that uses a variety of methods and tools to control pests. IPM programs focus on preventing pest problems through cultural and biological measures, although pesticides may be part of an IPM program. The goal is to eliminate or reduce pesticide applications wherever possible and take reasonable measures to ensure that the long-term prevention or suppression of pests has minimal negative impact on human health, non-target organisms, and the environment.

LIVESTOCK PROTECTION PROGRAM

The Marin County Board of Supervisors continues to support and appropriate cost-share funds for the Livestock Protection Program to eligible ranchers who qualify for non-lethal depredation improvements and/ or practices. Recognized non-lethal control methods include the use of protection animals (e.g., livestock guardian dogs, llamas, etc.), electric fencing, scare devices, and herd shepherding, which are eligible for cost-share funds to support ranchers. The Department administers verification inspections for cost-share funding for ranchers participating in this program.

Over the past year, 16 ranchers participated in the Livestock Protection cost-share program to help build and repair fences, purchase and support protection animals, and use scare devices to protect animals from predators. Protected animals included sheep, poultry, goats, cattle, buffalo, and alpaca. The total funds expended to support our ranching community from July 2017 to June 2018 was $45,234.

Photos by Emmett Brady and Jeffrey Stiles (clock-wise from top of page): a llama, a Great Pyrenees dog, and a mini mule guarding sheep; and electric fencing protects a flock of laying hens.

Pest Prevention Programs

PEST EXCLUSION

In 2017, inspectors conducted 1,512 incoming plant quarantine inspections. Plant shipments were monitored at FedEx, UPS, nurseries, aquatic supply stores, and post-entry quarantine sites. The Department performed 29 Gypsy Moth inspections of household goods from infested states, as well as 1,348 Glassy-Winged Sharpshooter inspections on plant material from infested California counties. One rejection of plant material was made to protect Marin's agriculture and environment.

PEST DETECTION

In 2017, inspectors from the Marin County Department of Agriculture and the California Department of Food and Agriculture placed and serviced 1,437 traps for exotic insect pests. The targeted pests included: Mediterranean Fruit Fly, Oriental Fruit Fly, Melon Fly, Gypsy Moth, Japanese Beetle, Glassy-Winged Sharpshooter (GWSS), Light Brown Apple Moth, and Asian Citrus Psyllid. Traps are strategically placed within the county on or near preferred hosts. For example, GWSS traps were placed in nurseries and urban areas; Mediterranean Fruit Fly traps were placed in fruit trees; Gypsy Moth traps were placed on hardwood trees; and Japanese Beetle traps were placed in urban landscaped areas.

BIOLOGICAL CONTROL

Biological pest control is the use of pests' natural enemies to help suppress pest populations to economically and environmentally acceptable levels. Once the control agent becomes established, management is generally self-perpetuating, potentially eliminating or reducing the need to use pesticides.

The following are pests found in Marin and some of the methods that have been used to control them:

PEST	BIOLOGICAL AGENT
Gorse	Gorse Mite, Seed Weevil
Bull Thistle	Bull Thistle Gall Fly
Yellow Star Thistle	Peacock Fly
Scotch Broom	Stem Boring Moth
Ash White Fly	Parasitic Wasp
Italian Thistle	Seed Weevil
Purple Star Thistle	Seed Weevil
Klamath Weed	Beetle

The following pests were intercepted in Marin County in 2017:

SCIENTIFIC NAME	COMMON NAME	RATING
Epiphyas postvittana	Light brown apple moth	A
Pseudaulacaspis pentagona	White peach scale	A
Pulvinaria psidii	Green shield scale	B
Ceroplastes cirripediformis	Barnacle scale	C

GLASSY-WINGED SHARPSHOOTER

The Glassy-Winged Sharpshooter (GWSS), *Homalodisca vitripennis*, is a very serious threat to California agriculture. First observed in the state around 1990 and now found throughout Southern California and portions of the San Joaquin Valley, GWSS is a particular threat to vineyards due to its ability to spread *Xylella fastidiosa*, the bacterium that causes Pierce's disease in grapevines. Pierce's disease is lethal to grapevines and significant resources are committed annually to find effective treatments. GWSS also spreads other diseases to a variety of agricultural and ornamental plants, having the potential to substantially impact California's agriculture and environment if left unchecked.

To prevent the introduction of this leafhopper into Marin County, department staff inspect incoming nursery plant shipments containing GWSS host plants from infested California counties. In 2017, a total of 1,348 shipments were inspected for GWSS, with no finds. Detection traps are strategically placed throughout the county to monitor for this unwanted pest.

SUDDEN OAK DEATH

Marin County continues to be infested with Sudden Oak Death (SOD), the disease caused by the pathogen *Phytophthora ramorum*. Due to above-average rainfall in recent years, increased infestations have been detected in several coastal counties, including Marin. Mortality in tanoak and manzanita has been recorded in sections of the Mt. Tamalpais watershed, with a noticeable absence of bay laurel, inferring that tanoak and possibly manzanita have caused the inoculum to spread.

Tree mortality in wildland and urban/wildland interface areas causes dramatic changes in the landscape, affecting ecosystems, increasing fire and safety hazards, and decreasing property values.

P. ramorum hosts include various native woodland trees and understory plants, as well as assorted ornamental nursery plants. State and federal quarantines regulate the movement of host nursery stock, and ongoing research is being conducted to help production nurseries mitigate the risk of spread.

On certain oaks such as Coast Live Oak, *P. ramorum* causes potentially lethal trunk cankers; on other hosts it causes leaf or twig blight, which is rarely lethal. Tanoaks may have both trunk cankers and leaf dieback. Unlike oaks, some hosts (i.e., California Bay Laurel) are not killed by this pathogen; instead these hosts act as a vector, allowing inoculum to spread through natural or artificial means (i.e., rainwater, soil, infested nursery stock) under moist conditions.

Prevention is the only treatment to protect trees from *P. ramorum*. Best preventative practices include keeping trees healthy so they maintain their natural defenses, pruning overstory California Bay Laurels, and strategically utilizing phosphonate treatment products. For more information about diagnosis, distribution, and best management practices, please visit: *http://www.suddenoakdeath.org*.

Invasive Weed Management

JAPANESE KNOTWEED ERADICATION PROGRAM

Japanese knotweed (*Fallopia japonica*) is currently threatening parts of Marin County. First documented in the winter of 2011 along Lagunitas Creek, Japanese knotweed now occurs on state, federal, and private lands in and along both Lagunitas and San Geronimo Creeks.

This invasive plant is classified as an A-rated pest by the California Department of Food and Agriculture, which is the highest and most serious pest rating. Japanese knotweed is considered one of the top 10 most aggressive, destructive and invasive plants in the world! Small patches of knotweed can quickly grow to infest large areas of land in and along waterways, over time making creek banks more vulnerable to erosion, clogging waterways, and reducing habitat quality for fish and wildlife. It's an agressive colonizer that outcompetes native vegetation by emerging early, growing fast, and preventing seedling regeneration. It's even strong enough to penetrate concrete. As a result, managers are not only concerned about the ecological threat this species poses, but also about the damage it can do to homes and property.

Much great work has been done on state and federal lands, and some private lands to manage and treat these knotweed populations. However, in order to eradicate this species in Marin, coordinated action must be taken before the infestation becomes more widespread.

Over the next year, the Department, Farm Advisor, and other local organizations intend to engage all private landowners within the San Geronimo Creek area, to increase their knowledge and understanding of Japanese knotweed and facilitate their participation in surveys, management, and monitoring of knotweed patches on their respective properties. The goal of this work in collaboration with homeowners and local, state, and federal agency representatives is the complete removal of Japanese knotweed from the watersheds by synchronizing management on public and private lands.

MARIN/SONOMA WEED MANAGEMENT AREA

The Marin/Sonoma Weed Management Area (MSWMA) is a cooperative organization fighting weeds and invasive plants in Marin and Sonoma Counties. Established in 1999, the group includes representatives from federal, state, county and city agencies, private industry, and landowners.

MSWMA's goals include improving the effectiveness of local weed management efforts, increasing public awareness of invasive weeds, advancing responsible land stewardship practices, and working collaboratively with partner organizations by sharing resources and knowledge to manage and/or eradicate invasive weed populations. The MSWMA helps control weeds across land ownership boundaries by uniting landowners with public agencies and providing an opportunity to share resources in mapping and planning. Visit the Marin/Sonoma Weed Management Area website at *http://marinsonomawma.blogspot.com*.

Some high priority invasive weeds are found on private lands. The Rapid Response/Bay Area Early Detection Network (*http://baedn.org/*) connects MSWMA with ranchers, farmers, and private landowners to help address these infestations, with the goal of eradicating them before they become too large.

Photos (clock-wise from top of page): Japanese knotweed sprouts, and a wall of knotweed along creekbank by Eric Ettlinger of Marin Municipal Water District; Japanese knotweed penetrating concrete by King County Noxious Weed Control Program (*https://www.kingcounty.gov/services/environment/animals-and-plants/noxious-weeds/program-information.aspx*).

Marin Organic Farming & Ranching

MARIN ORGANIC CERTIFIED AGRICULTURE (MOCA)

The Marin County Department of Agriculture is accredited by the United States Department of Agriculture (USDA) as an official organic certification agency.

Marin Organic Certified Agriculture (MOCA) serves the local agricultural community producers who employ organic farming and ranching practices, and seek formal certification. Organic production systems strive to achieve agro-ecosystems that are ecologically, socially, economically, and environmentally sustainable. Organic farming emphasizes greater cooperation with nature without reliance on synthetic inputs.

Consumer demand for certified organic products continues to increase, with an expectation by consumers that organic products are verifiable. MOCA was established to provide a professional service to local individual and business operations engaged in the production and distribution of organically produced commodities.

The primary responsibilities of MOCA are to uphold the standards of the USDA National Organic Program, and document and verify operations' practices of sustainable agriculture. One of the most important benefits of the MOCA program is as a local resource that services the production of organic, value-added products by Marin's family farms.

In 2017, MOCA certified 53 operations as organic. Of those, 38 operations are located in Marin County, and include 11 dairies. Thirteen operations are located in Sonoma County. The remaining two operations are located in Riverside County, and are managed by Marin-based operations to ensure a year-round supply of fresh produce in the local off-season.

CALIFORNIA ORGANIC PROGRAM

All organic producers in California must register in their principal county of operation. In 2017, there were 70 registered organic producers in Marin County, farming approximately 36,554 acres, and producing a total gross value of $66,123,269. Approximately 2,714 acres were farmed to produce organic fruits, vegetables, nursery stock, eggs, and poultry. In addition, Marin County had approximately 33,840 acres of organic pastureland.

Marin Certified Farmers' Markets

Certified Farmers' Markets are community events bringing together farmers and consumers, offering the opportunity to meet local certified producers and learn how and where food is grown. Farmers may only sell what they grow so consumers are guaranteed the food is fresh and seasonal.

Marin Certified Farmers' Markets showcase the diversity and abundance of local and regional produce. In 2017, 31 Certified Producer Certificates were issued to producers and 11 farmers' markets were certified.

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Photo: fresh beets for sale at a farmers' market by Susan Ventura



COUNTY OF MARIN

DEPARTMENT OF AGRICULTURE, WEIGHTS AND MEASURES

2018

AGRICULTURAL CROP & LIVESTOCK REPORT



CONTENTS

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Cover photos by Department staff. Front cover (clockwise from top left): Laying hens roaming outside a movable chicken coop; colorful rows of flowers and vegetables in the field; cattle and sheep grazing on pasture; fresh spring nursery stock; a herd of dairy cows graze on pasture; red wine grapes ripening on the vine. Back cover (clockwise from top left): colorful vegetables for sale at a farmers' market; cattle roaming on pasture; silage harvested awaiting collection; spring nursery stock; dairy cows resting in pasture; fresh oysters in the shell.

DEPARTMENT OF AGRICULTURE • WEIGHTS & MEASURES
1682 NOVATO BLVD., SUITE 150-A, NOVATO, CA 94947
T: (415) 473-6700 F: (415) 473-7543

COUNTY OF MARIN

Stacy K. Carlsen, Commissioner/Director
Stefan Parnay, Deputy Commissioner/Director

It is my pleasure to submit the 2018 Marin County Agricultural Crop and Livestock Report. This annual report presents statistical information on acreage, yield, and gross values of Marin County agricultural products in accordance with Sections 2272 and 2279 of the California Food and Agricultural Code. The figures stated in this report represent only gross values and do not take into account the costs of production, marketing, transportation, or other ancillary costs.

The total value of agricultural crops and products in 2018 was $94,121,000. This represents an increase of $6.9 million, or 8%, above the 2017 gross value of $87,198,000.

Despite falling milk prices for the fourth-straight year, Milk continues to be the leading commodity in Marin; accounting for 37% of the total value in 2018, and representing a value of $31,196,000, or 9% less than 2017's $34,153,000. Poultry, Cattle, and Pasture values were up, 30%, 32%, and 6% respectively, due to increases in production and unit pricing. At the same time, Aquaculture dropped 5% due to decreased production of shellfish.

Overall, seven out of the county's twelve commodities showed an increase in value in 2018: Poultry, Cattle, Silage, Pasture, Fruits and Vegetables, Wine Grapes, and Nursery Products. Besides Milk, Sheep, Aquaculture, Wool, and Hay decreased in value.

I would like to extend my thanks and appreciation to all of the farmers, ranchers, and contributing organizations who contributed data for this report. Without their assistance, this report would not be possible. I also thank my staff, especially Allison Klein, who helped compile the information and produce this report.

Respectfully submitted,

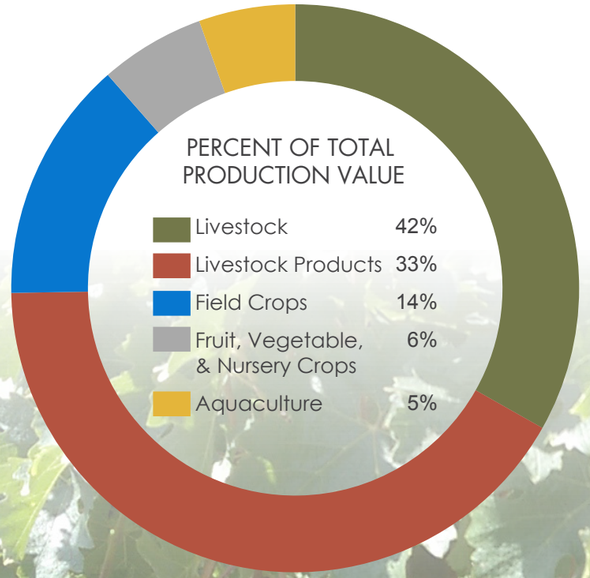
Stacy K. Carlsen
Agricultural Commissioner
Director of Weights & Measures

Agricultural Production Summary

The gross value of all agricultural production in Marin County for 2018 was approximately

$94,121,000

which represents an increase of approximately 8% compared to the 2017 gross value of $87,198,000.



TEN YEAR SUMMARY

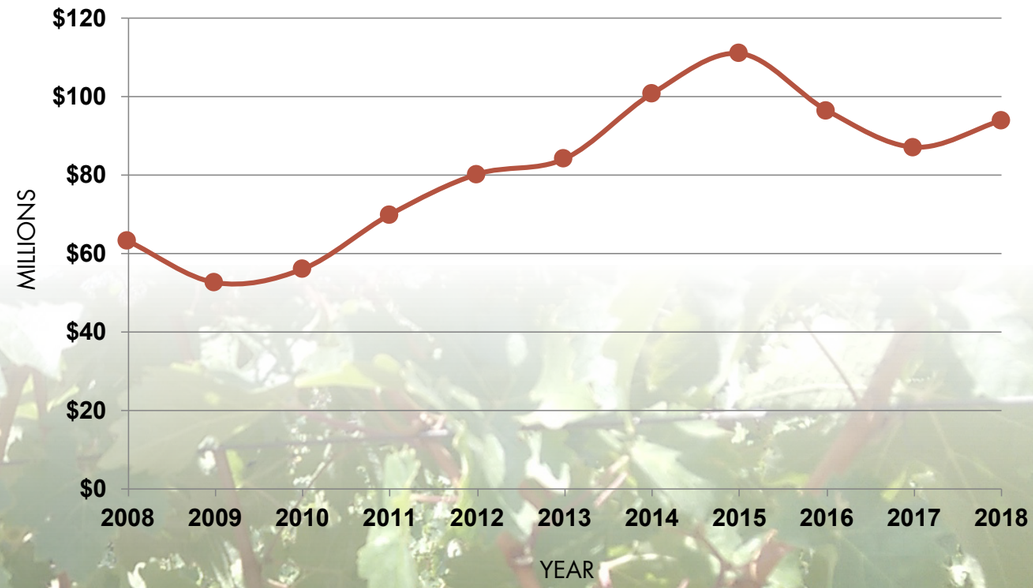


Photo by Allison Klein: Red wine grapes ripening on the vine.

Livestock & Aquaculture

	# of Head	$ / Head	Dollar Value
↑ 32% Cattle	14,700	$965	$14,186,000
	14,398	$749	$10,784,000
↓ -2% Sheep	9,059	$187	$1,694,000
	9,536	$182	$1,735,000
↑ 30% Poultry	Poultry figures include poultry fryers and chicken eggs for consumption.		$23,233,000
			$17,816,000
↓ -5% Aquaculture	Aquaculture figures include oysters, mussels and clams.		$5,165,000 [A]
			$5,414,000
Total Value:			$44,278,000
			$35,749,000

Livestock Products

	Production	$ / Unit	Unit	Dollar Value
↓ -8% Milk (Organic)	1,023,533	$27.39	CWT	$28,035,000
	1,010,578	$30.02	CWT	$30,338,000
↓ -17% Milk (Conv.) [B]	224,678	$14.07	CWT	$3,161,000
	252,644	$15.10	CWT	$3,815,000
↓ -26% Wool	41,790	$0.88	LBS	$36,800
	58,320	$0.86	LBS	$50,000
Total Value:				$31,233,000
				$34,203,000

[A] Aquaculture value based on report prepared by California Department of Fish and Wildlife.
[B] "Conv." means conventional (not organically certified)
Figures may not total due to rounding.
2018 data is presented in **red** above; the 2017 data is presented in **blue.**

2018
2017

Field Crops

	Acreage	Total Tons	$ / Ton	Dollar Value
↓ -15% Hay	1,783	4,222	$139	$587,000 [C D]
	1,775	4,331	$159	$689,000
↑ 69% Silage	1,317	13,193	$63.75	$841,000 [D]
	1,524	8,749	$57	$499,000

	Harvested Acreage	$ / Acre	Dollar Value
↑ 6% Pasture	154,000	$75	$11,550,000
	154,000	$71	$10,934,000
Total Value:			$12,978,000
			$12,122,000

Fruits, Vegetables & Nursery

	Acreage	Total Tons	Dollar Value
↑ 3% Fruits & Vegetables	436		$4,112,000
	440		$3,987,000
↑ 37% Wine Grapes	195	382	$1,223,000
	195	291	$894,000
↑ 22% Nursery Products	7.93		$297,000
	7.94		$243,000
Total Value:			$5,632,000
			$5,124,000

[C] Values include Grass Hay, Oat Hay, and Oat and Vetch Seed.
[D] Much of the hay and silage is not sold, but used on the farm - value determined by its feed equivalent.
Following the National Agricultural Statistics Service for Acreage Harvested, acreage harvested and planted repeatedly during the year is counted each time. Harvested acreage for 2018 Fruits & Vegetables represents 317 planted acres.

Sustainable Agriculture Activities

PEST PREVENTION & DETECTION

Pest prevention encompasses several activities aimed at preventing the introduction and spread of exotic pests in Marin County.

Pest exclusion focuses on preventing the entry and establishment of exotic pests and limiting the intrastate movement of newly discovered pests. Marin County inspectors monitor all primary pathways of pest entry into the county including nurseries and points of entry such as UPS and FedEx package terminals.

Pest detection is the systematic search for exotic pests outside of a known infested area. The goal is to find infestations of harmful exotic pests as early as possible and eradicate them before eradication becomes biologically or economically infeasible.

PROTECTION OF THE ENVIRONMENT

The Department operates a Pesticide Use Enforcement program that includes a permitting process for restricted pesticides as well as education and assistance for pesticide users. While reviewing, collecting and analyzing data and records associated with pesticide sales and use, our Department also monitors pesticide use applications, investigates pesticide-related citizen complaints, and conducts pesticide-related illness investigations. The ultimate goal of this program is to ensure the safe and effective use of pest control methods in order to protect public health and the environment, while strongly promoting the production of healthy, safe food and fiber through sustainable practices.

Additionally, the Department recommends Integrated Pest Management strategies for long-term pest control such as the use of cultural, biological, and mechanical control methods (with chemical control as a last option).

INTEGRATED PEST MANAGEMENT

Integrated pest management (IPM) is a common-sense approach to pest management that uses a variety of methods and tools to control pests. IPM programs focus on preventing pest problems through cultural and biological measures, although pesticides may be part of an IPM program. The goal is to eliminate or reduce pesticide applications wherever possible and take reasonable measures to ensure that the long-term prevention or suppression of pests has minimal negative impact on human health, non-target organisms, and the environment.

LIVESTOCK PROTECTION PROGRAM

The Marin County Board of Supervisors continues to support and appropriate cost-share funds for the Livestock Protection Program to eligible ranchers who qualify for non-lethal depredation improvements and practices. Recognized non-lethal control methods include the use of protection animals (e.g., livestock guardian dogs, llamas, etc.), electric fencing, scare devices, and herd shepherding, which are eligible for cost-share funds to support ranchers. The Department administers verification inspections for cost-share funding for ranchers participating in this program.

Over the past year, we estimate 17 ranchers will have participated in the Livestock Protection cost-share program to help build and repair fences, purchase and support protection animals, and use scare devices to protect animals from predators. Protected animals include sheep, poultry, goats, cattle, buffalo, and alpaca. The total funds expected to be expended to support our ranching community from July 2018 to June 2019 is $35,000.

Photos by Emmett Brady and Jeffrey Stiles (top to bottom): A llama guarding sheep; a Great Pyrenees dog guarding sheep; and electric fencing helps protect a flock of laying hens.

Pest Prevention Programs

PEST EXCLUSION

In 2018, inspectors conducted 1,827 incoming plant quarantine inspections. Plant shipments were monitored at FedEx, UPS, nurseries, aquatic supply stores, and post-entry quarantine sites. The Department performed 15 Gypsy Moth inspections of household goods from infested states, as well as 999 Glassy-Winged Sharpshooter inspections on plant material from infested California counties. Ten rejections of plant material were made to protect Marin's agriculture and environment.

In February 2018, inspectors intercepted an unmarked and uncertified box from Pennsylvania at the FedEx facility in San Rafael. The box was opened for further inspection and a live baby crocodilian was discovered (pictured below). It is illegal to import any live crocodilian into California without a permit issued by the California Department of Fish and Wildlife (CDFW). After confirming with CDFW that the receiver did not have proper permits for obtaining the crocodilian, a notice of rejection was issued. CDFW took possession of the animal and transferred it to a rescue facility.

PEST DETECTION

In 2018, inspectors from the Marin County Department of Agriculture and the California Department of Food and Agriculture placed and serviced 1,512 traps for exotic insect pests. In total, 19,178 trap inspections were conducted. The targeted pests included: Mediterranean Fruit Fly, Oriental Fruit Fly, Melon Fly, Gypsy Moth, Japanese Beetle, Glassy-Winged Sharpshooter (GWSS), Light Brown Apple Moth, and Asian Citrus Psyllid. Traps are strategically placed within the county on or near preferred hosts. For example, GWSS traps were placed in nurseries and urban areas; Mediterranean Fruit Fly traps were placed in fruit trees; Gypsy Moth traps were placed on hardwood trees; and Japanese Beetle traps were placed in urban landscaped areas.

In November 2018, a single Asian Citrus Psyllid (ACP) was detected in a residential tree in Marin County (pictured below). ACPs are of great concern because they can introduce and spread a deadly plant disease called citrus greening or "Huanglongbing".

BIOLOGICAL CONTROL

Biological pest control is the use of pests' natural enemies to help suppress pest populations to economically and environmentally acceptable levels. Once the control agent becomes established, management is generally self-perpetuating, potentially eliminating or reducing the need to use pesticides.

The following are pests found in Marin and some of the methods that have been used to control them:

PEST	BIOLOGICAL AGENT
Gorse	Gorse Mite, Seed Weevil
Bull Thistle	Bull Thistle Gall Fly
Yellow Star Thistle	Peacock Fly
Scotch Broom	Stem Boring Moth
Ash White Fly	Parasitic Wasp
Italian Thistle	Seed Weevil

GLASSY-WINGED SHARPSHOOTER

The Glassy-Winged Sharpshooter (GWSS), *Homalodisca vitripennis*, is a very serious threat to California agriculture. First observed in the state around 1990 and now found throughout Southern California and portions of the San Joaquin Valley, GWSS is a particular threat to vineyards due to its ability to spread *Xylella fastidiosa*, the bacterium that causes Pierce's disease in grapevines. Pierce's disease is lethal to grapevines and significant resources are committed annually to find effective treatments and produce Pierce's Disease-resistant grape varieties. GWSS also spreads other diseases to a variety of agricultural and ornamental plants, having the potential to substantially impact California's agriculture and environment if left unchecked.

To prevent the introduction of this leafhopper into Marin County, department staff inspect incoming nursery plant shipments containing GWSS host plants from infested California counties. In 2018, a total of 999 shipments were inspected for GWSS, with no finds. Detection traps are strategically placed throughout the county to monitor for this unwanted pest.

Photos: Page 8 - Baby crocodilian intercepted at FedEx by Raoul Wertz; a single Asian Citrus psyllid (ACP) by California Department of Food and Agriculture. Page 9 - a single Glassy Winged Sharpshooter (GWSS) by California Department of Food and Agriculture.

SUDDEN OAK DEATH

Marin County continues to be infested with Sudden Oak Death (SOD), the disease caused by the plant pathogen *Phytophthora ramorum*. Due to above-average rainfall in recent years, increased infestations have been detected in several coastal counties, including Marin. Mortality in tanoak and manzanita has been recorded in sections of the Mt. Tamalpais watershed, with a noticeable absence of bay laurel, inferring that tanoak and possibly manzanita have caused the inoculum to spread.

Tree mortality in wildland and urban/wildland interface areas causes dramatic changes in the landscape, affecting ecosystems, increasing fire and safety hazards, and decreasing property values.

Hosts of *P. ramorum* include various native woodland trees and understory plants, as well as assorted ornamental nursery plants. State and federal quarantines regulate the movement of host nursery stock, and ongoing research is being conducted to help production nurseries mitigate the risk of spread.

On certain oaks such as Coast Live Oak, *P. ramorum* causes potentially lethal trunk cankers; on other hosts it causes leaf or twig blight, which is rarely lethal. Tanoaks may have both trunk cankers and leaf dieback. Unlike oaks, some hosts (i.e., California Bay Laurel) are not killed by this pathogen; instead these hosts act as a vector, allowing inoculum to spread through natural or artificial means (i.e., rainwater, soil, infested nursery stock) under moist conditions.

Prevention is the only treatment to protect trees from *P. ramorum*. Best preventative practices include keeping trees healthy to maintain their natural defenses, pruning overstory California Bay Laurels, and strategically utilizing phosphonate treatment products. For more information about diagnosis, distribution, and best management practices, please visit: *http://www.suddenoakdeath.org*.

Invasive Weed Management

UPDATE ON JAPANESE KNOTWEED ERADICATION PROGRAM

Japanese knotweed (*Fallopia japonica*) continues to threaten parts of Marin County. First documented in the winter of 2011 along Lagunitas Creek, Japanese knotweed now occurs on state, federal, and private lands in and along both Lagunitas and San Geronimo Creeks. In 2018, a coalition of various land managers (comprised of local, state and federal agencies, and non-profit organizations) established the Marin Knotweed Action Team (MKAT). MKAT is leading the effort on eradicating Japanese knotweed from these watersheds.

This invasive plant is classified as an A-rated pest by the California Department of Food and Agriculture, which is the highest and most serious pest rating. Japanese knotweed is considered one of the top 10 most aggressive, destructive and invasive plants in the world!

Small patches of knotweed can quickly grow to infest large areas of land in and along waterways, over time making creek banks more vulnerable to erosion, clogging waterways, and reducing habitat quality for fish and wildlife. It's an agressive colonizer that outcompetes native vegetation by emerging early, growing fast, and preventing seedling regeneration. It can grow through cracks in street pavement, concrete, and other hardscapes, including sidewalks, home foundations and septic systems. As a result, land managers are not only concerned about the ecological threat this species poses, but also about the damage it can do to homes and property.

Much great work has been done on state and federal lands, and private lands to manage and treat these knotweed populations. However, in order to eradicate this species in Marin, continued coordinated action must be taken before the infestation becomes more widespread.

Over the next year, MKAT intends to engage all private landowners within the San Geronimo Creek area, to increase their knowledge and understanding of Japanese knotweed and facilitate their participation in surveys, management, and monitoring of knotweed patches on their respective properties. The goal of this work, in collaboration with homeowners and MKAT representatives, is the complete removal of Japanese knotweed from Marin watersheds by synchronizing management on public and private lands.

More information about Japanese knotweed can be found at *https://ucanr.edu/sites/MarinKnotweedActionTeam*.

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The Marin/Sonoma Weed Management Area (MSWMA) is a cooperative organization fighting weeds and invasive plants in Marin and Sonoma Counties. Established in 1999, the group includes representatives from federal, state, county and city agencies, private industry, and landowners.

MSWMA will be reforming in Fiscal Year 2019-20 as a result of the legislature approving $2 million in state-wide funding in Spring 2019 for weed projects across California. MSWMA has not officially met since 2015 due to the lack of funding to support weed projects.

MSWMA's goals include improving the effectiveness of local weed management efforts, increasing public awareness of invasive weeds, advancing responsible land stewardship practices, and working collaboratively with partner organizations by sharing resources and knowledge to manage and/or eradicate invasive weed populations. The MSWMA helps control weeds across land ownership boundaries by uniting landowners with public agencies and providing an opportunity to share resources in mapping and planning. Visit the Marin/Sonoma Weed Management Area website at *http://marinsonomawma.blogspot.com*.

Some high priority invasive weeds are found on private lands. The Rapid Response/Bay Area Early Detection Network (*http://baedn.org/*) connects MSWMA with ranchers, farmers, and private landowners to help address these infestations, with the goal of eradicating them before they become too large.

Photos by Anna Dirkse, UC Cooperative Extension, Marin County: Page 10 - characteristic zig-zag stem growth pattern of Japanese knotweed; Page 11 (top to bottom) - a wall of Japanese knotweed along creekbank; Japanese knotweed stand after herbicide treatment.

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CALIFORNIA ORGANIC PROGRAM

All organic producers in California must register with the California Department of Food and Agriculture's Organic Program. In 2018, there were 68 registered organic producers in Marin County, farming approximately 32,835 acres, and producing an estimated gross value of $42,626,000. Approximately 3,077 acres were farmed to produce organic fruits, vegetables, nursery stock, eggs, and poultry. In addition, Marin County had approximately 29,758 acres of organic pastureland.

Photo by Allison Klein: Marin Organic Certified Agriculture's (MOCA) logo at a farmers' market.

Marin Certified Farmers' Markets

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Marin's Certified Farmers' Markets showcase the diversity and abundance of local and regional produce. In 2018, 26 Certified Producer Certificates were issued to producers and 11 farmers' markets were certified.

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Toby's Feed Barn
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June - November

Photo by Johanna Good: Salad greens for sale at a farmers' market.



COUNTY OF MARIN

DEPARTMENT OF

AGRICULTURE, WEIGHTS AND MEASURES

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Promoting and protecting agriculture, environmental quality, and ensuring equity in the marketplace.