2019

AGRICULTURAL CROP & LIVESTOCK REPORT

COUNTY OF
MARIN

DEPARTMENT OF AGRICULTURE,
WEIGHTS AND MEASURES

CONTENTS

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Front cover photos (clockwise from top left): a herd of dairy cows graze on pasture; white wine grapes ripening on the vine; rows of new lettuce; cattle grazing on pasture. Back cover photos (clockwise from top left): vegetables and flowers growing in a field (photo by Indian Valley Organic Farm and Garden); cattle resting on pasture; hay bales in field; fresh oysters in the shell. All photos taken by Department Staff except where indicated.

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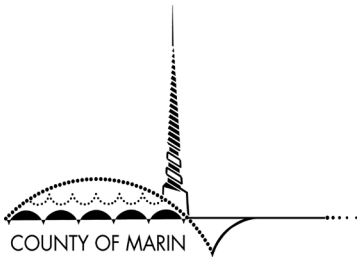


In accordance with the provisions of Section 2272 and 2279 of the California Food and Agricultural Code, it is my pleasure to present the 2019 Marin County Agricultural Crop and Livestock Report. This publication is presented annually and reports statistical information on acreage, yield, and gross value of all agricultural products produced in Marin County.

The 2019 estimated total gross value of Marin County's agricultural production was $97,929,000, an increase of four percent from the 2018 estimated value of $94,121,000.

For the second year in a row, the top three commodities are Milk (organic and conventional), Poultry, and Livestock. These commodities make up more than $67 million, or 70%, of the total gross value.

Winegrape production remained at peak levels in 2019 with high yields and high prices. Wet weather in the first half of 2019 impacted various producers in the county. Field Crop as well as Fruit and Vegetable producers saw a decrease in yields and value due to delayed plantings. For Aquaculture, significant rain events caused closures of shellfish harvesting, but increased yields boosted the overall value.

I would like to express my gratitude for the continuing cooperation of all individuals, growers, and agencies who contribute information necessary to prepare this report. Without their assistance, this report would not be possible. I wish to thank my staff, in particular Allison Klein, who made the publication of this report possible.

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 2019 was approximately

$97,929,000

which represents an increase of approximately 4% compared to the 2018 gross value of $94,121,000.

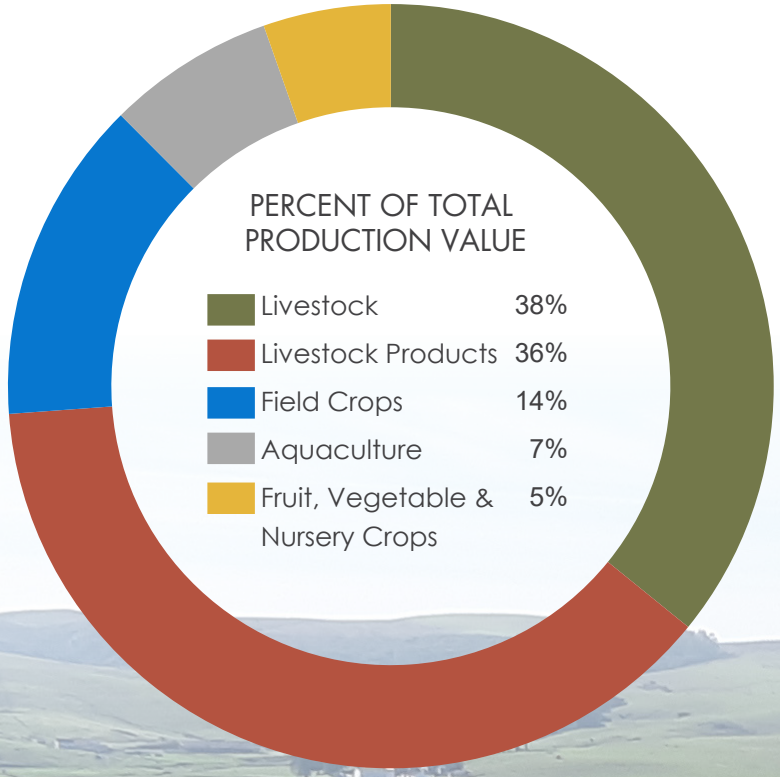
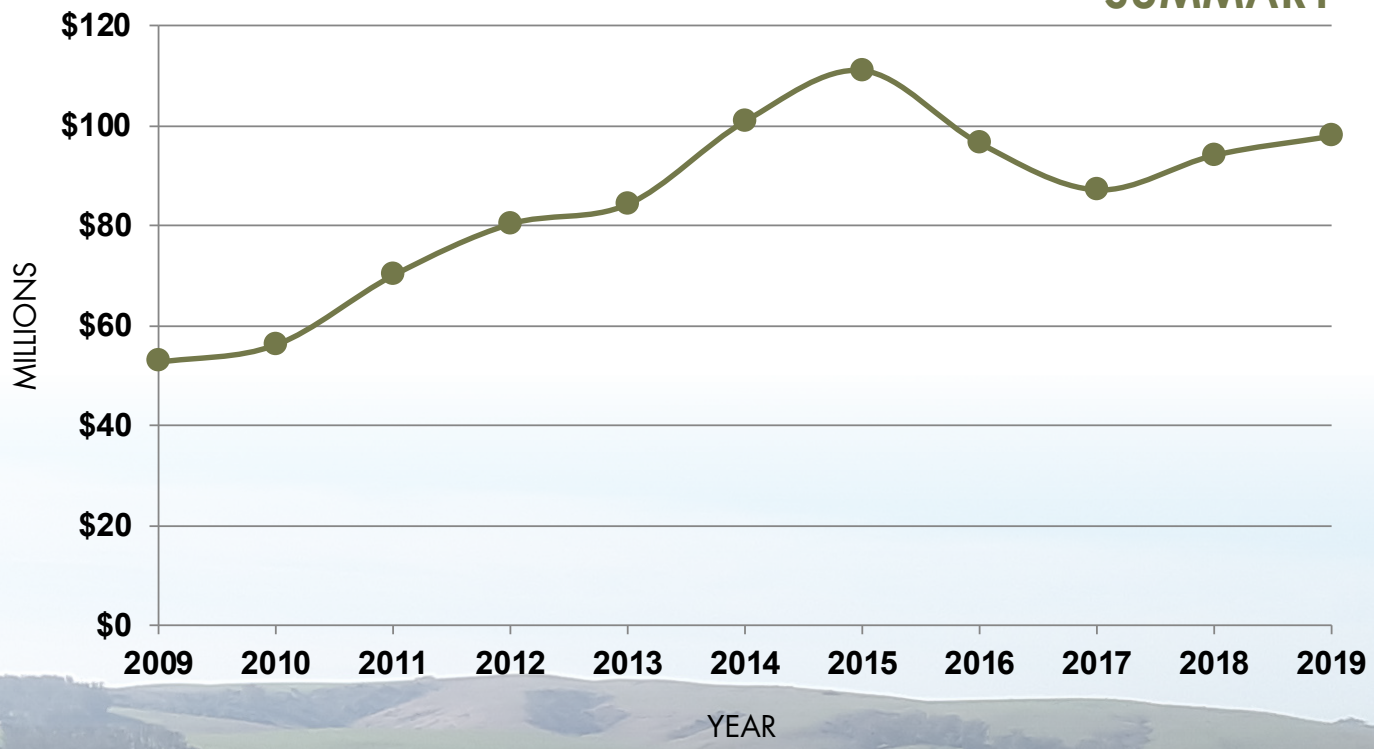


Photo by Department Staff: cattle and sheep on pasture.

TEN YEAR SUMMARY



Livestock & Aquaculture

	# of Head	$ / Head	Dollar Value
↑ 4%  Cattle	14,561 14,700	$1,013 $965	$14,750,000 $14,186,000
↑ 27%  Sheep	10,582 9,059	$203 $187	$2,148,000 $1,694,000
↓ -13%  Poultry	Poultry figures include poultry fryers and chicken eggs for consumption.		$20,312,000 $23,233,000
↑ 34%  Aquaculture	Aquaculture figures include oysters, mussels and clams.		$6,925,000 [A] $5,165,000
		Total Value:	$44,135,000 $44,278,000

Livestock Products

	Production	$ / Unit	Dollar Value
↑ 17%  Milk (Organic)	1,132,274 CWT 1,023,533 CWT	$29.00 $27.39	$32,836,000 $28,035,000
↓ -29%  Milk (Conv.)[B]	154,401 CWT 224,678 CWT	$14.50 $14.07	$2,239,000 $3,161,000
↓ -18%  Wool	31,343 lbs 41,790 lbs	$0.96 $0.88	$30,100 $36,800
		Total Value:	$35,105,000 $31,233,000

[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.

Field Crops

		Acreage	Total Tons	$ / Ton	Dollar Value
-36%	Hay	999	2,588	$145	$375,000 [C]
		1,783	4,222	$139	$587,000
22%	Silage	1,643	18,529	$55	$1,027,000 [D]
		1,317	13,193	$64	$841,000

		Harvested Acreage	$ / Acre	Dollar Value
4%	Pasture	154,000	$78	$12,012,000
		154,000	$75	$11,550,000

Total Value: $13,414,000
$12,978,000

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18

Fruits, Vegetables & Nursery

		Acreage	Total Tons	Dollar Value
-13%	Fruits & Vegetables	407 [E]		$3,593,000
		436		$4,112,000
12%	Wine Grapes	195	406	$1,369,000
		195	382	$1,223,000
5%	Nursery Products	7.43		$313,000
		7.93		$297,000

Total Value: $5,275,000
$5,632,000

*2019 data is presented in **green above**; 2018 data is presented in **red below**.

[C] Values include Rye Hay, Oat Hay, Oat Seed and Vetch Seed.

[D] Much of the hay and silage is not sold, but used on the farm - value determined by the feed equivalent.

[E] Following the National Agricultural Statistics Service for Acreage Harvested, acreage harvested and planted repeatedly during the year is counted each time. Harvested acreage for 2019 Fruits & Vegetables represents 310 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 oversees the use of pesticides in Marin County and 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, 15 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 include sheep, poultry, goats, cattle, buffalo, and alpaca. The total funds expended to support our ranching community from July 2019 to June 2020 was $29,682.

Photos by Department Staff (top to bottom): electric fencing helps protect a flock of laying hens; dogs guarding sheep; and new woven wire fencing.

Pest Prevention Programs

PEST EXCLUSION

In 2019, inspectors conducted 7,523 incoming plant quarantine inspections. Plant shipments were monitored at FedEx, UPS, retail nurseries, aquatic supply stores, and post-entry quarantine sites. Forty-nine rejections of plant material were made to protect Marin's agriculture and environment. There was a four-fold increase in inspections compared to the number performed in 2018 because the Department began daily inspections at FedEx and UPS due to increased state funding. Additionally, the Department performed 16 Gypsy Moth inspections of household goods from infested states, as well as 1,253 Glassy-Winged Sharpshooter inspections on plant material from infested California counties.

The following pests were intercepted in 2019:

SCIENTIFIC NAME	COMMON NAME	RATING
Epiphyas postvittana	Light brown apple moth	A
Pulvinaria psidii	Green shield scale	B
Chrysomphalus aonidum	Florida red scale	C
Coccus hesperidum	Brown soft scale	C
Pseudococcus longispinus	Longtailed mealybug	C

PEST DETECTION

In 2019, Inspectors from the Marin County Department of Agriculture and the California Department of Food and Agriculture placed and serviced 1,965 traps for exotic insect pests. In total, 24,075 trap inspections were conducted, with most traps being checked every two weeks from May to October. 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; and Gypsy Moth traps were placed on the trunks of hardwood trees.

In November 2018, a single Asian Citrus Psyllid (ACP) was detected in a residential tree in Marin County. ACP is of great concern because it can introduce and spread a deadly plant disease called citrus greening or "Huanglongbing". Following the detection in Marin, 95 traps were placed in citrus trees at a density of 50 traps per square mile in a four-square mile delimitation area centered on the detection site. These traps were serviced monthly for one year, and no additional ACP were detected.

A single adult ACP (actual size 3-4 millimeters).

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, *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 2019, a total of 1,253 shipments were inspected for GWSS, with no viable egg masses or live finds. Detection traps are strategically placed throughout the county to monitor for this unwanted pest.

A single Glassy-winged Sharpshooter (actual size ~12 millimeters).

Photos by California Department of Food and Agriculture: page 8 - a single adult Asian Citrus psyllid; page 9 - a single adult Glassy-Winged Sharpshooter.

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 California 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 continue to 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 (e.g., 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

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, the Marin Knotweed Action Team (MKAT) was created. This coalition of various land managers includes the Marin Resource Conservation District, Marin County Parks, Marin Municipal Water District, State Parks, National Park Service (Point Reyes National Seashore and Golden Gate National Recreation Area), One Tam, UC Cooperative Extension Marin, and the Marin County Department of Agriculture. 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 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, federal, 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.

MKAT has worked closely with dozens of streamside private property owners along the San Geronimo Creek since fall 2018. The goal has been to educate them on the serious threat Japanese knotweed poses, get permission to survey their property, and treat any infestation that is found with the consent of the owner. Mechanical removal of this weed has proven to be ineffective. Attempting to manually remove plants stimulates their growth, which causes spread. Rhizomes (underground stems) have been documented to extend 23 feet horizontally and 10 feet deep.

Japanese knotweed sites range in size from newly deposited, single stem plants to mature stands of Japanese knotweed larger than half a tennis court. Over half of the sites surveyed in Marin were less than the size of a car parking space. Based off the experiences of other land managers in northern California and Washington state, three to five years of treatment may be needed for larger sites with less and less herbicide being used in each subsequent year as the populations are reduced in size and number.

In 2018, herbicide treatment totaled 0.20 acres based on foliage area for 14 sites on 11 properties. Herbicide use for all 11 properties in fall 2018 included: 15.36 ounces of Polaris (imazapyr), 10.24 ounces of Competitor (modified vegetable oil used as an adjuvant), and 0.48 ounces of Roundup Custom (glyphosate). The herbicide Polaris and adjuvant Competitor are the primary materials being used, unless the landowner requests glyphosate due to other sensitive plants located near the Japanese knotweed.

In 2019, MKAT gave several presentations to landowners, published many articles, sent follow-up mailers to landowners, surveyed over 125 properties, found an additional 56 sites of Japanese knotweed on an additional 39 properties, and treated all 70 sites. In addition, a 2019 report on the status of the Japanese knotweed eradication effort was sent to all 2,000 mailboxes in the San Geronimo Valley.

In 2019 herbicide treatment totaled 0.34 acres based on foliage area for 70 sites on 50 properties. As in 2018, all treatments were performed in late summer to early fall directly adjacent to the creek (no treatments in water). Treatments are performed right up to the creek to over 15 feet away in a few cases. Most Japanese knotweed infestations are about 2 to 6 feet away from the creek. One property is not in a stream setting. Herbicide use for all 70 sites in late summer 2019 included: 7.4 ounces of Polaris, 10.6 ounces of Competitor, and 19 ounces of Roundup Custom.

We are fortunate the Japanese knotweed infestation is small, and that all known in-stream sites were treated in 2019. MKAT is aware of three additional sites of Japanese knotweed not in a stream setting whose homeowners are currently not supportive of using herbicides. MKAT will continue to work closely with these landowners.

Over the next year, MKAT intends to continue 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 the watersheds by synchronizing management on public and private lands.

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

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 reconvened Fiscal Year 2019-20 as a result of the California legislature approving $2 million in state-wide funding in Spring 2019 for weed projects across California. MSWMA had not officially met since 2015 due to the lack of state funding to support weed projects. Going forward the California Department of Food and Agriculture has a baseline amount of $3 million for noxious weed control and research through California's Biodiversity Initiative.

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. MSWMA helps control weeds across land ownership boundaries by uniting landowners with public agencies and providing an opportunity to share resources in mapping, planning, and treatment strategies.

Visit the Marin/Sonoma Weed Management Area website at *https://www.cal-ipc.org/solutions/wmas/marin-sonoma-wma/*. Information can also be found at *https://www.marincounty.org/depts/ag/weeds*.

Photo by Anna Dirkse, UC Cooperative Extension, Marin County: characteristic zig-zag stem growth pattern of Japanese knotweed.

Marin Organic Farming & Ranching

MARIN ORGANIC CERTIFIED AGRICULTURE

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 local agricultural producers who employ organic farming and ranching practices, and seek formal certification under USDA's National Organic Program. Organic production systems strive to achieve agro-ecosystems that are 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 in 2001 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 2019, MOCA certified 49 operations as organic. Of those, 14 operations are dairies. Thirty-two of the operations are located in Marin County. Sixteen operations are located in Sonoma County. The remaining operation in Riverside County is managed by a Marin-based operation to ensure a year-round supply of fresh produce in the local off-season.

CALIFORNIA ORGANIC PROGRAM

All organic producers in California must register with the California Department of Food and Agriculture's Organic Program. In 2019, there were 70 registered organic producers in Marin County, farming approximately 36,439 acres, and producing an estimated gross value of $42,212,000. More than 90% of the acreage farmed organically is pastureland (approximately 33,930 acres).

Beginning January 2017, changes to the Organic Food and Farming Act no longer require organic registrants in California to provide detailed commodity information and acreage to the state. Before these changes, the state and its counties had been collecting detailed information on specific commodities, their acreage and associated value. This allowed counties to evaluate the contribution of organic agriculture to the overall county economy and to ascertain the ratio of organic to conventional acreage. The total production acreage is now reported by registrant rather than commodity. For more information on the Organic Food and Farming Act, please visit the California Department of Food and Agriculture's State Organic Program website at https://www.cdfa.ca.gov/is/organicprogram/.

Marin Certified Farmers' Markets

Certified Farmers' Markets are community events bringing together farmers and consumers, offering the opportunity to meet 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's Certified Farmers' Markets showcase the diversity and abundance of local and regional produce. In 2019, 29 Certified Producer Certificates were issued to producers in Marin County, which allows growers to sell at the markets, and 11 farmers' markets were certified.

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 St., between B & Cijos
Thursday 6:00 pm - 9:00 pm
June - September

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

NOVATO
Novato Blvd. @ 7th Street
Tuesday 4:00 pm - 8:00 pm
May - September

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

MILL VALLEY
E. Blithedale Ave @ Alto Shopping Center
Friday 9:30 am - 2:30 pm
Open all year

TOMALES
CA-1 @ 1st St.
Saturday 10:00 am - 2:00 pm
May - October

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

Photos by Department Staff: page 12 - Marin Organic Certified Agriculture's (MOCA) logo at a farmers' market; page 13 - 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.