

A New Era for Meat Processing in California?

Challenges and Opportunities to Enhance Resilience

“Department of Agriculture Secretary, Tom Vilsack told me that we’re ‘better off having multiple plants in multiple locations — smaller facilities to produce enough product. And that may mean a little less profit, but it means that if you have an incident like this that threatens your workforce, you’ll always have sufficient operation capacity.’ Vilsack reiterated this sentiment Tuesday in a call with reporters: “Efficiency comes at a price, and that price is a lack of resilience when you have a major disruption.””

Amanda Little, Bloomberg Quint, June 9, 2021



Photos by: CM Riggle

A White Paper Prepared by the Food Systems Lab at UC Davis

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Executive Summary

We live in a time when global warming, pandemic, and technological impacts reveal a lack of food system resilience. California's complex meat supply chain is no exception, and in fact, it may face greater challenges than other regions of the country due to drought, heat, and fire. We say complex because the meat supply chain has varying scales, and thus different types of links and many alternative pathways to market that are affected by different regulations that touch livestock and poultry producers, their distinct types of processors, and distribution networks in different ways. On top of supply chain complexity, we see a marketplace in flux. Consumer concerns about their health, ecological degradation, social equity, and animal welfare are providing new possibilities for the livestock and poultry producers, processors and distributors, and investors seeking to meet emerging demand.

This paper focuses on small- and mid-scale livestock producers and the slaughter and cut and wrap processors that serve them. We posit that these small- and mid-scale actors in meat supply chains can improve their businesses and California's overall meat supply chain resilience if specific changes are made. Our goal is to assist those producers, processors, and distribution systems that are underserved by the current array of policies and dominant market forces. We document and analyze challenges and opportunities and offer recommendations designed to support positive change in California's meat supply and the rural communities from which it arises.

The pandemic of 2020 and then the June 2021 [ransomware attack on JBS](#) (the world's largest meat processor) provide ample evidence that **concentration of the meat supply chain is a bad idea**.¹ These disruptions led to the closure of large meat processing plants that account for most meat supply across the nation. Yet, long before COVID-19 and ransomware, small- and mid-scale producers of meat have been constrained by market structures, policies, and (it must be said) a rugged-individualist culture among many that values autonomy and independence over collaboration, including collective action in marketing and distribution. As a result, lack of access to slaughter, limited capacity of cut and wrap facilities, and concentration of marketing channels create conditions in which small- and mid-scale farms and ranches struggle to stay in business.

Meat is a critical part of the American diet. Moreover, meat processing plants are [the top source of food manufacturing jobs](#) in the nation.² This white paper describes how the meat supply chain and rural economies could benefit from a fairer regulatory environment and more collaboration among producers and other stakeholders in this system. A number of challenges must be addressed to realize these opportunities for small- and mid-scale producers. Each challenge embodies its own opportunities to enhance resilience in this important part of our food system. These opportunities are paired with a set of recommendations for action detailed at the end of this white paper (*pages 35-38*), which are summarized here and in Table 1, below.

¹ <https://www.nytimes.com/live/2021/06/09/business/economy-stock-market-news#jbs-cyberattack-ransom>

² <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy/>

Market and Inspection Oversight Challenge

Public policy related to meat inspection and market systems are tilted in favor of large industrial-scale processors that may possess an array of brands. Four large-scale processors with plants mostly located outside California supply over 80% of the nation's meat. The small number of large-scale processors making purchases places downward pressure on live animal prices, harming livestock and poultry producers, and also upward pressure on retail prices, harming consumers. Market and processing concentration are widely recognized as threats to food system resilience.

Opportunity: regulatory reform to improve live animal prices and the meat inspection oversight system for small and mid-scale producers. The federal government could improve prices for livestock and poultry producers and consumers by better regulating the market place for live animals and the marketing claims of brands. The Biden Administration is attempting to address the problem through a July 9, 2021 [Executive Order](#).³ California could improve its own inspection systems to create more market opportunities for small- and mid-scale livestock and poultry producers.

Recommendations

1. Support improvements to the federal Grain Inspection, Packers, and Stockyards Act (GIPSA) to increase pricing competition for beef, hog, and poultry producers.

2. Create a California Meat Inspection Program that increases the volume of intrastate meat sales and potentially allows California's participation in USDA's Cooperative Interstate Shipment (CIS) program, to help level the playing field.

3. Recommendations 2 could be complemented by additional actions to **expand mobile or on-farm slaughter operations for sheep, goats and hogs** (paralleling those for beef).

4 and 5. Modernize validation of meat quality and safety by providing technology-based transparency and traceability related to meat origin and production systems, including antibiotic use, to build consumer trust and loyalty.

Processing Capacity Challenge

Small- and mid-scale producers face crippling challenges in arranging for slaughter, processing, and sale of their livestock and poultry. The cost and complexities of operating a USDA-inspected slaughter, processing, or cut and wrap plant are greater than "custom-exempt" facilities. "Custom-exempt" facilities severely limit options for selling meat. The higher costs of USDA inspections are disincentives to investment in new plants or expansion of existing ones. Separately, regional and local policies related to waste management of solids and water and land use impede permitting for meat sector expansion. Lack of investment concentrates

³ <https://www.whitehouse.gov/briefing-room/statements-releases/2021/07/09/fact-sheet-executive-order-on-promoting-competition-in-the-american-economy/>

capacity geographically and leads to a lack of facilities that serve small- and mid-scale producers.

Opportunity: expand access to slaughter and processing facilities while enhancing resilience through broader geographic distribution of plants and diversification of scales of operation through a combination of federal, state, and private investments that can be mobilized to support new plant development as well as expansion and upgrading of existing “custom-exempt” plants.

Recommendations

6. Support emerging opportunities for new investments, including the Resilient Food and Farming Bond (California’s AB 125) and other emerging funds from the Biden Administration related to local food system infrastructure and specific meat processing expansion.

7. In parallel, support applied research to **synthesize evidence and validate new technologies for waste treatment and make it available to regional water quality control officials, county, and city governments** to increase confidence in new systems and the awareness of the importance of land use permitting for plants serving small- and mid-scale producers.

Important note: A number of interviewees pointed to a **shortage of professional meat processing workers** as an impediment to expansion of slaughter and processing capacity, especially for facilities serving small- and mid-scale producers. Some community colleges and campuses of the California State University and University of California systems offer relevant practical training, but this appears to be on a limited scale and has not eased this apparent shortage. **There is consensus on the need for new career training programs, facilities, curricula, and partnerships involving some combination of academic institutions, producer and processor groups, labor unions, and nonprofits to increase the pool of skilled workers. This merits further study to develop concrete priorities and recommendations for action on training.**

Marketing Challenges

Increasing numbers of consumer are seeking “regenerative,” “organic,” “grass-finished,” “humanely-raised,” and local meats. As examples below reveal, cooperation among livestock and poultry producers and other links in the supply chain are needed to meet the emerging market. Unfortunately, **“high-value” meat producers have too few options for slaughter processing, distribution, and sales.**

Opportunity: The emergence of consumer demand for meat with attributes that convey greater value⁴ (“high-value meat”) provides opportunities for small- and mid-scale producers to create viable, innovative business models. There is growing awareness among some groups

⁴ These could include organic production; antibiotic-free; grassfed (meaning animals that consume only grass throughout their lives); locally-sourced; humanely-raised; or breed-specific, particularly heritage breeds.

of small- and mid-scale producers that cooperation to develop these business models can be worth the effort. Supporting these cooperative efforts could be transformative.

Recommendations

8. The California Department of Food and Agriculture (CDFA) could support producers by forming a “Small Meat Processing Innovation Panel” **to advise the Department on how to facilitate market-oriented collaborative processes.** The Department could work to **combine state and federal funds and offer grants and technical assistance for various forms of collaboration** including prototyping and spreading **innovative branding mechanisms** that promote California’s high-value meat products. Innovations might include validating and highlighting regional identity and beneficial production practices (including humane treatment of livestock, ecosystem services, responsible antibiotic use, and human health attributes).

9. To create critical mass locally and regionally, California’s model programs and insights from our strong track record in public purchasing to increase the flow of healthy produce into school meals could be extended to prioritize **public procurement of local and regional meat.**

Global Warming and Wildfire Challenge

As we move into another year of worsening drought, the horrible risk of wildfires is top-of-mind for many Californians, especially those in rural areas.

Opportunity: Apart from potential to increase resilience in our food system by improving soils, **small- and mid-scale livestock operations have a role to play in mitigating wildfire risks through fuel reduction.**

Recommendation

10. Reduce fire risk and improve grazing access on California’s public lands through **reform of state and federal grazing lease requirements.**

Important Note: Agricultural organizations and change advocates have a constructive role to play as allies in efforts to demonstrate the efficacy of new approaches to regulatory oversight and marketing.

California would be served by a period of rapid experimentation, innovation, and investment to enhance resilience (and reduce vulnerabilities and inequities) in meat production and processing within the state. The California Department of Food and Agriculture (CDFA) is strategically positioned – with key people and programs in place – to lead these initiatives to increase meat supply chain resilience. We offer below a table of recommendations (*Table 1*) that summarizes and highlights recommendations from the concluding section of our white paper. An overview of current production and processing requirements also is provided for reference (*Figure 1*).

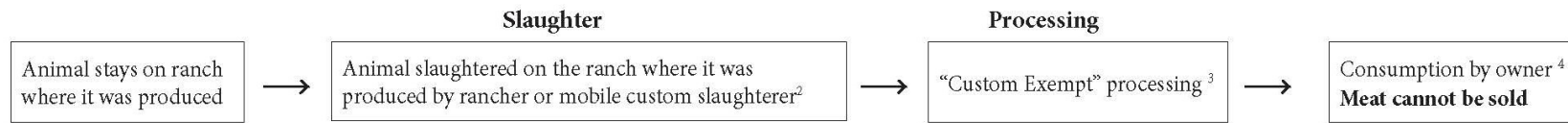
Table 1: Summary of Findings

Theme	Recommendation	Challenges	Opportunities	Action by whom?
Improve market and inspection oversight	1. Support improvements to the federal Grain Inspection, Packers, and Stockyards Act (GIPSA)	Financial Sustainability	Policy / Improve Governance / Regulations	USDA, CDFA
	2. Create a California Meat Inspection Program	Access to Markets Access to Processing	Policy / Improve Governance / Regulations	USDA, CDFA, local governments
	3. Support AB 888	Access to Processing	Regionally-focused Processing Capacity	CDFA
	4. Modernize validation of meat quality and safety	Access to Markets	Connection to Consumers	USDA, CDFA
	5. Improve SB 27	Public perception Antibiotic Resistance	Connection to Consumers	CDFA
Expand access to slaughter and processing facilities	6. Support emerging opportunities for new investments	Access to Processing	Regionally-focused Processing Capacity	CDFA, CDOF
	7. Validate new technologies for waste treatment and make this information available	NIMBYism Local Policies	Policy/ Improve Governance / Regulations	Office of Planning and Research, Local governments
Support high-value marketing opportunities	8. Create a Small Meat Processing Innovation Advisory Panel to facilitate market-oriented collaborative processes	Access to Markets Financial Sustainability	Network of Producers Connection to Consumers	CDFA
	9. Prioritize public procurement of local and regional meat	Financial Sustainability Access to Markets	Market Growth	Dept. of Education, Dept. of General Services
Support efforts to provide producers with incentives to utilize livestock to manage fuel loads	10. Support for reform of state and federal grazing lease requirements	Access to Grazing Land	Provide Ecosystem Services	CDFA, CRD, Cal Fire

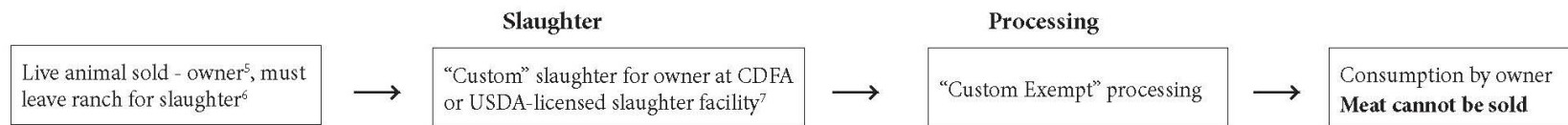
Figure 1: Overview of Livestock Slaughter and Meat Processing Requirements in California

Figure 1. Minimum slaughter and processing requirements for legal production, processing, and sales of meat

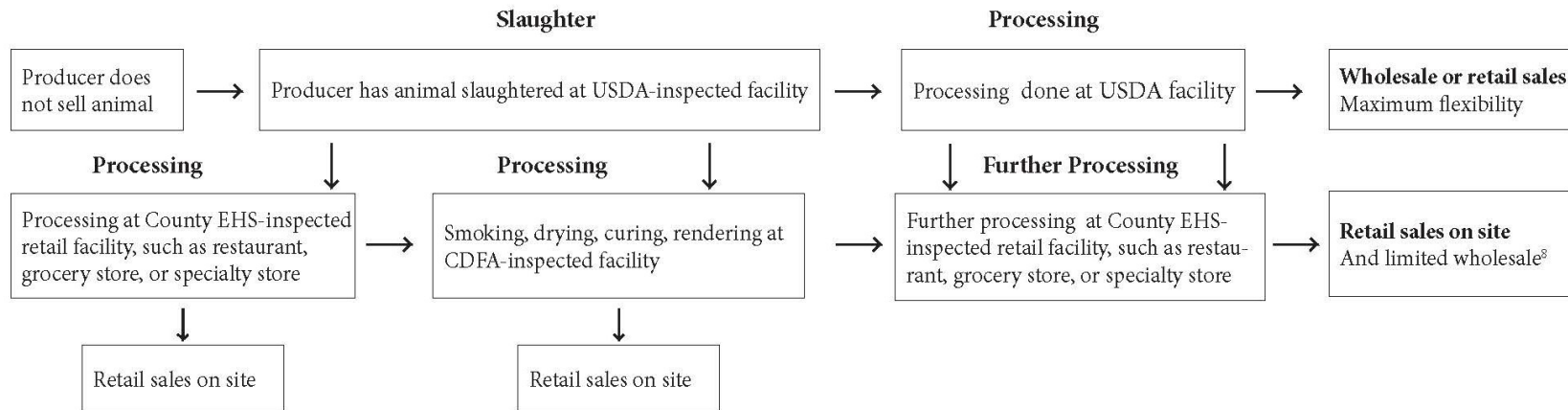
Scenario #1 Meat for Personal Consumption (neither animal nor meat is sold)



Scenario #2 Live Animal Sales (animal sold then slaughtered and processed – meat cannot be sold)



Scenario #3 Meat Sales



Graphic from: Lisa Bush and Ellie Rilla, UCCE Marin. <http://www.growninmarin.org>

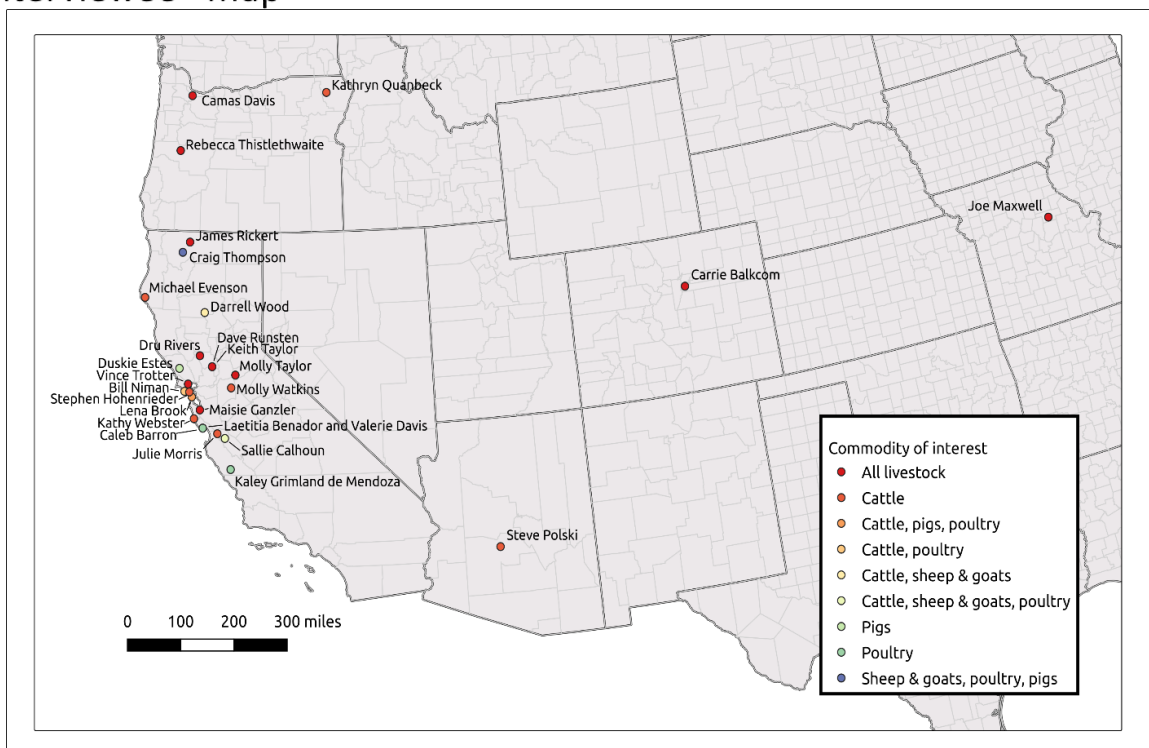
Purpose

We live in a century in which climate change and other forces will cause increasingly challenging and disruptive events. Thus, actions to build resilience in our food supply chain are needed urgently. This white paper seeks to provide advocates, policymakers, and other interested Californians with a snapshot of challenges and opportunities in the meat processing sector, addressing specific needs of small- and mid-scale producers and their linked processors and marketing systems, which seek to produce and sell high quality meat. It ends with recommendations that we believe can support development of a promising sector of California's agricultural economy while, at the same time, building resilience in our meat supply chain.

Methods

After consulting with a stakeholder group convened by California Certified Organic Farmers (CCOF) and Roots of Change, we conducted 27 individual interviews with people representing a wide spectrum of activities and points of view within the meat supply chain. (See Map 1 & Figure 2). Each interview lasted approximately one hour, with one team member asking questions and at least one other taking detailed notes. Interview topics included: 1) mission of the interviewee's organization; 2) challenges faced by the interviewee/organization (explicitly including COVID-19 and climate change); 3) opportunities for addressing challenges; 4) suggestions for additional key stakeholders and other important participants in the meat supply system; and 5) information needs.

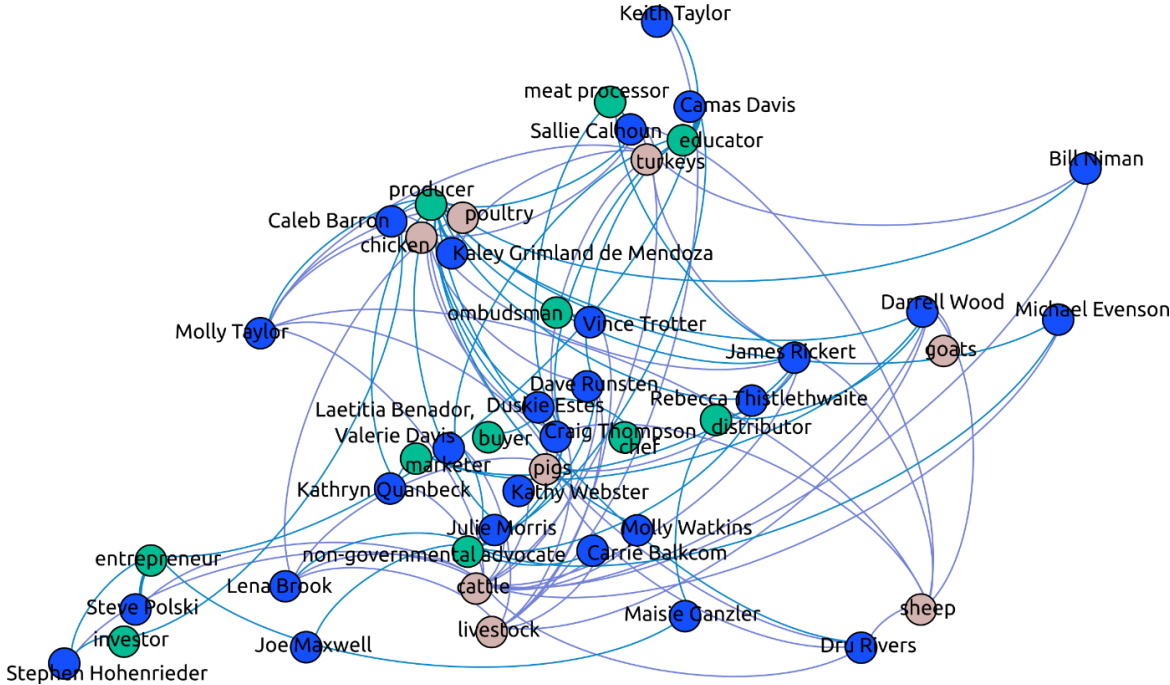
Map 1:
Interviewee - map



When the interviews were complete, we used the online software [Taguette](#) to create tags linked to interview notes. At least two team members tagged each interview. We used seven categories of tags, some of which were linked to a single interview and others that were linked to multiple interviews. Categories of tags and the total number across all of the interview are as follows: Challenges (58 tags), Opportunities (64), Commodity (8), Information (24), Roles (12), Stakeholders (27), and Zip Code (28). We developed a spreadsheet to track the links between text from the notes, tags, and interviewees.

We linked each tag to one or more sustainability issues from a formal list developed by the team.⁵ If more than one issue was linked to the tag, a “primary” issue was selected to best represent the theme of the interviewee’s comment. This linking was done with full team involvement and consensus. We then organized the Challenges and Opportunities tags by the Primary Issue.

Figure 2:
Interviewee Roles and Commodities



⁵ Springer NP, Garbach K, Guillozet K, Haden VR, Hedao P, Hollander AD, et al. (2015) Sustainable Sourcing of Global Agricultural Raw Materials: Assessing Gaps in Key Impact and Vulnerability Issues and Indicators. *PLoS ONE* 10(6): e0128752. <https://doi.org/10.1371/journal.pone.0128752>

As stakeholder feedback was integrated during the writing process, over 50 more interviews were undertaken on specific issues or questions, and then expanded to include calls to the 46 USDA-inspected slaughter facilities in the state to ascertain where excess capacity might exist, of which we were able to obtain answers from 23. Responses are included in the results below.

Finally, we used [Gephi](#), a software tool for visualizing graph networks, to conduct analyses of the relationships between Challenges, Opportunities, Primary Issues, and Interviewees. This tool enabled us to produce clustering diagrams (*See Figures 2, 4, & 7*) in this report based on the network of links between the tags and the interviewees. Specifically, we assessed the relationships between: 1) Challenges and Interviewees; 2) Opportunities and Interviewees; and 3) Challenges, Opportunities, and Primary Issues. Outputs included figures depicting each of these clustering assessments.

Analysis

The Context: Five Realities to Keep in Mind

1. Pandemic Recovery Provides A Window for Change

The nation is working to recover from the COVID-19 pandemic and the resulting economic destruction. There also is growing dissatisfaction with policies and programs at all levels of governance that continue to concentrate wealth and opportunity in fewer and fewer hands.

California is focused on economic recovery and enjoys an unprecedented budget surplus. The Legislature is focusing on food system infrastructure and CDFA is analyzing and considering new approaches to supporting the small- and mid-scale sector of the meat supply chain.

As discussed below, the President's and USDA's recent announcements related to new policy to increase fairness in the markets for livestock and poultry as well as new short-term funding for local meat processing, coupled with proposals in the Congress and the California Legislature for long-term solutions for meat supply chain resilience are timely. California could leverage this new focus on meat supply chain resilience to enact transformative change.

2. Unhealthy Concentration of Processing and Power

In 1967 there were over 10,000 slaughter plants in the USA, today there are less than 3,000. Four companies control well over 80% of all the meat production in the United States: JBS, Tyson Foods, Cargill, and Smithfield. Large-scale beef facilities can slaughter, butcher, and package up to 5,000 animals per day and 660,000 animals are typically processed [each week in the USA](#).⁶

Such intense concentration has destroyed critical forms of resilience, leaving the meat sector vulnerable to disruptions across the entire value chain. In one striking example, the early June

⁶ <https://www.washingtonpost.com/business/2020/04/16/meat-processing-plants-are-closing-due-covid-19-outbreaks-beef-shortfalls-may-follow/>

2021 [cyberattack on JBS](#), the nation’s largest supplier of beef and pork, shut down all of its beef plants in the USA until it paid \$11 million in ransom.⁷ Concentration has also lowered the number of facilities in proximity to livestock production, reduced the diversity of facilities that can best serve small- and mid-scale livestock and poultry producers.

The **political power held by the largest companies** has meant that the regulatory environment related to markets for live cattle, hogs, and poultry; labor relations; processing inspection; product labeling; and processed meat sales favors large-scale producers and processors. As [this recent article](#) on California poultry processing plants reveals, there are concerns about regulatory capture at the local level as well as the federal, where both [labor regulations](#) and [inspection services](#) appear to favor the largest meat processors.⁸

When there are few companies offering meat processing jobs, it is easier to keep wages low and low wages mean many meat processing workers [suffer an array of inequities](#).⁹ A [racial discrimination lawsuit](#) recently settled by JBS points to labor disputes as an additional potential source of disruption of the meat sector in the future.¹⁰ Most workers are utilized to make one specific cut or action on a line, which leads to high rates of repetitive motion injury. Consequently, increasing line speeds are opposed by worker advocates, who cite [the correlation between increasing line speed and worker injury](#).

Concentration also reduces the competition for animals within the auction and [contract production systems](#),¹¹ lowering prices for live animals to farmers and ranchers. For a hundred years, the commodity meat industry has been investigated frequently for [price fixing and other manipulations](#) that harm livestock and poultry producers.¹² In the beginning of June of 2021, the National Cattlemen’s Beef Association (NCBA) called on Congress to conduct a “[federal investigation to examine the conduct of the largest U.S. meatpackers](#).” Producers nationally want a fair shot in a market where there is insufficient transparency.¹³

As a consequence of the lower prices paid by the industrialized commodity system, livestock and poultry producers working at smaller scales have sought to create their own value chains, both wholesale and retail. The result is that the highly concentrated commodity meat system exists entirely separate from the small- and mid-scale, disaggregated system that supports high-value or specialty meat products. Both the large-scale commodity and the smaller-scale high-value system have their own set of challenges and vulnerabilities.

⁷ <https://www.nytimes.com/live/2021/06/09/business/economy-stock-market-news#jbs-cyberattack-ransom>

⁸ <https://calmatters.org/california-divide/2021/03/fresno-health-inspectors-tipped-off-foster-farms-about-state-inspection-amid-outbreak/>

⁹ <https://www.dtnpf.com/agriculture/web/ag/livestock/article/2020/09/24/seven-state-attorneys-general-usda>

¹⁰ <https://apnews.com/article/co-state-wire-lifestyle-discrimination-business-lawsuits-1e1112c9d1157a818f03215ec2477dde>

¹¹ <https://www.theguardian.com/sustainable-business/2017/apr/22/chicken-farmers-big-poultry-rules>

¹² <http://www.farmbilllaw.org/2020/11/06/price-fixing-in-the-consolidated-meat-industry/>

¹³ https://mcusercontent.com/3ac0220907d479b33ff07dbbc/files/8f2a3032-8384-fe2b-b115-bf27888d4f7d/6_1_NCBA_Affiliate_Letter_FINAL.01.pdf

3. Complex Inspection Requirements

USDA inspection is the primary path to access all available state, national, and international markets. But for small- and mid-scale livestock and poultry producers and the processors that serve them, that path is expensive and out of reach. Here in California, without USDA inspection, there is a state inspection system that severely limits the pathways to sell meat. As you will see below, both paths are complex and not currently supportive of efforts to bring into existence more functional regional meat supply chains.

States that have their own Meat and Poultry Inspection (MPI) programs have state-inspected plants that are deemed “equal to” USDA plants. This means that meat from “equal to” plants can be sold wholesale or retail, everything possible for meat from a USDA plant, with one exception: those meats from a state MPI program cannot be sold across state lines.

States with their own MPI “equal to” program can apply to the [USDA’s Cooperative Interstate Shipment \(CIS\)](#) program in order to obtain the right to ship across state lines, but that requires a separate step. That additional compliance step is subtle; it changes the “equal to” status into “same as status,” and allows interstate and international shipments. Only nine states currently participate in the CIS program, although 27 operate MPI programs. **California is not one of the 27 because we do not have an MPI program deemed equal to the federal standard, making it ineligible to participate in CIS.**

Non-USDA plants in California are designated as “custom-exempt” plants. This can apply to both slaughter and processing facilities, like those where animals are butchered and packaged or made into sausage. Custom-exempt facilities are blocked from supplying most sale channels. This severely limits sales options for small- and mid-scale livestock and poultry producers.

As a work around, small and mid-scale livestock and poultry producers can sell animals through “herd-share” or “animal-share” programs because customers purchase whole or partial animals from the producer prior to slaughter. In keeping with the USDA’s exemptions around Custom Slaughter and Processing, the buyers can have their animals harvested on the ranch (see AB 888 below) or at a state-inspected “custom-exempt” facility because the resulting meat is for personal, household use and not for resale. Others use USDA facilities so they can sell the resulting meat at farmers markets, to restaurants, and other retail channels.

In California, once an animal is slaughtered it is usually taken to a “cut and wrap facility,” which must have a state-approved inspector on site to ensure hygienic practices. A state-approved inspector for custom exempt plants is generally an employee who is certified annually as competent in health and safety practices.

It is important to note that a non-USDA certified cut and wrap facility can package and resell USDA-slaughtered animals directly to consumers from its own retail outlet. However, they cannot wholesale more than 25% of these meats to other retail stores or restaurants without USDA inspection, nor can livestock or poultry producers sell products cut and wrapped there

under their own brand. These are important distinctions that add further complexity to the system.

Three additional exemptions related to small-scale on-farm slaughter and packing operations add even more complexity. Two of these exemptions relate to on-farm slaughter of poultry, one rooted in federal statute and the other in California law. The USDA's exemption from federal inspection applies to operations slaughtering up to 20,000 of their own birds per year with additional allowances when processing less than 1,000 birds. While this federal exemption gives small-scale poultry producers the ability to sell their products through a variety of market channels, small-scale producers believe these exemptions should be increased to include large numbers of birds to increase financial viability.

The California Department of Food and Agriculture (CDFA) places a further layer of restrictions over these federally-exempted poultry operations, limiting their actions to a point that impedes many farmers from entering the market.¹⁴ Currently, CDFA requires that poultry producers that employ workers outside their immediate family cannot sell their products beyond the boundaries of the farm itself. More frustrating is the fact that even if only family members process all their birds, they cannot sell their products to restaurants, institutions, or retailers. Operations so limited in both workforce and sale channels find it extremely hard to reach the federal cap of 20,000 birds. As a final and critical impediment, CDFA does not explicitly identify poultry processed under federal exemption as an **"approved source."** This allows county environmental health officials to deny these operations access to even the limited outlet of a farmers' market.

The third exemption for on-farm slaughter relates to livestock and is again shaped by a combination of state and federal law. The USDA allows custom exempt slaughter of livestock for personal, household use. This makes it possible for a livestock producer to sell live ownership of an animal, whole or in part, to customers. It can then be slaughtered, cut and wrapped for the new owner without USDA-inspection, typically at custom-exempt facilities. Currently California restricts this processing and sale approach to cattle. In 2021, if the proposed Assembly Bill 888 is passed by the Legislature, California will expand this exemption from federally-inspected slaughter to sheep, goats, and hogs, allowing producers to sell up to 35 animals per month using this kind of transaction.

These regulatory complexities all arise from food safety concerns. The irony is that the vast majority of cases of food-borne illness linked to tainted meat products originate in large, federally-inspected processing facilities, not the on-farm or small slaughter and cut and wrap facilities serving high-value meat producers.

¹⁴ This is unfortunate because chickens grow faster than many crops and new and beginning farmers often see poultry production as a means to more quickly achieve cash flow. But the current regulations are an impediment.

4. Strong Demand for “High-Value” Meats

Growing numbers of people, particularly young people, are becoming critical of “factory farming” and of meat in general. This criticism arises from a spectrum of issues including: animal welfare, climate change, human health concerns, water pollution, and antibiotic overuse associated with Concentrated Animal Feeding Operations (CAFOs). The politics and sociocultural issues around meat complicate attempts to create simpler, more flexible, scale-appropriate regulations, particularly at the local level.

Despite criticism over health and climate concerns, meat remains central to the American diet. In the US, the [average person consumed](#) over 112 lbs. of red meat, over 51 lbs. of pork, and nearly 114 lbs. of poultry in 2020.¹⁵ Per capita consumption of beef is slowly declining as poultry is rising. There also is a shift in demand to what we will call “**high-value meat**,” with attributes and descriptors such as “local,” “regional,” “regenerative,” “raised without antibiotics,” “organic,” “grassfed,” “humanely-raised,” and breed-specific designations.

The beginning of this trend toward high-value meats might be marked from 1986, with the outbreak of bovine spongiform encephalopathy (BSE, commonly known as “mad cow” disease) in Great Britain. In the decades since, consumers have been affected by waves of media related to animal welfare, antibiotics, deforestation, water pollution, “healthy” versus “unhealthy” fat, and, increasingly, climate change. It was also in 1986 that Doc and Connie Hatfield founded [Oregon Country Beef](#), renamed Country Natural Beef as the brand grew to encompass ranchers from other states. Along with [Niman Ranch](#), Oregon Country was among the first wave of high-value meat brands to gain market traction.

According to Business Wire, grassfed beef was expected to grow [by 6% between 2020 and 2024](#).¹⁶ The pandemic spurred a [huge surge in growth](#).¹⁷ This is a growth rate well beyond that of commodity beef.¹⁸ According to Carrie Balkcom, of the [American Grassfed Association](#), currently about 85% of the grassfed market demand is supplied by producers in South America and Australia, who are not hobbled by a dearth of processing and numerous regulatory hurdles faced by producers in the US, particularly California. These import data reveal a significant opportunity for California’s producers.

5. More Collaborations Needed

The antidote to the social cultural challenges described in the next section may be found in deeper levels of collaboration among producers themselves, producers and processors, and also between producers and advocates of high-quality meat, including chefs and premium retail outlets. It is widely acknowledged that the often rural (and hence more isolated) lifestyle of farmers and ranchers also traditionally comes with a more individualistic mindset. In turn, that mindset characteristically includes aversion to the encumbrances of collaborative efforts. And

¹⁵ <https://www.statista.com/statistics/189222/average-meat-consumption-in-the-us-by-sort/>

¹⁶ <https://www.businesswire.com/news/home/20201012005352/en/Grass-fed-Beef-Market-Demand-for-Grass-fed-beef-Products-to-Boost-the-Market-Growth-Technavio>

¹⁷ <https://www.supermarketperimeter.com/articles/6278-grass-fed-growing-trend-continues-to-evolve>

¹⁸ By commodity beef we mean mass market, minimally or undifferentiated beef products.

yet, some of the collaborative models described below may create the political influence necessary to level the policy “playing field” and underpin marketing strategies to grow “high-value” meat brands. In short, there are examples of how collaboration can grow profits and hence strengthen commercial viability. The good news is that our interviewees offered a plethora of potential opportunities that could unleash the potential of growing demand for high quality meat.

Challenges

The interviewees provided a daunting (yet familiar) list of primary challenges. Top among them is a lack of accessible processing facilities designed to serve small- and mid-scale producers. They also emphasized that the pandemic greatly amplified this problem. Below we review a number of challenges articulated by the informants who participated in this analysis. Although there are more, we focus on the most pressing impediments to growth and development of the high-value meat sector. (See Figures 3 & 4). Specifically, lack of access to slaughter and processing facilities suitable to small- and mid-scale producers, shortage of skilled labor to work in those facilities, and regulatory blocks to expansion or development of new plants all combine to hobble growth and profit for this spectrum of the meat supply chain.

Figure 3:

Top challenges identified (rank order):

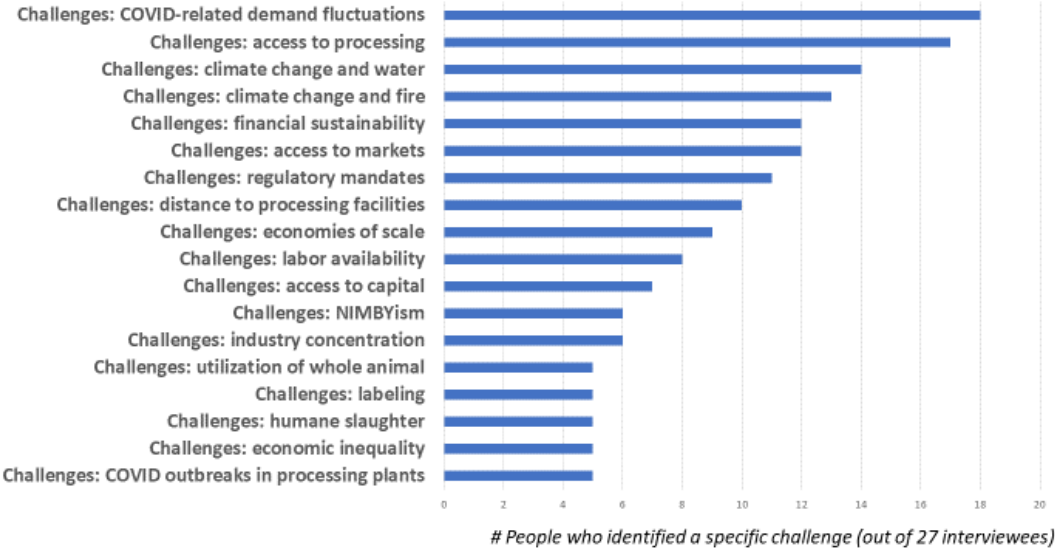
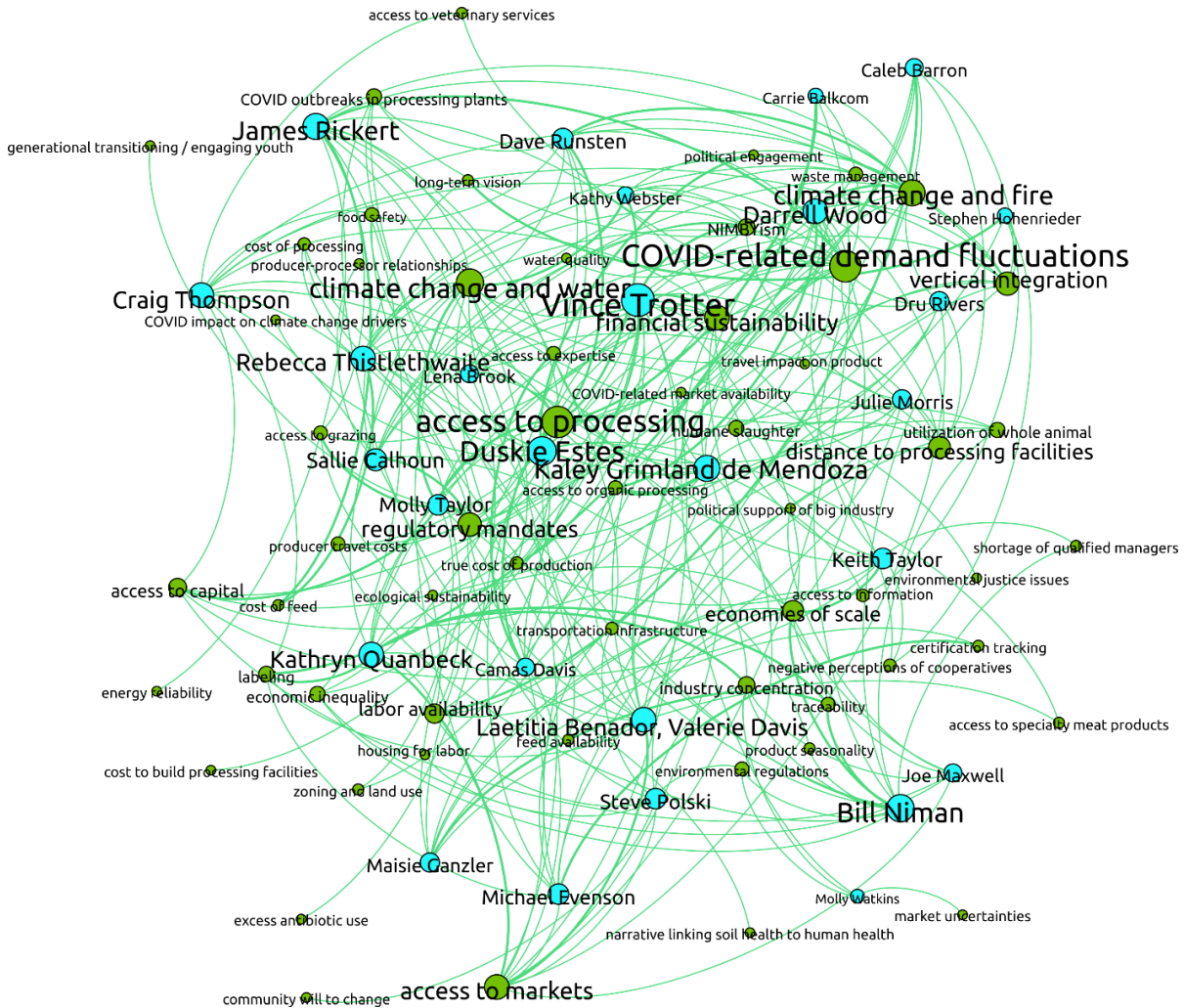


Figure 4:



1. Concentration Means Disruptable Supply Chains, Vulnerable Workers, and Insufficient Capacity

The primary challenge cited by informants is a **lack of access to slaughter and particularly cut and wrap facilities**. Distance from facilities and lack of processing capacity within existing facilities are the key challenges. COVID-19 dramatically exacerbated the problem.

Because of their need for large numbers of essential workers, laboring side by side, meat processing is at the top of the list of the sectors most disrupted by the pandemic. Thousands of meat plant workers fell ill with COVID-19 and at least [239 have died](https://www.usatoday.com/in-depth/news/2021/01/11/covid-19-deaths-not-investigated-osa-meatpacking-plants/6537524002/)¹⁹. The May 2021 issue of the peer-reviewed journal Food Policy published [an article](#) that states that in counties with meat processing plants, infection rates were 57% to 400% higher. The same article reveals that the Centers for Disease Control confirmed over 16,000 cases of COVID-19 among meat plant

¹⁹ <https://www.usatoday.com/in-depth/news/2021/01/11/covid-19-deaths-not-investigated-osa-meatpacking-plants/6537524002/>

workers and that meat packing plants could be responsible for over 334,000 infections and 18,000 deaths.²⁰ Hundreds of millions of dollars were lost in revenue and wages as a result of the shutdown of massive beef, poultry, and pork processing factories, particularly in the Midwest and South. In turn, this led to a scramble for smaller USDA-inspected slaughter and processing (cut and wrap) facilities around the nation. Tragically, the shutdowns also led to the [massive culling](#) of livestock and poultry.²¹ All this disruption affected American consumers.

When the large-scale plants in other states slowed or shut down, curtailing auction sales, ranchers in California pivoted to move as many cattle as they could to California's few USDA-inspected plants with available capacity. Their larger herds placed commodity suppliers ahead of small- and mid-scale farmers and ranchers in the lines forming at the USDA-inspected slaughter facilities and cut and wrap operations. In many cases, small- and mid-scale producers paid unprecedented prices or lost access to both the slaughter and cut and wrap facilities that are the pathway to markets. In other cases, where they could book time for their animals, they had to haul them even longer distances than in the past.

Our interviewees described a similar pattern of disruption for plants that slaughter sheep, goats, hogs, and poultry. The effects were particularly bad for poultry because California's industrial poultry plants were highly impacted by the pandemic. [Twelve workers from two Central Valley plants owned by Foster Farms](#) died from COVID and dozens were infected. Illness and deaths forced plant shutdowns for days at a time. Smaller facilities were flooded with birds, forcing midsize and small-scale producers to scramble for processing. Some could not obtain services anywhere; others needed to travel even longer distances than usual.

Based on available data, there appear to be only **46 USDA-inspected slaughter plants** operating in California, 32 of which handle livestock (*See Map 2*), and 19 of which handle poultry (*See Map 3*). We heard from one informant that only one USDA-inspected slaughter and processing plant in California has been commissioned in at least two decades: Belcampo Meat Company in Yreka. This is a comparatively small plant with a capacity of 20 animals per day. Although formerly able to process for other ranchers in the region, Belcampo's growth means it now fully utilizes its own capacity.

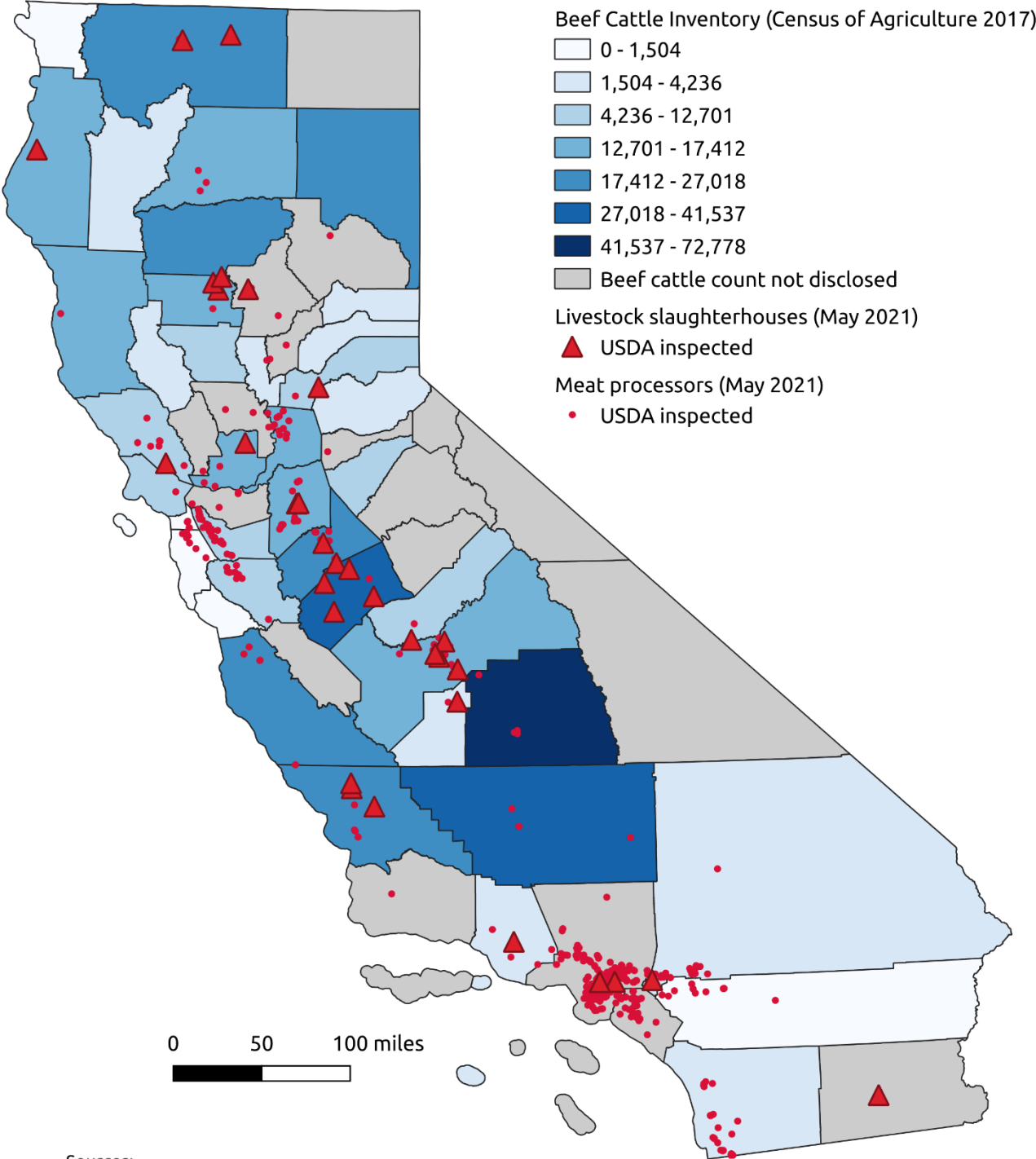
For the other plants, producers report that many facilities slaughter only their own product and are not available to producers seeking services. As follow up, we reached out to the 46 USDA-inspected slaughter facilities in the state to ascertain their policy on outside product and where excess capacity might exist. Of those facilities, we were able to obtain answers from 23. Of those 23, 11 do not process animals outside their own brand(s), and 12 do slaughter animals outside their own brands. However, all are facing capacity challenges due to advanced booking for months and/or lack of skilled labor into increase or reach their operational capacities.

²⁰ Saitone, Tina L., K. Aleks Schaefer, and Daniel P. Scheitrum. 2021. "COVID-19 Morbidity and Mortality in U.S. Meatpacking Counties." *Food Policy* 101(May): 102072. <https://doi.org/10.1016/j.foodpol.2021.102072>.

²¹ <https://www.vox.com/2020/5/4/21243636/meat-packing-plant-supply-chain-animals-killed>

Map 2:

USDA-Inspected Beef Slaughter and Processing Facilities with Production

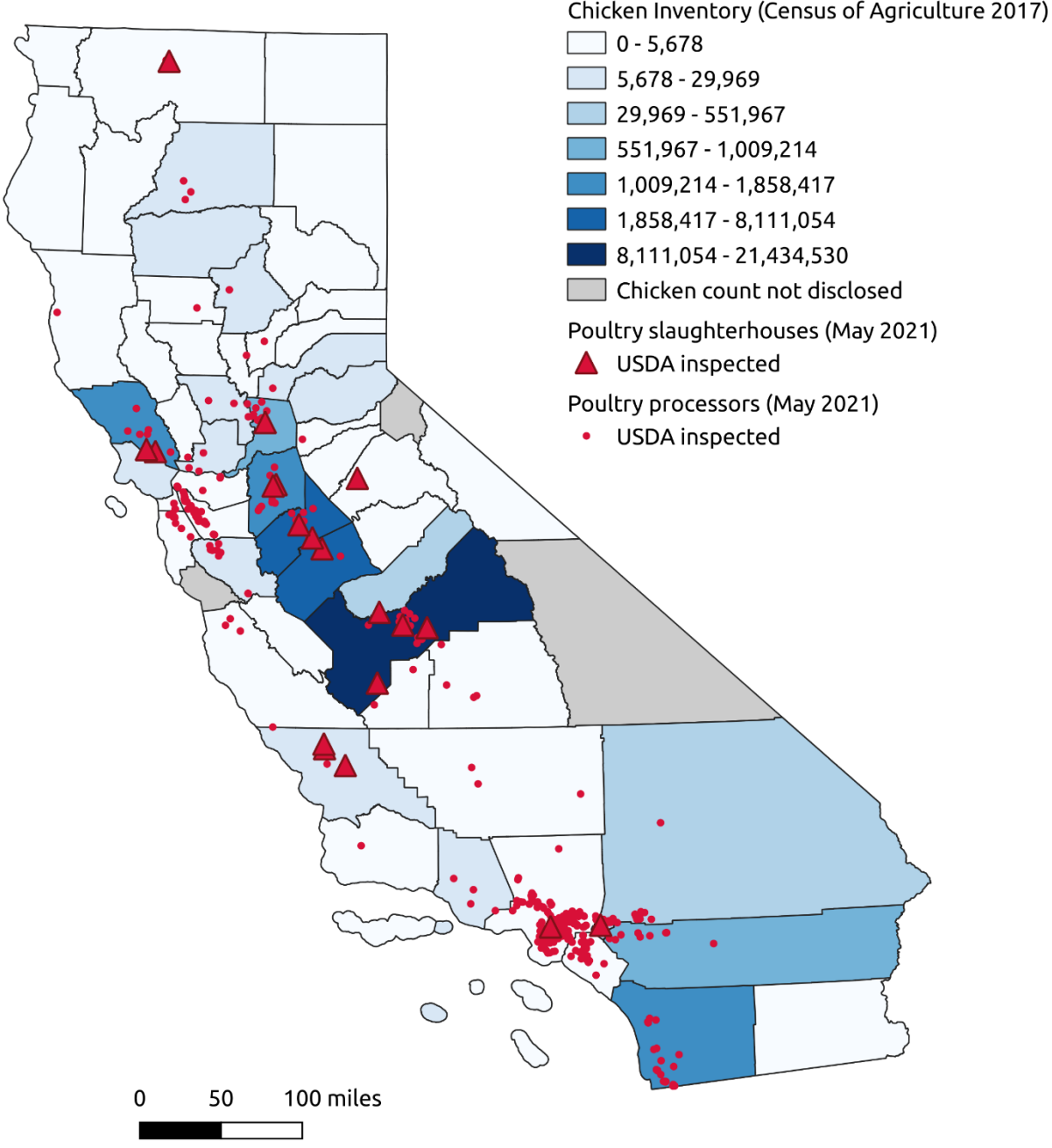


Sources:

- Production information from USDA Census of Agriculture, 2017
- Slaughter and processor information from USDA Food Safety and Inspection Service (FSIS), MPI Directory 2021

Map 3:

USDA-Inspected Poultry Slaughter and Processing Facilities with Production



Sources:

- Production information from USDA Census of Agriculture, 2017
- Slaughter and processor information from USDA Food Safety and Inspection Service (FSIS), MPI Directory 2021

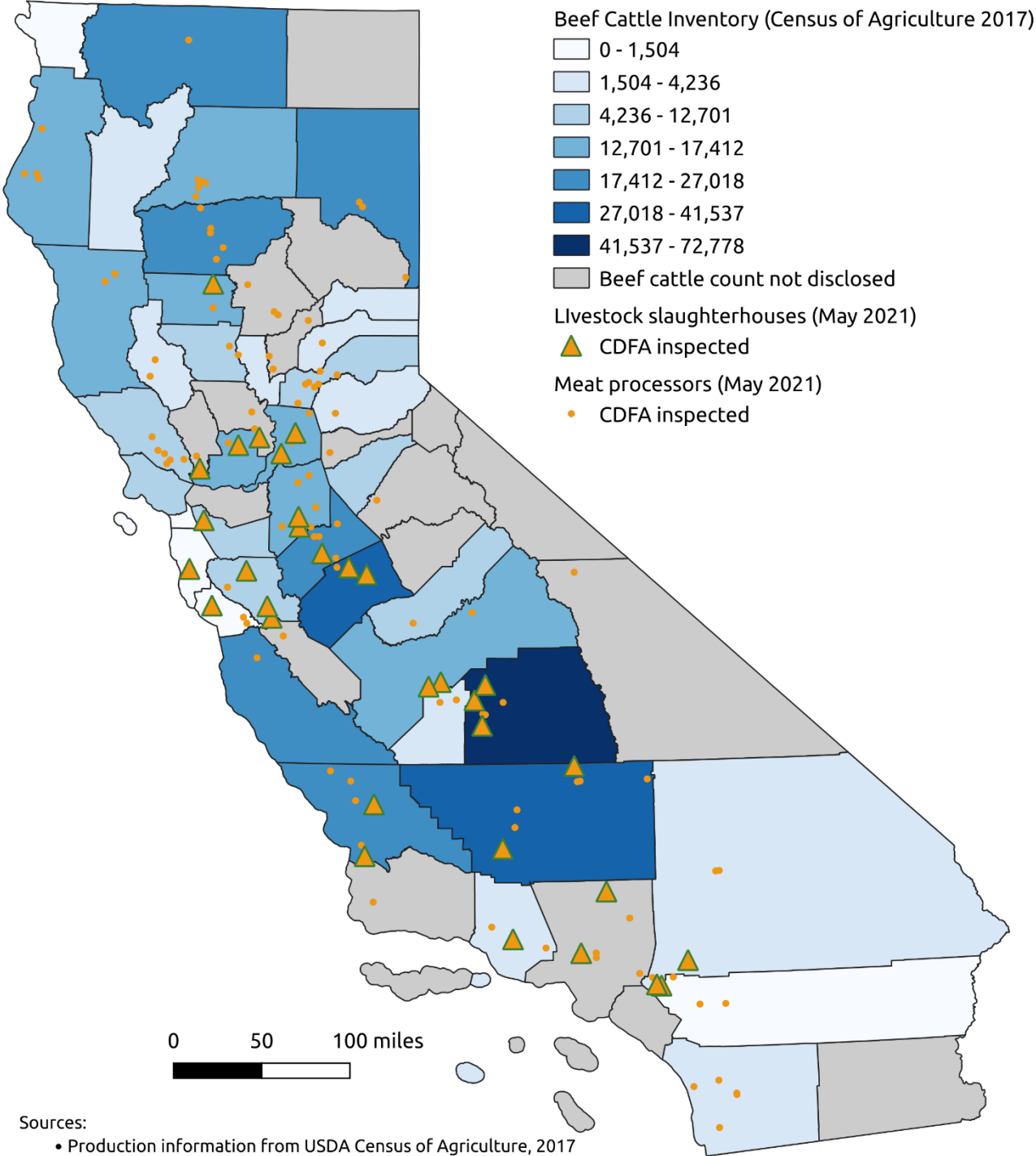
There are an additional **83 custom exempt slaughter plants**, inspected by CDFA (34 for livestock and 53 for poultry). However, as described above, these plants only produce high-value meat for direct sale by the processor or the rancher to a consumer for personal household use. (See *Map 4 and Map 5*). Additionally, 56 remote slaughter operations are registered in California, shown by number of operators per county (*Map 6*). Remote or mobile slaughter operations (MSOs) are extremely important to small-scale producers. They are the businesses that bring slaughter services to the ranch or farm. The count cited above is likely an underestimate because only those that slaughter cattle are currently registered by the Bureau of Livestock Identification. With the potential passage of AB 888 to expand exemption from federal inspection for additional species, 56 MSOs is likely to be insufficient capacity to serve the needs of the high-value meat sector.

There are **681 registered meat processing facilities** in the state, of which 569 are registered through USDA. Five-hundred-thirty-eight (538) of the USDA-inspected facilities are shown to process beef (See *Map 2*) and 473 USDA-inspected facilities process poultry (See *Map 3*). One-hundred-fourteen (114) facilities are registered through CDFA (See *Maps 4 & 5*. Species is not differentiated for the CDFA-registered processors, thus all 114 are included on both maps). *According to several informants, access to cut and wrap is now more difficult than slaughter.* Note: The indicated meat processor numbers refer to the lists of facilities shown as active on CDFA and USDA directories in May 2021, our team did not verify the status of each operation. The USDA directory includes several companies that operate facilities in more than one location, in which case each location is included as a separate facility. (Example: Del Monte Meat Company is shown to have facilities in Brisbane, Marina, Union City, American Canyon, and West Sacramento.) There may, however, be a small number of facilities on the list that are double-counted when incorrectly listed with multiple addresses for the same facility.

Taken as a whole, the maps reveal a dearth of USDA-inspected slaughter facilities in Northern California, where the population of high-value meat producers is highest. Although it appears there are many meat processing facilities, producers indicate there is insufficient capacity in that sector.

Map 4:

CDFA-Inspected Beef Slaughter and Processing Facilities with Production

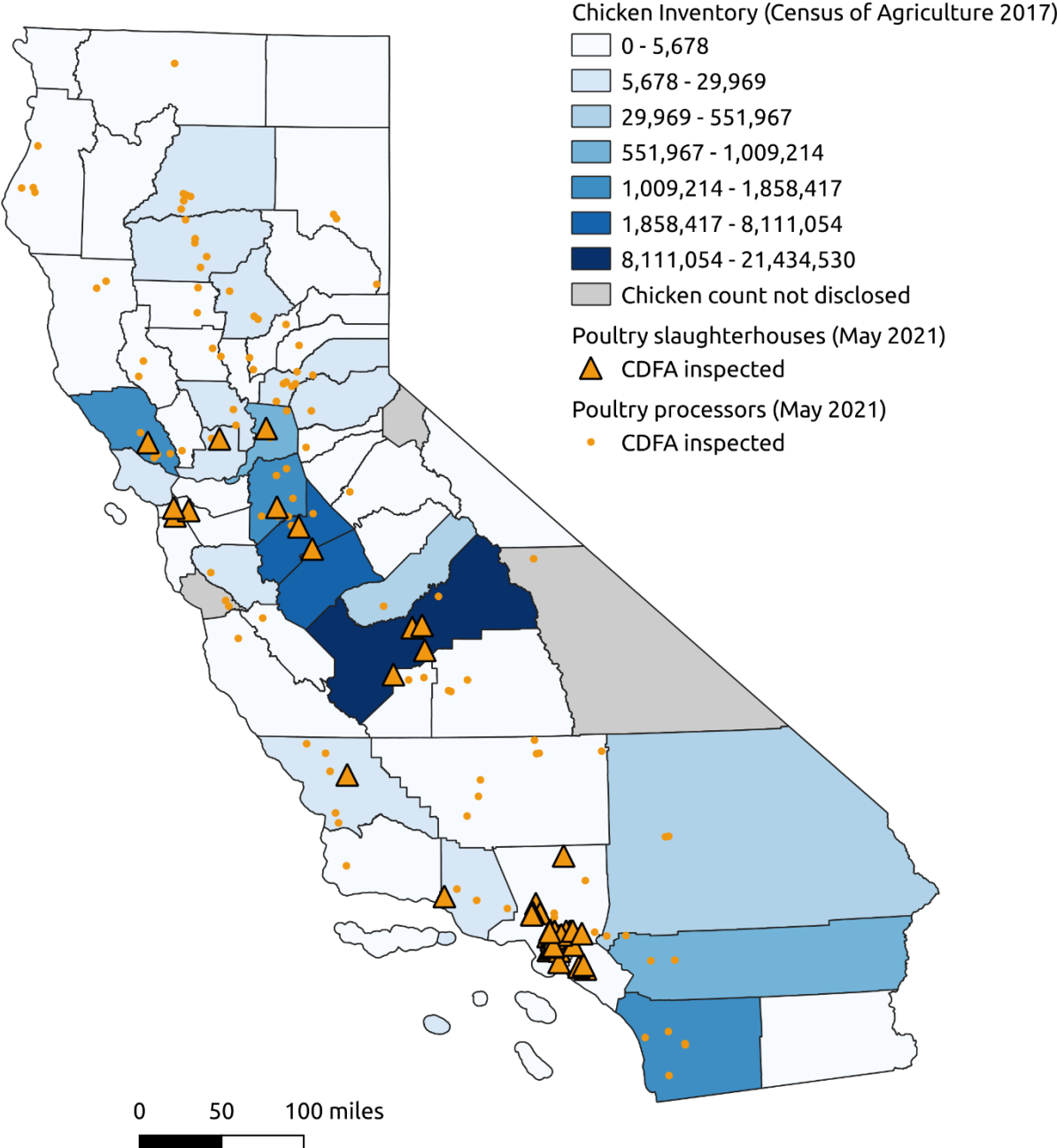


Sources:

- Production information from USDA Census of Agriculture, 2017
- Slaughter and processor information reported to our research group by California Department of Food and Agriculture, 2021

Map 5:

CDFA-Inspected Poultry Slaughter and Processing Facilities with Production

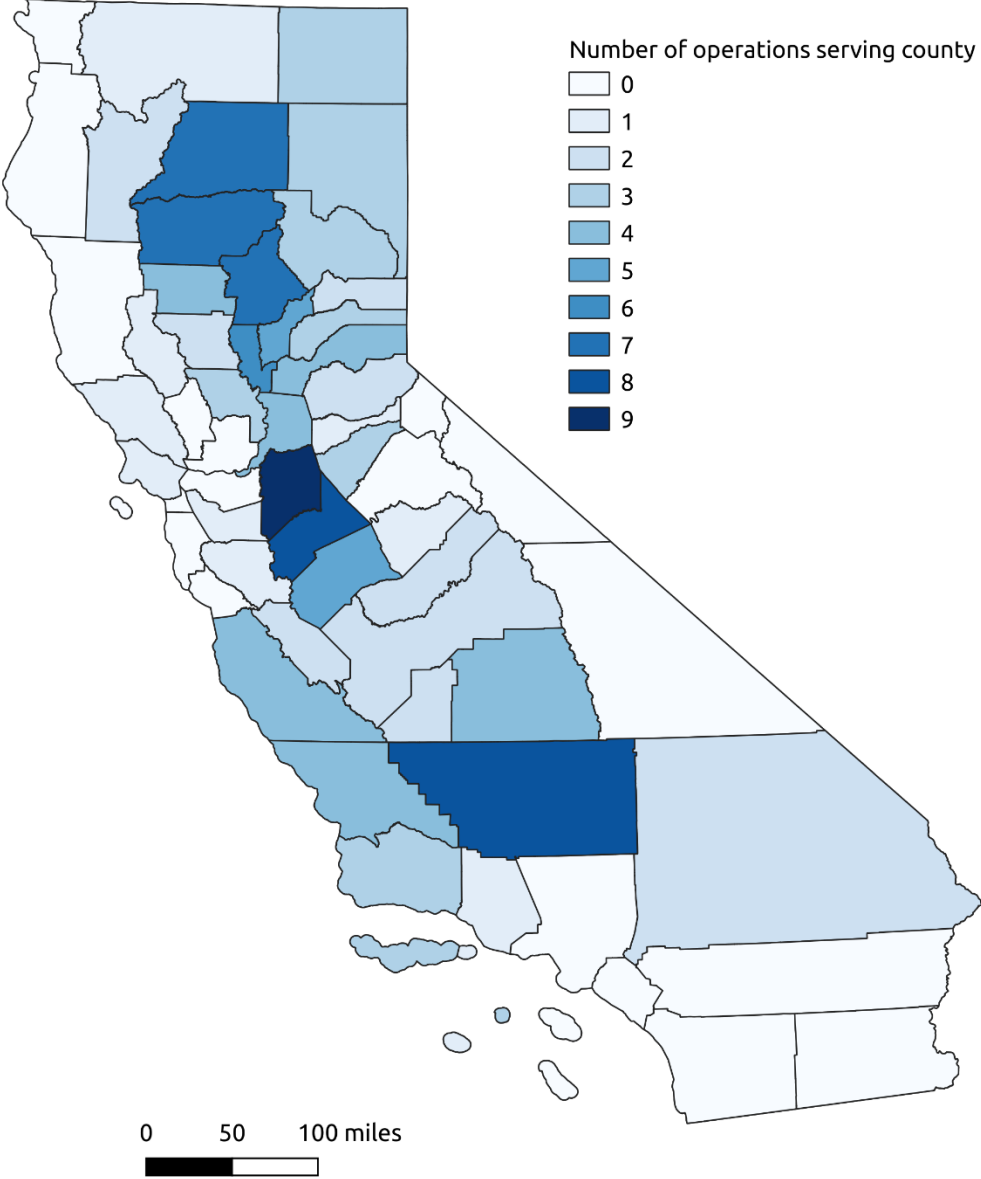


Sources:

- Production information from USDA Census of Agriculture, 2017
- Slaughter and processor information reported to our research group by California Department of Food and Agriculture, 2021

Map 6:

Mobile Slaughter Operations By County



Source: California Department of Food and Agriculture 2021.

2. Drought and Fire

In California, the spring 2020 COVID-19 shutdowns were only the beginning of the crisis. In late summer and fall, fires consumed grassland, destroyed infrastructure, and forced the movement of people and animals to safer areas. Some herds were dispersed and animals [burned or asphyxiated](#).²² These 2020 challenges are on top of at least a decade of declining precipitation, hotter temperatures, and shrinking access to processing facilities. All farmers and ranchers we interviewed expressed deep concern about drought and fire intensifying in the years ahead. Several already have experienced loss of grass, which compelled them to cull their herds.

3. Financial Challenges from High Costs

The costs of doing business for small- and mid-scale producers were among the top concerns of producers themselves and UC Cooperative Specialists serving them. Below we discuss a number of interlocking challenges that threaten financial stability.

3.1. Costs of Transportation of Animals

Even before COVID, due to the lack of existing USDA-inspected facilities, most small- and mid-scale producers focused on high-value meat markets needed to drive hundreds of miles with animals to deliver them to slaughter plants and then to cut and wrap facilities. Such transport challenges cost time and money. According to Bill Niman, founder of Niman Meat Company and BN Ranch, and one of the pioneers in the high-value meat business, **“efficient transport and processing are keys to financial success.”**

3.2. Labor Shortage

Skilled labor is in short supply for both on-farm processing and custom-exempt facility staff.

Informants doing on-farm poultry slaughter stated that they must train most of their hired employees and most of those trained do not remain on the job for long periods, forcing continuous recruitment and training expenses. These are hard jobs with relatively low pay at the on-farm level. We also heard that mobile slaughter operators are increasingly challenging to find and schedule due to growing demand for their services.

Custom-exempt plants, both slaughter and cut and wrap, must also train employees because few, if any, come with established skills. Unlike the large industrial assembly-line styles plants operated by large processors, workers in custom exempt plants often are undertaking a variety of tasks. The butchering skills required in cut and wrap facilities require time to hone. Labor shortages are one impediment to expanded capacity. California needs training programs for humane slaughter, skilled meat cutting, and value-added processing.

3.3. Difficulty Accessing Grazing Land

The challenge of **accessing grazing land** was mentioned by four (4) interviewees. Leases and permits are challenging to acquire, especially for beginning ranchers seeking to establish and grow businesses. The relatively small number of livestock producers and their often-remote

²² <https://calcattlemen.org/2020/09/23/legacy/>

operations impede their participation in coalitions or campaigns to influence public land grazing policies.

3.4. Negative Public Perception of Animal Agriculture

Solutions to the most [wicked problems](#) of the meat sector are complicated by what we call sociocultural systems,²³ which might be seen as **public attitudes toward the meat industry**. These attitudes are shaped by extreme narratives promoted by some environmental, health, and animal rights activists. While some seek to reshape animal agriculture, others seek to end it.

Negative perceptions arise from periodic examples of cruelty perpetrated by workers. Although these are rare cases, they make news and can evoke profound emotional impact. More troublesome for many people are what are often referred to as [factory farms](#), particularly poultry and hog operations, in which large numbers of animals are housed in ways that cause suffering.²⁴ The large poultry, hog, and dairy operations also face mounting criticism, regulation, and legal action for water and air pollution. These large systems are utilized by the commodity industry, and do have an impact on public perceptions of the meat sector, generally. This adds pressures to small- and mid-scale producers in the high-value sector.

Many of our interviewees believe critics ignore the role of animals in a regenerative agricultural paradigm seeking to address animal welfare, climate, environmental, and rural economic challenges. In the long run, these anti-meat sentiments appear to be growing and could be among the most intractable impediments to the transition to a more resilient food system.

3.5 NIMBYism

Several informants mentioned **NIMBYism** (Not in My Back Yard) as an impediment, often associating this with animal rights and environmental activists, though the phenomenon also arises from a more general resistance to local land use change. The likelihood of vocal, strident opposition is widely understood to slow review processes and undermine the appetite of policymakers and bureaucrats to consider innovative designs, new technologies, and regulatory refinements, especially as they relate to the solutions needed to permit new or expanded slaughter and processing facilities.

To avoid these challenges, many specialty producers have sought to slaughter animals on their farms. Unfortunately, as described above, there are other impediments due to CDFA's regulations of both poultry and hooved animals. Our informants focused on farm or ranch processing believe the (direct and indirect) limits on the numbers of animals that can be slaughtered are too low to allow commercially-viable operations.

²³ "Sociocultural Systems": The social and cultural aspects of a given society that shape material assets; economic, political, and social structures; values and norms; and language. Includes systems of ethics, traditional knowledge in agricultural communities, and cultural traditions.

²⁴ <https://www.asPCA.org/animal-cruelty/farm-animal-welfare>

Moreover, even if these sociocultural and regulatory impediments to new plant development or existing plant expansions were overcome, other problems would need to be addressed.

3.6. State and Local Water Quality and Land Use Regulations

Water supply and wastewater treatment are central challenges for processing plants, including existing plants and especially for permitting of new plants. Informants described the costs and the perceived impossibility of overcoming water-quality regulations because of a lack of flexibility. In just one example from Sonoma County, the nation's top-quality duck farm, [Sonoma County Poultry Liberty Ducks](#), recently purchased a decommissioned meat processing facility. The farmer and founder, Jim Reichardt, hopes to end the multiple weekly drives of 100 miles each way to a poultry slaughter facility. Unfortunately, he has been blocked from full operation (slaughter and cut and wrap) by a permitting morass.

To operate, a slaughter facility needs approval from the Regional Water Quality Control Board (RWQCB) and the relevant county officials, but the two jurisdictions are not in accord. The RWQCB will allow the operator to hold and haul waste water to deliver to the treatment plant. The City of Santa Rosa, less than a mile from the plant, will also allow hold and haul systems. Breweries and other food processors within city limits currently do it. Unfortunately, the plant site is outside the city and lies within the County, which will not allow a processor to hold and haul waste water for treatment.

Other alternatives could be developed to process water. One technical alternative could be creating onsite marsh systems that filter and biologically-cleanse water. Vermiculture waste water systems can deal with slaughter waste. But current County regulations do not recognize either of these technologies. Individual small operators like Sonoma County Poultry Liberty Ducks struggle to cover the costs of environmental impact studies needed to update regulations. This water treatment conundrum requires time, money, and stress to untangle and is an impediment to entrepreneurial spirit that could create jobs for the County and more resilience in the state's meat supply chain.

3.7. Antibiotic Resistance and Increasing Awareness of Public Health Risks

Advocates and those focused on high-value meats brought up the issue of **antibiotic resistance and its threat to public health**. Even before the COVID-19 epidemic, [warnings about the link between antibiotic resistance and animal agriculture](#) from epidemiologists and public health advocates had led to some FDA guidance and some state level regulations.²⁵ In light of the pandemic, people may develop a heightened awareness of public health risks.

Although producers and advocates have different goals, they align on efforts to greatly reduce or eliminate the "routine use" of medically important antibiotics in livestock for so-called disease prevention or growth enhancing purposes (growth promotion was officially banned by FDA Guidance 213, which went into effect in January 2017).

²⁵ <https://www.cdc.gov/narms/faq.html>

Some livestock and poultry producers see “raised without antibiotics” as a way to demonstrate the increased value of their meat products. The issue of verification of claims motivated meat producer and entrepreneur Bill Niman to [co-found a company called FoodID](#). Niman’s goal is to validate claims that allow companies to charge a premium. He believes that transparency is essential for the high-value meat sector.

Advocates who seek restricted use of antibiotics to treat ill animals have already had significant impact. Some of the nation’s largest retail poultry brands, including Perdue and Tyson, [are apparently antibiotic free](#) and their food service brands are limited to antibiotics that are not medically important.²⁶ Thus, advocates’ focus is now on commodity pork and beef production systems, where most of the medically-important antibiotics in the U.S. are now sold.²⁷ Advocates are less concerned about the high-value meats, which are often grassfed, organic, or humane-certified and thus reject antibiotics except for sick animals.

According to the World Health Organization, to protect public health there is a need [to reduce use of medically important antibiotics by livestock operators](#).²⁸ This reduced use should be accompanied by robust data collection, tracking, analysis, and reporting. California and Maryland were the first two states to impose state-level reporting requirements for antibiotic use in livestock. Maryland’s Keep Antibiotics Effective Act, which was refined in 2019, provides clear definitions for the risky [“regular patterns of use”](#) that must be ended.²⁹ It also requires veterinarians to report use of medically-important antibiotics annually. Advocates see these definitions and reporting requirements as the best way to ensure transparency and as an important accountability tool. Thus far, advocates believe California’s SB 27 has not provided sufficient data transparency to be effective in tracking progress against the bill’s intent to reign in antibiotic overuse.

²⁶ <https://www.thepoultrysite.com/news/2020/05/nearly-60-percent-of-us-broilers-now-raised-without-antibiotics-but-that-number-may-have-peaked>

²⁷ 2019 Summary Report on Antimicrobials Sold or Distributed for Use in Food-Producing Animals, December 15, 2020, US Food and Drug Administration, Center for Veterinary Medicine. <https://www.fda.gov/media/144427/download>

²⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4638249/>

²⁹ <https://uspig.org/news/usp/maryland-legislature-passes-new-bill-keep-antibiotics-effective>

Opportunities

Our interviews revealed a long list of opportunities that, if realized, could open a new era for small- and mid-scale livestock and poultry producers in California. A number of key opportunities are interdependent, spanning policy changes, new investments, and the tapping of entrepreneurial spirit in fertile combination. There were variations in how informants view opportunities and even some contradictions among interviewees, but taken as whole, we perceive some promising pathways. Our recommendations, in the following section, summarize the points that we feel deserve consideration and action by specific agricultural organizations and advocates, culinary and food service professionals, policy makers and regulators, and entrepreneurial meat producers. (Figures 5-7)

Figure 5:

Top opportunities identified (rank order):



Figure 6:

Opportunities: Policy changes (detail)

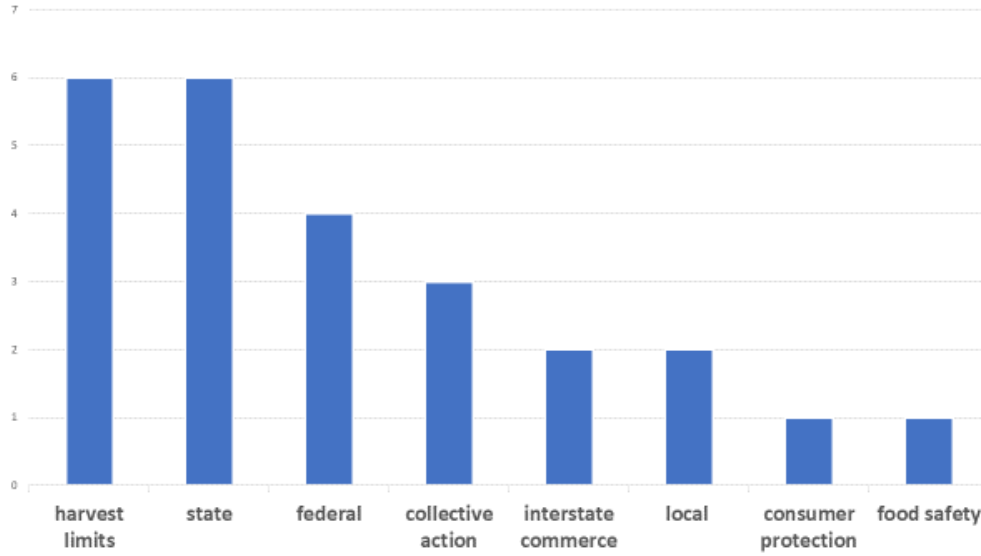
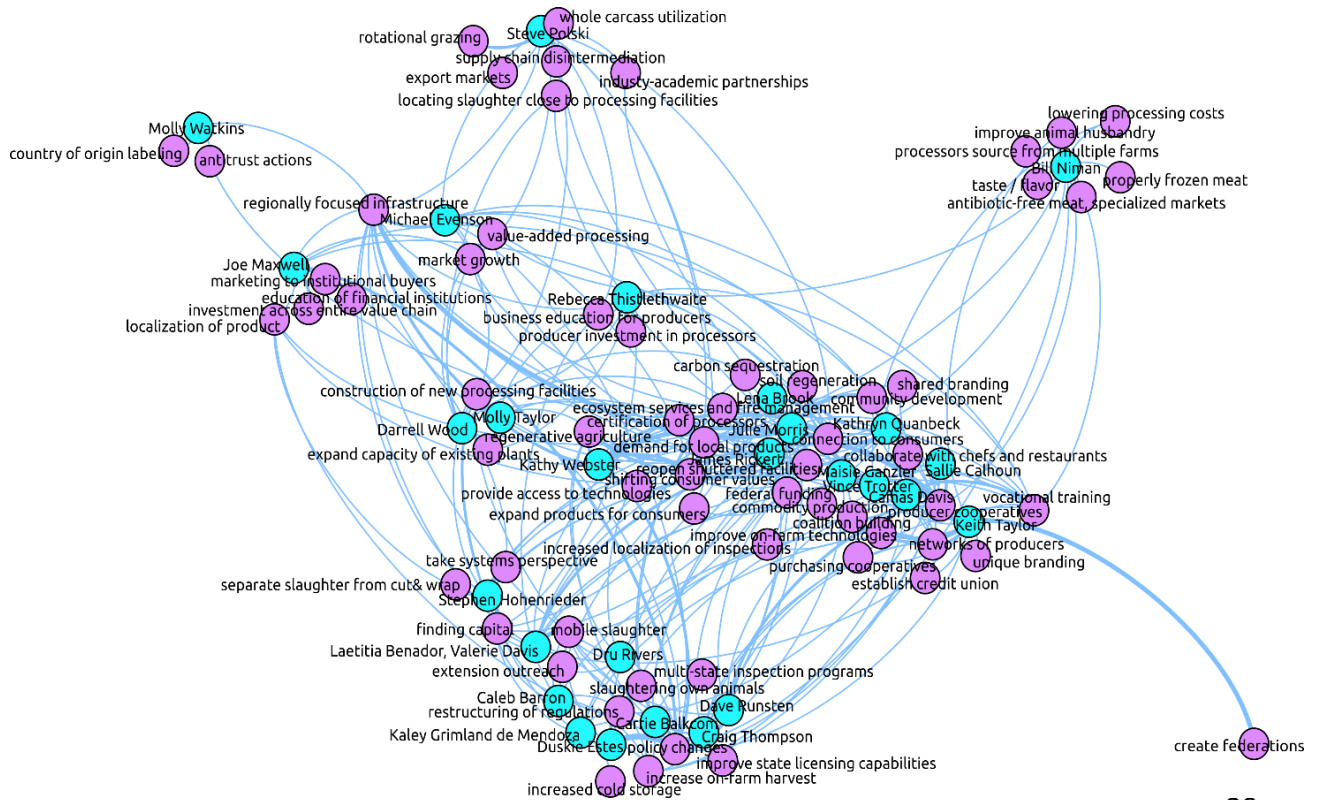


Figure 7:

Opportunities – linked with interviewees



1. Spawning More Facilities: A California Meat Inspection Program

A 2018 study commissioned by Sonoma County's UC Cooperative Extension office explored the concept of a California Meat Processing Inspection (MPI) program. Entitled, "Investigating the Potential for a Meat Inspection Program in California,"³⁰ the study concluded that "there are many possible advantages to implementing state inspection." It stated that "there is quantitative evidence to suggest that state inspection tends to lead to an increase in slaughterhouses, which will benefit California." It cited "anecdotal evidence" that small plant operators prefer working with state inspectors because they are more willing to help plants achieve compliance and are less expensive. The report also provides a comprehensive list of regulatory requirements for state inspection programs. If these are met the state becomes eligible to join the USDA's Cooperative Interstate Shipment (CIS) program described above. Retail sales, including interstate commerce, then becomes possible for producers.

Creation of a California Meat Processing Inspection Program in combination with an emerging federal response could be transformative for the sector. On July 7th, 2021, USDA announced \$500 million in new funding for expansion of local meat processing. There is also federal legislation moving through the Congress led by Maine Congresswoman Chellie Pingree. The bill, entitled [The Strengthening Local Processing Act](#), would provide the long-term financial help for upgrades and expansions and provide California with matching funds. There are other signs that alignment on these priorities is emerging. In September of 2020, the National Association of State Departments of Agriculture declared [its support](#) for "significant congressional funding and economic incentives to increase U.S. meat and poultry processing capacity and competition."³¹ Most recently, the June 2021 announcement from USDA of \$4 billion in American Rescue Plan funding for local food system infrastructure [includes regional meat processing](#).

2. Commercial Viability and Demonstrating Value

From the loading dock of a CAFO to the loading dock from which processed and boxed meat are shipped, companies try to own and control as much of the supply chain as they can. In California, this is perhaps best exemplified by [Belcampo Meat Company](#), which has its own ranches, slaughter, and processing plant as well as online sales system and retail butcher shops within the same building as its fast-casual restaurants.³² Such a system is very expensive to create. The plant alone cost \$5 million. Belcampo's operation may be exceptional due to the resources and commitment of a wealthy financial backer, but it is an interesting effort toward proof of concept of a high-value meat business model for a mid-scale operation.

Another example, and a different aspect of the search for viable business models, is the [Bay Area Ranchers Cooperative or BAR-C](#). This new cooperatively-owned mobile slaughter facility

³⁰ "Investigating the Potential for a Meat Inspection Program in California" a commissioned study for UC Cooperative Extension Sonoma County. Authored by Isabella Zohrab. January 25, 2018.

³¹ https://s3.amazonaws.com/nasda2/media/A_AI_Meat-Processing.pdf?mtime=20200904095420

³² The May 2021 [mislabeling debacle](#) at Belcampo's Santa Monica location is important to note. The media coverage and customer reactions to an apparently brief failure to deliver on the promise of quality reveals how deeply consumers feel about the quality attributes they seek from their meat sources.

now involves 34 livestock operations. It has majority funding from investors and community members who seek direct links to meat sources they trust. This developing effort has raised \$1.3 million, including \$113,000 from its rancher/producer members. Sixty percent of the plant's capacity will be supplied by its members, leaving 40% for other producers to utilize for a fee.

Some believe that mobile units are not a solution because there have been notable failures in the past. Challenges of consistent supply, staffing, location, species, and cash flow have been cited. The BAR-C founders believe their business model addresses these and other challenges.

Whether one reviews the history of [Niman Ranch](#) or [Panorama Organic Grass Fed Meats](#), pressures for consolidation led to sales of brands by founders in order to integrate with processing capacity. Perdue Farms now owns both companies. Enhanced capacity allows competitive wholesale prices which leads to meat case "real estate" in large retailer stores. Consistent demand from established retailers provides assurance to lenders or investors, enabling expansion.

Several informants see other pathways to profitability. These could begin with ranchers organizing to aggregate and transport their animals to slaughter facilities or through aggregation of producers under one brand like Panorama, Niman, [Country Natural Beef](#), or [Petaluma Poultry](#).

All four of these brands embrace a long list of high-value attributes: certified humane, grassfed or pastured, organic or regenerative production, and raised without antibiotics. All these brands emphasize place of origin, including identifying with family farmers and ranchers versus corporate identities. One interviewee likened this trend to stages of evolution in the California wine industry. He and another veteran of the meat industry highlighted the need for slaughter and processing facilities tailored to marketing efforts based on regional identity and high quality based on multiple attributes.

3. Attracting Capital

Investors and experienced business operators among our interviewees voiced a belief that with more processing facilities and financial backing, these innovative business models (described above) could experience exciting growth, with skilled job creation and higher returns for high-value meat producers.

Many informants see a need for plants to be sited closer to producers. Others stress development of creative equity structures, including public-private partnerships modelled on terminal produce markets. Their optimism seems based in part on a belief that high-value meat brands will be able to engage a virtuous cycle in which growth enables them to raise more capital to invest in more equipment and facilities that will enhance financial viability. This they believe will positively impact a growing number of small- and mid-scale producers and processors alike.

Along with this diversity of business models, there also are important differences in opinion over the capacity required to ensure profitability of a slaughter facility. Some believe 250-500 animals per day is a requirement. Some believe 20 is sufficient. We believe the answer depends both on the geographic context and the intended market. Those seeking wholesale markets across the nation or abroad, need lower cost of production and processing to compete in a broader, less-differentiated market (though still a narrower niche than the commodity meat trade). Those selling to their own list of retail customers or high-end restaurants have more margin to work with. Thus, at this time, it would be premature to pick a single business model (or even a few). **We believe the appropriate strategy for California now is to expand options and reduce barriers so that commercially-viable answers will be borne out with numerous models tested over time.**

4. Workforce Development

Rural regions need jobs and meat producers need people in processing facilities with skills in slaughter, custom butchery, and value-added production such as charcuterie. According to our informants, there are needs for both improved curricula and more training capacity in the state. As described above the slaughter and cut and wrap facilities serving high-value meat companies have fewer workers that typically undertake a larger variety of tasks than workers in the large industrial meat packing plants. This means more training is required.

The California Community College system would seem to be a natural and appropriate candidate for meat processing career training, although it is discouraging that we could not find any technical courses currently available within the system. At least four of California's public universities (UC Davis, CSU Chico, CSU Fresno, and Cal Poly SLO) have on-campus facilities and courses on slaughter and processing. It is unclear whether these curricula are scalable or even suitable for people seeking these careers.

For now, meat processing courses are offered by nonprofits and noted butchers in special, sometimes expensive, short-term courses. The United Food and Commercial Workers Union (UFCW) does have a [basic butchery training program](#) for grocery butchers and has expressed interest in expanding and deepening the training to create more opportunity for skilled and well-paying employment. There also may be significant possibilities for public-private partnership in the training challenge, particularly because there is no professional certification or widely-recognized training and accreditation that would support career advancement and development. **The workforce development opportunity merits deeper analysis because the high-value meat sector requires more skilled processing workers in plants and on farms.**

5. Rewards for Ecosystem Services to Diversify Producer Revenue

In addition to financial and employment opportunities, informants highlighted the uncompensated value of the ecosystem services that farmers and ranchers provide. California policy makers and agency administrators also increasingly recognize that farmers and ranchers have a constructive role to play in both preventing and mitigating the impacts of global warming. Carbon sequestration, soil water holding capacity, and fuel-load management are key

priorities in the state's rapidly-evolving resource management plans. In late 2020, Governor Newsom issued an [Executive Order](#) directing state agencies, including the Natural Resources Agency and the California Department of Food and Agriculture, to develop a "Natural and Working Lands Climate Smart Strategy" that paves the way for farmers and ranchers to be an essential part of the state's climate solution efforts.

Revenue from ecosystem services could become a significant new source of revenue in addition to livestock products from farms and ranches. Diversifying the revenue stream for producers to include regenerative land management would create both incentives and means to slow degradation or enhance management of natural resources, creating a virtuous cycle. Moreover, ruminant livestock (cattle, sheep, and goats) are highly effective in reducing vegetative fuel loads that contribute critically to the unprecedented fires disrupting the state.

6. State and Local Governance of Processing Inspection and Fluid and Solid Wastes

Many interviewees cited governance – policies, programs, and regulations at city, county, state, and federal levels – as either offering potential or obstructing opportunities to improve the situation for small- and mid-scale meat producers. **For example, several informants pointed to the opportunity to create a California's meat inspection program that would – at minimum – allow custom-exempt processing facilities to sell products intrastate. Alternatively, California could create an MPI "equal to" USDA inspection and then apply to participate in the USDA's Cooperative Interstate Shipment (CIS) program that would provide an alternative path with all the rights and privileges afforded by USDA-inspected plants.** Either option would require additional annual funding for the Animal Health and Food Safety Services Division of the California Department of Food and Agriculture. The first option likely is less costly. Either path would likely spark upgrades in existing processing facilities and possibly also induce investments in new facilities.

Other informants mentioned the need for changes to local regulations, mostly related to management of processing waste. In addition to flexible and innovative options for wastewater management, the ban on composting mammalian tissue could be reconsidered. Composting offers a better solution for small processors to manage their solid waste on-site instead of shipping it off-site as is currently required. Shipping is costly, burdens others, and feeds a consolidated rendering industry.

These opportunities depend on building the confidence of regulators and the public in these innovative technologies (see the NIMBYism discussion above). Rather than a blanket approach to applying systems designed for urban industry or domestic wastewater and solids, meat processors need proven, scale-appropriate, biologically-effective approaches that will safely support expansion of processing capacity.

Acceptance of these innovative, sustainable solutions will depend on broad community engagement. Inclusive organizing, stakeholder education, and constructive power-building activities will be required to overcome intransigence. These local opportunities come with their own demanding challenges that consume time, attention, and money. Reluctantly, we have

concluded that they are unavoidable if California is to pursue a path toward greater meat supply chain resilience.

7. Collaborations to Address Sociocultural Factors

Whether focusing on improvements in local regulations, aggregation to attain commercial viability in supply chains, or cooperation for input purchasing, transport, processing, marketing, and branding, collaboration among farmers and ranchers would seem necessary to seize opportunities offered in the high-value meat business. Some quite reasonable people may see this as utopian and unrealistic (see discussion above regarding prevailing mindsets). And yet, we are encouraged by narratives of generational change that are underway, which may include willingness to engage in uncommon forms of collaboration.

Some farmers and ranchers around the nation and across the world are exploring new models of stewardship or, in the case of indigenous people, reclaiming those practices. Allan Savory's [global holistic management network](#), the [Quivira Coalition](#) in the Southwest, and the [California Rangeland Trust](#) are all examples of affinity groups collaborating to achieve shared goals. Savory's group trains the trainers to use a holistic planning methodology to improve land management. Quivira works with ranchers and land managers to promote conservation and climate-smart practices that revive rural economies through apprenticeships and knowledge sharing. The Rangeland Trust works with ranchers to permanently protect their land from development. Just this year, a new generation of leadership within the California Cattlemen's Association has moved the industry to join with atypical allies to support policy proposals.

These examples of efforts involving large numbers of producers, along with the specific cases of BAR-C, Niman Ranch, and other innovative brands mentioned above, suggest a new, more collaborative way forward for meat producers and processors. And yet, each in its own way, also requires significant resources to develop these ideas into proven business models that are replicable.

An important opportunity is to identify practical ways in which other collaborations of advocacy networks (focused on rural economic development, worker health and justice, and regenerative or organic agriculture) could join with chefs, institutional and wholesale buyers, and consumers to ally with meat producers and processors. Our interviews provide evidence that such coalition efforts could be effective in supporting local policy changes that would counterbalance the extreme animal rights activists and NIMBYs who have blocked processing plant development or expansion around the state.

A case in point is the opportunity for meat producers to partner with chefs and members of the Slow Food Movement to promote niche meats, much like the [Cooking for Solutions](#) event, which the Monterey Bay Aquarium hosted for 13 years. In its final years the Aquarium was hosting 20,000 environmentally-focused foodies in a weekend who wanted to integrate environmental values into their cooking.

Even more germane, the Slow Food USA organization, dedicated to promoting “good, clean, and fair” food, has produced three [“Slow Meat”](#) events that featured livestock and poultry producers, chefs, animal welfare experts, and advocates. Presenters educated consumers on ecological and humane production, livestock species, home butchery, and methods of cooking. For the previous events, all held in Denver, organizers arranged restaurant dinners that matched producers with chefs to showcase products. Cooking for Solutions and Slow Meat each provide templates that could be adapted and scaled in order for small- and mid-scale producers to enjoy a more level playing field.

We believe the timing is right for a broad-based, statewide coalition to push for meat processing reform, building on historic initiatives. At the federal level, we have the Biden Administration focused on fair markets and local meat processing as well as the aforementioned Strengthening Local Processing Act. In California, we have the [Governor’s Executive Order to combat climate change](#), an effort to improve grazing permits, another to expand on-farm slaughter and the recently-introduced bond proposal [AB 125](#), *The Equitable Economic Recovery, Healthy Food Access, Climate Resilient Farms, and Worker Protection Bond Act*. The Bond Act proposes \$60 million for meat processing infrastructure grants and hundreds of millions for ecosystem services that align with the Governor’s Executive Order. All these federal and state policy changes reveal policy makers’ assessments that there is political will to do more for small- and mid-scale producers and processors.

We now turn to specific recommendations meant to leverage the opportunities described above.

Recommendations

Our recommendations focus on leveling the playing field for small- and mid-scale, high-value meat producers and cultivating a diversity of innovative business models to seize emerging opportunities and achieve commercial viability in California’s complex economy. In light of the Biden Administration’s American Rescue Plan and the linked food system infrastructure grants recently announced by USDA, plus the possibility of additional infrastructure funding from Congress, along with an unanticipated state budget surplus, there may never be a better moment to pursue these actions.

Improve Market and Inspection Oversight

1. **Support improvements to the federal Grain Inspection, Packers, and Stockyards Act (GIPSA)** to increase pricing competition for beef, hogs, and poultry producers. As just announced in President Biden’s July 9, 2021 Executive Order related to economic competition, the nation has an opportunity to address the unethical and economically unsustainable downward pressure on live animal prices.

2. **Level the meat playing field by improving meat inspection for small- and mid-scale producers:** California has an historic opportunity to improve the business environment for small and mid-scale high-value meat producers **by creating a California Meat Inspection Program**. As discussed in this white paper, there are at least two paths. One is to improve the system to support less restrictive sales of meat from “custom-exempt” facilities within the state. The other would be to make California an “equal-to” USDA inspection state. This would enable market access through the USDA’s CIS program. Either path could be a “game changer” for small- and mid-scale producers. CDFA can play a strategic role in making the case for funding of this Program to the California Legislature. **Moreover, federal funding may be available to develop a California Meat Processing Inspection Program through the Strengthening Local Processing Act in the Congress.** This Act provides an opportunity for CDFA, with support from meat producers and food advocates, to advocate for funding to develop the state’s meat processing inspection program. After costs and benefits of the Program are assessed, if CDFA does not believe such a program is necessary or feasible, it will be important to explain the rationale for inaction to the livestock community and to collaborate in seeking another alternative that meets these producers’ needs.
3. **In parallel with #2, support AB 888, Mobile slaughter operations: sheep, goats, and swine:** CDFA, meat producers, and food advocates can find common cause in support for passage of Assemblymember Marc Levine’s bill to aid small-scale producers who sell live animals for slaughter at the farm or ranch, expanding a law already passed for beef producers.
4. **Modernize validation of meat quality and safety:** CDFA has a strategic opportunity to lead the way nationally in implementation of a 21st Century system for traceability and transparency in assurance of safe supplies of meat and poultry. As home to Silicon Valley, California has distinct first-mover advantages. CDFA is well-positioned to catalyze and facilitate a collaborative partnership among meat producers, processors, tech companies, and food safety regulators to design, adapt, and implement information systems. Modern methods for transparency and traceability are essential to cost-effective functioning of food safety regulations and, at the same time, support development of a values-based supply chain and origin branding opportunities for meat from California. (Successful proof of concept and technology development for meat and poultry also could spill over to similar innovations to assure food safety and values-based branding for California fruit and vegetables too.)
5. **Building on #4, improve SB 27:** Maryland’s [Keep Antibiotics Working Act \(SB 0422\)](#) regarding definitions, data, and tracking of antibiotic use in livestock and poultry deserves attention by CDFA as a possible model to improve implementation of California’s regulation of antibiotic use in livestock operations. The previous recommendation to modernize validation of meat and poultry product safety also provides a vehicle to document California’s progress in reducing antibiotic use in meat production, with the added benefit of creating transparency on this critical public health issue in a way that can reward producers directly while also holding potential to build public trust and to enhance California’s “brand” locally, nationally, and internationally.

Expand Access to Slaughter and Processing Facilities

6. **Support AB 125, The Resilient Food and Farming Bond:** CDFA, meat producers, and food advocates have another historic opportunity to work together to ensure the meat processing infrastructure investments proposed by Assemblymember Robert Rivas in his bond measure are present in the final bond proposal on the 2022 ballot. **Further innovative financing mechanisms for upgrades and expansion of facilities serving small- and mid-scale producers also are possible.** For example, the California State Treasurer is a thought leader in innovative approaches to develop a Green Bond market in California. With leadership from the State Treasurer's Office, California could be a leader in assessment and development of municipal, state, and/or corporate green bonds to fund investment in meat slaughter and processing facilities in rural regions that serve producers practicing regenerative, organic, and climate smart meat and poultry production.

7. **As a key counterpart to #6, and underpinning all of our recommendations, help break regulatory bottlenecks in land use and waste water treatment:** Deal-breaking bottlenecks in permitting processes for renovation, expansion, and new construction of slaughter and processing facilities are ubiquitous across local and regional jurisdictions throughout California. Addressing these bottlenecks one-by-one is a daunting prospect, squelching investment and entrepreneurship. Fortunately, there is a statewide option that may help. The California Office of Planning and Research (OPR) could undertake and publish detailed technical feasibility analyses of promising solutions to waste water and solids handling for slaughter plants and cut and wrap facilities that would serve small- and mid-scale high-value meat producers. Once completed, sharing these independent technical analyses with municipal, county, and regional permitting agencies (with responsibility for both land use and water resources) could help destigmatize these facilities, while providing assurances to communities and technical guidelines to regulators. At the very least, this could help provide greater confidence to local and regional officials in considering proposals for alternative approaches. CDFA and/or agricultural organizations (e.g., California Farm Bureau Federation, National Cattlemen's Beef Association, and CCOF) could use these studies as training material for local workshops on these alternatives for meat producers, processors, regulators, and community activists to raise awareness of these solutions in jurisdictions that have been inflexible in support of plant development. As was pointed out by Vince Trotter, UC Cooperative Extension's Ag Ombudsman in Marin County, there could be an interesting solution for these local regulatory impediments derived by looking at how the state has approached Accessory Dwelling Units (ADUs). In recognition of California's desperate need for housing, the state created a set of rules that supersedes local building codes and land use ordinances, forcing counties to create faster, easier pathways to construction of ADUs. This has been helpful in places where NIMBYs used density requirements and setback and other rules to stymie development of infill housing.

Support High-value Marketing Opportunities

8. **Create a Small Meat Processing Innovation Advisory Panel:** Building on successful experience in promoting climate smart agriculture, CDFA has an opportunity to replicate

this approach for high-value meat by creating an advisory panel of producers, processors, chefs and food service executives, financial experts, and academics dedicated to improving the high-value meat industry, with particular emphasis on small- and mid-scale producers. One strategic priority for a Small Meat Processing Innovation Advisory Panel (or another body convened by CDFA) would be assessment and, if feasible, co-creation of a mechanism for supporting various forms of collaboration including prototyping and spreading **innovative branding mechanisms** that promote California’s high-value meat products. Innovations might include validating and highlighting regional identity, beneficial production practices (including humane treatment of livestock, ecosystem services, and human health attributes). CDFA’s Office of Farm to Fork has an opportunity to accelerate progress through a grant program to support producer groups seeking to launch high-value meat brand development centered on their appellations. Grants likely will be most effective if coupled with technical support. Funding might come from a combination of state and federal funds. The California Nutrition Incentive Program provides an example of how state funds could be utilized to maximize federal matching grant funding.

9. **In support of #8, prioritize local and regional high-value meat in public procurement:**

Demonstrated power of fresh produce procurement by schools and other public institutions in creating consistent markets for local fruit and vegetables applies with equal force to local and regional meat production. It is a logical extension of this strategy for the Department of Education and General Services Department to expand procurement policy and food hub support programs to include local and regional meat and poultry products.

Support Efforts to Provide Producers with Incentives to Utilize Livestock to Manage Fuel Loads

10. **Reduce fire risk and improve grazing access through support for reform of state and federal grazing lease requirements:**

Although it died, a bill (AB 434 Rivas) was introduced in the California Legislature in 2021 that sought to support the ecological health of California’s state lands by rewarding good stewardship through long-term leases and requiring that grazing, including for fire fuel reduction, be practiced in accordance with site-specific management plans for leased state lands. Beyond basic endorsement of such market-oriented approaches on state and federal lands to the existential threat of wildfires in California, CDFA, the Resources Agency, Cal Fire, private land managers, and advocates can provide additional supporting evidence by documenting the huge potential benefits and minimal costs for payments and other rewards (such as longer leases) to ranchers for fire risk reduction through grazing services on state and federal lands.

Conclusion

California would be served by a period of rapid experimentation, innovation, and investment to enhance resilience (and reduce vulnerabilities and inequities) in meat production and processing within the state. The California Department of Food and Agriculture (CDFA) is strategically placed – with its key people and programs – to lead these initiatives to increase meat supply chain resilience.

Given federal focus and action, the state’s current financial strength, and numerous allies all seeking improvements in the meat processing sector, there may never have been a better time to act boldly. We hope our research, analysis, and recommendations may assist advocates and policy makers in future efforts to assist the small- and mid-scale livestock and poultry producers and the related processors and market makers to ignite a dynamic sector in need of expansion to enhance California’s collective future.

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