



Agricultural and Resource Economics ARE UPDATE

Giannini Foundation of Agricultural Economics, University of California

Vol. 27, No. 3 Jan/Feb 2024

ALSO IN THIS SPECIAL ISSUE

Proposition 12 Pork Retail Price Impacts on California Consumers Hannah Hawkins, Shawn Arita, and Seth Meyer	5
Proposition 12 Reported Compliant Volumes and Wholesale and Non-Carcass Premiums Hannah Hawkins, Shawn Arita, and Seth Meyer	9

Special Issue: The Implementation of California's Proposition 12

On January 1, 2024, after a long and contentious process that included litigation that went all the way to the U.S. Supreme Court, California finally began full implementation and enforcement of the pork regulations mandated by Proposition 12, which voters approved in 2018. An *ARE Update* article in 2021 examined the likely long-run economic implications of Prop 12 for prices and quantities of hogs and pork. This special issue examines what has been happening during the implementation.

The first article traces the winding path of specific Prop 12 hog and pork regulations and the delays in when those regulations would take effect, if at all. It explains why many farms and businesses were naturally hesitant to make large investments until legal issues were settled. It shows the extended timelines needed to economically adjust to Prop 12 regulations.

The second and third articles examine pork and hog price and quantity patterns over the weeks and months

of adjustment to Prop 12. The articles compare these recent patterns in California to earlier periods, to patterns for non-covered pork products, and to patterns for pork and hogs destined for the non-California markets. These two articles show the degree to which the long delays, and the possibility that Prop 12 would be rejected by the courts, have affected hog and pork prices and quantities.

Giannini Director
Daniel A. Sumner

The Regulatory Path of Proposition 12 From the 2018 Vote to the Sales of Compliant Hogs and Pork in 2024

Daniel A. Sumner and Hanbin Lee

The economic and legal forces driving the adaptation of pork prices and quantity to Prop 12 have been long, complex, and contentious. Legal uncertainties delayed industry investment, supply response, and convergence to long-term adjustments, which is not uncommon in markets governed by new regulations.

California's Proposition 12 (Prop 12), officially the "Prevention of Cruelty to Farm Animals Act," passed on November 6, 2018, with about 63% of

the vote. And the Prop 12 vote was only the beginning of a long implementation process.

Importantly, Prop 12 applies to the treatment of certain farm animals no matter where they are located, as long as the eggs or meat from those animals or their immediate progeny are to be sold in California. Prop 12 included many complicated provisions and timelines for egg-laying hens, veal calves, and breeding pigs. The timeline in Figures 1 and 2 (on pages 2 and 3, respectively) shows that some rules went into effect as scheduled, but

complications and legal challenges slowed the process for pork. Full implementation and enforcement of third-party certification only began on January 1, 2024.

An Overview of Prop 12 Regulations for Pork

Here we quickly summarize some key features of Prop 12 for pork. First, the housing rules apply to any mother sows that produce pigs that supply "covered" pork products (uncooked cuts) purchased in California. Second, the on-farm housing

rules are complex, costly, and different from other housing standards previously adopted in North America. Besides the headline rules of at least 24 square feet per sow and room to turn around freely, the requirements limit the number of hours a sow may be held in isolated stalls. The regulatory framework facilitates certification, registration, and documentation to assure buyers that the pigs supplying such pork were sourced from sows raised according to California standards. California regulators also accredit third-party certifiers, monitor the third-party certification process, and directly certify some operations. An extensive system of segregation

and traceability facilitates compliance in other states and provinces, where almost all pork meat sold in California is produced, and where there are both Prop 12-compliant and Prop 12 non-compliant farms.

Court Challenges

Legal controversy about the pork provisions of Prop 12 added to uncertainty about when, if ever, Prop 12 rules would apply to hogs and pork produced outside of California. Two federal court challenges were filed in late 2019 and another in late 2021. In the first federal challenge, *North American Meat Institute v. Becerra*, NAMI lost at the U.S. District Court and at the U.S. Court of Appeals for the 9th Circuit. The U.S. Supreme Court denied the petition to hear the appeal in June 2021 (See Figure 1).

In the second federal challenge, *National Pork Producers Council v. Ross* the NPPC and the American Farm Bureau Federation (AFBF) argued that California violated the Commerce Clause (Article I, Section 8) of the U.S. Constitution because it engaged in “extraterritorial regulation” and would unduly burden the out-of-state pork industry (among other claims). The District Court and the 9th Circuit dismissed the case. However, in March 2022, the U.S. Supreme Court granted *certiorari*, agreeing to hear the appeal during its 2022–2023 term.

National Pork Producers Council v. Ross was important to industry preparations because it raised questions about a) the form that Prop 12 regulations would take, b) the timing of final implementation, and c) whether Prop 12 or similar state regulations elsewhere, would ever be enforceable for pork.

Pork producers and others recognized that, if blocked by the courts, investments in a Prop 12-compliant supply chain would likely be wasted. Negative court decisions for the pork

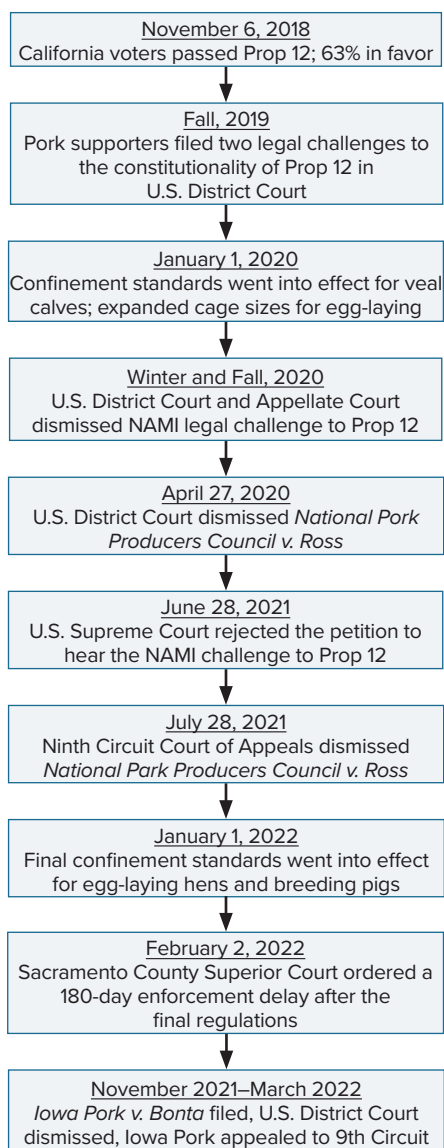
industry in 2020 and 2021 made Prop 12 implementation more likely, but then when the Supreme Court agreed to hear the case, many major investments were again delayed, until May 11, 2023, when the Supreme Court announced its final decision (Figure 2).

The third federal challenge, *Iowa Pork Producers Association v. Bonta*, was dismissed by the District Court in March 2022. However, in its 9th Circuit appeal, heard on January 9, 2024, Iowa Pork argued that blocking Prop 12 implementation because it actively discriminated against California purchases of out-of-state pork was consistent with the Supreme Court’s May 2023 ruling. The 9th Circuit decision is pending, which means Prop 12 may yet be ruled unconstitutional and (perhaps slight) uncertainty continues!

On a separate legal track, in late 2021, retailers and food service groups in California asked the Sacramento County Superior Court to delay the implementation and enforcement of Prop 12 to allow them time to prepare. In response, the court ordered that Prop 12 for pork would not become enforceable until 180 days after California published final regulations.

However, before that deadline became effective, the U.S. Supreme Court had agreed to hear the NPPC/AFBF challenge, and the parties agreed to a delay until after the Supreme Court decision. In June 2023, an order from the Superior Court judge set out the final Prop 12 implementation timeline. Prop 12 rules would be in effect starting on July 1, 2023, except that any covered pork meat already in the supply pipeline on that date could continue to be sold through December 31, 2023. Also, CDFA stated that it would focus its resources on outreach and accreditation of certifying agents rather than on compliance for products self-certified until January 1, 2024.

Figure 1. Timeline for Prop 12 Implementation (Nov. 2018–Mar. 2022)



Supreme Court Economics

The NPPC/AFBF claimed in their reply brief for the petitioners, docket No. 21-468, that “Californians adopted ... requirements that petitioners plausibly allege are prohibitively expensive for farmers to implement ... but the price of complying with them falls almost entirely on out-of-state businesses and consumers...” and “this is not a situation where producers may freely choose to alter their operations to comply with state regulation, ... Instead, petitioners allege that the segmented nature of hog production and dispersed sale of cuts from each hog mean that farmers outside California will be forced to either comply with Proposition 12 or withdraw from the business...”

Economic issues before the Supreme Court concerned the legal implications of the economic impacts of Prop 12 on U.S. pork producers and consumers outside California. Petitioners raised the “extraterritorial” impacts that California was imposing on non-Californians and claimed that Prop 12 imposed burdens outside California that were, “clearly excessive in relation to the putative local benefits.” However, on May 11, 2023, the Court ruled 5-4 in favor of California, with a split of justices that defied supposed ideological or political categories.

A majority of justices found that Prop 12 did not impede interstate trade seriously enough to be rejected. Moreover, the majority found that the alleged burdens on out-of-state producers and consumers were insufficient to overcome the interests of California voters to regulate pork sold within the state. The lead minority opinion recommended that a factual assessment of the balance between California’s perceived benefits and burdens on interstate trade be remanded back to the lower court.

The Supreme Court found that state economic regulations could withstand

constitutional challenge unless there was a clear case of substantial burdens on interstate trade. The written opinions of the justices all highlighted that discrimination in favor of in-state economic interests was the dominant consideration in weighing state laws that affect interstate commerce.

Subsequent Implementation

Many sow farrowing operations and other industry participants were unwilling to commit millions of dollars to farm and supply chain investments until they knew that Prop 12 would be required. Many farms and pork businesses were preparing for Prop 12 compliance, but they did not commit to irreversible investments when there was still a significant probability that such investments would be unneeded.

Starting on May 11, 2023, farms and others that planned to supply pork to California needed to move quickly to make compliant pork available. Four economic considerations governed adjustments. First, only the farrowing operations that anticipated relatively low costs of compliance would make any adjustments. Hence, farms assessed their own compliance costs compared to the likely compliance costs of others. Second, farms needed assurances from buyers of prices high enough to cover costs. Third, assurances of higher prices for Prop 12-compliant feeder pigs, slaughter hogs, and covered cuts of pork were needed all along the supply chain.

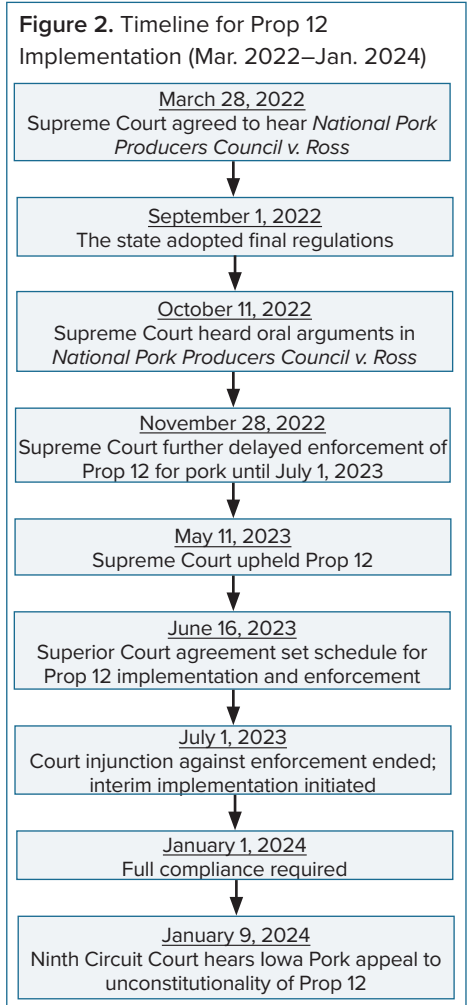
Finally, even with higher prices, it takes many months to go from new sow housing to delivering compliant pork meat to retailers and food service operations in California. Even when planning was well advanced, it might take at least 8 to 10 weeks to have compliant housing ready for a substantial number of sows. Then gestation itself takes about another 16 weeks. Newly farrowed pigs from compliant facilities might be ready

for weaning only in about six months after the Supreme Court ruling stimulated the final rush. Then another six months are needed from a farrowed pig to a finished hog ready for slaughter and on to retail pork on the shelf or in a restaurant.

Hence, it will likely take until May 2024, before we reach full supply of compliant pork meat in the California market.

Pork Availability and Interim Price Dynamics

Noncompliant covered pork meat already in the supply chain before July 1, 2023 was allowed to be sold in California through December 31, 2023 to allow California distributors and retailers to clear out their already-acquired supply of noncompliant pork meat. Because complaint pork was scarce, buyers had strong incentives to fill their supply pipelines with



non-compliant pork that was available before July 1, 2023. But, any covered pork meat sold in California from hogs slaughtered after July 1, 2023 had to be compliant with Prop 12. After January 1, 2024, all covered pork meat sold in California is required to be compliant with Prop 12 requirements and traceable through an audit trail back to a third-party certified producer.

Of course, some farms correctly anticipated the Supreme Court would reject the NPPC/AFBF challenge and were ready to supply compliant slaughter hogs to meet the July 1, 2023 date. Other farms had been expanding group housing facilities and were able to supply hogs for the California market during the summer and fall of 2023. This compliant pork was ready for retailers during the fall of 2023.

Nonetheless, despite the announcement that enforcement would not begin until 2024, supply of pork meat to California consumers was relatively scarce from July 1, 2023, through early 2024 and has expanded only gradually.

The demand for compliant pork grew through the summer and fall, as existing noncompliant supplies were used. Because the available compliant pork meat supply has been limited, prices for Prop 12-compliant hogs and pork need to remain elevated during the adjustment period to ration the limited quantities of compliant hogs and pork to California buyers.

Prop 12-compliant pork has gradually become more available. In addition, Prop 12-compliant farms and processing and pork handling companies have likely improved practices gradually, as they adjusted to Prop 12 rules and the new post-farm supply chain. These cost and availability considerations imply that more Prop 12-compliant hogs and pork meat will gradually become available at lower costs. Therefore, prices of pork meat in California are likely to decline as

markets adjust supplies. The transition prices of Prop 12-compliant hogs and covered pork meat depend on the availability of eligible supplies and the demand flexibility of California pork buyers.

Outside California, the interim impacts on the prices of hogs and pork in the rest of the United States are smaller and harder to measure accurately, given the many factors that affect national and international pork markets. Back in May and June of 2023 California buyers attempting to fill their supply pipelines with non-compliant pork may have caused a temporary jump in all hog and pork prices. And, as higher retail prices in California have lowered the quantities of covered pork meat sold in California, pork availability and pork prices likely fell slightly outside California.

However, given that California represents less than 10% of the relevant demand for North American-produced covered pork meat, impacts of California adjustments on markets outside California are bound to be small. For example, a 20% reduction in California's quantity demanded of covered pork meat represents less than a 2% lower quantity demanded in the overall market for North American pork. Even if this all represented a net increase in available supply of covered pork products outside of California, we would expect only slightly lower prices of hogs and consumer prices of bacon, pork chops, and other uncooked cuts of pork outside of California.

Final Remarks

Implementation of Prop 12 for pork was delayed for two years through a series of complications, including California and federal legal challenges. These seemed to be finally resolved in May 2023 by a prominent U.S. Supreme Court decision that allowed California to proceed with implementation. A long and complicated process

is not uncommon for major regulations. Nonetheless, the result has been market fluctuations, uncertainty, and costs imposed on producers and consumers.

Suggested Citation:

Sumner, Daniel A. and Hanbin Lee. 2024. "The Regulatory Path of California's Proposition 12 From the 2018 Vote to the Sales of Compliant Hogs and Covered Pork in 2024." *ARE Update* 27(3): 1–4. University of California Giannini Foundation of Agricultural Economics.

Authors' Bios

Daniel Sumner is the Frank Buck, Jr. Distinguished Professor and the director of the University of California Giannini Foundation of Agricultural Economics. Hanbin Lee is a post-doctoral researcher, both in the ARE department at UC Davis. They can be reached at: dsumner@ucdavis.edu and hblee@ucdavis.edu.

For additional information, the authors recommend:

CDFA. 2024. "Animal Care Program. Proposition 12, Farm Animal Confinement." Available at: <https://bit.ly/3wV71KA>.

Lee, Hanbin, Richard J. Sexton, and Daniel A. Sumner. 2023. "National and Subnational Regulation of Farm Practices for Consumer Products Sold Within a Jurisdiction: California's Proposition 12." *Agricultural Economics*, 1–16. Available at: <https://bit.ly/43hB5gs>.

Sexton, Richard J. and Daniel A. Sumner. 2022 "Amicus Curiae Brief of Agricultural and Resource Economics Professors in Support of Neither Party." *National Pork Producers Council and the American Farm Bureau Federation v. Karen Ross et al.* No. 21-468 Supreme Court of the United States. June 17. Available at: <https://bit.ly/3PGckW3>.

Proposition 12 Pork Retail Price Impacts on California Consumers

Hannah Hawkins, Shawn Arita, and Seth Meyer

Since July 1, 2023, California consumers may have noticed higher prices for pork at their local supermarkets. This is due to the impacts of California's new law, Proposition 12 (Prop 12), which was partially implemented on July 1, 2023, and fully implemented on January 1, 2024. This analysis of preliminary data indicates that pork prices of products in California that are impacted by this new policy rose, on average, 20% after July 1, 2023. This varies by product, with pork loins experiencing the largest impact with a 41% increase in price due to this policy. As expected, the products that are not covered by Prop 12 did not see a significant relative price change. While we do find significant impacts following the partial implementation and first month of full implementation, there is still uncertainty regarding the long-term impact on California's retail pork prices. Additionally, California's share of national fresh pork consumption has significantly declined, falling from its typical 10% to 8% as of January 2024.

Proposition 12, the farm animal law that California voters approved in 2018, is the source of regulations that raise the costs of production and distribution of pork in California. As the previous article describes, these regulations were implemented in stages, and for pork became fully enforced only beginning on January 1, 2024. But how much have prices actually been affected, and what does it mean for consumers, producers, and policy-makers? Though eased by a staggered rollout, allowing pre-July pork sales in

the supply chain to continue to be sold until January, early data suggests Californians' wallets are already feeling the pinch. Our analysis uses Circana retail scanner data to analyze the price impacts of Prop 12 on California pork prices.

California's new pork regulations present a complex set of requirements for hog farrowing operations and the pork supply chain. Prop 12 requires that, to be sold in California, uncooked cuts of pork—such as chops, bacon, uncooked hams, ribs, and roasts—must be from hogs that are the offspring of sows that are kept in pens that provide at least 24 square feet per sow of space and comply with a list of other related rules. Other pork products such as any cooked products, ground pork products including sausage, or any products in which pork is mixed with other ingredients (other than incidental ingredients such as spices) are not covered.

There is not yet data on the number of sows raised in ways compliant with California regulations. Based on California's consumption of pork produced in the unified North American market, which includes Canada and pork exports, about 8%–9% North American sows would need to meet Prop 12 standards. As explained in the prior article, the costs of compliance for sows, the certification costs, and added costs for assuring traceability through the supply change raise costs of the approximately 60% of pork that comprises covered products.

We now turn to examining evidence on California retail pork prices compared to the rest of the United States before full implementation and enforcement of California regulations. These data may provide information

on temporary market disruptions caused by compliance efforts as well as progress to market equilibria.

Early Price Impacts on California Pork Prices

While it was expected that Prop 12 would increase retail pork prices in California, the timing and magnitude of its effects are only now being observed by producers, marketers, consumers, and other stakeholders. As previously reported in *ARE Update*, Lee, Sexton, and Sumner used an economic model of the hog and pork supply chain to assess the likely impact on increased prices that would be incurred to convert housing and practices to be Prop 12 compliant. They projected that, when fully enforced and after short-term disruptions had settled, California consumers would see a 7.7% price increase in covered pork products and purchase 6.3% less of this pork, with a cost to California consumers of \$320 million annually.

This article reports on unique data that documents retail pork prices in California and the rest of the United States to assess comparative price patterns in the lead up to full enforcement of Prop 12 rules on January 1, 2024. We utilize a special sample of Circana retail scanner data to indicate impacts of Prop 12 on average sales prices and volume purchases of various fresh pork products in California and the rest of the United States.

The Circana Weekly Retail (formerly Information Resources Inc. [IRI]) data that we use are projected to be representative at the state level using Circana's proprietary weighting method. We calculate an average

weekly price as the sales value divided by volume for individual products in California and the rest of the United States. These data were available within just two weeks of the survey week. However, one limitation of these data is the aggregation of UPC-level items into broader categories such as “bacon” or “pork ribs.” Details like brand, quality, or premium attributes (e.g., organic) are lost in the aggregation. This means price comparisons across states and weeks may reflect differences in product mix and not only strict “apples-to-apples” specific product comparisons. Despite

this limitation, we believe the data are valuable for identifying retail price patterns for covered and non-covered pork products in California and the rest of the United States over recent weeks. Product mix compositions are likely to remain relatively stable during the two years of our analysis, which allows us to isolate and analyze price movements related to Prop 12.

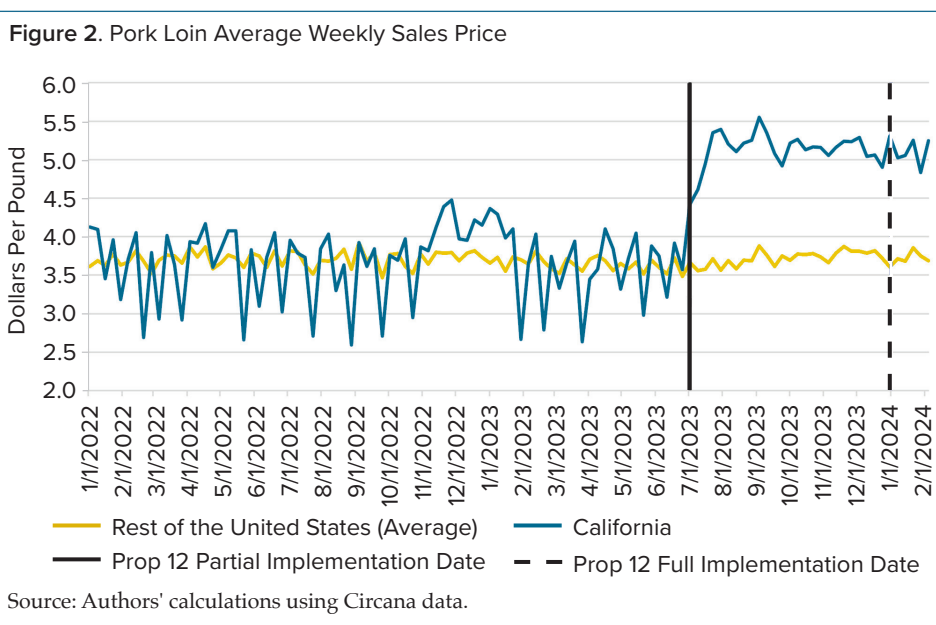
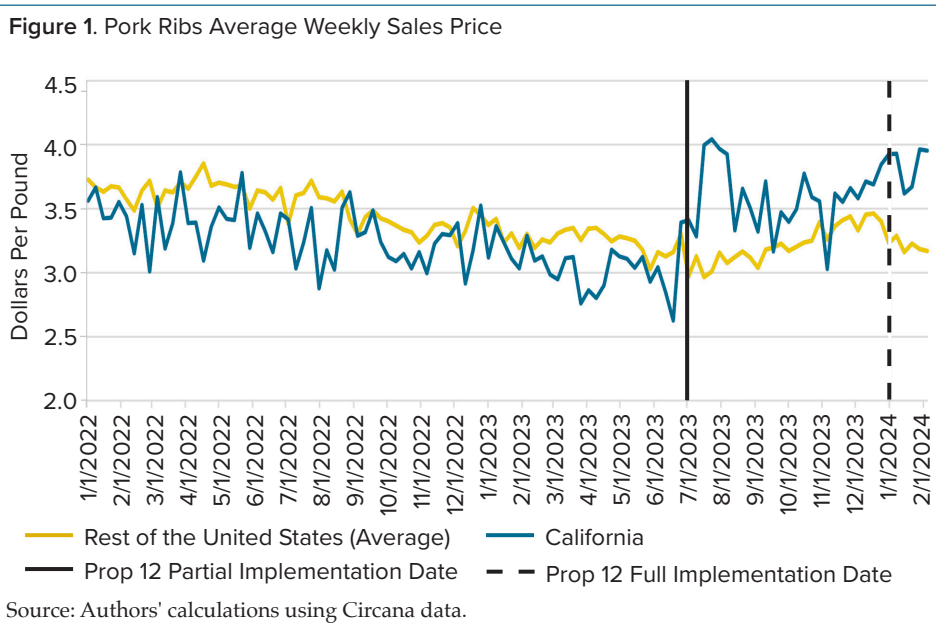
Price Patterns by Three Covered Product Categories

Figure 1 shows that for pork ribs (one of the retail products covered by Prop 12 regulations) the weekly

average retail price in the rest of the United States was usually slightly above the California weekly average above the California weekly average retail price during 2022 and the first half of 2023. The prices, in the sample of stores for which data were available were declining gradually during this period of moderating hog and pork prices generally. Around July 1, 2023, the national prices began rising gradually, but the California prices jumped remarkably from late June through early August. In late July, the California average was more than \$1.00 per pound above the national average. California prices remained about \$0.85 higher than the national average in early August, but then fell by \$0.60 in one week. For the weeks from mid-August through early December, the California average prices were about \$0.20 higher than the gradually increasing national average. For a week in September and one in November, the volatile California price average was again below the national average.

The patterns for pork loin prices displayed in Figure 2 are similar to those for pork ribs in that the weekly averages for California retailers were often below the rest of the United States until June 2023, when California prices rose markedly and remained elevated through February 2024. Two other points stand out in Figure 2. First, California prices were oddly volatile through June 2023, often jumping up and down by more than one dollar per pound (about 30%) from week to week. Second, the prices from August through February 2024 were relatively stable, but often more than 60% higher than in the rest of the United States.

The bacon price patterns in Figure 3 combine elements of the price patterns for ribs and loins, except that, even before July 2023, California bacon prices were generally above the average prices in the rest of the United States. There was also considerable movement in bacon prices in



the rest of the United States that was mimicked in California except at much higher average prices, especially after late June 2023.

When this study was written, a few weeks of data were available for 2024 (data period ends Feb 4, 2024), offering us an initial indication of impacts under full implementation. The price spread between California and the rest of the country appears to remain stable. California's pork loin prices remain significantly higher than the rest of the United States, exhibiting very stable spreads throughout January 2024. However, the price gaps for ribs and bacon appear to have slightly widened since full implementation, potentially indicating growing pressure from limited supply.

Initial Price Impacts Higher Than Expected

To further understand effects of the implementation of Prop 12 on retail prices during the early period before the requirement of complete implementation and enforcement, we examined average retail prices of fresh pork products in California and the rest of the United States before and after July 1, 2023. The average before-and-after prices in each location for several pork product categories are in Table 1. Note Table 1 reports state level, weekly price data from October 2019 through January 2024, so that it includes about 100 more weekly observations than are displayed in the figures. This allows more statistical precision in the estimation of differences between average prices.

The table shows the average price before and after July 1, 2023 for California and the rest of the United States. It also shows the differences in the averages, by subtracting the rest of the United States before-and-after difference from the California before-and-after difference. For example, for bacon, the California before-and-after

difference is \$1.28 and rest-of-U.S. difference is \$0.24 so the difference in these differences is \$1.04. California's price rose \$1.04 per pound more than for the rest of the United States. The same calculation is reported for the other pork categories. The final column of the table shows the percentage difference of California in before and after prices. The difference in differences shown in Table 1 are large in percentage terms and statistically

significant with a high degree of confidence for all categories other than the three that are non-covered products—ingredients, ground pork, and offal.

Bacon, ribs, and loin, the three most purchased products on a volume basis by California consumers, had \$1.04 per pound, \$0.54 per pound, and \$1.42 per pound higher prices, respectively. Although the regulations were not yet being enforced, these impacts may be attributed to Prop 12. The large

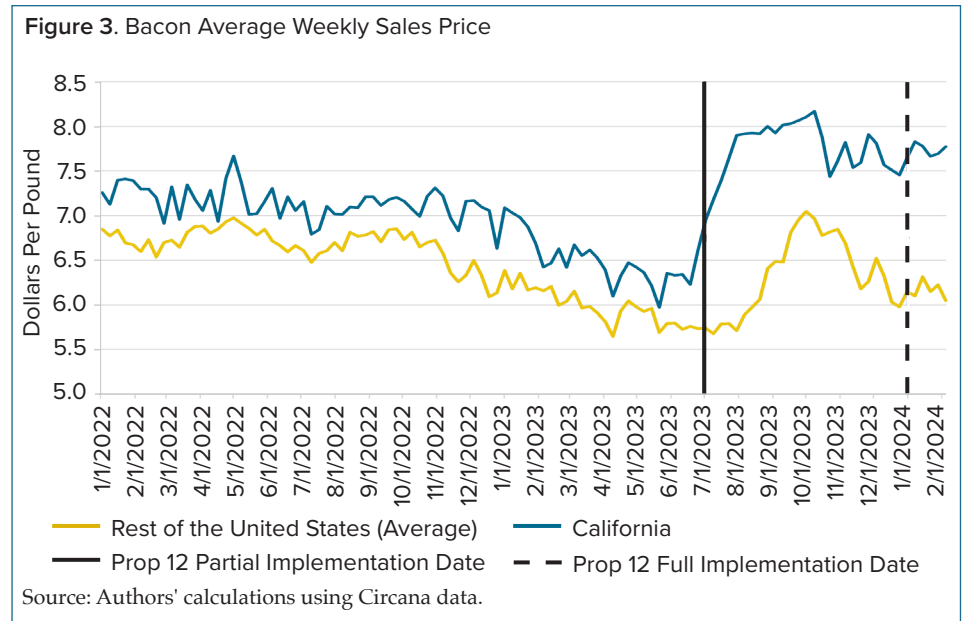


Table 1. Proposition 12 Impacts on Fresh Pork Prices (Average Sales Price)

	Rest of the U.S. (Average)		California		California-Rest of U.S. Comparison	
	Pre-July 1, 2023 (\$)	Post-July 1, 2023 (\$)	Pre-July 1, 2023 (\$)	Post-July 1, 2023 (\$)	Difference in Differences	California Difference in Price Change (%)
Bacon*	6.06	6.30	6.46	7.74	1.04	16%
Pork Ribs*	3.25	3.22	3.12	3.64	0.54	17%
Pork Loin*	3.50	3.72	3.49	5.12	1.42	41%
Pork Shoulder*	2.11	2.27	2.04	2.54	0.35	17%
Pork Ingredient Cuts	2.79	2.74	2.37	2.52	0.19	8%
Ground Pork	3.85	4.17	4.72	5.19	0.14	3%
Pork Offal**	2.51	2.60	2.29	2.27	-0.10	-5%
Pork Leg (Fresh Ham)*	2.56	2.62	1.87	2.29	0.37	20%
All Other Pork**	4.20	4.36	3.96	4.49	0.37	9%

Source: Author calculations using Circana retail sales data where the sample for before July 1, 2023 starts in October 2019 and the after sample ends on February 4, 2024.
 Note: *Prop 12 covered products; **includes covered and non-covered pork products.

percentage increases—16%, 17%, and 41%—are much larger than for the non-covered products. However, for covered products, the price hikes are steeper than projected long-run equilibrium outcomes for the average of covered products. Earlier estimates anticipated long-run equilibrium increases of around 7.7%, but our analysis reveals increases ranging from 9% to 41% and an average of 20% for covered products.

This price increase, along with supply chain uncertainties, also has impacted the volume of pork purchased by California consumers. Figure 4, based on Circana scanner data, shows that before Prop 12, California typically purchased around 10% of the U.S. fresh pork supply, with seasonal variations. However, following implementation of Prop 12, this share dipped significantly, falling to below 7% in July 2023, and remained below the normal share throughout the rest of 2023. January 2024 indicates an even greater decrease, although it is too soon to determine what to expect following the full implementation. It's important to note that these figures include both Prop 12-covered and uncovered products, which masks potential shifts towards cheaper, uncovered options due to price increases in covered products. While

we can analyze purchasing trends by cut, further research is needed to fully understand if consumers are buying less compliant pork overall.

California Pork Price Outlook Uncertain

Our analysis of preliminary data indicates that retail pork prices for Prop 12 covered products rose in California relative to those in the rest of the United States by large percentage amounts even before full enforcement of the regulations, which began on January 1, 2024. During the July 1, 2023 to February 4, 2024 period, pork products covered by Prop 12 were found to have increased by 9% to 41% relative to the price changes for the rest of the country for the first few months following partial implementation and beginning of enforcement. Data through the end of January 2024 show price premiums have held beyond the full implementation period. Consistent with expectations, pork products that are not covered by the Prop 12 regulations did not see significant relative price increases in California. Furthermore, California's share of national fresh pork consumption has declined, falling from its typical 10% to 8% as of January 2024. Looking ahead, uncertainty remains regarding the long-term impact on California's pork market.

Initial market disruptions and potential supply limitations for compliant pork warrant further monitoring and analysis.

Suggested Citation:

Hawkins, Hannah, Shawn Arita, and Seth Meyer. 2024. "Proposition 12 Pork Retail Price Impacts on California Consumers." *ARE Update* 27(3): 5–8. University of California Giannini Foundation of Agricultural Economics.

Authors' Bios

Hannah Hawkins is a visiting scientist in the Office of the Chief Economist, USDA and a Ph.D. student at Texas A&M University. Shawn Arita is a senior economist in the Office of the Chief Economist, USDA. Seth Meyer is Chief Economist, USDA. They can be reached at: hannah.hawkins@usda.gov, shawn.arita@usda.gov, and seth.meyer@usda.gov, respectively.

The findings and conclusions in this article are those of the authors and do not represent any official U.S. Department of Agriculture or U.S. government determination or policy.

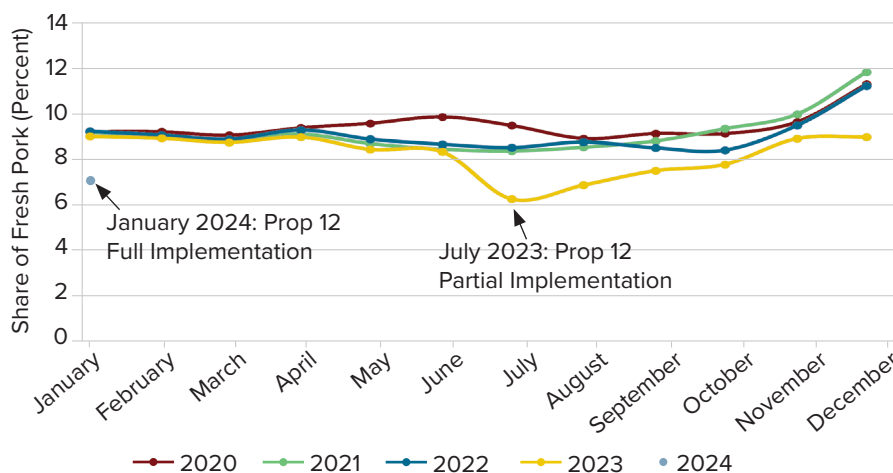
For additional information, the authors recommend:

Economic Research Service. 2023. "Using Proprietary Data." Available at: <https://bit.ly/49d5Yo1>.

Hawkins, Hannah. 2023. "Proposition 12 Preliminary Price Impacts." *Southern Ag Today* 3(38.2). Available at: <https://bit.ly/3TyvgYW>.

Lee, Hanbin, Richard J. Sexton, and Daniel A. Sumner. 2021. "Voter Approved Proposition to Raise California Pork Prices." *ARE Update* 24(6): 5–8. University of California Giannini Foundation of Agricultural Economics. Available at: <https://bit.ly/3yU18gp>.

Figure 4. California Fresh Pork Purchased as a Share of Fresh Pork Purchased in the Entire United States



Source: Authors' calculations using Circana retail sales data.

Proposition 12 Reported Compliant Volumes and Wholesale and Non-Carcass Premiums

Hannah Hawkins, Shawn Arita, and Seth Meyer

This article focuses on the volumes, prices, and premiums associated with Prop 12 products for wholesale pork and hogs. The amount of reported Prop 12-compliant pork is found to be significantly lower than California's pork demand. Wholesale prices for compliant products were significantly higher (upwards of 30% and higher), with compliant hogs carrying a \$5.50 per hundredweight (cwt) premium.

This article provides evidence about the extent to which implementation of Prop 12 has affected wholesale pork and hog markets in the period before and just after full implementation and enforcement of Prop 12 pork regulations. Our analysis utilizes wholesale information collected by the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS) under the Livestock Mandatory Reporting (LMR) system.

By law packers are required to report both hog slaughter and pork sales information to AMS. While AMS does not collect information on the number of hogs under compliance, it is able to track Prop 12 compliance for pork product transactions based on product description codes indicated by packers. While these codes should reflect Prop 12 compliance each week, there may be short delays in meat packers' reporting and USDA classifying Prop 12-compliant products. The LMR data offers a comprehensive view of the wholesale pork trade (approximately 87%), but excludes products from smaller packers and processed items like cured, smoked, cooked, flavored or portion-control cuts. Additionally, LMR doesn't track destination

locations, and some Prop 12-coded products may not be destined for California.

Share of Reported Prop 12-Compliant Pork

Figure 1 illustrates the share of sales reported by packers as Prop 12 compliant relative to total sales. Data collection for Prop 12 compliance began in 2022, even before the regulation went into effect. Initially negligible (less than half a percent), these shares gradually increased during the partial implementation of Prop 12, reaching 1.5%. Keep in mind that these sales figures represent pork products sold, not the actual number of sows raised in compliant housing, or the number of pigs weaned in those systems.

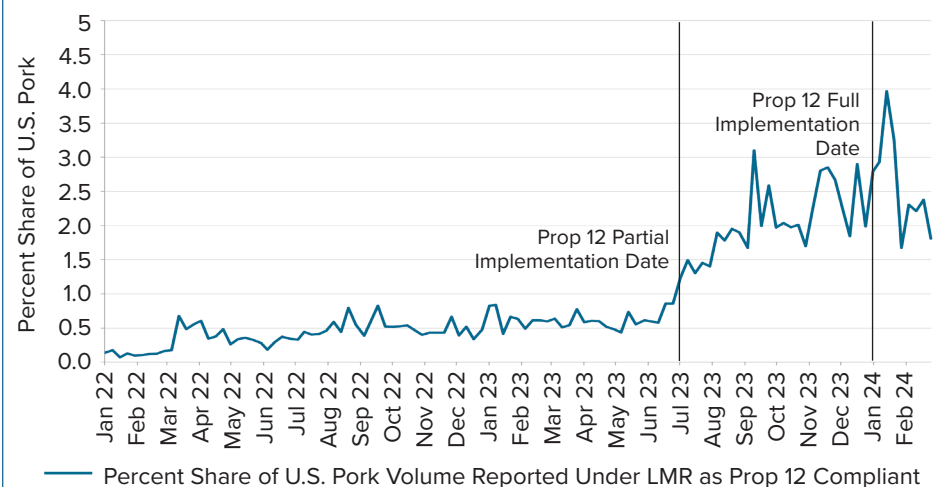
There was a temporary spike in compliance share to 4% in early January, followed by a dip back to previous levels. The share fluctuated around 2% in February 2024. While pork sales naturally fluctuate week-to-week, a general upward trend in reported Prop 12 compliance seems evident over the implementation period.

Figure 1 shows a relatively low share of pork being reported as Prop 12 compliant (2%–4%) relative to our estimates of typical California pork consumption. Since approximately 53% to 60% of the volume of pork for all hogs slaughtered is covered under Prop-12 (including mature sows that tend to produce a low percentage of fresh cuts), we may expect that California Prop 12-compliant pork would be equivalent to approximately 5% to 6% of U.S. pork production. The high reported as Prop 12 compliant in the LMR data, reached only 4%, before falling back down to 2%. Thus, the share still falls significantly short of California's typical demand for Prop 12-covered pork meat.

While being mindful that the market is in a transitioning phase, we note several factors that may be contributing to the current observed shortfall:

- **Limited Supply of Compliant Pork:** Prior to Prop 12, estimates on the number of producers who would comply varied. The low share indicates limited supply and

Figure 1. Percentage Share of U.S. Pork Volume Reported Under Livestock Mandatory Reporting (LMR) as Prop 12 Compliant, by Week, January 2022 Through February 2024



Source: Authors' calculations using Circana data.

a shortage of compliant products in California, which in turn would lead to higher prices and lower purchases of pork.

- **Data Considerations:** Both the LMR and Circana data offer valuable insights through their comprehensive and real-time information. However, data limitations and sampling discussed previously could affect the reported shares examined.
- **Potential for Non-Compliance:** Prop 12 is a recently implemented regulation, and some initial uncertainties regarding enforcement

are possible. Our analysis using Circana data (mentioned in the previous article) showed a decline in California's share of U.S. retail fresh pork purchases (from 9% to 7%) during Prop 12 implementation. The observed gap between the reported Prop 12-compliant pork volume (LMR data) and the expected consumption of covered pork in California could be due to several factors. While the presence of non-compliant products in the market is a possibility, further investigation is needed to determine the extent to which this contributes to the gap.

Wholesale Price Premiums of Prop 12-Compliant Pork Products

Table 1 summarizes data from USDA AMS, showing the average share of national pork volume compliant with Prop 12 and the average wholesale price premium for Prop 12-compliant primal cuts (major wholesale cuts of pork carcass) during the eight months from July 1, 2023, to February 29, 2024. The table includes primal cut categories that encompass both products covered by Prop 12 regulations and those that are not. For instance, loin and belly cuts are covered categories. As shown in the table, 3% of the national volume for both loin and belly cuts were Prop 12 compliant during this period.

The prices of compliant loin and belly cuts were found to be 29% and 31% higher than their non-compliant counterparts, respectively. In contrast, ham, and trims, which are generally not covered by Prop 12, have a very low reported share of Prop 12 compliance and much smaller price premiums. On average, Prop 12 compliance resulted in a 22% wholesale price premium, which aligns with the 20% retail price premium observed using Circana data (mentioned in the previous article). It is important to note that both the share of compliant products and the price premiums have fluctuated over the eight-month period. The table shows simple averages, which don't capture these variations.

Animal Confinement Legislation Premiums

USDA tracks and reports various non-carcass merit price premiums paid by processors for hogs with specific characteristics, such as large volume purchases, preferred delivery times, premium breeds, quality assurance programs, beta-agonist-free status, compliance with animal confinement legislation (including

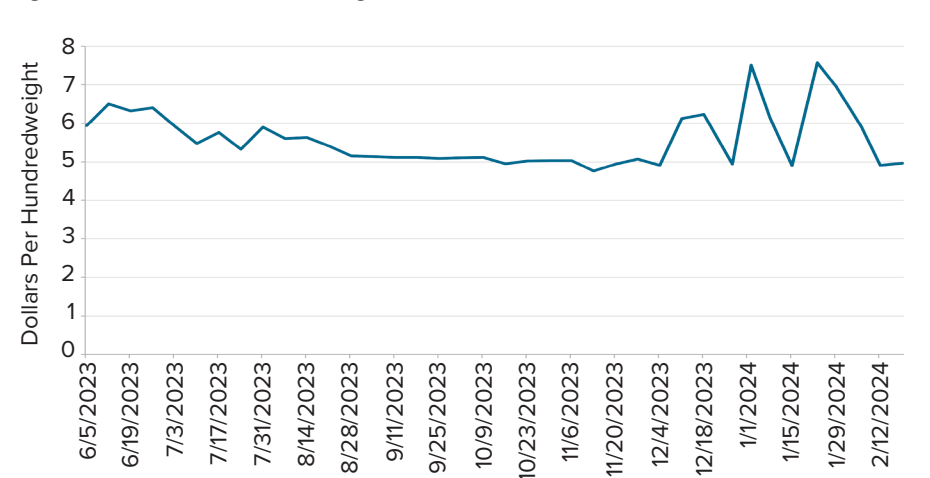
Table 1. Average Compliant Volume Shares and Price Premiums, by Primal Cut

Primal Cut	Prop 12 Share of Total Pork* by Primal Cut	Average Price Premium (Across Individual Products Within Primal Cut)
Added Ingredient	4%	12%
Belly	3%	31%
Butt	4%	30%
Ham	0%	16%
Loin	3%	29%
Picnic	4%	33%
Sparerib	5%	20%
Trim	0%	9%
Variety	1%	15%

Source: Authors' calculations using USDA AMS data.

Note: *For this article total pork is defined as a combination of the weekly comprehensive pork report and the specialty pork report.

Figure 2. Animal Confinement Legislation Non-Carcass Price Premium, \$/cwt



Source: USDA AMS National Weekly Direct Swine Non-Carcass Merit Premium.

Prop 12), and others. The premium associated with animal confinement legislation was specifically for Prop 12 compliance and began separate reporting on November 20, 2023, although data collection started in June.

Figure 2 displays the premium for Prop 12-compliant hogs from June 5, 2023, through February 19, 2024. The average premium shows a gradual decline, initially exceeding \$6 per hundredweight (cwt) before dropping to around \$5.00/cwt by early September. Since December 2023, the premium has fluctuated between \$5/cwt and over \$7/cwt, with increased volatility observed in early 2024. This volatility could be attributed to limited trading activity or the overall volatility in the hog market at the time. Additionally, due to segmentation, slaughter volumes in a compliant system might be more fixed, potentially leading to greater price fluctuations.

No data are available to make a direct comparison between the animal confinement legislation premium and the estimated on-farm costs of compliance for sow farrowing operations. We lack reliable and comprehensive data on farm costs for those operations that are most likely to supply the less than 10% of hogs needed for the California market. We also lack data on added costs of compliance, including maintaining traceability along the supply chain from weaning through slaughter, and on to the consumer. Because Prop 12 sets housing and farm treatment regulations for sows, to provide the financial incentive to convert housing and practices compliant with Prop 12, the premium paid for farrowing must cover the costs for enough low-cost converters to supply the demand in California. This economic reasoning applies to hog operations that control the hogs from farrow to finish, as well as those that only do the farrowing and market their weanling pigs. As of 2015, farrow-to-finish operations

represented 11% of hog production, while feeder-to-finish operations that buy weanling pigs from farrowing specialists, accounted for 83% of production.

Conclusion

While directly affecting a small share of North American hogs and pork, the implementation of California's Proposition 12 has been unsettling for many in the pork industry. Costs of compliance and price premiums for products destined for California have rippled through the supply chain. On average, from the partial implementation to full enforcement of Prop 12, wholesale prices were found to be significantly more expensive for covered products. While the share of Prop 12-compliant pork volumes reported in LMR has been slowly rising, it still appears to be significantly lower than California's pork demand. Since September, packers paid an average premium of about \$5.50/cwt for Prop 12-compliant hogs. It is not yet clear where prices and quantities will settle in the California market.

Pork industry participants face additional questions. These include how animal confinement legislation premiums beyond California will translate to the expansion of group housing and compliant pork supply, how packers and retailers will adapt to meet the demand for compliant products, and how consumers will respond to higher pork prices. And, with Massachusetts Question 3 (The Act to Prevent Cruelty to Farm Animals), will we see a patchwork of different animal welfare policies spread across the country?

Suggested Citation:

Hawkins, Hannah, Shawn Arita, and Seth Meyer. 2024. "Proposition 12 Reported Compliant Volumes and Wholesale and Non-Carcass Premiums." *ARE Update* 27(3): 9–11. University of California Giannini Foundation of Agricultural Economics.

Authors' Bios

Hannah Hawkins is a visiting scientist in the Office of the Chief Economist, USDA and a Ph.D. student at Texas A&M University. Shawn Arita is a senior economist in the Office of the Chief Economist, USDA. Seth Meyer is Chief Economist, USDA. They can be reached at: hannah.hawkins@usda.gov, shawn.arita@usda.gov, and seth.meyer@usda.gov, respectively.

The findings and conclusions in this article are those of the authors and do not represent any official U.S. Department of Agriculture or U.S. government determination or policy.

For additional information, the authors recommend:

Davis, Christopher G., Carolyn Dimitri, Richard Nehring, LaPorchia A. Collins, Mildred Haley, Kim Ha, and Jeffrey Gillespie. 2022. "U.S. Hog Production: Rising Output and Changing Trends in Productivity Growth." ERR-308, USDA Economic Research Service. Available at: <https://bit.ly/4cgdBwk>.

Lee, Hanbin, Richard J. Sexton, and Daniel A. Sumner. 2021. "Voter Approved Proposition to Raise California Pork Prices." *ARE Update* 24(6): 5–8. University of California Giannini Foundation of Agricultural Economics. Available at: <https://bit.ly/3yU18gp>.

USDA Agricultural Marketing Service. 2018. "A User's Guide to USDA's LMR Hog Price Reports." Available: <https://bit.ly/3IEPwBK>.



Agricultural and Resource Economics

ARE UPDATE

Giannini Foundation of Agricultural Economics, University of California

Department of Agricultural and Resource Economics
UC Davis
One Shields Avenue
Davis, CA 95616
GPBS

Agricultural and Resource Economics UPDATE

Co-Editors

Ellen Bruno
Richard Sexton
David Zilberman

Managing Editor

Ria DeBiase

Assistant Editor

Tiffany Loveridge

Published by the
Giannini Foundation of
Agricultural Economics

<https://giannini.ucop.edu>

Follow Us on Twitter



ARE UPDATE is published six times per year by the Giannini Foundation of Agricultural Economics, University of California.

Domestic subscriptions are available free of charge to interested parties. To subscribe to **ARE UPDATE** by mail, contact:

Ria DeBiase
Giannini Foundation of Agricultural Economics
Department of Agricultural and Resource Economics
University of California
One Shields Avenue
Davis, CA 95616
Email: rwdebiase@ucdavis.edu
Phone: 530-752-3508

To receive notification when new issues of the **ARE UPDATE** are available online, submit an email request to join our list to: rwdebiase@ucdavis.edu.

Articles published herein may be reprinted in their entirety with the author's or editors' permission. Please credit the Giannini Foundation of Agricultural Economics, University of California.

ARE UPDATE is available online at:
<https://giannini.ucop.edu/publications/are-update/>

The University of California is an Equal Opportunity / Affirmative Action employer.