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US Pork Supply Chain Locked in Limbo as Producers Await Legal Ruling

Industry Inaction on Proposition 12 Raises the Potential for Market Disruption in 2022

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Contents

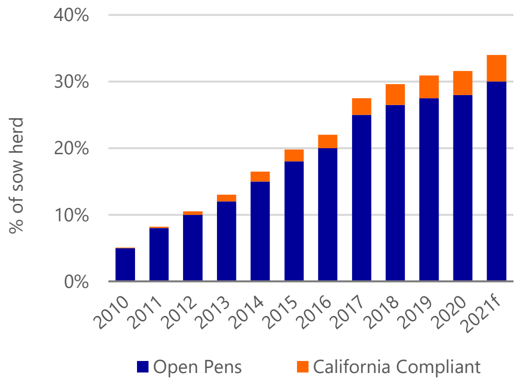
- The US pork supply chain faces significant disruption in 2022, as California's animal welfare regulations (Proposition 12) take effect. With less than 4% of US sow housing currently able to meet the new standard, Rabobank expects a shortfall in compliant pork to bifurcate the US market, leaving California with a severe pork deficit (and high prices), while generating a surplus in the rest of the US market.
- Producers are reluctant to make the costly investments needed to comply with the new regulation, unless compensated with long-term premium guarantees. Packer processors and end users are unwilling to enter into long-term supply arrangements, given outstanding legal challenges to the California rule and limited visibility around implementation.
- As higher welfare and sustainability standards proliferate, driven by individual statewide mandates and customer requirements, producers are left trying to figure out which standards they should adopt. As these compliance hurdles become higher and more diverse, it will require greater investment and result in higher costs to the consumer.
- US hog producers are encouraged to proactively work with packer processors and end users to establish animal welfare and sustainability targets that are both economically viable and aligned with consumer values, rather than being forced to react to inconsistent and costly statewide regulations.

Tighter Regulations Raise the Bar for US Pork

California's animal welfare rule, referred to as Proposition 12, is slated to take effect from January 1, 2022, but with these new regulations still mired in a legal battle, the pork industry is left in limbo. With only months to make the necessary production changes, and less than 4% of the US sow herd currently raised in accordance with the new regulations, compliant pork supplies will fall short of market needs. However, without better visibility around implementation and with few packer processors offering premiums to convert to the new standards, the US swine industry is reluctant to make the costly changes. While Rabobank has no unique insight into the legal merits of the appeals and a delay in the implementation of Proposition 12 seems highly likely, the US pork supply chain must be prepared for the disruption associated with a shift in the market to higher animal welfare standards in California.

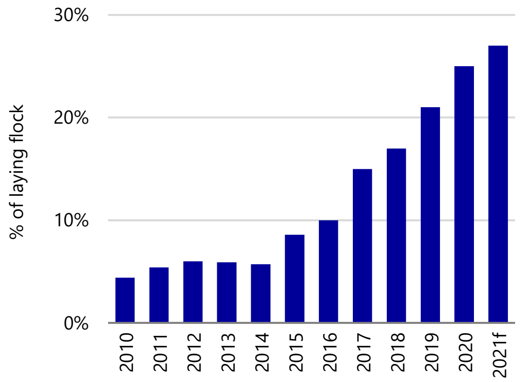
Unlike earlier state initiatives to ban sow gestation crates, Proposition 12 sets minimum space requirements for hens, veal calves, and breeding sows and, more critically, prohibits the sale in California of all products from animals not raised in compliance with the new rules, regardless of their origin. Under the new regulations, the use of breeding stalls is limited and the space requirement for sows is 24 square feet, versus the current industry average of 18 to 20 square feet, with few exceptions. While the egg industry has transitioned sufficient production to meet expected cage-free demand, US hog producers have not yet made the investment (*see Figures 1* and 2). With two ongoing appeals to overturn the California sow housing mandate, a myriad of conflicting regulations, and hundreds of millions of dollars in production system changes needed to comply, the hog production industry has been understandably slow to shift.

Figure 1: US sow housing adoption, 2010-2020



Source: Rabobank 2021

Figure 2: Cage-free egg adoption, 2010-2021



Source: Iowa State University, USDA, Rabobank 2021

Legal Challenges Underway, Success Is Not Guaranteed

There are currently two legal challenges to Proposition 12 from the pork industry, one spearheaded by the North American Meat Institute and the other led by the National Pork Producers Council, with help from the Farm Bureau. To date, both appeals have unsuccessfully argued that the legislation violates the Dormant Commerce Clause, as there is little or no pork produced within the state of California (<2% of US total), and they claim implementation of the rule would unfairly regulate commerce outside the state. The suits also argue that the "burdens of the legislation vastly exceed the benefits." With a shrinking number of legal options available and the deadline for compliance now less than a year away, however, the industry is faced with a daunting challenge.

Short-Term Imbalance Likely as Industry Works to Secure Supply

Absent a legal victory or a delay in implementation, the US pork industry will likely face significant supply chain disruption as the rules take effect on January 1, 2022. To meet the requirement that all fresh pork products come from sows that comply with the new standards by the January deadline, producers would need to adjust production methods in 2021. There are several proposed projects to build new compliant barns or make adjustments to current sow housing in order to meet California's minimum space requirement, yet little work is presently underway.

For integrated producers, the move to comply is relatively straightforward and driven by customer commitments, whereas the decision for independent producers is more complicated. Regardless, economics will drive the decision on whether or not to comply with California's new rules. Several large production systems are actively negotiating long-term supply agreements with their packer processors that would include a premium to offset the cost of conversion, but few have come to an acceptable agreement. The delay in commitments from packer processors reflects ongoing uncertainty from end users, who are also reluctant to sign a long-term supply arrangement without more visibility into the outcome in California. Until regulators issue the final regulation and outline the specifics of its enforcement, we do not expect any meaningful investment.

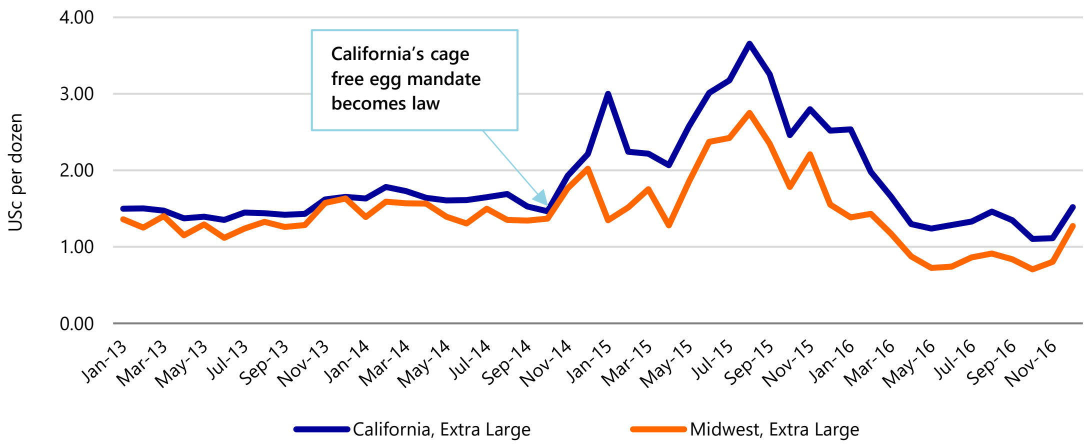
Based on California's current population, which over-indexes for pork consumption given its large Latino and Asian populations, Rabobank estimates the state would need at least 255m pounds of compliant pork per month to satisfy its retail and foodservice needs. As only 1.9% of US pork is produced in California, or 45m pounds per month, we expect the state to need to import at least

210m pounds of compliant pork per month from outside the state. This estimate could be higher, assuming not all of the state's pork is currently compliant, nor will it all be consumed within the state.

Based on current production and projects underway, Rabobank estimates that compliant pork supplies could fall 50% short of California's needs if the law were to be implemented on January 1, 2022. The challenge stems from the fact that less than 4% of the US sow herd currently meets California's minimum housing regulations. Estimates of compliant monthly pork production of less than 60m pounds and an additional 50m to 60m pounds new production expected to meet the standard by year-end would fall well short of California's needs. Customer demand and retailers' commitment to premiums could pull these projects forward, but at present, the industry remains slow to change. Imports of pork that meet the new standards from Canada or the EU are also an option, although required certification and monitoring programs could limit availability.

The projected shortfall in pork that meets the new standards is expected to result in a two-tier market for US hogs and pork products, similar to what the California market experienced during the transition to cage-free eggs (*see Figure 3*). The shortage of compliant product is expected to boost California prices and curb pork consumption, especially for the 35% of California consumers considered to be the most price sensitive. Likewise, non-compliant product will be diverted into less restrictive markets in the rest of the US, putting pressure on product and hog markets until the market can come back into equilibrium.

Figure 3: California's pork prices expected to mimic two-tiered cage-free introduction



Source: Urner Barry, Rabobank 2021

Sustainability Challenges Expected to Increase, Flexibility and Leadership Keys to Success

The market risks of the current situation are not unique and will only increase as the US adopts a piecemeal approach to animal welfare regulations and sustainability. In the absence of a national standard, policies will be increasingly dictated by the customers – whether that is by referendum as in California and Massachusetts, or by grocery or foodservice customers that are facing their own pressures. Most pork customers face growing pressure from the NGO community, as well as the threat of restricted capital from ESG-focused investors. The net result is a patchwork of disconnected standards, with the ultimate costs borne by the packer processor and the producer. The packer processor will be challenged to ensure all of these costs can ultimately be recouped from their customers. US industry efforts to develop science-based production standards have been criticized for being voluntary and lacking the quantifiable metrics global stakeholders require. In response, the burden of compliance for animal welfare regulations falls evenly on the large packer processor and their customers in retail and foodservice, all of whom are now actively engaged.

Looking ahead, more will be asked of industry stakeholders in order to maintain their freedom to operate. The operational and legal complexities will increase and with them the cost of doing business. In order to remain competitive, the industry needs to be prepared to offer practical solutions that align with consumer values and take an active role in the development of policies, regulations, and voluntary standards.

"A patchwork of state animal welfare regulations is both costly and inefficient."

Rather than react to a complex series of conflicting animal welfare and sustainability guidelines, Rabobank encourages the industry to take a proactive role in the conversation and shape its development. The US pork industry could model its efforts on those of the US Roundtable for Sustainable Beef (USRSB), which has proactively brought stakeholders together to craft a more coordinated policy effort. Similar initiatives by the United Egg Producers to establish a uniform cage-free standard is yet another example of industry leaders proactively working to establish acceptable production standards in order to avoid costly, and often conflicting, statewide regulations.

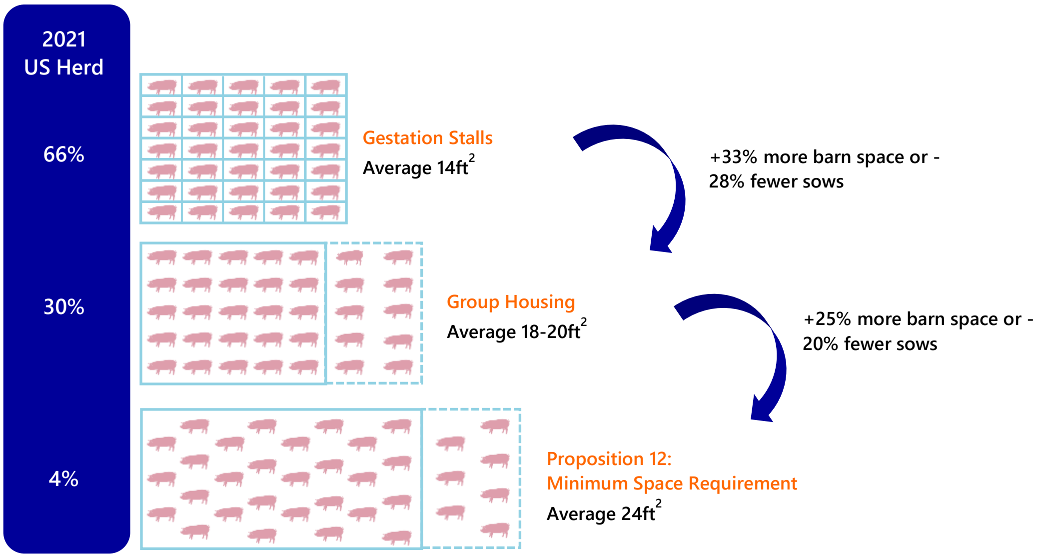
The Stakes Are High for All Segments of the Pork Supply Chain

As witnessed in the early stages of the Covid-19 disruption, quick changes to the available supply (or demand) for pork products can have a lasting effect on the industry. The complexity of the pork supply chain and the physiological constraints of hog production make it difficult to quickly adapt to changes in production practices. Even so, the industry remains adaptable, and if given adequate financial incentives and sufficient time to make the changes, would likely be able to meet market expectations. However, California's end users are unwilling to commit to long-term financial guarantees without better visibility around the final rule, leaving packer processors in a similar predicament. With delays in issuing the final rules and ongoing legal challenges, there has been little discernable progress toward meeting the California regulations and thus an increasingly narrow window to make the necessary changes. Unless legal challenges are successful or there is a delay in implementation, we expect disruption in the US pork supply chain in 2022.

US hog producers will not make long-term structural changes in their production system without adequate financial reward. US sow operations not only face higher fixed costs from the added barn space, but they also face structural and managerial challenges. If opting to reduce stocking density to meet the space requirements, production flows would drop at least 25%, which disrupts the entire supply chain, from producer to packer processor (*see Figure 4*). To compensate, producers would need to add enough barn space to maintain animal numbers, which requires not only permitting and building costs, but costly managerial changes. Premiums to offset the added cost over the life of the asset must be guaranteed before a system will make the change. Producer premiums of USD 10 to USD 15 per head are currently being discussed, but appear roughly USD 5 per head below the expected cost of transition.

Producers are also reluctant to make another costly upgrade to farrowing operations until paying off sizable earlier investments made to transition away from gestation stalls. With California regulations in a constant state of flux, unclear financial commitments from packer processors, and the potential for a positive legal outcome, most sow operations will wait to make additional changes in pen spacing.

Figure 4: High cost of conversion is a limiting factor for producers



Source: National Pork Producers, Iowa State and Rabobank 2021

In order to satisfy customer obligations, US packer processors must be prepared to secure sufficient supplies of compliant hogs and ensure continuity of their supply chain. This will require up-front premiums guaranteed to producers as well as investments in traceability and secured supply. To recoup these costs, processors of both commodity and value-added products, like bacon, will need to pass through the added expense. Much like the challenges faced in organic markets, the producer premium for the larger pen size will need to be carried on the relatively small share of commodity products (bellies, loins, etc.) sold into California, as the balance of the carcass will be sold on commodity wholesale or export markets.

Retail and foodservice operators in California are left with few options, with the added production expenses expected to be passed through to consumers. For exposed end users, this will create a product shortfall until rules are relaxed or supplies can adjust. For markets in the rest of the US, there could be a short-term surplus of non-compliant pork that will pressure commodity markets. As soon as California issues the final rules, and legal challenges are exhausted, we expect the market to offer adequate financial incentives to remedy the situation.

Costly Changes for Producers to Comply With Regulations

With California currently producing less than 2% of its internal pork needs, the burden to comply with Proposition 12 will fall on producers outside the state to meet its needs. Likewise, Massachusetts, with a negligible supply of sows, will also rely on compliant pork from neighboring states when its new, less restrictive sow housing rules come into effect at year-end. At present, ten states, accounting for 7.7% of the US sow herd and 5.8% of US pork production, have regulations dictating sow housing or space requirements (*see Table 1*). For regulations impacting intra-state production practices, the mandate is clear, but it is regulations like those in California and Massachusetts that regulate hog production decisions outside the states that continue to draw scrutiny.

Multi-Million Dollar Construction Boom Likely to Maintain Pig Numbers

In order to comply with the California mandate, at least 15% of US hog producers would need to convert to the new production mandates at considerable cost. For producers already housing their sows in group pens, the transition would require additional space or a reduction in sows. A move from the industry standard of 18 to 20 square feet per sow to compliant spacing of 24 square feet per sow, a producer would require 20% to 25% more barn space or force a reduction in stocking densities. As the practicalities of retrofitting a barn are challenging, producers will likely opt to construct new barns to maintain their flow of pigs.

Adding capacity is never an easy decision and is influenced by availability of land and the ability to obtain permits. New barn costs will vary by producer and are driven by the cost of materials, technology, and the level of functionality. An average barn might cost USD 1,600 to USD 2,500 per sow, or USD 3m to USD 4.5m in total. Some Proposition 12-compliant barns are averaging as much as USD 3,400 per sow. The decision is made harder by elevated building costs due to Covid and a shortage of lumber (costs currently up +129% since October 2020). Producers that have not already moved to group housing or only recently converted their operations could find conversion costs prohibitive.

Table 1: US sow housing regulations concentrated in states with limited hog production

	Law passed	*Law effective*	*Sow gestation prohibition*	*Minimum space requirement*	*Sow housing compliance for all meat sold*	*% of 2020 US sow herd*	*% of US pork production*
Arizona	2006	2012	XX			0.2%	<0.1%
California						0.1%	2.0%
Proposition 2	2008	2015	XX		XX		
Proposition 12	2018	2022	XX	XX			
Colorado	2008	2018	XX			2.4%	<0.1%
Florida	2002	2008	XX			0.0%	<0.1%
Maine	2009	2011	XX			0.0%	none
Massachusetts	2016	2022	XX		XX	0.0%	none
Michigan	2009	2020	XX			1.7%	2.7%
Ohio	2010	2025	XX			3.2%	0.8%
Oregon	2007	2013	XX			0.0%	<1%
Rhode Island	2012	2013	XX			0.0%	none
					% of total US	**7.7%**	**5.8%**

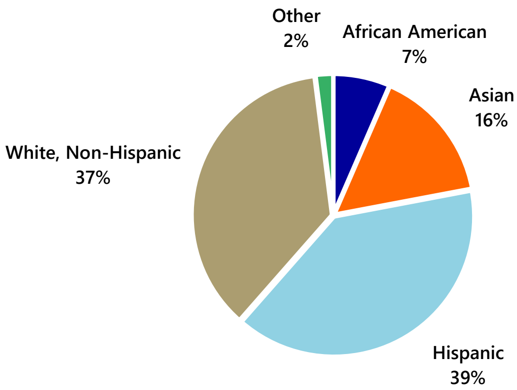
Source: Agricultural Law Center, USDA, Rabobank 2021

Packer Processors Taking Steps to Limit Exposure

Packer processors have initiated conversations with producers to secure compliant hogs but are reluctant to sign long-term supply agreements given ongoing legal challenges to Proposition 12 and a lack of visibility around implementation. Given the high costs of conversion outlined above, a multi-year supply agreement with guaranteed premiums would be required before producers would make necessary changes. With time running out and some customers asking for guarantees, however, packer processors may have no option but to offer long-term financial incentives to suppliers. This shift works to the benefit of integrated suppliers and will likely force greater concentration within the industry – one of the very outcomes some US lawmakers have been working to avoid.

Without rapid movement toward California's minimum space requirements, there will not only be a shortfall in compliant pork available to meet California's needs, but there will be a surplus of non-compliant pork on the rest of the US market. California is the largest domestic market for pork, making up an estimated 14% of all US consumption, with the state's large Asian and Latino populations over-indexing for pork consumption (*see Figure 5*).

Figure 5: California demographics favor pork consumption



Source: US Census, IRI, Rabobank 2021

Rabobank estimates that, based on current sow housing and barns expected to convert, US producers would be only be able to provide 40% to 50% of California's compliant pork needs, or 100m to 110m pounds per month in 2022. This would result in a short-term surplus of 150m pounds per month of non-compliant pork on the rest of the US market per month, or an estimated 10% of total monthly US volume consumed (excluding California). This imbalance in 'compliant' pork supplies is expected to result in a short-term surge in product prices in California and a drop in pork consumption. Similar to what was seen in the early days of the cage-free egg ban in California in 2018, a two-tier market is expected until markets come back into balance.

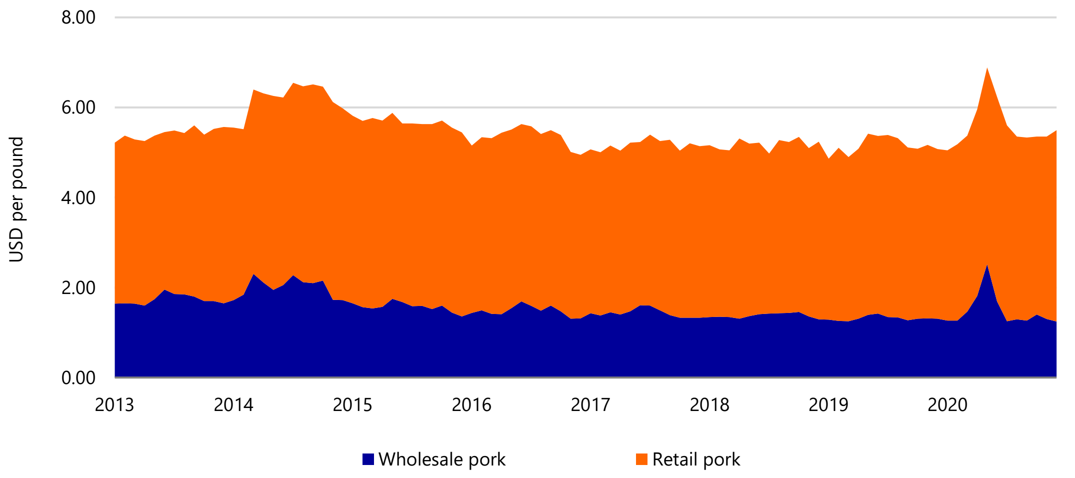
Packer processors must not only guarantee their suppliers meet new sow housing regulations via third-party audits, but they must also ensure the pork supply is tracked all the way through the supply chain. Although packer processors will attempt to recoup these added costs, both of compliant-hog premiums and added supply chain expense, the industry can only secure premiums on the pork it ultimately sells into the 'compliant' market. The packer processor faces stiff fines for non-compliance, further strengthening the rationale to align with compliant supply.

Higher Pork Costs for California Consumers

California's end markets will be forced to pay more to ensure sufficient supplies of compliant pork, resulting in higher prices for consumers. With limited progress by producers to meet the new regulations, Rabobank expects a shortfall in compliant pork supplies to initially lead to sharply higher pork prices in California. For packer processors with access to compliant pork, there could be a first mover advantage, although the benefits would shrink over time as financial incentives would incentivize additional production. The California legislation is also limited to uncooked commodity pork products, including those cured, preserved or flavored. As the rule would not include cooked products, foodservice operators, like pizza chains, that use large quantities of pork products, like pepperoni and sausage, should be largely unaffected by the rule.

In the long run, the bifurcation of the US market will introduce inefficiencies in the supply chain for the packer-processor and lead to structurally higher prices for the California consumer, while having a negligible impact on wholesale pork prices in the remainder of the US market. Retail pork prices often move seasonally within a range, and the added supply chain costs in most markets are likely to be absorbed in part by the marketing margin (*see Figure 6*). In the California retail market, however, we expect the added costs of compliance to be passed through. The impact on foodservice, although less severe given the rule does not apply to cooked pork, is expected to be absorbed by operators by reducing overall volumes (e.g. fewer slices of bacon on a sandwich), as menu prices are relatively static and are less likely to be changed.

Figure 6: Ample marketing margins provide cushion for consumers



Source: Bureau of Labor Statistics, USDA, Rabobank 2021

California's Proposition 12: A Wake-up Call for the Industry to Lead on Animal Welfare and Sustainability

Proposition 12 is only one of a large number of animal welfare and sustainability challenges facing the industry. While the California law raises the bar for the pork supply chain in the short run, its broader aim of legislating animal welfare standards by mandating production practices is not unique. Massachusetts passed a similar, although less restrictive, animal welfare policy in 2016. Several other states have proposed (but voted against) similar minimum space requirements. By creating a complex set of regulations that vary in size and scope, producers and packer processors are forced to comply with the most restrictive regulation. Given that it is nearly impossible for producers to accurately predict regulations when they make their investment decisions, it is inevitable producers will at some point face some loss of marketability. What is clear is that standards will keep rising and producers will need to keep adapting to them over the coming years.

Animal welfare is one of the core pillars supporting the protein industry's freedom to operate, and attention to the mechanics of its development are critical. By leading the discussion and rulemaking, the industry has the opportunity to shape animal welfare standards and take an active role in their development, creating sustainable national animal welfare policies that are both economically viable and good for the animals. However, the industry needs to better align on standards and play an active role in establishing the legal outcome. Rather than being forced to react to regulations, the industry can set a way forward that aligns with consumer values, while meeting the financial goals of producers and packer processors so investments can be made with confidence. By taking a unified approach as a species and as a broader supply chain, the industry may be able to avoid some of the costly friction created by these early state and local regulations.

Producers need to accept that customer expectations around animal welfare and sustainability are increasing and, regardless of the ultimate outcome in California, changes will need to be made. Global standards are also increasing, and there is practical information that can be shared from experiences in markets that have already moved to tighten animal welfare measures. Seeking out best practices and proactively establishing a higher bar would let the industry lead, rather than follow on animal welfare and sustainability regulations.

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