

SAN MATEO *County*



**Economic Contributions of
San Mateo County Agriculture**



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Summary of Key Findings

Economic Contributions of the Agricultural Industry for 2022



\$222.8
MILLION

San Mateo County
Agriculture's total
contributions to the
local economy



\$47.7
MILLION in
multiplier effects



\$175.1
MILLION in direct
economic output

Employment Effects of the Agricultural Industry



1,908
total jobs



1,872

direct employees
across production &
processing



36

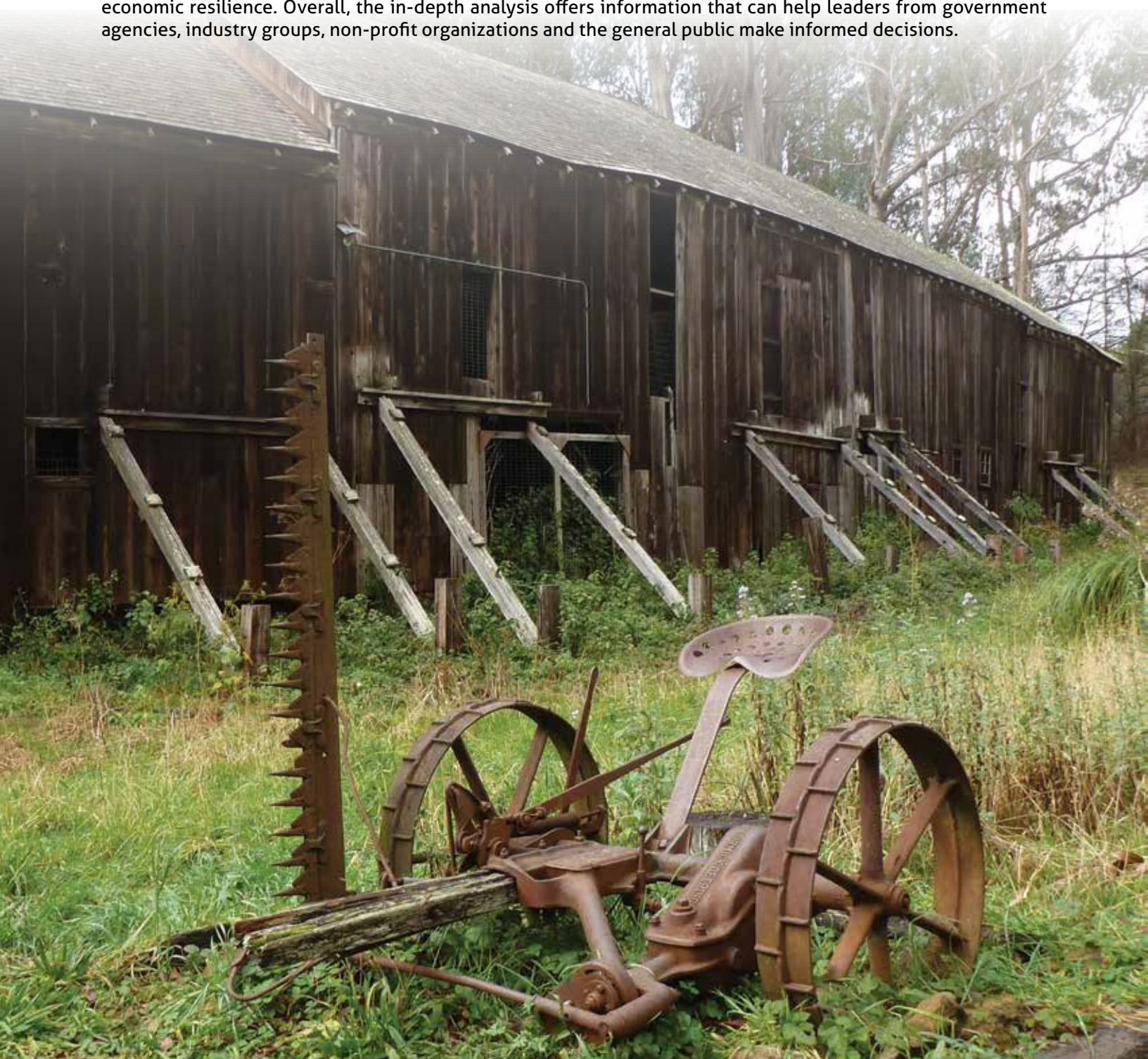
additional jobs attributable to
multiplier effects: expenditures by
agricultural companies and
their employees



Introduction

In 2013, Agricultural Impact Associates produced **Economic Contributions of San Mateo County Agriculture**. The report took an important step beyond the San Mateo County Agricultural Crop Report by examining crop production values and wider economic contributions such as local processing, employment, and multiplier effects. That document painted a fuller picture of agriculture's economic role and generated a strong positive response.

This report updates and expands upon that original study. Like before, we used multiple data sources and advanced economic modeling techniques to analyze agriculture's total contribution to the San Mateo County economy. The new study also measures economic diversification within agriculture, a topic with implications for economic resilience. Overall, the in-depth analysis offers information that can help leaders from government agencies, industry groups, non-profit organizations and the general public make informed decisions.



Our Approach

A *basic industry* sells most of its products beyond the local area and thus brings outside money into local communities. Agriculture easily qualifies as a basic industry in San Mateo County. Many producers sell locally via farmers' markets and other outlets, but most agricultural products go to the greater Bay Area and far beyond.

Calculating a reasonable range of economic contributions by a basic industry entails quantifying three economic areas: 1) *direct* economic effects; 2) *indirect* economic effects; and 3) *induced* economic effects. This report covers all three.

Direct economic effects include farm production, local processing, and their related employment. *Indirect* effects consist of inter-industry, business-to-business supplier purchases. *Induced* effects reflect consumption spending by employees. The **Multiplier Effects** section on page 8 explains this further.



To understand the furthest economic impacts of agriculture, one would also need to assess agricultural-related costs to society, such as net impacts on water and other natural resources. One would also need to quantify the dollar value of wildlife habitat, scenic beauty, nutrient & water cycling, protection from wildfires, and many other ecosystem services that agricultural lands provide. While important, these impacts lie beyond the scope of this study.

Our calculations draw from local and national data sources. The local sources include industry experts and the annual San Mateo County Agricultural Crop Report produced by the Agricultural Commissioner and Sealer of Weights & Measures. The main national data source is IMPLAN, a widely used economic modeling program (see www.implan.com).

Originally created for the U.S. Department of Agriculture (USDA), IMPLAN uses econometric modeling to convert data from more than a dozen government sources into local values for every U.S. county and zip code across 546 industry sectors. Because IMPLAN draws from multiple sources and methods, its employment and economic output numbers often differ from those reported by individual state and federal agencies. For details, please see "Farm Data Sources and Procedures" on the company website: <https://support.implan.com/hc/en-us/articles/115009505827-Farm-Data-Sources-and-Procedures>.

Except where otherwise noted, all figures are from 2022, the most recent IMPLAN dataset available. Where appropriate, we adjusted sector names for clarity and applied coefficients to IMPLAN values to reflect unique San Mateo County conditions. Please contact the authors for additional details on the methods used.

Direct Effects of San Mateo County Farm Production

This section focuses on the simplest measures of economic activity: production and employment. It describes total farm production and the number of agricultural jobs.



PRODUCTION

Figure 1 shows the various categories that made up San Mateo County's 2022 farm production value of \$92.2 million. At \$55.1 million, Floral and Nursery Crops was the single largest production category by dollar value, comprising 59.8% of the county total. This consisted of \$39.2 million in indoor-grown products such as flowering & foliage potted plants, cut flowers, and bedding plants, as well as \$15.9 million in outdoor-grown plants such as ornamental nursery stock, Christmas trees, and cut flowers.

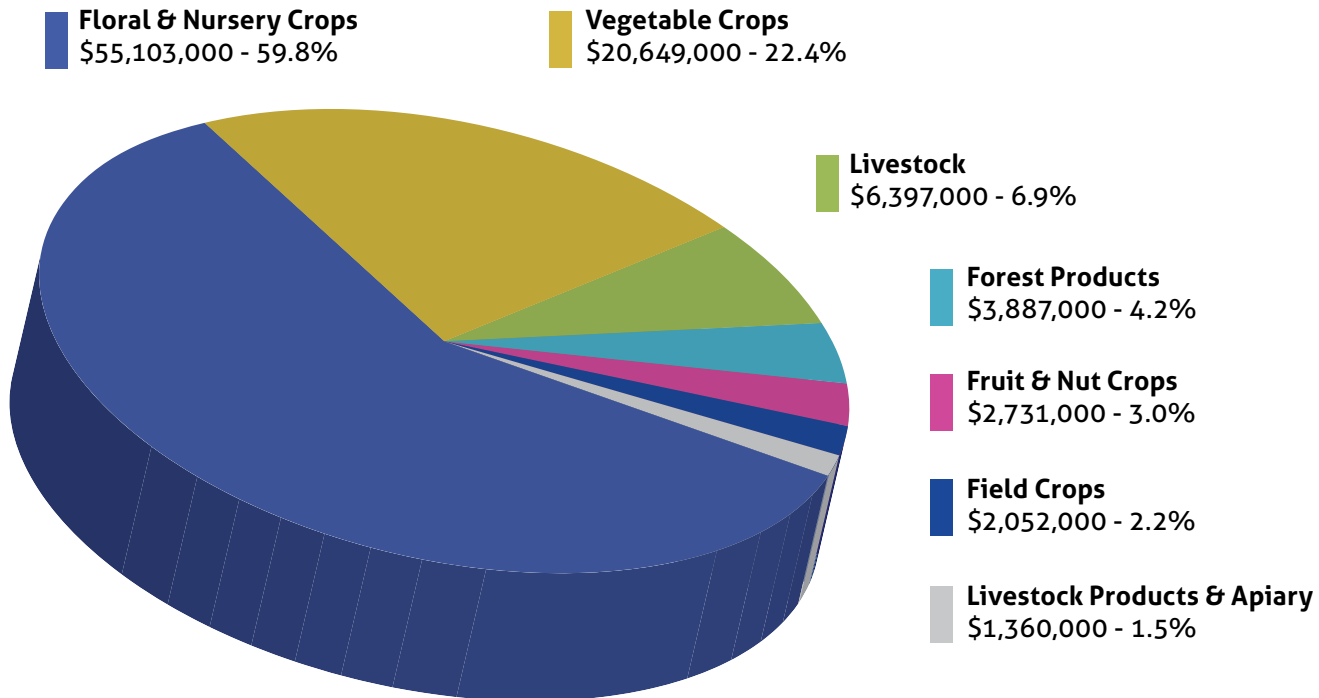
At 22.4%, Vegetable Crops represented the second largest category (\$20.6 million). Miscellaneous Vegetables led this group with \$9.2 million, followed by Brussels Sprouts (\$8.3) million and pumpkins (\$1.3 million).

Livestock ranked third at \$6.4 million (6.9%). The category includes cattle & calves (\$2.9 million) and \$3.5 million in other animals such as goats, lambs, pigs, and poultry.

Total values do not reflect net profit or loss experienced by individual growers or by the industry as a whole. Interested readers are encouraged to consult the County Agricultural Commissioner's 2022 San Mateo County Agricultural Crop Report for additional details on specific products and their value.

Figure 1. Distribution of San Mateo County Farm Production

Source: 2022 San Mateo County Agricultural Crop Report, Department of Agriculture/Weights & Measures



EMPLOYMENT

How many people work in agricultural production? In 2022, IMPLAN data indicate that agricultural production directly employed 1,369 people in San Mateo County, compared to 1,144 in 2011. This figure encompassed a wide range of production-related jobs, not just growing and harvesting, but also sales, marketing and many other roles. It did not include food processing jobs, which are discussed on page 11. Nor did it include San Mateo County's public sector jobs in agriculture, across a range of local, state, and federal agencies.



Readers who want to know more about employment estimates are encouraged to consult IMPLAN's "Farm Data Sources and Procedures" article mentioned earlier. That article notes, for example, that IMPLAN counts farm owners (proprietors) even though other sources do not. Likewise, IMPLAN also counts part-time workers differently than the USDA Census of Agriculture, as this excerpt details:

"The Census of Agriculture releases employment data only every 5 years and measures employment differently than our other data sources: it measures the number of unique human beings who worked on a farm as opposed to the 'jobs' those humans filled. For example, if a farm had 6 humans who worked 2 months each, sequentially in a year, the Census of Agriculture would report that as 6 jobs, whereas in other data sources (and in IMPLAN), this is considered just one job – one job that happens to be filled by 6 different temporary workers. Our data attempts to correct for these omissions and inconsistencies."¹

2022 USDA Census of Agriculture data show that 116 San Mateo County farm operations reported a total of 1,264 hired workers for 2022. The total expense for these workers was \$33,124,000. Eleven operations reported hiring a total of 66 migrant workers. Seventy-one farm operations reported a total of 162 unpaid workers – a category that encompasses farm owners and their family members, including ones who work part-time. These three categories – hired, migrant, and unpaid workers – totaled 1,492 laborers. But, as described above, the part-time nature of many workers makes the total number of job equivalents considerably lower, resulting in IMPLAN's employment estimate of 1,369.

¹Excerpted from IMPLAN's "Farm Data Sources and Procedures": <https://support.implan.com/hc/en-us/articles/115009505827-Farm-Data-Sources-and-Procedures>.

Multiplier Effects of San Mateo County Farm Production

This section quantifies the economic ripples that farm production creates in the local economy. These ripples take two forms: *indirect effects* and *induced effects*. The first consists of business-to-business supplier purchases. For example, when a grower buys fertilizer, pesticides, seed, insurance, banking services, farm equipment, and other inputs, the grower creates *indirect effects*.

The second ripple type, *induced effects*, consists of consumption spending by the combined owners and employees of agricultural businesses and their suppliers. They pay for groceries, housing, healthcare, leisure activities, and other things for their households. All this spending creates ripples in the economy.

Although agricultural companies, suppliers and their combined employees certainly spend money in other counties, this study only reflects those expenditures within San Mateo County. Quantifying expenditures outside the county would be an expensive, complex effort that lies well beyond our scope here.

The following list helps bridge familiar San Mateo County commodities with NAICS and IMPLAN sectors:

- **Greenhouse, Nursery & Floriculture Production:** Bedding Plants, Cuttings & Other (e.g., Herbs, Seeds, Succulents, Vegetables), Christmas Trees, Cut Flowers Grown Indoors (e.g., Alstroemeria, Freesia, Hemp, Lilies, Ranunculus), Cut Flowers Grown Outdoors (e.g., Dahlias, Hydrangeas, Ranunculus, Sunflowers), Flowering and Foliage Potted Plants (e.g., Begonias, Lilies, Orchids, Poinsettia, Succulents), Ornamental Nursery Stock (e.g. Herbaceous Perennials, Shrubs, and Trees);
- **Vegetable Farming:** Artichokes, Beans (Fava), Beans (Snap), Brussels Sprouts, Leeks, Peas, Pumpkins, Misc. Vegetables (e.g., Herbs, Kale, Lettuce, Mushrooms, Peppers, Squash, Tomatoes);
- **Other Animals & Animals Products (non-cattle):** Beeswax, Cheese, Eggs, Goats, Lambs, Pigs, Poultry, Wool; also includes Commercial Fish Catch, which is reported in the 2022 San Mateo County Agricultural Crop Report but not counted toward the county's total production value;
- **Forestry & Forest Products:** Timber Harvesting (Includes Post-fire Salvage Logging);
- **Fruit & Nut Crops:** Wine Grapes (Red Varietals), Wine Grapes (White Varietals), Miscellaneous (e.g., Apples, Berries, Chestnuts, Stone Fruits)
- **Beef Cattle Ranching:** Cattle and Calves;
- **Field Crops:** Beans (Dry), Grain (Barley, Oats, Quinoa, Rye, Wheat), Oat & Rye Hay, Volunteer Hay, Irrigated Pasture, Other Pasture;

As **Figure 2** shows, agricultural production resulted in \$132.0 million in total output for 2022. This consisted of three components: \$102.4 million in direct output, \$12.5 million in indirect effects and \$17.1 million in induced effects. The total employment of 1,382 consisted of 1,369 in direct employment plus 13 multiplier effects jobs.

Related, note that our 2013 study's estimated 1,144 direct farm production jobs for 2011 remains in effect, but the estimated number of additional jobs attributable to multiplier effects has been updated. The original 2011 figure of 3,425 multiplier effect jobs for 2011 was a significant overestimate stemming from a data error. The corrected number is 550. Thus, total 2011 employment attributable to farm production, comprising 1,144 direct jobs and 550 from multiplier effects, was 1,694 instead of 4,569.

Figure 2. Economic Effects of San Mateo County Farm Production

Dollar values are in \$ millions. Figures are for 2022 and come from IMPLAN and U.S. Bureau of Economic Analysis, with adjustments for local conditions. Columns and rows may not compute exactly due to rounding.

FARM PRODUCTION SECTOR	Output Effects (\$ Millions)			TOTAL
	Direct	Indirect	Induced	
Greenhouse, Nursery & Floriculture Production	\$55.1	\$6.5	\$10.3	\$71.9
Vegetable Farming	\$20.6	\$4.0	\$3.8	\$28.4
Other Animals & Animals Products (non-cattle)	\$13.7	\$0.4	\$1.2	\$15.4
Forestry & Forest Products	\$3.9	\$0.3	\$0.5	\$4.7
Fruit & Nut Crops	\$2.7	\$0.3	\$0.6	\$3.6
Beef Cattle Ranching	\$2.9	\$0.4	\$0.2	\$3.4
Field Crops	\$2.1	\$0.6	\$0.3	\$2.9
Miscellaneous Other Crop Farming	\$1.4	\$0.1	\$0.3	\$1.9
TOTAL ECONOMIC OUTPUT	\$102.4	\$12.5	\$17.1	\$132.0
	Employment Effects (# of Jobs)			TOTAL
	Direct	Indirect	Induced	
TOTAL EMPLOYMENT	1,369	7	6	1,382

Every sector has its own unique multipliers reflecting where companies and employees spent their money. Each sector also has its own unique multipliers for employment resulting in the combined employment numbers shown in **Figure 2**.

For example, "Vegetable Farming" in San Mateo County has an indirect effects multiplier of 0.1914 and an induced effects multiplier of 0.1817. This means that for 2022, each dollar's worth of direct output from Brussels sprouts, pumpkins, and other vegetables generated an extra 19 cents in supplier purchases, plus about 18 more cents in consumption spending by agricultural company owners and employees.

Multipliers change every year for each sector and county in the entire nation to reflect where companies and employees spent their money. The *indirect effects* multiplier for "Greenhouse, Nursery & Floriculture Production" in San Mateo County, for example, was 0.0805 in 2011 and 0.1176 for 2022.

Note that sector names and production values in **Figure 2** differ from the 2022 San Mateo County Agricultural Crop Report. They draw from a standard classification system used nationwide called the North American Industrial Classification System (NAICS), as adapted by IMPLAN. Every NAICS/IMPLAN category has an explicit definition. Each year, agricultural producers in San Mateo County and nationwide use the NAICS categories on Schedule F of their federal tax returns ("Profit or Loss from Farming"), which requires producers to designate the NAICS category that best fits their operation. Producers also use NAICS categories when completing the Census of Agriculture, most recently in spring 2022.



Also, because NAICS and IMPLAN use a different methodology than the county's annual agriculture survey, including valuation of commercial fish catch, the \$102.4 million direct production value in **Figure 2** differs slightly from the \$92.2 million total in the 2022 San Mateo County Agricultural Crop Report.

Production KEY POINTS

\$132.0
MILLION

in **TOTAL**
economic output
from
Farm Production

1,369
DIRECT JOBS

plus an additional
13 jobs from
MULTIPLIER EFFECTS,
for a total of
1,392

\$102.4
MILLION

in **DIRECT**
output from
Farm Production

\$29.6
MILLION

in **MULTIPLIER**
EFFECTS from
Farm Production

Locally Sourced, Value-Added Food Processing

Farm production tells only part of the story. This section captures the economic value of local food processing, which plays a key role in the San Mateo County economy. It is neither an exact science nor a full assessment but rather gives the reader a basic overview of the topic.

To avoid overstating the numbers, we only include food manufacturers and sectors that fit two strict criteria: 1) they use mostly local agricultural inputs; and 2) they are unlikely to exist here without the presence of the associated agricultural sector, i.e., San Mateo County’s abundant supply of vegetables, animals, fruits and other raw agricultural products.

Figure 3 shows the economic effects of locally sourced, value-added food processing. As with **Figure 2**, the sector names draw from IMPLAN and NAICS, which lump and split products according to a national classification system for tracking economic output.

Figure 3. Economic Effects of Locally Sourced, Value-Added Food Processing

Sources: IMPLAN and U.S. Bureau of Economic Analysis data, with input by local industry experts. Columns and rows may not compute exactly due to rounding.

FOOD PROCESSING	... Output Effects (\$ Millions)			TOTAL
	Direct	Indirect	Induced	
Wineries	\$38.3	\$9.1	\$2.3	\$49.7
Light Processing of Fruit, Vegetable & Nursery Products	\$21.4	\$0.6	\$3.7	\$25.7
Animal Products Manufacturing	\$12.1	\$1.8	\$0.4	\$14.3
Canned, Jarred and Other Fruit & Vegetable Products	\$1.0	\$0.1	\$0.0	\$1.2
TOTAL ECONOMIC OUTPUT	\$72.7	\$11.7	\$6.4	\$90.8
	... Employment Effects (# of Jobs)			TOTAL
	Direct	Indirect	Induced	
TOTAL EMPLOYMENT	503	17	6	526

The largest sector by far, “Wineries” in **Figure 3** reflects significant value added to the county’s \$1.8 million wine grape crop. The Wineries sector grew 60% in value from 2011 to 2022. San Mateo County’s estimated fifteen vineyards sit within the larger Santa Cruz Mountains American Viticulture Area. The winegrowing region boasts a unique combination rugged mountains, distinct soils, and maritime climate that yield intense, complex flavors in the fruit.

Mostly small-scale, San Mateo County wineries rely heavily on estate grown grapes and market niches. A winery near Woodside, for example, grows grapes on 35 acres and counts as the oldest boutique winery in the nation. An organic, dry-farm operation in the Portola Valley foothills is a certified kosher winemaker. Many wineries add further economic value by hosting tastings, weddings and other events. A winery near Half Moon Bay, for example, hosts weekly live music concerts during the summer.

“Light Processing of Fruit, Vegetable & Nursery Products” in **Figure 3** reflects post-harvest value added to the county’s abundant produce and nursery products. This sector captures portions of IMPLAN’s “Support Activities for Agriculture” sector that involve the sorting, grading, cleaning, and packing of fresh fruits and vegetables, including when those activities occur in fields during harvest. A Pescadero operation, for example, sorts, cleans, and packages heirloom beans for sale. The sector also includes fruits and vegetables that are cut, peeled, and turned into ready-to-eat foods, including for consumption at the county’s fair, festivals, and other events.

Growers add value to nursery stock in many ways. On the most basic level, plants are put into suitable containers ranging from inexpensive flats and trays to decorative clay and wooden pots. They prune, trim and shape product, and add labels, as appropriate for wholesale and retail markets.

Producers add similar value to floriculture products. After harvest, they trim, cool, arrange, and package flowers, then add labels. Some farms, such as a large greenhouse operation near Half Moon Bay, sell custom bouquets, floral arrangements, and botanical gifts for special occasions. A nearby family-run farm is also a full-service florist offering a wide range of products, including an area where customers can create their own floral arrangements. A farm in Pescadero specializes in flowers for medicinal purposes, with over fifty varieties available. An operation in Portola Valley focuses solely on orchids, including mounted and potted ones.

“Animal Products Manufacturing” captures the economic value of cheese, honey, meat, seafood, and other animal products. A dairy in Pescadero, for example, turns milk from over 200 hundred goats into a wide array of products sold online and at the farm shop. Goat cheese is the core product and come in many types. But the farm also sells jars of local jam, habanero oil, and harissa, as well as myriad bath and body products such as goat-based soap, lip balm, facial products, body lotion, and hand salve. Customers can order gift boxes and reserve tours. Related, a farm north of Swanton offers a five-hour workshop where customers can learn the skills of butchering a goat then create herb-seasoned sausages to take home.

Similar to other California counties, cattle and other livestock go elsewhere for slaughter at a USDA-certified facility, but often return after butchery as products for sale online and in-person. One of the county’s cattle ranches displays a strong commitment to regenerative practices that promote sustainable food systems. Another ranch emphasizes full use of each animal by also selling not just popular cuts, but also packaged bones, kidneys, hearts, livers, gizzards, necks, tongues, ears, cheeks, skin and feet.



Processing

KEY POINTS

\$90.8
MILLION

in **TOTAL**
economic output
from Food Processing

\$72.7
MILLION

in **DIRECT**
output from
Food Processing

\$18.1
MILLION

in **MULTIPLIER**
EFFECTS from
Food Processing

503

DIRECT JOBS

plus an additional
23 jobs from
MULTIPLIER EFFECTS,
for a total of
526

This category also reflects value added to apiary products. Several farms produce premium honey for sale online and in-person at farm stands, farmers' markets, and various retail outlets. A family-run operation based in Burlingame, for example, not only sells jars of raw honey, but also honey with cinnamon, garlic, and other flavors. Companies in Half Moon Bay, Redwood City, and elsewhere sell live bees in addition to honey. Many sell value-added items such as beeswax candles and skin care products.

"Canned Fruits & Vegetables Manufacturing" in **Figure 3** reflects canned, jarred, and bottled products made from fruits and vegetables that are not destined for the fresh market. The resulting products have a long shelf life and easy storage. Most operations are boutique-scale. A Pescadero farm, for example, sells not only fresh berries but also jarred jams. Another small farm processes a portion of its peppers into relishes and sauces. A third farm emphasizes medicinal herbs sold fresh and as teas, tinctures, and topicals. A nearby organic farm makes strawberry jalapeno sauce, candied jalapenos, strawberry jam, and sweet pepper jelly.

A food aggregator in Half Moon Bay serves as an important online hub for accessing local value-added products of all kinds, in addition to fresh produce. The company features items from across the Bay Area, but especially San Mateo County. Examples include meat and seafood, wellness and skin care items, eggs and dairy products, and a variety of jams, sauces, drinks, snacks, honey, and other items.

Total Economic Contributions of San Mateo County Agriculture

The previous sections have provided key pieces to an economic puzzle. This section combines those puzzle pieces into a final picture showing the overall economic effects of San Mateo County agriculture.

Figure 4 shows the total 2022 economic contribution of San Mateo County agriculture was \$222.8 million. This consisted of \$175.1 million in combined, direct output from production and processing, plus \$47.7 million in multiplier effects. Unadjusted for inflation, this marks a 3.2% increase from the \$215.9 million total value reported for 2011.

Estimated total employment covered in the scope of this study was 1,908. Of these, 1,872 jobs were directly in agricultural production and processing, with the remainder from multiplier effects. Unadjusted for inflation, the total 1,908 jobs marks a 3.9% increase from the 2011 total of 1,833 jobs. Note that the 1,833 total for 2011 is a correction from the 4,708 jobs reported in our 2013 study, per the updated number of farm production multiplier effects jobs detailed on page 8.

Figure 4. Overall Economic Effects of San Mateo County Agriculture

Columns and rows may not compute exactly due to rounding.

Type of Effect	Direct	Indirect	Induced	TOTAL
FARM PRODUCTION				
Output Effects (\$ Millions)	\$102.4	\$12.5	\$17.1	\$132.0
Employment Effects (# of Jobs)	1,369	7	6	1,382
LOCALLY SOURCED, VALUE-ADDED FOOD PROCESSING				
Output Effects (\$ Millions)	\$72.7	\$11.7	\$6.4	\$90.8
Employment Effects (# of Jobs)	503	17	6	526
TOTAL VALUE OF AGRICULTURAL INDUSTRY				
Output Effects (\$ Millions)	\$175.1	\$24.2	\$23.5	\$222.8
Employment Effects (# of Jobs)	1,872	24	12	1,908



How Resilient is Agriculture to Economic Shocks?

We have all heard the old saying “don’t keep all your eggs in one basket.” If the basket drops, then you might lose everything. This section takes a deep dive into that concept and focuses on two questions: 1) Why is economic diversification important? 2) How economically diversified is San Mateo County agriculture?

Answers to these questions can shed important light on the agricultural industry’s economic resilience, with implications for the wider county economy.

WHY IS ECONOMIC DIVERSIFICATION IMPORTANT?

Like growers and ranchers everywhere, San Mateo County’s agricultural producers face a long list of risks. Examples include: price drops, wildfires, droughts, floods, pandemics, crop pests and diseases, food safety-related outbreaks, new regulations, new competitors, labor availability and cost, and rising costs for fuel, equipment, water and other inputs. Any one of these risks can deal a damaging blow. When combined, they can undermine not just an individual operation but an entire industry.

Take Napa County, for example, where wine grapes account for 99% of the annual agricultural value. When wildfires and a pandemic caused a 51% decline in wine grapes in 2020, the county’s overall agricultural value declined by that same percent. Counties with broad agricultural diversification, meanwhile, fared better.

This raises the question: How economically diversified is San Mateo County agriculture? Does the county have low agricultural diversification, likely increasing its risk to economic shocks? Or is agriculture highly diversified, implying a stronger economic buffer?

SHANNON-WEAVER INDEX

To answer this question, we calculated the Shannon-Weaver Index for San Mateo County agriculture. Created in 1949 for military code breaking, the Shannon-Weaver index is widely used by economists, financial planners, and others interested in quantifying diversification. Different versions of the basic Shannon-Weaver formula exist. What they all have in common, though, is that they quantify not just the number of different items – such as characters in a coded message, assets in a retirement investment portfolio, or crops grown in a county – but also their relative *evenness* or *abundance*.

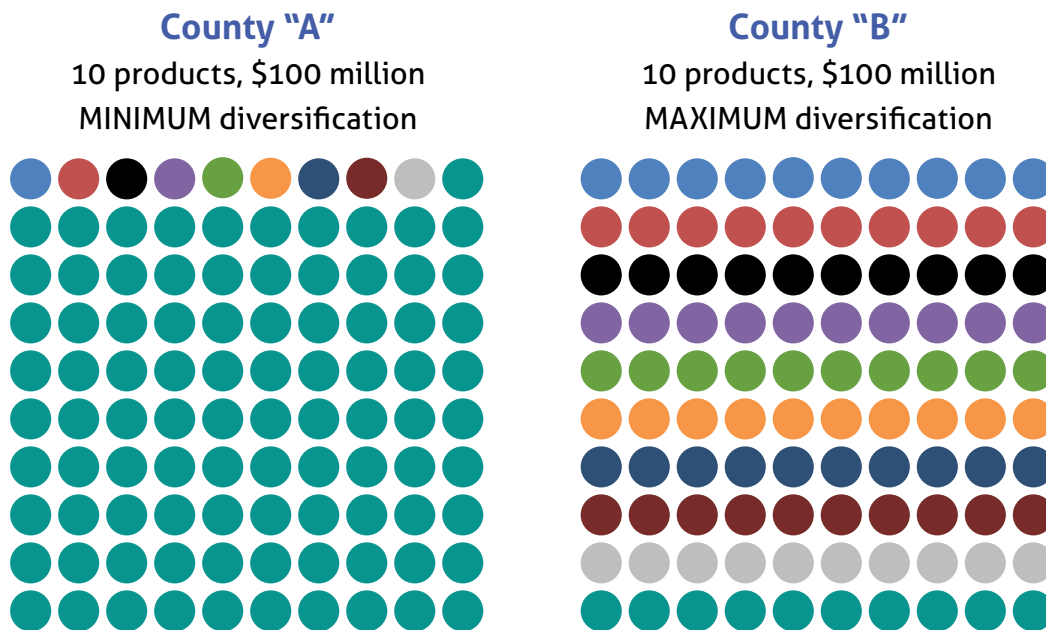


Figure 5 portrays this relationship. County "A" and County "B" both grow the same number of crops and have the same total value of that production. But County "A" has a low index, near zero, because 91% of production concentrates in a single crop. Any shock to that crop could devastate the agricultural economy.

County "B" depicts the opposite. Production perfectly balances across all crop categories. Each crop type contributes 10% of the total. This gives County "B" a strong buffer against economic shocks.

Figure 5. Agricultural Diversification is More Than Just the Number of Products

The two fictitious counties have identical agricultural products and total revenues, but diversification gives County "B" a stronger buffer against economic shocks



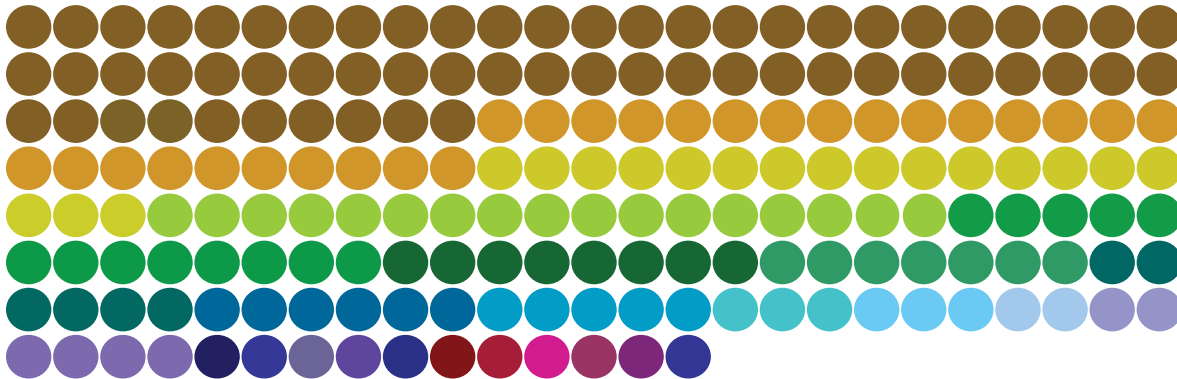
How exactly does one calculate the Shannon-Weaver Index for San Mateo County agriculture? The main steps are: 1) create a list of individual agricultural commodities and their production values as listed in the 2022 San Mateo County Agricultural Crop Report; 2) remove minor, outlier commodities that have production values less than 0.25% of the county total: artichokes, grain, volunteer hay, and irrigated pasture; 3) enter the data into the Shannon-Weaver formula; and 4) convert to a 1.0 scale. For additional details, please contact the authors.



For 2022, San Mateo County reported twenty-eight commodities. To maintain grower confidentiality, the county typically calls out only those commodities with significant production by more than five operations. **Figure 6** depicts reported commodities' relative contributions. It includes the four outliers mentioned in the previous paragraph.

Figure 6. Relative Distribution of San Mateo County Agricultural Commodities

Colored circles represent approximately \$500,000 each and depict agricultural commodities' relative contributions to San Mateo County agriculture's total 2022 production value. Eleven commodities less than \$500,000 in value are depicted with a single dot. The number of commodities produced, and their relative evenness, influences the industry's economic diversification score and its resilience to economic shocks. (Source: 2022 San Mateo County Agricultural Crop Report)



The 2022 Shannon-Weaver Index for San Mateo County's agricultural industry was **0.55**.

What exactly does this number mean? For starters, getting the highest index, a perfect 1.00 on a scale from 0.00 to 1.00, would require the impossible: produce all seventy-two of California's major commodities and have farm gate values equally distributed across them. In such a case, the hypothetical county in **Figure 5** would show seventy-two rows instead of ten, each row a different color and identical length. No single county could accomplish this.

Of note, the Shannon-Weaver formula includes a logarithmic function, which complicates interpretation. The logarithm makes the scale exponential, like the Richter Scale that measures earthquakes. Many Californians understand that a 7.4 earthquake releases twice the energy of a 7.2 earthquake even though the numbers are not far apart. The same principle applies here.

San Mateo agriculture's **0.55** index is average compared to more than twenty other California counties analyzed thus far. This indicates San Mateo County agricultural production has a medium level of economic diversification.

The 2020 Covid-19 pandemic and CZU Lightning Complex Fire underscored the importance of San Mateo County agriculture's diversified production base. The twin calamities disrupted supply chains, farm labor, production costs, exports, prices, and other factors. Many crops went unharvested, and grocery store shelves sat empty across much of the Northern Hemisphere.

Like elsewhere in California, most San Mateo County commodities decreased in value from the previous year. But nine products increased for 2020. Peas, leeks, snap beans, artichokes, and bedding plants all rose by more than 30%. Cattle and calves spiked 60%. These increases limited San Mateo County agriculture's overall decline to 28% compared to the 51% Napa County decline mentioned earlier.

Bottom Line

The discussion here supports two key points: 1) economic diversification helps buffer against economic shocks such as wildfires, price drops, droughts, disease outbreaks, and even pandemics; and 2) San Mateo County agriculture's medium level of economic diversification across products likely benefited it during the recent Covid-19 pandemic and historic wildfires.

Toward the Future

This report has documented the fuller contributions that San Mateo County agriculture makes to the local economy. Including local food processing and multiplier effects, agriculture contributed \$222.8 million to the county economy in 2022. Agriculture also played an important role in county employment, directly or indirectly supporting 1,908 jobs. Finally, agriculture's medium level of economic diversification likely bodes well for future economic stability and resilience.

Agriculture is an important pillar of the San Mateo County economy and represents a vital link to the county's cultural past and competitive future. Agriculture will no doubt face many challenges and opportunities in the coming years. For now, the findings herein provide an important snapshot of San Mateo County agriculture's vital economic role.

Acknowledgments

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San Mateo County
Department of Agriculture/Weights & Measures

<https://www.smcgov.org/agwm>

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Agricultural Impact Associates 