

# Marin County 2022 Crop and Livestock Report



## *Organics*



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## ACKNOWLEDGEMENTS

We dedicate the 2022 Marin County Crop & Livestock Report to the many organic farmers and ranchers in Marin County. There are many more organic producers in Marin County that are not showcased in this report. We hope you enjoy the stories of the producers featured. We would like to thank the following for providing quotes and photographs: Fresh Run Farm, Gilardi's Family Farm, Lunny Ranch, McEvoy Ranch, Star Route Farms, Straus Organic Dairy.

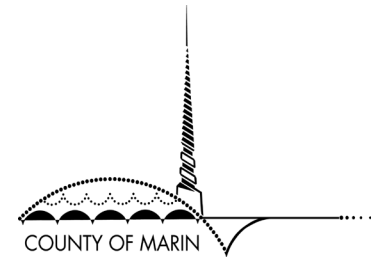
*If you require accommodations to view this document, or would like to request the document in alternate formats, contact Tanya Nelson at (415) 473-6700, TTY (415) 473-3232, or [tnelson@marincounty.org](mailto:tnelson@marincounty.org).*

Cover photos (clockwise from top left): cattle grazing on a hillside; chicken eggs in a carton; chickens roaming on pasture (photo by Gilardi's Family Farm); fresh produce for sale at a farmer's market; olive orchard (photo by McEvoy Ranch).

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**Stefan Parnay**, Commissioner/Director

It is my privilege to present the 2022 Marin County Crop and Livestock Report. This report is prepared in accordance with Sections 2272 and 2279 of the California Food and Agricultural Code and summarizes the acreage, production, and gross value of agricultural products produced in Marin County.

The total gross value of agricultural crops and commodities produced in Marin County during 2022 was \$94,147,000. This represents a decrease of \$2,509,000 or 3% from the previous year's total of \$96,656,000. With producers feeling the effects of a third extremely dry year in 2022, much of this decline can be attributed to the ongoing impacts of drought conditions. The unavailability of water continued to affect nearly every commodity type in Marin County from Field Crops to Livestock, as well as Fruits and Vegetables.

Organic Milk continued to be the leading agricultural commodity in Marin County with a gross value of \$31,975,400 which represented 34% of the total gross value of all commodities and crops produced in 2022. Poultry remained the County's second highest valued commodity at \$23,382,000 and accounted for 23% of the total value. The value of Fruits and Vegetables increased 28%. This was due in part to late spring rains in 2022 which helped many growers reestablish land fallowed the prior year due to lack of water. Drought conditions continued to impact production of Field Crops and Nursery Products. The total acres of silage and hay harvested decreased by 20% and 19% respectively.

This year we chose to feature our rich organic farming heritage by sharing the stories of some of our innovative organic farmers. In 2022, Marin farms produced \$39,367,000 worth of organic agricultural products and farmed over 51,000 acres organically.

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

Respectfully submitted,

A handwritten signature in cursive script that reads "Stefan Parnay".

Stefan Parnay  
Agricultural Commissioner  
Director of Weights & Measures

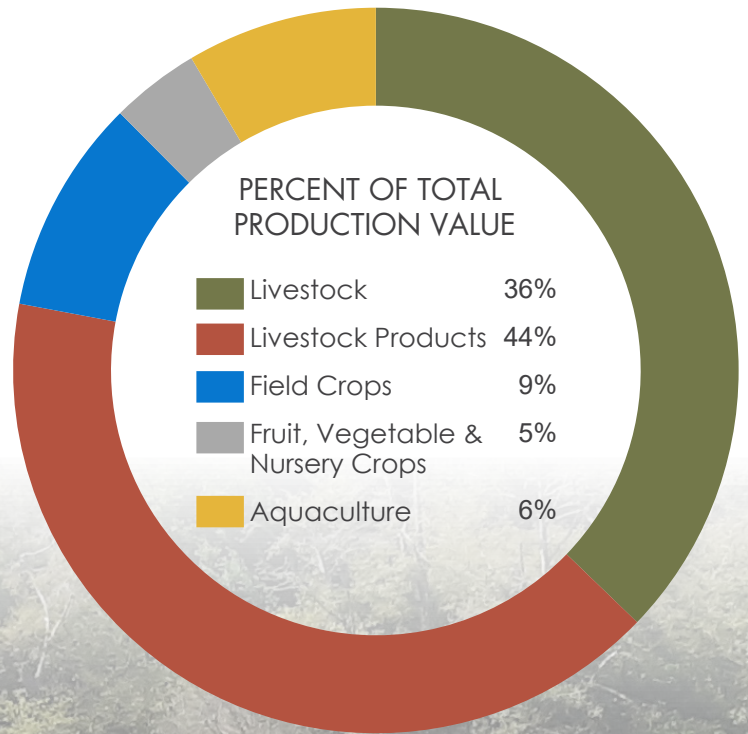


# Agricultural Production Summary

The gross value of all agricultural production in Marin County for 2022 was approximately

# \$94,147,000

which represents a decrease of approximately 3% compared to the 2021 gross value of \$96,656,000.



# TEN YEAR SUMMARY

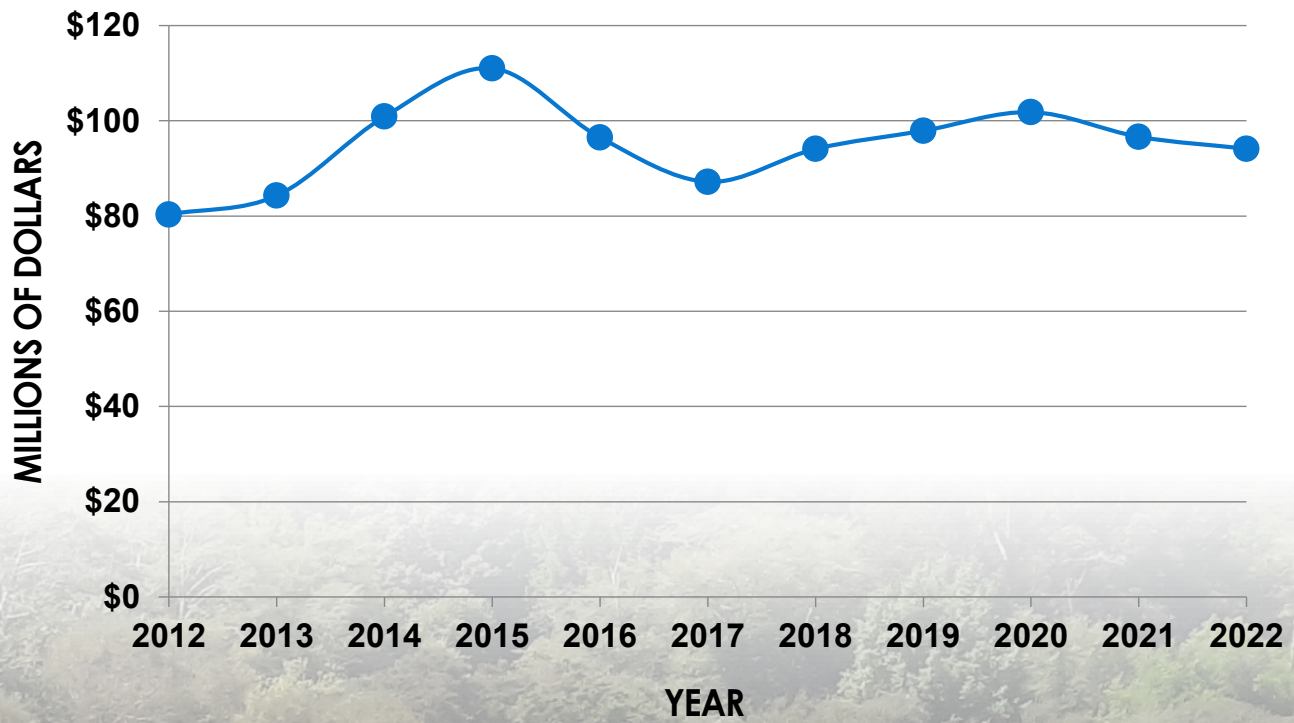


Photo by Department staff: row crops growing in a field at Star Route Farms in Bolinas.

<b>Livestock &amp; Aquaculture</b>					
	<b>Year</b>	<b>Number of Head</b>	<b>Price per Head</b>	<b>Total Gross Value</b>	
While the gross value for livestock increased in 2022, aquaculture experienced a decrease.	<b>Cattle</b>	<b>2022</b>	<b>13,400</b>	<b>\$1,120</b>	<b>\$15,028,000</b>
		<b>2021</b>	<b>13,900</b>	<b>\$1,000</b>	<b>\$13,900,000</b>
	<b>Sheep</b>	<b>2022</b>	<b>12,000</b>	<b>\$243</b>	<b>\$2,916,000</b>
		<b>2021</b>	<b>11,300</b>	<b>\$255</b>	<b>\$2,881,000</b>
	<b>Poultry*</b>	<b>2022</b>	<b>N/A</b>	<b>N/A</b>	<b>\$23,382,000</b>
		<b>2021</b>	<b>N/A</b>	<b>N/A</b>	<b>\$22,601,000</b>
	<b>Aquaculture†</b>	<b>2022</b>	<b>N/A</b>	<b>N/A</b>	<b>\$5,975,000</b>
		<b>2021</b>	<b>N/A</b>	<b>N/A</b>	<b>\$8,208,000</b>

\*Poultry figures include poultry fryers, pigeons, and chicken and duck eggs for consumption.

†Aquaculture value based on report prepared by California Department of Fish and Wildlife.

Aquaculture figures include oysters, mussels, and clams.

<b>Livestock Products</b>					
	<b>Year</b>	<b>Production</b>	<b>Price per Unit</b>	<b>Total Gross Value</b>	
Both milk and wool experienced an increase in production in 2022.	<b>Milk (Organic)</b>	<b>2022</b>	<b>1,073,000 cwt.</b>	<b>\$29.85</b>	<b>\$31,975,400</b>
		<b>2021</b>	<b>1,097,000 cwt.</b>	<b>\$30.60</b>	<b>\$33,568,000</b>
	<b>Milk (Conventional)</b>	<b>2022</b>	<b>112,300 cwt.</b>	<b>\$18.60</b>	<b>\$2,089,000</b>
		<b>2021</b>	<b>137,400 cwt.</b>	<b>\$17.20</b>	<b>\$2,363,000</b>
	<b>Wool</b>	<b>2022</b>	<b>30,400 lbs.</b>	<b>\$1.01</b>	<b>\$30,700</b>
		<b>2021</b>	<b>29,700 lbs.</b>	<b>\$0.98</b>	<b>\$29,000</b>

**Note:** Totals in the above charts may not calculate due to rounding.

Harvest acreage for both silage and hay decreased in 2022.	Field Crops					
		Year	Harvested Acreage	Production	Price per Unit	Total Gross Value
	Silage	2022	1,145	10,184 tons	\$137	\$621,000
		2021	1,430	10,300 tons	\$145	\$615,000
	Hay*	2022	1,015	1,732 tons	\$61	\$237,000
		2021	1,250	1,320 tons	\$60	\$191,000
	Pasture	2022	154,000	N/A	\$48	\$7,392,000
2021		154,000	N/A	\$55	\$8,470,000	

\*Hay values include rye hay, oat hay, oat seed and vetch seed.  
 Much of the hay and silage is not sold, but used on the farm.

Planted acres for fruits and vegetables increased in 2022.	Fruit, Vegetable & Nursery Crops					
		Year	Planted Acres	Harvested Acres	Production	Total Gross Value
	Fruits & Vegetables*	2022	248	270	N/A	\$3,400,000
		2021	190	221	N/A	\$2,657,000
	Grapes, Wine†	2022	153	145	245 tons	\$831,000
		2021	188	153	322 tons	\$899,000
	Nursery Products‡	2022	6	N/A	N/A	\$270,000
2021		6.43	N/A	N/A	\$274,000	

**Note:** Totals in the above charts may not calculate due to rounding.

\*Following the USDA National Agricultural Statistics Service methodology for Acreage Harvested, acreage harvested and planted repeatedly during the year for vegetables is counted each time.

†Planted Acres for winegrapes reflects bearing acres.

‡Nursery Product values include nursery stock and cut flowers.

<b>Gross Production Values</b>				
	2022	2021	Percent of Change	
<p><b>In 2022, agricultural crops &amp; livestock experienced a 3% decrease in total gross value.</b></p>	<b>Livestock &amp; Aquaculture</b>	<b>\$47,301,000</b>	<b>\$47,590,000</b>	<b>-1%</b>
	<b>Livestock Products</b>	<b>\$34,095,000</b>	<b>\$35,960,000</b>	<b>-5%</b>
	<b>Field Crops</b>	<b>\$8,250,000</b>	<b>\$9,276,000</b>	<b>-11%</b>
	<b>Fruit, Vegetable &amp; Nursery Crops</b>	<b>\$4,501,000</b>	<b>\$3,830,000</b>	<b>18%</b>
	<b>GRAND TOTAL</b>	<b>\$94,147,000</b>	<b>\$96,656,000</b>	<b>-3%</b>



# Marin Organic Farming & Ranching

Home to the longest continuously certified organic farm in the state, and the first certified organic dairy west of the Mississippi River, Marin County has a rich organic farming heritage. The county has over 75 organic operations.

In 2022, organic producers in the county farmed approximately 51,400 acres and produced an estimated gross value of \$39,367,000. More than 97% of Marin's organically farmed acreage is pastureland (approximately 49,900 acres). Locally grown organic products are sold to wholesalers, who in turn sell to markets across the United States, directly to local restaurants, and to the public through Certified Farmers' Markets, produce stands, and Community Supported Agriculture programs.

## 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. For more than 20 years, Marin Organic Certified Agriculture (MOCA) has served local agricultural producers who employ organic farming and ranching practices and seek formal certification under USDA's National Organic Program (NOP). 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 NOP 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 2022, MOCA certified 47 operations as organic including 14 dairies, 5 beef and 2 poultry operations, 14 fruit and vegetable operations, and 3 cheesemaking operations. Twenty-nine of the operations are located in Marin County. Sixteen 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.

You can learn more about organic farming and ranching by visiting CDFA's State Organic Program website at <https://www.cdfa.ca.gov/is/organicprogram/> and the USDA's National Organic Program website at <https://www.ams.usda.gov/about-ams/programs-offices/national-organic-program>.



Photo by Department staff: MOCA sign at a farmers' market.

## Meet Fresh Run Farm

Peter Martinelli took his first foray into organic fruit and vegetable growing in the early '70s, helping his dad in the kitchen garden at the farm in Bolinas. Since then, Fresh Run Farm has expanded to grow a wide array of fruits, vegetables, and edible flowers – almost 60 varieties all told.

Fresh Run Farm currently farms exclusively for Quince and Cotogna restaurant group in downtown San Francisco, ensuring the restaurants' menus are bright and varied year-round. "Farming for one restaurant group allows me to focus more on horticulture, instead of having to divide my time between the usual regimes of selling and distributing organic produce to many customers," says Peter. He also has the opportunity to donate organic produce to people who really need it. In 2022, Fresh Run Farms donated food to UCSF cancer patients who were food insecure and aims to split production between high-end clients and those in need of healthy food.



Peter got into organic farming because he believed in it. He reflects, "I didn't set out to be a farmer, but I found the movement and community inspiring, and wanted to do good for the environment and people's health. There's a sense of satisfaction seeing the biodiversity on the property, like seeing the raptors take out rodents, the swallows take out insects, and the general presence of wildlife around our Bolinas farm." Peter states, "For me, organic is all about that balance between nature and farming – we need to work within nature's rules in a way that complements them and the greater ecosystem."

## Meet Gilardi's Family Farm

A fourth-generation farmer in western Petaluma, Don Gilardi has been farming for 34 years and raising certified organic chickens for 17 years. Don raises his hens for eggs and organically certifies both the eggs and the pasture the chickens forage. Don began adopting organic practices early in the development of the organic label and says, "I could see the future of the market and wanted to get ahead of the trend. Now, I've been doing it so long it's my default."

For Don, a challenge has been predation. He adopts non-lethal predator control using his livestock guardian dogs. They patrol the perimeter of his flocks ensuring that would-be-predators like skunks, raccoons, coyotes, and foxes are scared away from entering his enclosures. Another major challenge has been the recent outbreak of avian influenza virus (H5N1 or bird flu) – an outbreak felt by producers nationwide. He has greatly increased his biosecurity measures to combat the threat of this disease.

Don says, "Managing the rotation of my animals has been key to the success of my pasture. The chickens will work the ground down to dirt if allowed, and their manure can build up. With rotation, I can control the amount of grazing and the amount of manure deposited carefully, so that when the rain comes the pasture springs back strong." Don says organic or not, he's going to raise his animals the best way possible. For him, the egg market has shown the organic label is worth the time and cost.



# Meet Lunny Ranch

Since the 1940s, Lunny Ranch has been raising beef cattle on the Historic G Ranch of the Point Reyes National Seashore. In 2003, Lunny Ranch became the first certified organic and grass-fed beef operation in Marin County. Kevin Lunny's interest in sustainability, resource conservation, and high-quality food motivated him to start farming organically, even though organic beef had never been done in Marin. Lunny Ranch's organic endeavor is a four-generation family affair, with Kevin's 92 year-old dad, his wife Nancy, his triplet children (Brigid, Patrick and Sean) and his grandkids helping on the farm.

In addition to raising organic, grass-fed beef, Lunny Ranch also maintains roughly 1300 acres of certified organic pasture. A portion of that land is used to make hay or haylage for additional on-farm feed. Kevin says, "Ranching organically has its challenges. There are significant costs for organic supplemental feed and untreated fence posts." Kevin is constantly maintaining a detailed organic recordkeeping system, individually tracking every animal, to demonstrate compliance with NOP regulations.



"On the other hand, ranching organically has its benefits, such as improving soil and pasture health," Kevin states. "Prior to going organic, a cow manure pat would burn the grass underneath it and that disturbed spot would welcome non-native, aggressive invaders like thistle," adds Kevin. A few years after transitioning to organic, Kevin observed dung beetles completely bury a cow pat, removing the intense spot of over-fertilization and spreading it over a larger area all the while aerating the soil.

Kevin says, "I control pests on the ranch, like parasites, through planned and aggressive rotation management. By understanding the lifecycle of a parasite and how far up a grass stem its larvae can crawl, we make sure that cattle don't eat the grass down to the level where larvae will be. We also rotate cattle through 20 different pastures on the ranch to reduce the likelihood for pest infestation and to allow extended rest periods for grass recovery and regrowth between grazing." When asked what organic farming is, Kevin explains it as, "farming that protects the health of the consumer and the health of the environment."



Top photo by Lunny Ranch: four generations of the Lunny Family. Background photo: pumpkin lineup (photo by Fresh Run Farm).

## Meet McEvoy Ranch

Since 1999, McEvoy Ranch has been a certified organic producer of extra virgin olive oil and flavored (“agrumato-method”) olive oils. The Frantoio (olive mill) is also a Certified Organic food processing facility. “Founder Nan McEvoy was a pioneer in the modern olive oil industry in California” says Samantha Dorsey, President of McEvoy Ranch. Prior to the 1990’s there really wasn’t a modern olive oil industry in the New World and most of California’s olives went to the table olive industry. “Nan was one of the few people to import olive trees from Europe specifically bred for olive oil production,” adds Samantha.



Samantha says, “the McEvoy family has always been committed to building an environmentally, socially, and economically sustainable business. From growing the olives, to harvesting, milling, blending, and bottling – everything is done on the Ranch.” McEvoy Ranch is a no-till operation, which is an important part of its farming philosophy. “Our soil management program is focused on increasing organic matter, carbon sequestration, and increasing soil microbial activity and diversity. For more than 25 years, we have been building soil health by making and applying our own organic compost from the by-products of the olive oil production (pumice) and all the other material from maintaining the ranch’s landscape and grounds” remarks Samantha.

Olive trees are a perennial crop that can produce for hundreds of years making them an important carbon sink and a very stable crop. Samantha says, “the most common challenges faced while farming organically have been managing the limited resources of water and labor. Fortunately, olive trees are very drought-tolerant and fairly disease resistant plants that are incredibly resilient. Good irrigation practices and proper annual pruning are two crucial cultural activities that help us manage crop load, regulate water demand, and improve disease control. The overall ecology of the Ranch, both in the orchards and in the outlying acreage, is more diverse, robust, and resilient because of McEvoy’s organic farming operations.”

## Meet Star Route Farms

Started in 1974 by Warren Weber, Star Route Farms in Bolinas is the oldest continuously certified organic row crop farm in California. Annabelle Lenderink, Farm Manager for Star Route Farms, says, “The farm grows a variety of cool summer crops like lettuce, spinach, winter squash, beans, and herbs that are well suited to growing in Coastal Marin.” Produce is available to restaurants, local farmers’ markets, and Community Supported Agriculture (CSA).

To reduce pest pressure and improve soil fertility, cover crops are planted and crops are rotated. Annabelle states, “On a small farm like ours, we don’t rotate acres of fields. Instead, we do companion planting (grow different plants together for mutual benefit) and rotate beds every year. We let some crops flower more, like cilantro, and plant alyssum to attract beneficials.” Annabelle continues, “Weeds are our main pest on the farm. We use a basket weeder, with cages that roll, to pull weeds in between the rows. And we use a finger weeder to remove weeds from lettuce rows without damaging the crop.” Storage ponds built in 2015 provide water collected during the rainy season to the farm. Annabelle remarks, “the recent drought was much less stressful knowing we had enough water stored to supply our crops!”



In 1990, Star Route Farms acquired a plot of land in the Coachella Valley, allowing it to grow the same crops in the off-season. Annabelle adds, “This way we are able to provide a continuous supply of produce year round, with much of it coming from Coachella Valley in the winter. To me, organic means food that is safe with no worries. We farm organically because it’s the right thing to do, it feels good, and it aligns with our community values.”

# Meet Straus Organic Dairy

Straus Organic Dairy has been certified organic since 1994, making it the first certified dairy west of the Mississippi River. Albert Straus, the head of Straus Organic Dairy, raises his own animals, and Straus Family Creamery purchases raw organic milk from his dairy and six other Marin organic dairies.

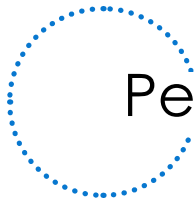
“My goals have always been to try and sustain the land, build soil, and create a farm system that is profitable, but also takes care of the environment and the planet” says Albert. He tests new technology on his farm, vetting it for his supplying dairies to use as they see fit. Some of these new methods include the first commercial trial feeding of seaweed in an attempt to reduce methane emissions from cows, and a functioning methane digester – a tool that uses methane emitted by cow manure to create fuel.

Straus Organic Dairy has converted to a fully electric fleet of vehicles, including converting older, diesel-powered vehicles to electric motors powered by cows’ manure, creating a closed-loop on the farm. “I estimate the farm will be carbon neutral by the end of 2023 – meaning the milk produced on this farm will have a carbon footprint equal to or lower than nondairy alternatives” says Albert. On top of all of these technological advances, Albert notes, “the soil has never been healthier, and the animals are thriving.”

However, organic farming has not come without challenges. Albert says, “The drought has been felt by many in the past years, and with the requirement that organic ruminant dairy animals get at least 30% of their dry matter intake from pasture, having dry fields can prove a major setback.” Managing weeds and pests can be a struggle, although by utilizing a combination of rotational grazing, mowing, intensive seeding, and cutting, Straus Organic Dairy has avoided major weed pressure.

Overall, Albert says, “organic is a federal rule for improving the soil, encouraging humane animal treatment, treating people well, and limiting the use of synthetic pesticides, and fertilizers.” He states, “it’s also a way to shore up local agricultural communities, by encouraging the next generation of farmers and pushing the field forward.”





# Pest Prevention Programs

## PEST EXCLUSION

In 2022, inspectors conducted 14,287 incoming plant quarantine inspections. Plant shipments were monitored at FedEx, UPS, retail nurseries, aquatic supply stores, and post-entry quarantine sites. One hundred eight rejections of plant material were made to protect Marin’s agriculture and environment. Of these 108 rejections, 58 were intercepted and rejected for containing potentially invasive live pests within the parcel. Additionally, the Department performed 15 Spongy Moth (*Lymantria dispar*) inspections of household goods from infested states.

### A-RATED INSECTS INTERCEPTED IN 2022

COMMON NAME	SCIENTIFIC NAME
black thread scale	<i>Ischnaspis longirostris</i>
boxwood scale	<i>Pinnaspis buxi</i>
croton mussel scale	<i>Lepidosaphes tokionis</i>
lesser snow scale	<i>Pinnaspis strachani</i>
magnolia white scale	<i>Pseudaulacaspis cockerelli</i>
red wax scale	<i>Ceroplastes rubens</i>
ant	<i>Ochetellus glaber</i>
*A-rated pests are detrimental to agriculture and are prohibited from entering California.	

## PEST DETECTION

In 2022, Inspectors from the Marin County Department of Agriculture and the California Department of Food and Agriculture placed and serviced 1,570 traps for exotic insect pests. In total, 19,273 trap inspections were conducted, with most traps being checked every two weeks from May to October. Targeted pests include Mediterranean Fruit Fly (*Ceratitis capitata*), Oriental Fruit Fly (*Bactrocera dorsalis*), Melon Fruit Fly (*Bactrocera cucurbitae*), Spongy Moth (*Lymantria dispar*), Japanese Beetle (*Popillia japonica*), Glassy-Winged Sharpshooter (*Homalodisca vitripennis*), Asian Citrus Psyllid (*Diaphorina citri*), and European Grapevine Moth (*Lobesia botrana*). Traps are strategically placed within the county on or near preferred hosts. For example, GWSS traps are placed in nurseries and urban areas, and Mediterranean Fruit Fly traps are placed in fruit trees.

## 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, it’s now found in the entire counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, Ventura, and portions of Fresno, Imperial, Kern, Santa Barbara, and Tulare counties. 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 2022, a total of 1,211 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.



## SUDDEN OAK DEATH

Marin County continues to be infested with Sudden Oak Death (SOD) and Ramorum blight, the diseases caused by the plant pathogen *Phytophthora ramorum*. SOD has resulted in widespread dieback of various forest tree species, and Ramorum blight affects the leaves and twigs of susceptible forest and nursery plants. While the California bay laurel tree has been shown to be the primary predictor of *P. ramorum* in forests, 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. Oaks have been found to be terminal hosts, becoming infected by pathogen spores produced on leaves of nearby plants.

UC Berkeley sponsors annual citizen science SOD blitzes in many California counties, including Marin. Visit [https://nature.berkeley.edu/matteolab/?page\\_id=5906](https://nature.berkeley.edu/matteolab/?page_id=5906) for more information.

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>.

## 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





# Invasive Weed Management

## JAPANESE KNOTWEED ERADICATION EFFORTS

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 aggressive 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 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 in 2018 were less than the size of a car parking space. Based on 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.

Of the 86 sites on private lands that were treated in previous years (2018-2021), 43 sites had no detectable aboveground stems in 2022, while 43 sites did have stems present (though the height and number of stems were significantly reduced). In addition to these 86 sites and two sites that have never been treated, four new sites (ranging from one to ten stems) were found in 2022 during a streambank survey from Creamery Road in San Geronimo to the Inkwells in Lagunitas. Forty-three of the total 92 sites were not treated as there were no visible stems present at the time of treatment and four sites were not treated due to lack of permission. One knotweed site was manually removed in July 2022 and the remaining 44 knotweed sites were treated in August 2022. Herbicide use for 44 sites included 3 ounces of Polaris, 3 ounces of Competitor, and 5.6 ounces of Roundup Custom. The total treatment area for 44 sites was 0.32 foliar acres.



MKAT is continuing to educate and work with four property owners that have declined treatment to manage Japanese knotweed on properties with streamside knotweed. To date, there are also two additional properties with Japanese knotweed near the residence (not near the stream) that also have declined treatment. More information about Japanese knotweed can be found at <https://ucanr.edu/sites/MarinKnotweedActionTeam>.



Photos by Department staff (top to bottom): Japanese knotweed site June 2020 prior to treatment; same site July 2021 after treatment.

## 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>.



# Sustainable Agriculture Activities

## **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.

The Department encourages 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).

## **PEST PREVENTION, DETECTION & EXCLUSION**

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

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.

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.

Do these activities really work? Yes! According to the California Department of Food and Agriculture, studies show a direct correlation between agricultural inspections and lowering invasive species infestations. For every dollar spent on pest prevention, detection, and exclusion, an estimated \$14 are saved in later control costs and economic losses. Preventing the introduction and spread of exotic pests in Marin County also significantly reduces

the potential use of pesticides if one or more of these pests were to become established and needed to be managed.

## **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.

## **LIVESTOCK PROTECTION PROGRAM**

The Marin County Board of Supervisors continues to support and allocate cost-share funds for the Livestock Protection Program to eligible agricultural producers 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, and scare devices, which are eligible for cost-share funds to support ranchers. The Department administers annual verification inspections for cost-share funding for ranchers participating in this program.

Over the past year, 19 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, and alpacas. The total funds expended to support our ranching community from July 2021 to June 2022 was \$34,570.



# Marin Certified Farmers' Markets

Certified Farmers' Markets are community events bringing together farmers and consumers. They offer the opportunity to meet certified producers and learn how and where their food is grown. At these markets, farmers may only sell what they grow so consumers can rest assured the food is fresh, seasonal, and direct from the farm.

Marin's Certified Farmers' Markets showcase the diversity and abundance of local and regional produce. In 2022, 17 Certified Producer Certificates were issued to producers in Marin County, which allows growers to sell at the markets, and 8 farmers' markets were certified. Check our website at <http://www.marincounty.org/depts/ag> to stay up to date with current market schedules.

## CURRENT MARIN COUNTY CERTIFIED FARMERS' MARKETS

### CORTE MADERA

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

### MARIN COUNTY CIVIC CENTER

Thursday 8:00 am - 1:00 pm  
Sunday 8:00 am - 1:00 pm  
Open all year

### NOVATO

Grant Ave. @ 7th St.  
Tuesday 4:00 pm - 8:00 pm  
May - October

### FAIRFAX

Bolinas Park  
Wednesday 4:00 pm - 8:00 pm  
May - October

### MILL VALLEY

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

### POINT REYES STATION

Toby's Feed Barn  
Saturday 9:00 am - 2:00 pm  
June - November

### LARKSPUR

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

### MILL VALLEY

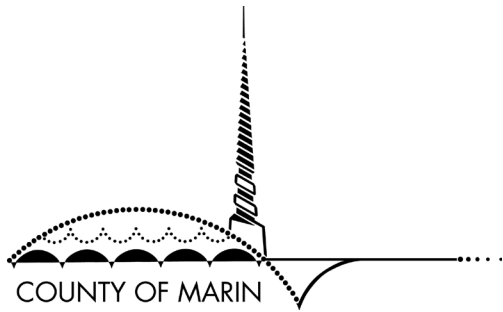
Strawberry Village Shopping Center  
Tuesday 10:00 am - 2:30 pm  
June - November

### SAN RAFAEL

Fourth St., Between A and Lootens  
Thursday 5:30 pm - 8:30 pm  
June - August



Photos by Department staff (left to right): guardian dogs and electric fencing help protect a flock of laying hens; a fox deterrent light hangs on a wire fence.



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

## Staff Retirement: Susan Ventura

Marin Agriculture, Weights and Measures Inspector Susan Ventura retired in April 2022 after nearly 21 years of service to Marin's citizens. A Bay Area native, Susan attended Sonoma State University where she studied Biology and Environmental Studies. After graduating in 1980, she worked in horticultural jobs including nursery and landscaping.

In 1999, Susan was hired by the San Mateo County Agricultural Commissioner's Office. She worked there for two years in a variety of agricultural programs including high risk pest exclusion (inspecting cargo containers at the airport for tropical flowers and fruit), pesticide use enforcement, and direct marketing.

Susan began working for the Marin County Department of Agriculture, Weights and Measures in May 2001. At that time the first *Phytophthora ramorum* (the causal agent of sudden oak death, SOD) quarantines were being issued at state and federal levels. As the Department's SOD program lead, Susan quickly became an expert in *P. ramorum*, educating and assisting the local nursery industry, the public and fellow inspectors.

During her tenure, Susan worked in nearly every program within the Department. From direct marketing to Light Brown Apple Moth to organic certification, Susan enjoyed working with agricultural producers and learning the science behind the regulations to protect agriculture.

Susan's friendly nature and love of learning will be greatly missed. We wish her all the best in her much-deserved retirement!

